

NOTICE

*The Utility Board will meet on December 15th , at 6:00 p.m. M.D.T.
At 320 East Newel Ave, Hildale UT 84784*

AGENDA:

1. Call to Order
2. Prayer & Pledge of Allegiance
3. Public Comment
4. Approval of Meeting Minutes
5. Financial Report
6. Director Report
7. Water Operations Update
8. Consideration and Possible Action of Water Service Impact Fee Study
9. Review of Maxwell Park Water Policies
10. Review of Canaan Mountain Water Project Approvals
11. Adjournment

IMPORTANT: By order of the Chairperson of the Board, all attendees will be required to have masks.

Utility Departments of Hildale/Colorado City

Utility Board Meeting Minutes
320 East Newel Ave, Hildale Utah
Wednesday, October 28, 2020, 6:00 pm

Present: Utility Board

Board Members:	Present	Absent	Excused
Haven Barlow	(by phone)		
Sterling Jessop, Jr.	X		
Ralph Johnson	X		
Arvin Black	X		
Jason Black	X		
Nathan Burnham	X		
JVar Dutson	X		
Stacy Seay	X		
Michael Cawley	X		

Staff Present: Harrison Johnson, Athena Cawley, Mariah LaCorti

Court Monitor: Roger Carter

Public Present: (This list may be incomplete)

#1. Call to Order

Meeting called to order at 6:00 pm. Roll was taken, quorum present.

#2. Prayer & Pledge of Allegiance

offered a prayer, the crowd joined in the pledge of allegiance.

#3. Public Comment

#4. Approval of Minutes

#5. Financial Report

#6. Director Report

NAME moved to MOTION.

NAME seconded. Roll call vote:

Board Members:	Yes	No	Abstain
Haven Barlow	X		
Sterling Jessop, Jr.	X		
Ralph Johnson	X		
Arvin Black	X		
Jason Black	X		

Nathan Burnham	X		
JVar Dutson	X		
Stacy Seay	X		
Michael Cawley	X		

Motion carried.

#13. Adjournment

With no other business, meeting adjourned at pm. Next meeting is scheduled for , 2020 at 6:00 pm.

Minutes were approved at the meeting on_____.

Vincen Barlow, Hildale City Recorder

Vance Barlow, Colorado City Town Clerk

Summary of Board Actions:



Director's Report

December 2020

Hildale-Colorado City Utility Department
320 East Newel Avenue, Hildale UT 84784

Leadership and Personnel Changes

Hildale City has a new city manager, Eric Duthie who comes from Tusayan Arizona as their previous town manager. We are excited to work with an experienced public servant like our new City Manager.

Cares Fiber Funding

With the Cares Act Funding in Hildale, the Utility Department was able to go from 15 locations with fiber availability to 45 locations. We will send out notifications to customers who now have availability. We hope that our Internet Service Provider will be able to hook up these customers soon.

Water Operations Update

We've discovered that Well 4, a shallow Alluvial fan aquifer well system, has some significant maintenance issues. Well 4 is split into two separate wells (4a, 4b) with their own pumps and motors but shared power service. One of these wells has damage to the Well casing where it meets the well screen. This damage will prevent the well from being returned to service. The Department is exploring repairing or replacing the well. The other well has a motor and pump assembly lost in the bottom of the well. This is the third one we've discovered and we are exploring whether we can extract this out and increase the well capacity.

Department Staff will meet with the Arizona Department of Water Resources Board on December 18th to discuss financial support for our Well rehabilitation and replacement projects.

Sewer Impact Fee Revision

Department Management has been in communication with Sunrise and discussed the project and costs of the 2016 Sewer Impact Fee. Department Management feels that one of the projects "E Line Upgrades" suffers from some significantly costly line items that are likely unnecessary. Whether the Impact Fee study suggest an impact fee revision that is less or more for the E Line Upgrade remains to be seen. Once the study is completed, the Department will present the results to the board and City Councils for their adjudication.

Shinarump Water Loss

We have been contacting well operators in service area to inquire about observations of Water level loss in Shinarump Aquifer. Our technical staff has observed some water level loss in Shinarump wells of 300 feet since their initial construction in 1980s. We hope that we can share some methods and techniques to increasing water production and compare notes on water loss in the aquifer.

Water Impact Fee Study Authorization

Summary

Per Arizona law and due to changes in our infrastructure plans a Water Impact Fee study should commence and evaluate the need of any future impact fees.

Proposal

The Department is looking for authorization to spend up to \$7,000 to conduct a water impact fee study that will be reviewable by the following agencies:

- Arizona Department of Environmental Quality
- Utah Division of Drinking Water
- U.S. Department of Justice

Once completed, the Department will present the results to the Utility Board and the City Councils.

Staff Recommendation

Staff recommends that the Board approve an expenditure of \$7,000 to complete an updated Water Service Impact Fee Study



Administration Operations Manager's Report

November/December 2020

Number of accounts billed for **October 2020**:

Water base rate: 918

Sewer bae rate: 860

Gas base rate: 707

Fiber base rate: 7

Water Penalties: 397

Gas Penalties: 271

of shut off notices printed October 15, 2020: 199

of final billed accounts with final bill date is: 20

of new connect accounts is: 14

Number of accounts billed for **November 2020**:

Water base rate: 912

Sewer bae rate: 860

Gas base rate: 707

Fiber base rate: 7

Water Penalties: 345

Gas Penalties: 235

of shut off notices printed November 15, 2020: 224

of final billed accounts with final bill date is: 9

of new connect accounts is: 8

Operations Summary

As per the government order, office staff has been in compliance with the mask mandate when interacting with the public. Staff have happy and healthy (knock on wood) and operations are running smooth and efficient.

****The Office will be closed December 25, 2020 in celebration of Christmas.****

Training Objectives

The focus for the months of October and November was on settling into new roles, and becoming more familiar with Caselle, Professional Client, City Inspect and XpressBillPay.

Staff have been encouraged to continue their personal education in the upcoming year.

Office staff all attended the required yearly DOJ training hosted by Christian on November 19.

Customer Service

With the high number of accounts that were sent to collections, this is the main complaint that we are receiving. If an account has been sent to collections, however, staff has been trained to direct the customer to the collection agency for any questions, info, or complaints. We then provide the collection agency with any information that they need.

There was an issue with the billings, causing penalties to be assessed on accounts that should not have had penalties. After spending a long time working with Caselle, we discovered it was an issue on their end regarding an update to the system that was causing this to occur. The issue was corrected, but not prior to the incorrect bills being sent out. We were able to confirm that the issue was corrected for the December billing cycle.

Policy Implementation

Wastewater waiver requests received: 1, however the when the calculation was done, the sewer rate would have been higher than the customer was paying, so it was disregarded.

Water Surge billing requests received: 2 for a total of \$2052.15 in water usage credited to the customers.

Fiber Update

The push to complete the fiber project before the 23rd of November proved incredibly effective with fiber line being connected to 44 locations. Letters were sent out to the residents of these locations to direct them to contact their ISP for connection.



Operations Manager's Report

November 2020

Hildale-Colorado City Utility Department
320 East Newel Avenue, Hildale UT 84784

Mr. Chairman and Board Members:

Operations Summary

The sewer ponds, appear to be operating good, storage pond filling as evaporation decreases. It appears that we will be short on water with little precipitation in the forecast. The trouble will be in maintaining levels in the treatment cells during the summer months.

On the water distribution system we have been adding new connections. Demand has dropped, so we are able to take several wells offline. We had Cluff Drilling start cleaning well8 which turned out excellent they were able to get it scrubbed clean. Then moving over to well10 cleaned and put back. Moving to well4 and well4b, started cleaning, and well4 collapsed. Looking with the camera the casing is dented in right where the screen starts, this makes it difficult to do anything with.

On to well 4b, started cleaning, and found a downed pump and motor in the bottom. Now we need to determine if we want them to try to fish it out, or we put the pump and motor back in getting about what we did this last summer.

On well22, Harrison is working out the funding, engineering, bidding, etc. We installed a new fiber cable to the well site, (old one disconnected by gophers).

On the gas system, Nathan and myself met with Jimmy with the Utah Pipeline Safety. The interview went fairly well, however our Anti-drug and alcohol plan is not meeting the Federal Code, we will be working on adopting a compliant plan. Also working with Town of Colorado City on adding some verbiage to the existing drug policy in the personnel plan.

We've completed the annual leak survey on the Hurricane line, no leaks found.

On the fiber system, we spent substantial time and completed the Cares Act funding project as far as the monies went. We have fiber available to many homes in Hildale, we are completing them as fast as we have time to put into it. We are moving on the El Cap school project. Which project will upgrade the fiber on Richard Street.

(Operational Gas System Projects)

Create and adopt Anti-Drug and alcohol abuse prevention plan.

We will be completing the gas customer connections on Redwood St.
Completing monitor for distribution gas system pressures on Richard St.

(Operational Water System Projects)

Add VF drive and well controls to Academy Ave well.

Booster pumps repair

(Operational Sewer System Projects)

Repair valves, and flow meters at Sewer plant.

Inspect and Repair manhole on A-Line.

(Operational Fiber/Communication Projects)

Upgrading fiber to the labshop, repairing fiber link to well22. Installing conduit to sewer plant.

Installing fiber communications to Academy Ave well.

Creating “dark fiber” link for public school.

Yours to serve,

Weston Barlow

Utility Operations Manager

CITY OF HILDALE
REVENUES WITH COMPARISON TO BUDGET
FOR THE 6 MONTHS ENDING DECEMBER 31, 2020

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2017 JUDGMENT RESOLUTION FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEARNED	PCNT
	<u>REVENUES</u>					
63-38-101	TRANSFER FROM GENERAL FUND	.00	.00	40,000.00	40,000.00	.0
63-38-102	TRANSFER FROM WATER FUND	.00	.00	13,600.00	13,600.00	.0
63-38-103	TRANSFER FROM WASTEWATER	.00	.00	13,300.00	13,300.00	.0
63-38-105	TRANSFER FROM GAS FUND	.00	.00	13,600.00	13,600.00	.0
	TOTAL REVENUES	.00	.00	80,500.00	80,500.00	.0
	TOTAL FUND REVENUE	.00	.00	80,500.00	80,500.00	.0

CITY OF HILDALE
EXPENDITURES WITH COMPARISON TO BUDGET
FOR THE 6 MONTHS ENDING DECEMBER 31, 2020

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2017 JUDGMENT RESOLUTION FUND

	PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
<u>EXPENDITURES</u>					
63-41-310 PROFESSIONAL & TECHNICAL	6,870.60	6,870.60	60,500.00	53,629.40	11.4
63-41-315 LEGAL - GENERAL	8,884.59	8,884.59	20,000.00	11,115.41	44.4
TOTAL EXPENDITURES	15,755.19	15,755.19	80,500.00	64,744.81	19.6
TOTAL FUND EXPENDITURES	15,755.19	15,755.19	80,500.00	64,744.81	19.6
NET REVENUE OVER EXPENDITURES	(15,755.19)	(15,755.19)	.00	15,755.19	.0

CITY OF HILDALE
REVENUES WITH COMPARISON TO BUDGET
FOR THE 6 MONTHS ENDING DECEMBER 31, 2020

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LITIGATION DEFENSE FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
	<u>REVENUES</u>					
64-38-101	TRANSFER FROM GENERAL FUND	.00	.00	17,900.00	17,900.00	.0
64-38-102	TRANSFER FROM WATER FUND	.00	.00	17,900.00	17,900.00	.0
64-38-103	TRANSFER FROM WASTEWATER	.00	.00	17,900.00	17,900.00	.0
64-38-105	TRANSFER FROM GAS FUND	.00	.00	17,900.00	17,900.00	.0
	TOTAL REVENUES	.00	.00	71,600.00	71,600.00	.0
	TOTAL FUND REVENUE	.00	.00	71,600.00	71,600.00	.0

CITY OF HILDALE
EXPENDITURES WITH COMPARISON TO BUDGET
FOR THE 6 MONTHS ENDING DECEMBER 31, 2020

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LITIGATION DEFENSE FUND

	PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
<u>EXPENDITURES</u>					
64-41-230 TRAVEL	.00	.00	2,700.00	2,700.00	.0
64-41-316 LEGAL - LITIGATION DEFENSE	.00	.00	68,900.00	68,900.00	.0
TOTAL EXPENDITURES	.00	.00	71,600.00	71,600.00	.0
TOTAL FUND EXPENDITURES	.00	.00	71,600.00	71,600.00	.0
NET REVENUE OVER EXPENDITURES	.00	.00	.00	.00	.0

CITY OF HILDALE
REVENUES WITH COMPARISON TO BUDGET
FOR THE 6 MONTHS ENDING DECEMBER 31, 2020

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JOINT ADMINISTRATION FUND

		PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
	<u>REVENUES</u>					
65-38-102	TRANSFER FROM WATER FUND	.00	.00	399,873.60	399,873.60	.0
65-38-103	TRANSFER FROM WASTEWATER	.00	.00	435,156.70	435,156.70	.0
65-38-105	TRANSFER FROM GAS FUND	.00	.00	341,068.70	341,068.70	.0
65-38-200	TRANSFER FROM WATER FUND CMWP	.00	.00	200,000.00	200,000.00	.0
	TOTAL REVENUES	.00	.00	1,376,099.00	1,376,099.00	.0
	TOTAL FUND REVENUE	.00	.00	1,376,099.00	1,376,099.00	.0

CITY OF HILDALE
EXPENDITURES WITH COMPARISON TO BUDGET
FOR THE 6 MONTHS ENDING DECEMBER 31, 2020

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JOINT ADMINISTRATION FUND

	PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
<u>EXPENDITURES</u>					
65-41-110 SALARIES-PERMANENT EMPLOYEES	53,830.65	53,830.65	470,080.00	416,249.35	11.5
65-41-113 MANAGER	3,189.88	3,189.88	.00 (	3,189.88)	.0
65-41-114 TREASURER	5,015.60	5,015.60	.00 (	5,015.60)	.0
65-41-115 RECORDER	5,000.53	5,000.53	50,000.00	44,999.47	10.0
65-41-117 ATTORNEY SALARY	16,880.82	16,880.82	50,000.00	33,119.18	33.8
65-41-120 SALARIES-TEMPORARY EMPLOYEES	.00	.00	50,000.00	50,000.00	.0
65-41-130 PAYROLL TAXES	8,424.23	8,424.23	48,841.31	40,417.08	17.3
65-41-140 BENEFITS-OTHER	24,002.40	24,002.40	145,489.76	121,487.36	16.5
65-41-144 PRINT AND POSTAGE	2,622.52	2,622.52	10,000.00	7,377.48	26.2
65-41-150 STIPENDS - UTILITY BOARD	4,200.00	4,200.00	11,700.00	7,500.00	35.9
65-41-160 MERCHANT PROCESSING	.00	.00	30,000.00	30,000.00	.0
65-41-165 CAPITAL BUILDING	.00	.00	15,000.00	15,000.00	.0
65-41-170 CAPITAL EQUIPMENT	.00	.00	20,000.00	20,000.00	.0
65-41-175 CAPITAL RESERVES PURCHASES	.00	.00	20,000.00	20,000.00	.0
65-41-210 BOOKS, SUBSCR, & MEMBERSHIPS	228.44	228.44	.00 (	228.44)	.0
65-41-230 TRAVEL	89.92	89.92	4,000.00	3,910.08	2.3
65-41-235 FOOD & REFRESHMENT	797.01	797.01	4,000.00	3,202.99	19.9
65-41-240 OFFICE EXPENSE & SUPPLIES	328.27	328.27	3,000.00	2,671.73	10.9
65-41-250 EQUIPMENT SUPPLIES & MAINT	2,453.82	2,453.82	26,500.00	24,046.18	9.3
65-41-257 FUEL	560.23	560.23	28,000.00	27,439.77	2.0
65-41-260 TOOLS & EQUIPMENT-NON CAPITAL	2,609.42	2,609.42	26,000.00	23,390.58	10.0
65-41-271 MAINT & SUPPLY - OFFICE	1,548.27	1,548.27	4,000.00	2,451.73	38.7
65-41-280 UTILITIES	1,075.64	1,075.64	14,000.00	12,924.36	7.7
65-41-285 POWER	3,410.97	3,410.97	12,900.00	9,489.03	26.4
65-41-287 TELEPHONE	1,637.68	1,637.68	.00 (	1,637.68)	.0
65-41-313 AUDITOR	3,232.40	3,232.40	27,000.00	23,767.60	12.0
65-41-315 LEGAL - GENERAL	.00	.00	5,000.00	5,000.00	.0
65-41-317 INFORMATION TECHNOLOGY - CONS	3,039.03	3,039.03	7,000.00	3,960.97	43.4
65-41-318 INFORMATION TECHNOLOGY - SOFTW	2,723.10	2,723.10	12,000.00	9,276.90	22.7
65-41-319 INFORMATION TECHNOLOGY - SYSTE	485.29	485.29	.00 (	485.29)	.0
65-41-330 EDUCATION	796.00	796.00	9,000.00	8,204.00	8.8
65-41-510 INSURANCE	59,855.52	59,855.52	100,000.00	40,144.48	59.9
65-41-521 CREDIT CARD EXPENSE	878.14	878.14	.00 (	878.14)	.0
65-41-603 CMW PROJECT	.00	.00	200,000.00	200,000.00	.0
65-41-720 BUILDINGS	.00	.00	3,000.00	3,000.00	.0
65-41-741 EQUIPMENT - OFFICE	3,845.16	3,845.16	.00 (	3,845.16)	.0
65-41-850 DEBT SERVICE - VEHICLE & EQUIP	28,285.04	28,285.04	20,000.00 (	8,285.04)	141.4
TOTAL EXPENDITURES	241,045.98	241,045.98	1,426,511.07	1,185,465.09	16.9
TOTAL FUND EXPENDITURES	241,045.98	241,045.98	1,426,511.07	1,185,465.09	16.9
NET REVENUE OVER EXPENDITURES	(241,045.98)	(241,045.98)	(50,412.07)	190,633.91	(478.2)

CITY OF HILDALE
REVENUES WITH COMPARISON TO BUDGET
FOR THE 6 MONTHS ENDING DECEMBER 31, 2020

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WATER FUND

	PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
<u>OPERATING REVENUES</u>					
81-37-111 WATER SALES - METERED	231,858.14	231,858.14	247,279.00	15,420.86	93.8
81-37-121 WATER SALES - FLAT RATE	163,144.00	163,144.00	327,651.00	164,507.00	49.8
81-37-331 CONNECTION CHARGES	17,399.99	17,399.99	25,000.00	7,600.01	69.6
81-37-332 CONSTRUCTION	9,129.99	9,129.99	62,400.00	53,270.01	14.6
81-37-411 INTEREST	655.04	655.04	3,600.00	2,944.96	18.2
81-37-412 PENALTIES	35,402.65	35,402.65	50,000.00	14,597.35	70.8
81-37-452 IMPACT FEE - AZ	2,999.99	2,999.99	.00	(2,999.99)	.0
TOTAL OPERATING REVENUES	460,589.80	460,589.80	715,930.00	255,340.20	64.3
<u>NON-OPERATING REVENUE</u>					
81-38-102 TRANSFERS FROM R&R RESERVE	.00	.00	150,000.00	150,000.00	.0
81-38-440 SUNDRY NON-OPERATING REVENUE	.00	.00	5,000.00	5,000.00	.0
81-38-999 CONTINGENCY	.00	.00	200,000.00	200,000.00	.0
TOTAL NON-OPERATING REVENUE	.00	.00	355,000.00	355,000.00	.0
TOTAL FUND REVENUE	460,589.80	460,589.80	1,070,930.00	610,340.20	43.0

CITY OF HILDALE
EXPENDITURES WITH COMPARISON TO BUDGET
FOR THE 6 MONTHS ENDING DECEMBER 31, 2020

19

WATER FUND

	PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
<u>OPERATING EXPENDITURES</u>					
81-41-210 BOOKS, SUBSCR, & MEMBERSHIPS	.00	.00	1,500.00	1,500.00	.0
81-41-230 TRAVEL	155.45	155.45	4,600.00	4,444.55	3.4
81-41-235 FOOD & REFRESHMENT	815.79	815.79	600.00	(215.79)	136.0
81-41-250 EQUIPMENT SUPPLIES & MAINT	22,781.01	22,781.01	16,000.00	(6,781.01)	142.4
81-41-257 FUEL	.00	.00	200.00	200.00	.0
81-41-260 TOOLS & EQUIPMENT-NON CAPITAL	15,361.50	15,361.50	5,000.00	(10,361.50)	307.2
81-41-273 MAINT & SUPPLY - SYSTEM	78,065.86	78,065.86	58,000.00	(20,065.86)	134.6
81-41-285 POWER	55,699.26	55,699.26	80,000.00	24,300.74	69.6
81-41-311 ENGINEER	.00	.00	5,000.00	5,000.00	.0
81-41-314 LABORATORY & TESTING	742.00	742.00	8,000.00	7,258.00	9.3
81-41-315 LEGAL - GENERAL	.00	.00	1,000.00	1,000.00	.0
81-41-330 EDUCATION	644.50	644.50	4,000.00	3,355.50	16.1
81-41-340 SYSTEM CONSTRUCTION SERVICES	.00	.00	2,000.00	2,000.00	.0
81-41-341 CONST-CUSTOMER'S INSTALLATION	.00	.00	62,400.00	62,400.00	.0
81-41-430 DEPT SPECIFIC, CHLORINE ETC.	124.80	124.80	.00	(124.80)	.0
81-41-432 SPECIAL DEPT SUPPLIES	4,561.26	4,561.26	18,500.00	13,938.74	24.7
81-41-434 2019 WATER GRANT	11,946.00	11,946.00	.00	(11,946.00)	.0
TOTAL OPERATING EXPENDITURES	190,897.43	190,897.43	266,800.00	75,902.57	71.6
<u>NON-OPERATING EXPENDITURES</u>					
81-42-560 BAD DEBT EXPENSE	317,165.53	317,165.53	2,000.00	(315,165.53)	15858.
81-42-730 IMPROVEMENTS OTHER THAN BLDGS	.00	.00	2,200.00	2,200.00	.0
81-42-742 EQUIPMENT - FIELD	.00	.00	2,500.00	2,500.00	.0
81-42-815 PRINC. & INT W.RIGHTS LOAN	.00	.00	41,300.00	41,300.00	.0
81-42-911 TRANSFERS TO JOINT ADMIN FUND	.00	.00	636,557.00	636,557.00	.0
81-42-912 TRANSFERS TO LITIGATION	.00	.00	17,900.00	17,900.00	.0
81-42-914 TRANSFERS TO 2017 JMT RES FUND	.00	.00	13,300.00	13,300.00	.0
81-42-915 TRANSFER TO JOINT ADMIN CMWP	.00	.00	200,000.00	200,000.00	.0
81-42-999 CONTINGENCY	.00	.00	200,000.00	200,000.00	.0
TOTAL NON-OPERATING EXPENDITURES	317,165.53	317,165.53	1,115,757.00	798,591.47	28.4
TOTAL FUND EXPENDITURES	508,062.96	508,062.96	1,382,557.00	874,494.04	36.8
NET REVENUE OVER EXPENDITURES	(47,473.16)	(47,473.16)	(311,627.00)	(264,153.84)	(15.2)

CITY OF HILDALE
REVENUES WITH COMPARISON TO BUDGET
FOR THE 6 MONTHS ENDING DECEMBER 31, 2020

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WASTEWATER FUND

	PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
<u>OPERATING REVENUES</u>					
82-37-311 SERVICE CHARGES	307,327.74	307,327.74	640,265.00	332,937.26	48.0
82-37-312 SERVICE CHARGES - CPMCWID	66,463.98	66,463.98	145,000.00	78,536.02	45.8
82-37-331 CONNECTION CHARGES	.00	.00	10,000.00	10,000.00	.0
82-37-332 SERVICING CUSTOMER INSTALL	1,963.30	1,963.30	10,000.00	8,036.70	19.6
82-37-411 INTEREST	1,297.70	1,297.70	4,500.00	3,202.30	28.8
82-37-451 IMPACT FEE	.00	.00	10,000.00	10,000.00	.0
82-37-452 IMPACT FEE - CPMCWID	13,625.00	13,625.00	25,000.00	11,375.00	54.5
TOTAL OPERATING REVENUES	390,677.72	390,677.72	844,765.00	454,087.28	46.3
<u>NON-OPERATING REVENUES</u>					
82-38-102 TRANSFERS FROM R&R RESERVE	.00	.00	275,000.00	275,000.00	.0
82-38-999 CONTINGENCY	.00	.00	200,000.00	200,000.00	.0
TOTAL NON-OPERATING REVENUES	.00	.00	475,000.00	475,000.00	.0
TOTAL FUND REVENUE	390,677.72	390,677.72	1,319,765.00	929,087.28	29.6

CITY OF HILDALE
EXPENDITURES WITH COMPARISON TO BUDGET
FOR THE 6 MONTHS ENDING DECEMBER 31, 2020

21

WASTEWATER FUND

	PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
<u>OPERATING EXPENDITURES</u>					
82-41-210 BOOKS, SUBSCR, & MEMBERSHIPS	.00	.00	3,000.00	3,000.00	.0
82-41-215 ASSOCIATION MEMBERSHIPS	.00	.00	500.00	500.00	.0
82-41-230 TRAVEL	.00	.00	3,000.00	3,000.00	.0
82-41-250 EQUIPMENT SUPPLIES & MAINT	148.84	148.84	8,000.00	7,851.16	1.9
82-41-257 FUEL	.00	.00	2,500.00	2,500.00	.0
82-41-260 TOOLS & EQUIPMENT-NON CAPITAL	.00	.00	7,000.00	7,000.00	.0
82-41-273 MAINTENANCE & SUPPLY - SYSTEM	5,138.00	5,138.00	65,000.00	59,862.00	7.9
82-41-280 UTILITIES	.00	.00	175,000.00	175,000.00	.0
82-41-285 POWER	4,881.57	4,881.57	36,000.00	31,118.43	13.6
82-41-311 ENGINEER	.00	.00	500.00	500.00	.0
82-41-314 LABORATORY & TESTING	.00	.00	1,500.00	1,500.00	.0
82-41-315 LEGAL - GENERAL	.00	.00	1,000.00	1,000.00	.0
82-41-330 EDUCATION	.00	.00	5,000.00	5,000.00	.0
82-41-340 SYSTEM CONSTRUCTION SERVICES	.00	.00	5,000.00	5,000.00	.0
82-41-742 EQUIPMENT - FIELD	.00	.00	10,000.00	10,000.00	.0
TOTAL OPERATING EXPENDITURES	10,168.41	10,168.41	323,000.00	312,831.59	3.2
<u>NON-OPERATING EXPENSES</u>					
82-42-560 BAD DEBT EXPENSE	33,300.49	33,300.49	1,500.00 (	31,800.49)	2220.0
82-42-720 BUILDINGS	.00	.00	5,000.00	5,000.00	.0
82-42-810 PRINCIPAL ON BONDS	.00	.00	6,400.00	6,400.00	.0
82-42-812 PRINCIPAL ON BONDS - RDA B	.00	.00	33,500.00	33,500.00	.0
82-42-813 PRINCIPAL ON BONDS - RDA - C	.00	.00	6,400.00	6,400.00	.0
82-42-816 PRINCIPAL ON BONDS - DWQ	.00	.00	80,000.00	80,000.00	.0
82-42-822 INTEREST ON BONDS - RDA - B	.00	.00	69,300.00	69,300.00	.0
82-42-823 INTEREST ON BONDS - RDA - C	.00	.00	13,100.00	13,100.00	.0
82-42-911 TRANSFERS TO JOINT ADMIN FUND	.00	.00	435,156.70	435,156.70	.0
82-42-912 TRANSFERS TO LITIGATION	.00	.00	17,900.00	17,900.00	.0
82-42-914 TRANSFERS TO 2017 JMT RES FUND	.00	.00	13,300.00	13,300.00	.0
82-42-950 GRANTS	.00	.00	15,000.00	15,000.00	.0
82-42-960 TRANSFERS TO RESERVE FUNDS	.00	.00	100,000.00	100,000.00	.0
82-42-970 35 CHARACTERS	.00	.00	50,000.00	50,000.00	.0
82-42-999 CONTINGENCY	.00	.00	200,000.00	200,000.00	.0
TOTAL NON-OPERATING EXPENSES	33,300.49	33,300.49	1,046,556.70	1,013,256.21	3.2
TOTAL FUND EXPENDITURES	43,468.90	43,468.90	1,369,556.70	1,326,087.80	3.2
NET REVENUE OVER EXPENDITURES	347,208.82	347,208.82	(49,791.70)	(397,000.52)	697.3

CITY OF HILDALE
REVENUES WITH COMPARISON TO BUDGET
FOR THE 6 MONTHS ENDING DECEMBER 31, 2020

22

GAS FUND

	PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
<u>OPERATING REVENUES</u>					
84-37-111 GAS SALES - METERED NAT GAS	40,817.92	40,817.92	150,000.00	109,182.08	27.2
84-37-112 GAS SALES - METERED PROPANE	88,549.58	88,549.58	379,874.00	291,324.42	23.3
84-37-113 GAS SALES - CYLINDER	1,019.21	1,019.21	10,600.00	9,580.79	9.6
84-37-114 GAS SALES - CYLINDER EXCHANGE	139.93	139.93	3,500.00	3,360.07	4.0
84-37-121 NATURAL GAS SALES - FLAT RATE	12,839.00	12,839.00	25,000.00	12,161.00	51.4
84-37-122 PROPANE GAS - FLAT RATE	17,077.17	17,077.17	34,000.00	16,922.83	50.2
84-37-160 CONSTRUCTION REVENUE	15,941.76	15,941.76	20,000.00	4,058.24	79.7
84-37-331 CONNECTION CHARGES	3,353.05	3,353.05	5,000.00	1,646.95	67.1
84-37-351 SUNDRY OPERATING REVENUE	.00	.00	47,000.00	47,000.00	.0
84-37-411 INTEREST	762.70	762.70	3,500.00	2,737.30	21.8
84-37-412 PENALTIES	8,085.54	8,085.54	35,000.00	26,914.46	23.1
TOTAL OPERATING REVENUES	188,585.86	188,585.86	713,474.00	524,888.14	26.4
<u>NON-OPERATING REVENUES</u>					
84-38-102 TRANSFERS FROM R&R RESERVE	.00	.00	178,200.00	178,200.00	.0
84-38-999 CONTINGENCY	.00	.00	200,000.00	200,000.00	.0
TOTAL NON-OPERATING REVENUES	.00	.00	378,200.00	378,200.00	.0
TOTAL FUND REVENUE	188,585.86	188,585.86	1,091,674.00	903,088.14	17.3

CITY OF HILDALE
EXPENDITURES WITH COMPARISON TO BUDGET
FOR THE 6 MONTHS ENDING DECEMBER 31, 2020

23

GAS FUND

	PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
<u>OPERATING EXPENDITURES</u>					
84-41-210 BOOKS, SUBSCR, & MEMBERSHIPS	.00	.00	3,500.00	3,500.00	.0
84-41-230 TRAVEL	.00	.00	4,000.00	4,000.00	.0
84-41-250 EQUIPMENT SUPPLIES & MAINT	.00	.00	5,000.00	5,000.00	.0
84-41-257 FUEL	.00	.00	1,500.00	1,500.00	.0
84-41-260 TOOLS & EQUIPMENT-NON CAPITAL	4,227.76	4,227.76	5,000.00	772.24	84.6
84-41-273 MAINT & SUPPLY SYSTEM	3,966.42	3,966.42	31,700.00	27,733.58	12.5
84-41-280 UTILITIES	.00	.00	500.00	500.00	.0
84-41-285 POWER	281.02	281.02	1,000.00	718.98	28.1
84-41-330 EDUCATION	70.00	70.00	8,000.00	7,930.00	.9
84-41-431 NATURAL GAS COMMODITY SUPPLY	1,853.06	1,853.06	65,000.00	63,146.94	2.9
84-41-432 PROPANE GAS COMMODITY SUPPLY	35,034.10	35,034.10	250,000.00	214,965.90	14.0
84-41-434 NAT GAS COMMODITY TRANSPORT	1,343.48	1,343.48	19,000.00	17,656.52	7.1
84-41-580 RENT OR LEASE	200.00	200.00	4,500.00	4,300.00	4.4
84-41-742 EQUIPMENT - FIELD	.00	.00	80,000.00	80,000.00	.0
TOTAL OPERATING EXPENDITURES	46,975.84	46,975.84	478,700.00	431,724.16	9.8
<u>NON-OPERATING EXPENDITURES</u>					
84-42-560 BAD DEBT EXPENSE	129,528.86	129,528.86	600.00	(128,928.86)	21588.
84-42-750 SP PROJECTS CAPITAL	.00	.00	37,000.00	37,000.00	.0
84-42-911 TRANSFERS TO JOINT ADMIN FUND	.00	.00	341,069.00	341,069.00	.0
84-42-912 TRANSFERS TO LITIGATION	.00	.00	17,900.00	17,900.00	.0
84-42-914 TRANSFERS TO 2017 JMT RES FUND	.00	.00	13,600.00	13,600.00	.0
84-42-960 TRANSFERS TO RESERVE FUNDS	.00	.00	98,200.00	98,200.00	.0
84-42-970 TRANSFER TO FIBER DEPARTMENT	.00	.00	50,000.00	50,000.00	.0
84-42-999 CONTINGENCY	.00	.00	200,000.00	200,000.00	.0
TOTAL NON-OPERATING EXPENDITURES	129,528.86	129,528.86	758,369.00	628,840.14	17.1
TOTAL FUND EXPENDITURES	176,504.70	176,504.70	1,237,069.00	1,060,564.30	14.3
NET REVENUE OVER EXPENDITURES	12,081.16	12,081.16	(145,395.00)	(157,476.16)	8.3

CITY OF HILDALE
REVENUES WITH COMPARISON TO BUDGET
FOR THE 6 MONTHS ENDING DECEMBER 31, 2020

24

FUND 90

	PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
<u>OPERATING REVENUES</u>					
90-37-111 FIBER SALES	1,067.31	1,067.31	5,000.00	3,932.69	21.4
90-37-331 CONNECTION CHARGES	375.00	375.00	1,000.00	625.00	37.5
90-37-332 CONSTRUCTION	.00	.00	10,000.00	10,000.00	.0
90-37-412 PENALTIES	9.74	9.74	.00	(9.74)	.0
90-37-928 CONTINGENCY	.00	.00	10,000.00	10,000.00	.0
TOTAL OPERATING REVENUES	1,452.05	1,452.05	26,000.00	24,547.95	5.6
<u>NON-OPERATING REVENUES</u>					
90-38-101 TRANSFERS FROM OTHER FUNDS	.00	.00	50,000.00	50,000.00	.0
TOTAL NON-OPERATING REVENUES	.00	.00	50,000.00	50,000.00	.0
TOTAL FUND REVENUE	1,452.05	1,452.05	76,000.00	74,547.95	1.9

CITY OF HILDALE
EXPENDITURES WITH COMPARISON TO BUDGET
FOR THE 6 MONTHS ENDING DECEMBER 31, 2020

25

FUND 90

	PERIOD ACTUAL	YTD ACTUAL	BUDGET	UNEXPENDED	PCNT
<u>OPERATING EXPENDITURES</u>					
90-41-250 EQUIPMENT SUPPLIES & MAINT	.00	.00	300.00	300.00	.0
90-41-260 TOOLS & EQUIPMENT-NON CAPITAL	273.69	273.69	3,000.00	2,726.31	9.1
90-41-273 MAINT & SUPPLY SYSTEM	9,380.46	9,380.46	6,000.00	(3,380.46)	156.3
90-41-310 PROFESSIONAL & TECHNICAL	.00	.00	1,000.00	1,000.00	.0
90-41-315 LEGAL - GENERAL	.00	.00	3,000.00	3,000.00	.0
90-41-319 CONTINGENCY	.00	.00	10,000.00	10,000.00	.0
90-41-431 FIBER COMMODITY SUPPLY	17,059.08	17,059.08	.00	(17,059.08)	.0
90-41-580 RENT OR LEASE	100.00	100.00	1,500.00	1,400.00	6.7
90-41-850 DEBT SERVICE - VEHICLE & EQUIP	.00	.00	500.00	500.00	.0
TOTAL OPERATING EXPENDITURES	26,813.23	26,813.23	25,300.00	(1,513.23)	106.0
TOTAL FUND EXPENDITURES	26,813.23	26,813.23	25,300.00	(1,513.23)	106.0
NET REVENUE OVER EXPENDITURES	(25,361.18)	(25,361.18)	50,700.00	76,061.18	(50.0)

CITY OF HILDALE

Invoice Register - for Bank Transfers
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Invoice	Seq	Type	Description	Invoice Date	Due Date	Total Cost	GL Activity	Period	GL Account
1155 ARIZONA STRIP LANDFILL CORP									
COLL 1020	1	Invoice	LANDFILL SERVICES	10/31/2020	11/30/2020	31,982.91	0	11/20	11-13119
Total 1155 ARIZONA STRIP LANDFILL CORP:						31,982.91			
1430 CASELLE, INC.									
105423	1	Invoice	Contract for December 2020 - 90% Split Distribution	11/01/2020	11/25/2020	905.10	0	11/20	65-41-318
105423	2	Invoice	Contract for December 2020 - 10% Split Distribution	11/01/2020	11/25/2020	100.57	0	11/20	11-41-318
Total 1430 CASELLE, INC.:						1,005.67			
1521 CLUFF DRILLING & PUMP									
1175	1	Invoice	Cleaning and camera survey of well 22.	11/03/2020	12/03/2020	3,388.00	0	11/20	81-41-273
Total 1521 CLUFF DRILLING & PUMP:						3,388.00			
2170 HILDALE CITY UTILITIES									
3.18000.1 10	1	Invoice	Lab Shop Utilities	10/26/2020	11/30/2020	290.00	0	11/20	65-41-280
3.84110.1 10	1	Invoice	Academy Ave Well	10/26/2020	11/30/2020	54.00	0	11/20	65-41-280
6.07700.1 10	1	Invoice	CITY HALL UTILITIES - 67% Utilities - Split Distribution	10/26/2020	11/10/2020	164.97	0	11/20	65-41-280
6.07700.1 10	2	Invoice	CITY HALL UTILITIES - 33% Admin - Split Distribution	10/26/2020	11/10/2020	81.26	0	11/20	11-41-280
6.21700.1 10	1	Invoice	MAXWELL PARK UTILITIES	10/28/2020	11/30/2020	401.33	0	11/20	11-48-280
6.23190.4 10	1	Invoice	Mulberry St. Building Utilities	11/26/2020	11/30/2020	193.98	0	11/20	11-41-280
6.42870.1 10	1	Invoice	Propane Yard Lease	10/26/2020	11/30/2020	100.00	0	11/20	84-41-580
Total 2170 HILDALE CITY UTILITIES:						1,285.54			
2850 MONSEN ENGINEERING, LLC									
MFIN00012	1	Invoice	Finance Charge of 2% for late payment for Inv. PM-INV001699	10/31/2020	11/30/2020	13.20	0	11/20	65-41-260
Total 2850 MONSEN ENGINEERING, LLC:						13.20			
3450 SCHOLZEN PRODUCTS COMPANY, INC.									
6518432-00	1	Invoice	Parks - saw blades, shovels	11/05/2020	12/05/2020	169.05	0	11/20	11-48-272
Total 3450 SCHOLZEN PRODUCTS COMPANY, INC.:						169.05			
3502 TruckPro LLC Six States									
15 367502	1	Invoice	Air bag for truck 3131	11/03/2020	12/03/2020	98.95	0	11/20	65-41-250
Total 3502 TruckPro LLC Six States:						98.95			
3630 STATE OF UTAH-DEPT OF COMMERCE									
201027	1	Invoice	Surcharges for Building Permits - Qrt. Reports 2018-2020	10/27/2020	11/26/2020	251.13	0	11/20	11-45-550
Total 3630 STATE OF UTAH-DEPT OF COMMERCE:						251.13			
3740 SUNRISE ENGINEERING, INC.									
0112964	1	Invoice	Cloud SMART GiS Annual Subscriptions 50%	10/06/2020	11/25/2020	300.00	0	11/20	65-41-318
0112964	2	Invoice	Cloud SMART GiS Annual Subscriptions 50%	10/06/2020	11/25/2020	300.00	0	11/20	11-41-318

Invoice	Seq	Type	Description	Invoice Date	Due Date	Total Cost	GL Activity	Period	GL Account
Total 3740 SUNRISE ENGINEERING, INC.:						600.00			
3930 TOWN OF COLORADO CITY									
8910	1	Invoice	Gasoline Used from Public Works-Administration	09/01/2020	09/16/2020	61.32	0	08/20	11-41-257
8910	2	Invoice	Diesel Fuel Used from Public Works-Streets & Roads	09/01/2020	09/16/2020	428.27	0	08/20	11-47-257
8910	3	Invoice	Gasoline Used from Public Works-Parks	09/01/2020	09/16/2020	52.52	0	08/20	11-48-257
8910	4	Invoice	Gasoline Used from Public Works-Utilities	09/01/2020	09/16/2020	1,564.84	0	08/20	65-41-257
8910	5	Invoice	Diesel Fuel Used from Public Works-Utillites	09/01/2020	09/16/2020	71.95	0	08/20	84-41-257
8975	1	Invoice	Auto Insurance Premium Portion	10/01/2020	11/25/2020	806.72	0	08/20	65-41-210
8975	2	Invoice	General and Professional Liability Insurance Premium Portion	10/01/2020	11/25/2020	2,083.80	0	08/20	65-41-510
8975	3	Invoice	Risk Management Fund monthly pmt	10/01/2020	11/25/2020	1,269.68	0	08/20	65-41-510
8975	4	Invoice	Propane Delivery Insurance Premium Portion	10/01/2020	11/25/2020	370.25	0	08/20	65-41-510
8992	1	Invoice	DOJ Court Judgement Cost Sharing - Roger Carter	10/01/2020	11/25/2020	543.34	0	11/20	63-41-310
8993	1	Invoice	DOJ Court Judgement Cost Sharing - Jim Keith	10/01/2020	11/25/2020	1,133.55	0	11/20	63-41-310
8998	1	Invoice	IT Services - 90% Utilities - Split Distribution	10/16/2020	11/16/2020	543.62	0	11/20	65-41-317
8998	2	Invoice	IT Services - 10% Admin - Split Distribution	10/16/2020	11/16/2020	60.40	0	11/20	11-41-317
9014	1	Invoice	Auto Insurance Premium Portion	11/01/2020	11/25/2020	806.72	0	08/20	65-41-510
9014	2	Invoice	General and Professional Liability Insurance Premium Portion	11/01/2020	11/25/2020	2,083.80	0	08/20	65-41-510
9014	3	Invoice	Risk Management Fund monthly pmt	11/01/2020	11/25/2020	1,269.68	0	08/20	65-41-510
9014	4	Invoice	Propane Delivery Insurance Premium Portion	11/01/2020	11/25/2020	370.25	0	08/20	65-41-510
9027	1	Invoice	DOJ Court Judgement Cost Sharing - Jim Keith	11/01/2020	11/25/2020	1,421.48	0	11/20	63-41-310
9031	1	Invoice	IT Services - 90% Utilities - Split Distribution	11/01/2020	11/25/2020	599.51	0	11/20	65-41-317
9031	2	Invoice	IT Services - 10% Admin - Split Distribution	11/01/2020	11/25/2020	66.61	0	11/20	11-41-317
8877	1	Invoice	Utility Field Staff Payroll	08/21/2020	11/25/2020	15,965.16	0	07/20	65-41-110
8877	2	Invoice	Utility Field Staff Payroll Taxes	08/21/2020	11/25/2020	1,641.47	0	07/20	65-41-130
8877	3	Invoice	Utility Field Staff Payroll Benefits	08/21/2020	11/25/2020	2,727.44	0	07/20	65-41-140
8877	4	Invoice	Secretarial Staff Payroll	08/21/2020	11/25/2020	1,817.12	0	07/20	65-41-110
8877	5	Invoice	City Treasurer Payroll	08/21/2020	11/25/2020	359.42	0	07/20	11-41-114
8877	6	Invoice	Customer Service Manager	08/21/2020	11/25/2020	1,916.92	0	07/20	65-41-114
8877	7	Invoice	Court Administrator	08/21/2020	11/25/2020	119.81	0	07/20	11-41-110
8877	8	Invoice	Recorder Payroll	08/21/2020	11/25/2020	477.41	0	07/20	11-41-115
8877	9	Invoice	Accounts Payable Clerk	08/21/2020	11/25/2020	1,909.63	0	07/20	65-41-115
8877	10	Invoice	General Fund Payroll Taxes	08/21/2020	11/25/2020	203.61	0	07/20	65-41-130
8877	11	Invoice	General Fund Payroll Benefits	08/21/2020	11/25/2020	947.74	0	07/20	65-41-140
8877	12	Invoice	Building Official Payroll	08/21/2020	11/25/2020	1,259.66	0	07/20	11-45-110
8877	13	Invoice	Public Works - Streets Payroll	08/21/2020	11/25/2020	4,141.52	0	07/20	11-47-110
8877	14	Invoice	Public Works - Parks Payroll	08/21/2020	11/25/2020	2,209.92	0	07/20	11-48-110
8915	1	Invoice	Utility Field Staff Payroll	09/04/2020	11/25/2020	15,172.83	0	08/20	65-41-110
8915	2	Invoice	Utility Field Staff Payroll Taxes	09/04/2020	11/25/2020	1,662.95	0	08/20	65-41-130
8915	3	Invoice	Utility Field Staff Payroll Benefits	09/04/2020	11/25/2020	8,095.35	0	08/20	65-41-140
8915	4	Invoice	Secretarial Staff Payroll	09/04/2020	11/25/2020	1,791.80	0	08/20	65-41-110
8915	5	Invoice	City Treasurer Payroll	09/04/2020	11/25/2020	963.22	0	08/20	11-41-114
8915	6	Invoice	Customer Service Manager	09/04/2020	11/25/2020	984.78	0	08/20	65-41-114

Invoice	Seq	Type	Description	Invoice Date	Due Date	Total Cost	GL Activity	Period	GL Account
8915	7	Invoice	Court Administrator	09/04/2020	11/25/2020	321.07	0	08/20	11-41-110
8915	8	Invoice	Recorder Payroll	09/04/2020	11/25/2020	1,033.78	0	08/20	11-41-115
8915	9	Invoice	Accounts Payable Clerk	09/04/2020	11/25/2020	1,135.14	0	08/20	65-41-115
8915	10	Invoice	General Fund Payroll Taxes	09/04/2020	11/25/2020	195.42	0	08/20	65-41-130
8915	11	Invoice	General Fund Payroll Benefits	09/04/2020	11/25/2020	75.00	0	08/20	65-41-140
8915	12	Invoice	Building Official Payroll	09/04/2020	11/25/2020	961.60	0	08/20	11-45-110
8915	13	Invoice	Public Works -Streets Payroll	09/04/2020	11/25/2020	3,432.02	0	08/20	11-47-110
8915	14	Invoice	Public Works - Parks Payroll	09/04/2020	11/25/2020	1,682.06	0	08/20	11-48-110
8952	1	Invoice	Utility Field Staff Payroll	09/17/2020	11/25/2020	16,038.58	0	08/20	65-41-110
8952	2	Invoice	Utility Field Staff Payroll Taxes	09/17/2020	11/25/2020	1,612.56	0	08/20	65-41-130
8952	3	Invoice	Utility Field Staff Payroll Benefits	09/17/2020	11/25/2020	2,515.52	0	08/20	65-41-140
8952	4	Invoice	Secretarial Staff Payroll	09/17/2020	11/25/2020	1,776.29	0	08/20	65-41-110
8952	5	Invoice	City Treasurer Payroll	09/17/2020	11/25/2020	360.07	0	08/20	11-41-114
8952	6	Invoice	Customer Service Manager	09/17/2020	11/25/2020	1,920.38	0	08/20	65-41-114
8952	7	Invoice	Court Administrator	09/17/2020	11/25/2020	120.02	0	08/20	11-41-110
8952	8	Invoice	Recorder Payroll	09/17/2020	11/25/2020	477.41	0	08/20	11-41-115
8952	9	Invoice	Account Payable Clerk	09/17/2020	11/25/2020	1,909.63	0	08/20	65-41-115
8952	10	Invoice	General Fund Payroll Taxes	09/17/2020	11/25/2020	271.06	0	08/20	65-41-130
8952	11	Invoice	General Fund Payroll Benefits	09/17/2020	11/25/2020	985.24	0	08/20	65-41-140
8952	12	Invoice	Building Official Payroll	09/17/2020	11/25/2020	1,001.33	0	08/20	11-45-110
8952	13	Invoice	Public Works - Streets Payroll	09/17/2020	11/25/2020	4,081.25	0	08/20	11-47-110
8952	14	Invoice	Public Works - Parks Payroll	09/17/2020	11/25/2020	2,107.97	0	08/20	11-48-110
8960	1	Invoice	Utility Field Staff Payroll	10/02/2020	11/25/2020	15,131.89	0	09/20	65-41-110
8960	2	Invoice	Utility Field Staff Payroll Taxes	10/02/2020	11/25/2020	1,631.78	0	09/20	65-41-130
8960	3	Invoice	Utility Field Staff Payroll Benefits	10/02/2020	11/25/2020	778.11	0	09/20	65-41-140
8960	4	Invoice	Secretarial Staff Payroll	10/02/2020	11/25/2020	1,703.80	0	09/20	65-41-110
8960	5	Invoice	City Treasurer Payroll	10/02/2020	11/25/2020	303.94	0	09/20	11-41-114
8960	6	Invoice	Customer Service Manager	10/02/2020	11/25/2020	1,546.02	0	09/20	65-41-114
8960	7	Invoice	Court Administrator	10/02/2020	11/25/2020	101.31	0	09/20	11-41-110
8960	8	Invoice	Recorder Payroll	10/02/2020	11/25/2020	386.38	0	09/20	11-41-115
8960	9	Invoice	Accounts Payable Clerk	10/02/2020	11/25/2020	1,545.54	0	09/20	65-41-115
8960	10	Invoice	General Fund Payroll Taxes	10/02/2020	11/25/2020	207.06	0	09/20	65-41-130
8960	11	Invoice	General Fund Payroll Benefits	10/02/2020	11/25/2020	75.00	0	09/20	65-41-140
8960	12	Invoice	Building Official Payroll	10/02/2020	11/25/2020	930.25	0	09/20	11-45-110
8960	13	Invoice	Public Works - Streets Payroll	10/02/2020	11/25/2020	3,508.45	0	09/20	11-47-110
8960	14	Invoice	Public Works - Parks Payroll	10/02/2020	11/25/2020	1,597.69	0	09/20	11-48-110
8990	1	Invoice	Verizon Wireless - Aug 22 to Sept 21	10/01/2020	11/25/2020	245.99	0	09/20	11-41-287
9028	1	Invoice	Verizon Wireless - Sept 22 to Oct 21	11/01/2020	11/25/2020	267.42	0	10/20	11-41-287
PROST1020	1	Invoice	Total Propane Tax	10/31/2020	11/25/2020	972.04	0	10/20	84-21371
WAT1020	1	Invoice	Total Water Tax	10/31/2020	11/25/2020	2,198.26	0	10/20	81-21371

Total 3930 TOWN OF COLORADO CITY: 157,120.40

4020 U.S. POSTAL SERVICE

201119 1 Invoice POSTAGE 11/19/2020 12/04/2020 700.00 0 11/20 65-41-145

Total 4020 U.S. POSTAL SERVICE: 700.00

4220 UTAH STATE TREASURER

TC 55 1020 1 Invoice SURCHARGES 10/31/2020 11/30/2020 1,112.26 0 11/20 11-21332

Total 4220 UTAH STATE TREASURER: 1,112.26

4290 BARLOW, VINCEN C.

201109 1 Invoice Professional Services 11/09/2020 11/24/2020 250.00 0 11/20 11-41-317

Invoice	Seq	Type	Description	Invoice Date	Due Date	Total Cost	GL Activity	Period	GL Account
Total 4290 BARLOW, VINCEN C.:						250.00			
4441 WHEELER MACHINERY CO.									
RS00001689	1	Invoice	Compactor attachment	10/30/2020	11/29/2020	725.00	0	11/20	65-41-850
SS00030057	1	Invoice	Skid-steer repair	11/03/2020	12/03/2020	2,047.41	0	11/20	65-41-250
Total 4441 WHEELER MACHINERY CO.:						2,772.41			
4470 ZION'S BANK									
201008 (1) W	1	Invoice	Carling St. Gas Project	10/08/2020	11/25/2020	25.06	0	11/20	65-41-235
201015 (1) M	1	Invoice	Christian's B-day & office coffee supplies	10/15/2020	11/25/2020	41.61	0	11/20	65-41-235
201015 (2) W	1	Invoice	Freight for Data Collection	10/15/2020	11/25/2020	8.40	0	11/20	65-41-260
201015 (3) W	1	Invoice	Utility drinks and snacks	10/15/2020	11/25/2020	141.86	0	11/20	65-41-235
201016 (1) IT	1	Invoice	New Computers for Athena and Angie H. - 50% Split Distribution	10/16/2020	11/15/2020	15.44	0	11/20	65-41-260
201016 (1) IT	2	Invoice	New Computers for Athena and Angie H. - 50% Split Distribution	10/16/2020	11/15/2020	15.43	0	11/20	11-41-318
201016 (1) J	1	Invoice	Streamline Carwash	10/16/2020	11/15/2020	10.00	0	11/20	11-41-250
201021 (4) W	1	Invoice	Fiber components - Part of CARES Fiber Project	10/21/2020	11/25/2020	973.82	0	11/20	90-41-431
201022 (2) M	1	Invoice	Grass trimmer head	10/22/2020	11/25/2020	67.98	0	11/20	11-48-250
201023 (1) U	1	Invoice	Diesel Programmers - ECG repair for truck 3131	10/23/2020	11/22/2020	1,299.00	0	11/20	65-41-250
201023 (2) IT	1	Invoice	New Computers for Athena and Angie H. - 50% Split Distribution	10/23/2020	11/25/2020	26.89	0	11/20	65-41-260
201023 (2) IT	2	Invoice	New Computers for Athena and Angie H.- 50% Split Distribution	10/23/2020	11/25/2020	26.89	0	11/20	11-41-318
201023 (2) J	1	Invoice	Zoom	10/23/2020	11/22/2020	297.96	0	11/20	11-41-318
201023 (3) IT	1	Invoice	New Computers for Athena and Angie H. - 50% Split Distribution	10/23/2020	11/25/2020	492.72	0	11/20	65-41-260
201023 (3) IT	2	Invoice	New Computers for Athena and Angie H.- 50% Split Distribution	10/23/2020	11/25/2020	492.72	0	11/20	11-41-318
201026 (5) W	1	Invoice	Fuel - 7-Eleven	10/26/2020	11/25/2020	72.22	0	11/20	65-41-257
201027 (2) U	1	Invoice	O'Reilly Auto Parts - relay	10/27/2020	11/26/2020	11.67	0	11/20	65-41-250
201027 (3) M	1	Invoice	Half n half	10/27/2020	11/26/2020	5.99	0	11/20	65-41-235
201027 (6) W	1	Invoice	Concrete blankets, well wraps	10/27/2020	11/26/2020	566.42	0	11/20	81-41-273
201028 (4) M	1	Invoice	City Council snacks	10/28/2020	11/27/2020	23.78	0	11/20	11-41-235
201030 (5) M	1	Invoice	Halloween candy/supplies for Cottonwood Park event	10/30/2020	11/29/2020	59.65	0	11/20	65-41-235
201101 (1) C	1	Invoice	Indeed - City Manager job posting	11/01/2020	12/01/2020	174.84	0	11/20	11-41-244
201102 (1) H	1	Invoice	Fuel for city vehicle during SZE Mediation	11/02/2020	12/02/2020	30.00	0	11/20	11-41-257
201102 (2) C	1	Invoice	Muddy Bees Bakery - Mediation with SZE	11/02/2020	12/02/2020	15.93	0	11/20	11-41-235
201102 (2) H	1	Invoice	Bear Paw - breakfast for SZE Mediation	11/02/2020	12/02/2020	27.63	0	11/20	11-41-235
201103 (1) A	1	Invoice	Water Bottles	11/03/2020	12/03/2020	2.39	0	11/20	11-41-235
201103 (3) C	1	Invoice	DoorDash/Postmates - Mediation with SZE	11/03/2020	12/03/2020	102.20	0	11/20	11-41-235
201103 (7) W	1	Invoice	Utility- water, drinks	11/03/2020	12/03/2020	163.84	0	11/20	65-41-235
Total 4470 ZION'S BANK:						5,192.34			
4605 SUMMIT ENERGY, LLC									
1020HILD	1	Invoice	Natural Gas Commodity	11/06/2020	11/25/2020	2,729.44	0	11/20	84-41-431
Total 4605 SUMMIT ENERGY, LLC:						2,729.44			

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CITY OF HILDALE

Invoice Register - for Bank Transfers

Page: 5

Input Dates: 11/7/2020 - 11/30/2020

Nov 30, 2020 09:25AM

Invoice	Seq	Type	Description	Invoice Date	Due Date	Total Cost	GL Activity	Period	GL Account
4613 NEWBY BUICK									
5032148	1	Invoice	Vehicle Repair	10/15/2020	11/15/2020	338.71	0	11/20	65-41-250
Total 4613 NEWBY BUICK:						338.71			
4694 PREFERRED PARTS									
68546	1	Invoice	Car wash soap	11/05/2020	11/25/2020	23.70	0	11/20	65-41-250
68581	1	Invoice	Diesel Additive	11/05/2020	11/25/2020	10.51	0	11/20	65-41-250
Total 4694 PREFERRED PARTS:						34.21			
4701 ZIONS FIRST NATIONAL BANK									
EFTPS 1030	1	Invoice	Social Security - FICA Deposit 1020	11/12/2020	12/10/2020	592.31	0	10/20	11-22211
EFTPS 1030	2	Invoice	Medicare - FICA Deposit 1020	11/12/2020	12/10/2020	138.53	0	10/20	11-22212
EFTPS 1030	3	Invoice	Tax Withholding - FICA Deposit 1020	11/12/2020	12/10/2020	398.96	0	10/20	11-22213
Total 4701 ZIONS FIRST NATIONAL BANK:						1,129.80			
4750 DJB GAS SERVICES, INC.									
01243417	1	Invoice	Welder Cylinder Rental	10/31/2020	11/30/2020	25.53	0	11/20	82-41-273
Total 4750 DJB GAS SERVICES, INC.:						25.53			
4929 LITTLE CREEK MTN. RANCH									
201106	1	Invoice	Remaining payment for 6 hay bales from Ck. pmnt. 10/27/2020	11/06/2020	11/30/2020	180.00	0	11/20	82-41-273
Total 4929 LITTLE CREEK MTN. RANCH:						180.00			
5088 FEI INC.									
983987	1	Invoice	Methenol Pump	11/12/2020	11/27/2020	616.96	0	11/20	84-41-273
Total 5088 FEI INC.:						616.96			
5371 DOUGLAS D. TERRY									
191100002	1	Invoice	Public Defender Fees - Case #191100002	10/29/2020	11/29/2020	445.00	0	11/20	11-43-310
Total 5371 DOUGLAS D. TERRY:						445.00			
5415 ST. GEORGE WATER STORE									
78644	1	Invoice	Bottled Water Service 4 bottles	11/11/2020	12/11/2020	24.00	0	11/20	65-41-235
Total 5415 ST. GEORGE WATER STORE:						24.00			
5518 CUSTOMER DEPOSIT									
201106	1	Invoice	CUSTOMER REFUND - PARK EVENT APP.	11/06/2020	11/30/2020	100.00	0	11/20	01-11750
6.42470.3	1	Invoice	6.42470.3 CUSTOMER DEPOSIT REFUND	10/06/2020	11/30/2020	275.36	0	11/20	81-21350
6.00901.5 (2)	1	Invoice	6.00901.5 CUSTOMER DEPOSIT REFUND (remaining payment)	09/21/2020	11/25/2020	198.00	0	11/20	81-21350
Total 5518 CUSTOMER DEPOSIT:						573.36			
5580 STATE OF UTAH DEPT. OF AGRICUTURE & FOOD									
RENEWAL 2	1	Invoice	Gas Registration	10/21/2020	12/21/2020	150.00	0	11/20	84-41-140

Invoice	Seq	Type	Description	Invoice Date	Due Date	Total Cost	GL Activity	Period	GL Account
Total 5580 STATE OF UTAH DEPT. OF AGRICUTURE & FOOD:						150.00			
5605 NGL SUPPLY CO. LTD									
NGL334972	1	Invoice	Propane Commodity	11/11/2020	11/21/2020	15,657.19	0	11/20	84-41-432
Total 5605 NGL SUPPLY CO. LTD:						15,657.19			
5607 DOMINION ENERGY									
5948550000	1	Invoice	Natural Gas Transportation	10/31/2020	11/30/2020	1,944.24	0	11/20	84-41-434
Total 5607 DOMINION ENERGY:						1,944.24			
5653 CASCADE FIRE EQUIPMENT COMPANY									
111410	1	Invoice	Fire Equipment - Forestry Hoses, Ball Shutoffs, Nozzles, and Wind Meters	10/14/2020	11/25/2020	2,117.00	0	10/20	11-44-952
Total 5653 CASCADE FIRE EQUIPMENT COMPANY:						2,117.00			
5695 Advanced Network Consulting									
2406	1	Invoice	Professional IT Services - 90% Utilities	11/09/2020	11/09/2020	76.50	0	11/20	65-41-317
2406	2	Invoice	Professional IT Services - 10% Admin	11/09/2020	11/09/2020	8.50	0	11/20	11-41-317
2408	1	Invoice	Professional IT Services - 90% Utilities	11/09/2020	11/20/2020	238.50	0	11/20	65-41-317
2408	2	Invoice	Professional IT Services - 10% Admin	11/09/2020	11/20/2020	26.50	0	11/20	11-41-317
Total 5695 Advanced Network Consulting:						350.00			
5706 FERGUSON WATERWORKS #1600									
0947985	1	Invoice	Blades for Fusion Iron	10/19/2020	11/20/2020	308.43	0	11/20	84-41-273
Total 5706 FERGUSON WATERWORKS #1600:						308.43			
5707 IFC Radios & Safety									
20337	1	Invoice	Fire Dept. Asst. Grant - Radios	10/02/2020	11/25/2020	4,600.00	0	10/20	11-44-952
Total 5707 IFC Radios & Safety:						4,600.00			
5728 JOSEPH M. HOOD									
0000-1120	1	Invoice	Public Prosecutor Fees for October 2020	11/03/2020	11/30/2020	960.00	0	11/20	11-43-310
Total 5728 JOSEPH M. HOOD:						960.00			
5746 SYMBOL ARTS									
0361171-IN	1	Invoice	Police Badges	10/29/2020	11/28/2020	2,411.00	0	10/20	11-43-250
Total 5746 SYMBOL ARTS:						2,411.00			
5755 QUALITY STEEL CORP.									
0135926-IN	1	Invoice	Propane tanks	10/26/2020	11/26/2020	11,288.00	0	11/20	84-41-780
0136083-IN	1	Invoice	Propane tanks	10/29/2020	11/29/2020	24,160.00	0	11/20	84-41-780
Total 5755 QUALITY STEEL CORP.:						35,448.00			
5760 A2B TECHNOLOGY									
1009	1	Invoice	Contractors for Fiberoptics						

Invoice	Seq	Type	Description	Invoice Date	Due Date	Total Cost	GL Activity	Period	GL Account
			Install	11/06/2020	11/20/2020	6,657.23	0	11/20	90-41-340
1010	1	Invoice	Contractors for Fiberoptics Install	11/13/2020	11/20/2020	6,036.07	0	11/20	90-41-340
Total 5760 A2B TECHNOLOGY:						12,693.30			
5762 ROGUE FITNESS									
200921	1	Invoice	Gym Equipment for Police Department	09/21/2020	11/20/2020	11,739.59	0	11/20	45-43-720
Total 5762 ROGUE FITNESS:						11,739.59			
5763 RED DESERT SOD									
17429	1	Invoice	Sod for Maxwell Park	11/04/2020	12/04/2020	1,450.00	0	11/20	11-48-250
Total 5763 RED DESERT SOD:						1,450.00			
5766 PILOT THOMAS LOGISTICS									
M000259-IN	1	Invoice	Methanol	11/10/2020	12/10/2020	36.29	0	11/20	84-41-273
Total 5766 PILOT THOMAS LOGISTICS:						36.29			
5767 CHRISTENSEN & JENSEN, P.C.									
102248	1	Invoice	Hildale City v. South Zion Estates, LLC	11/11/2020	12/10/2020	2,570.00	0	11/20	64-41-316
Total 5767 CHRISTENSEN & JENSEN, P.C.:						2,570.00			
Grand Totals:						304,473.91			

Report GL Period Summary

GL Period	Amount
07/20	35,696.83
10/20	13,695.52
09/20	29,693.21
08/20	83,924.13
11/20	141,464.22
Grand Totals:	304,473.91

Vendor number hash: 398564
 Vendor number hash - split: 691626
 Total number of invoices: 91
 Total number of transactions: 165

Terms Description	Invoice Amount	Discount Amount	Net Invoice Amount
Net 15	159,355.94	.00	159,355.94
NET 30	54,279.60	.00	54,279.60
Open Terms	90,838.37	.00	90,838.37
Grand Totals:	304,473.91	.00	304,473.91



Maxwell Park Spring Water Proposal

Hildale-Colorado City Utility Department
320 East Newel Avenue, Hildale UT 84784

Department Objective

The Department's objective is to allow for continued availability of canyon spring water to the citizens of Hildale and Colorado at little-to-no charge at the time of use.

Proposal

Article I.- Maxwell Park Service Defined

This proposal will encompass the water delivery costs to Maxwell Park's water meter. The Park's infrastructure, to include the retail dispensers will remain the responsibility of Hildale City's General Fund.

Article II.- Service Policy

The Department shall deliver water service to the Maxwell Park Dispensers at-little to no cost to Hildale and Colorado City Residents for non-commercial or industrial usage.

The Department will undertake policies that will both remove the need for large (100 gallon<) water users to receive service from the Maxwell Park Dispensers through accommodation by other means. Additionally, once accommodations are made, the Department will implement policies that educate and then prohibit or penalize large water users that continue to use the Maxwell Park dispensers.

The Department will also charge large water users on at a rate that will cover the expenses incurred by their use. Maxwell Park Users will also have the opportunity to donate to a fund that will be used to maintain the Maxwell Park Dispensers and beautifying the park.

Article III – Enforcement

The Department will rely on its Compliance Assistance Department, as well as, law enforcement to cite unauthorized users. Unauthorized users shall be subject to Hildale city Code Sec 51-76 Citations.

Article IV. - Water Restrictions

Residential non-commercial use shall not be subject to Hildale City Code Sec 51-73 Culinary Water Restrictions. Commercial users, and non-residential users shall be subject to culinary water restrictions at the direction of the Utility Director.

Implementation

Department Management and staff will begin by generating a database and procedure for non-residents, and commercial users to register with the staff. The staff will be responsible in educating both the public and the non-residents. Additionally, staff will operate and maintain permitting, and collections processes.

Impact Assessments

Legal

(Insert Legal Comments Here)

Financial

This proposal may cost the Department near \$5,000 per year in water service that is not billed. It is important to remember that this would not be a cash outlay. The revenue from generated would likely only offset the costs of providing service.

Operational

This proposal may incur significant staff time in the generation of this project, but should become part of our normal operations and duties within a few months.

IGA

Both rate payers of Hildale and Colorado City will now be responsible for disposition of service, as opposed to only Hildale City rate payers.

Strategic

This proposal may have significant implications concerning the Department's delivery of unfunded services. While we may recoup the cost of providing this water through revenue from out of state users, this should be viewed a service to our residents without applicable revenues for said service.

Our users would pay through their usage costs from the Water Department that they normally would, however, it would not directly correlate to who, and how residents used the Maxwell Water. In all cases, our enterprise funds would be supporting a public service usually reserved for general fund items.

Department Management agrees that this proposal would be small and limited to water service, but that thinking of the enterprise funds as a way to deliver public services can cause significant financial, operational and political issues.



Canaan Mountain Water Project BLM Authorizations

12/15/20

Hildale-Colorado City Utility Department
320 East Newel Avenue, Hildale UT 84784

Overview

The Department was informed that the Washington County Conservancy District (WCCD) has made a project manager available to assist in the Bureau of Land Management application process for Right-of-Way permits. This no-cost assistance will be essential to crafting and implementing a strategy to gaining approval.

Authorizations 12/02/20

Pursue applications and rights-of-way from the Bureau of Land Management

Department Management is looking for authorizations to apply for and begin the process of Rights-of-Way applications for the Bureau of Land Management.

This will include coordination and cooperation with, but not limited to, the following entities:

- Washington County Conservancy District
- U.S. Bureau of Land Management
- U.S. Department of Agriculture
- U.S. Environmental Protection Agency



**Culinary Water Impact Fee Facilities Plan
&
Impact Fee Analysis**

for

HILDALE CITY and TOWN OF COLORADO CITY



Prepared by:
SUNRISE ENGINEERING, INC.
11 North 300 West
Washington, Utah 84780
Ph: (435) 652-8450
Fax: (435) 652-8416

HILDALE CITY & TOWN OF COLORADO CITY

CULINARY WATER IMPACT FEE FACILITIES PLAN & IMPACT FEE ANALYSIS

December, 2014

PREPARED BY:



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Dustyn W. Shaffer, P.E.
Project Engineer
State of Arizona No. 38923



Steven B. Hall, P.E.
Project Engineer
State of Utah No. 8328781

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I. INTRODUCTION

Hildale City is located along Highway 59 in Washington County in southwestern Utah. The Town of Colorado City is neighboring Hildale, just across the border in Arizona. In 1988 Sunrise Engineering completed a Preliminary Engineering Report for Twin City Water Works, Inc. Twin City Water Works owned and operated the culinary water system within Hildale, Utah and Colorado City, Arizona. Due to regulatory concerns, the Cities took ownership of their distribution system within their respective boundaries and the day-to-day operation and maintenance. Twin City Water Works continues to operate as a supplier of water to the individual cities.

Sunrise Engineering, Inc. completed a Culinary Water Master Plan for Hildale City in 1998. Hildale City has recognized that the plan needs to be updated to account for current conditions and regulations and to provide a basis for an impact fee determination. They have contracted with Sunrise Engineering to complete an Impact Fee Facilities Plan and subsequent Impact Fee Analysis. This report does not analyze secondary or irrigation water, its rights, source, distribution system, etc.

The culinary water system has been analyzed under the State of Utah Division of Drinking Water regulations to determine the current system status and to determine possible system upgrades as the community grows during the next 20 years. As part of this plan, Sunrise Engineering, Inc. has recommended some improvements to the culinary water system and has developed a financing plan that will help Hildale and Colorado City obtain the necessary funds for the recommended improvements.

The existing water rates have also been analyzed as a possible means of supporting the recommended system improvements. This report provides a recommended maximum impact fee amount that may be assigned to new connections and new development of existing connections. The recommended culinary water rates are fair and they will allow Hildale and Colorado City to continue to maintain the level of service that is required of culinary water systems for the present time and over the 20-year planning period.

II. SYSTEM USERS ANALYSIS

A. LENGTH OF PLANNING PERIOD

It is typical for a Master Plan or Impact Fee Facilities Plan to use a 10 or 20-year planning period. For example, the first year of a 10-year planning period would be the year 2015 with the 10th and final year being 2024. This plan will use fiscal years and will assume a 10 year planning period for the Impact Fee Analysis due to the time frame set on expenditure of Impact Fees but will also use a 20 year planning period for additional recommended improvements. This period will allow an adequate evaluation of the system for potential infrastructure improvements or other needs. Revenue sources should be carefully evaluated each year as budgets are set. The plan will also project out 40 years because the state of Utah requires that water rights be analyzed on a 40-year planning period.

The planning periods will span the following years. Please note that the plan will use a unique period for impact fee calculations due to a recent ruling requiring the City to connect approximately 30 potential connections without charging an impact fee.

- 10-year planning period – FY2015-FY2024 (from the beginning of FY2015 to the end of FY2024)
- Period used for impact fee calculations – FY2016-FY2025 (from the beginning of FY2016 to the end of FY2025)
- 20-year planning period– FY2015-FY2034 (from the beginning of FY2015 to the end of FY2034)
- 40-year planning period– FY2015-FY2054 (from the beginning of FY2015 to the end of FY2054)

B. PROJECTED GROWTH RATE

An important element in the development of an Impact Fee Facilities Plan is the projection of the City's population growth rate on an annual calendar year basis. This projection gives the planner an idea of the future demands on the culinary water system for the length of the planning period.

Projecting the number of future culinary water connections can be a subjective process. The most effective methods of estimating the number of future connections is by analyzing past historical number of connections and census records. Because Hildale and Colorado City utilize the same water system, the census records and past number of connections of both Hildale and Colorado City were all included in the analysis.

The population (as estimated by the Census), the estimated growth rate of the City (with respect to Census data), and the number of connections (as per City records) in the service area is shown in Table II.A-1. This includes both Hildale City and the Town of Colorado City.

Table II.B-1. Historic Population and Connections (Hildale & Colorado City)

Calendar Year	Hildale Population	Colorado City Population	Est. combined Population (Census)	Est. Growth Rate (per Census Est.)	Number of connections
1990	1,342	2,469	3,811		452
1995	1,998	3,258	5,256	6.64%	623
2000	1,895	3,334	5,229	-0.10%	789
2005	2,392	4,350	6,742	5.21%	919
2006	2,540	4,560	7,100	5.31%	893
2007	2,637	4,690	7,327	3.20%	899
2008	2,692	4,743	7,435	1.47%	898
2009	2,713	4,777	7,490	0.74%	900
2010	2,726	4,821	7,547	0.76%	909
2011	2,905	4,845	7,750	2.69%	912
2012	2,923	4,830	7,753	0.04%	917
2013	2,916	4,812	7,728	-0.32%	916

The historic population as estimated by the Census, shows that since 1990, the combined population has increased by 3.12% per year; however, in the last 5 years, the combined population has only increased by 0.78% per year. In discussions with the City it was determined to assume 3 connections will be added in the year 2014. This represents a 0.32% increase for the year. The City has also determined to assume a growth rate of 1.0% to project the 2015 population and a growth rate of 1.8% for the year 2016 and until the end of the planning period.

C. PROJECTED POPULATION & NUMBER OF CONNECTIONS

Based on the forecasted growth rates (0.32%, 1.0% and 1.8%), the number of people the city will need to plan for can be calculated with the compound interest formula shown below. As previously indicated, although this plan incorporates a 10-year and 20-year planning period, it is also necessary to project out 40 years. This is due to the requirement by the state of Utah that water rights be analyzed on a 40-year horizon.

$$F = P(1 + i)^N$$

F = Future Population

i = Projected Growth Rate

P = Present Population

N = Years

Year 2014 Projected Population (Hildale & Colorado City): $7,728(1+0.0032)^1 = \mathbf{7,753 \text{ People}}$

Year 2015 Projected Population (Hildale & Colorado City): $7,753(1+0.01)^1 = 7,830 \text{ People}$

Year 2016 Projected Population (Hildale & Colorado City): $7,830(1+0.018)^1 = 7,971 \text{ People}$

Year 2024 Projected Population (Hildale & Colorado City): $7,830(1+0.018)^9 = \mathbf{9,194 \text{ People}}$

Year 2025 Projected Population (Hildale & Colorado City): $7,830(1+0.018)^{10} = 9,360 \text{ People}$

Year 2034 Projected Population (Hildale & Colorado City): $7,830(1+0.018)^{19} = \mathbf{10,990 \text{ People}}$

Year 2054 Projected Population (Hildale & Colorado City): $7,830(1+0.018)^{39} = \mathbf{15,701 \text{ People}}$

The projected number of connections can be estimated with the same equation. The only difference is that 30 connections are added to the projected number of connections in the year

2015 because there are currently a number of applications for service that have been submitted to the City.

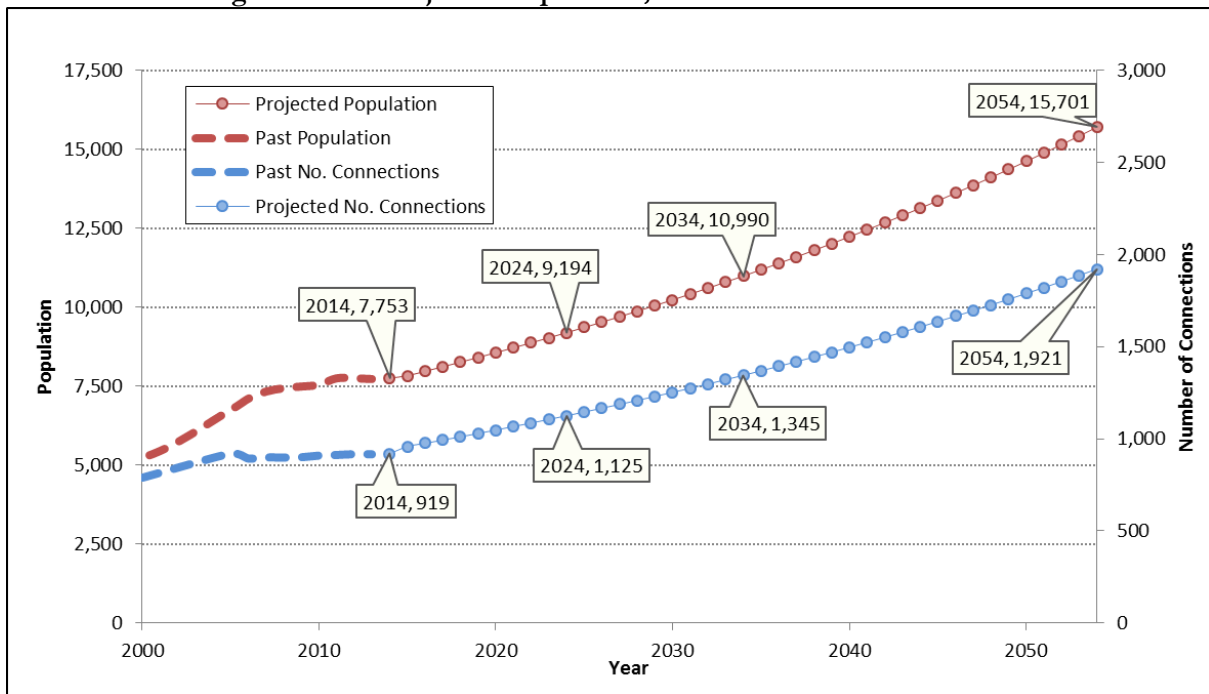
Year 2014 Projected Number of Connections:	$916(1+0.0032)^1 = \mathbf{919 \text{ Connections}}$
Year 2015 Projected Number of Connections:	$919(1+0.01)^1 + 30 = 958 \text{ Connections}$
Year 2016 Projected Number of Connections:	$958(1+0.018)^1 = 975 \text{ Connections}$
Year 2024 Projected Number of Connections:	$958(1+0.018)^9 = \mathbf{1,125 \text{ Connections}}$
Year 2025 Projected Number of Connections:	$958(1+0.018)^{10} = 1,145 \text{ Connections}$
Year 2034 Projected Number of Connections:	$958(1+0.018)^{19} = \mathbf{1,345 \text{ Connections}}$
Year 2054 Projected Number of Connections:	$958(1+0.018)^{39} = \mathbf{1,921 \text{ Connections}}$

In determining water rights required it is necessary to look at Hildale and Colorado City separately because different rules apply regarding water in Utah and Arizona. The projected population of Hildale can be estimated with the growth rates used previously and the equation above:

Year 2014 Projected Population (Hildale Only):	$2,916(1+0.0032)^1 = \mathbf{2,925 \text{ People}}$
Year 2015 Projected Population (Hildale Only):	$2,925(1+0.01)^1 = 2,955 \text{ People}$
Year 2016 Projected Population (Hildale Only):	$2,955(1+0.018)^1 = 3,008 \text{ People}$
Year 2024 Projected Population (Hildale Only):	$2,955(1+0.018)^9 = \mathbf{3,469 \text{ People}}$
Year 2025 Projected Population (Hildale Only):	$2,955(1+0.018)^{10} = 3,532 \text{ People}$
Year 2034 Projected Population (Hildale Only):	$2,955(1+0.018)^{19} = \mathbf{4,147 \text{ People}}$
Year 2054 Projected Population (Hildale Only):	$2,955(1+0.018)^{39} = \mathbf{5,925 \text{ People}}$

Figure II.C-1 shows past population and number of connections and how population and number of connections are projected over the next 40 years.

Figure II.C-1. Projected Population, Number of Connections



It is important to understand that projected population figures are not the cornerstone of this plan. If the maximum number of system connections projected is reached earlier or later than projected, future improvements to support growth may come either earlier or later.

D. PROJECTED ERUS

Due to the lack of data on number of non-residential connections, the number of equivalent residential units (ERUs) in the water system will not be considered separately. The study will use the number of connections as the basis of the study. This appears to be a valid assumption because there appears to only be a handful of non-residential connections in the system. Also, as will be shown later, the usage per connection in the system is fairly high; and is near the range that a typical commercial establishment would use.

It is recommended by this study that the number of residential customers and non-residential customers be separated so far as number of connections and usage so that in future master plans these can be broken out.

E. AVERAGE CULINARY WATER USAGE

The State of Utah Public Drinking Water Regulations requires public water systems to meet requirements based upon usage. State rules provide a standard usage based upon the types of connections serviced in a system. Usage can also be based upon historical data if there is enough data to provide a confidence level of 90% or higher that the usage shown is representative of actual average use. Hildale City has provided historic usage data which will be used for the analysis. The analysis of this historic usage is outlined in this section.

According to data provided by Hildale City, the average number of existing culinary connections in 2013 was 916. To calculate how much water is used by an average residential connection, the total amount of water used by all Hildale City and Town of Colorado City residential customers over the course of a year was determined. Table II.E-1 below provides historic data from City records from 2009 to 2013. The average daily use per residential connection for the last three years was calculated to be 1,427 gal/day.

Table II.E-1: Average Usage per Connection

Year	Total Usage (gallons)	Number of Connections	Usage per Connection (gpd/conn)
2009	437,122	895	1,338
2010	427,326	908	1,289
2011	445,077	914	1,335
2012	504,625	917	1,508
2013	480,866	916	1,438
3-Year Avg:	476,856	916	1,427
5-Year Avg:	459,003	910	1,381
This Master Plan will use a historic daily usage of 1427 gpd/connection			

Based on Table II.E-1, it is recommended that any future improvements be sized for **1,427 gal/day per connection**. The remainder of this report will refer to this usage as historical usage and each section will include analysis showing requirements based upon this historic usage.

F. PEAK DAY DEMAND CULINARY WATER USAGE

Peak day demand is defined by the Utah Administrative Code as the “anticipated water demand on the day of the highest water consumption.” Peak day demand is typically taken as twice the average day demand. In this case, Peak day demand for this report is taken as **2,854 gpd per connection**.

The peak day value of 2,854 gpd per connection should be slightly higher than the highest monthly demand. In the last 4 years, June has been the month with the highest usage; and has averaged at 2,384 gpd/connection. This shows that the 2,854 gpd per connection (based on a peaking factor of 2) is a good approximation for the peak day demand of the system.

G. PEAK INSTANTANEOUS DEMAND CULINARY WATER USAGE

Peak instantaneous demand can be described as the highest demand at any one instance in the system. This can be determined based on hourly usage data. Where hourly usage data does not exist, which is the case for this study, the state requires that the following formulas are used for indoor and outdoor usage:

Indoor Usage:

$$Q_{\text{peak indoor}} = 10.8 \times N^{0.64}$$

where N is the number of connections and Q is the flow in gpm

Outdoor Usage:

$$Q_{\text{peak outdoor}} = N \times \text{Irr. Acreage} \times \text{Demand Factor}$$

where N is the number of connections, Irr. Acreage is the average area that is irrigated throughout the system and the Demand Factor is based on zone and given in Table 510-7 of R309-510 of the Utah Administrative Code.

Because of the uniqueness of Hildale and Colorado City’s household size, the above equations yield an unrealistic number for the water system. In fact, the number is less than the calculated peak day demand based on actual data. Because of this, an alternative method was used in calculating the peak instantaneous demand for the system.

The peak instantaneous demand was still calculated by separating out indoor and outdoor usage. A peaking factor was determined for both indoor and outdoor usage as well as a composite peaking factor. A peaking factor is defined as the peak instantaneous demand divided by the average day demand.

Once the peaking factors are determined based on the state recommendations, they will be multiplied by the average indoor usage and outdoor usage for the system. The average indoor usage was calculated from the average usage over the past three years in the months of

December through February. This value was calculated as 800 gpd/conn. The average outdoor usage was calculated by subtracting the indoor average demand of 800 gpd/conn. from the total historic daily usage of 1427 gpd/conn. for a value of 627 gpd/conn. These numbers are reflected in Table II.H-1.

For peak instantaneous indoor usage, the amount recommended by the aforementioned equation was calculated and divided by the average day demand recommended by the state as follows:

$$Q_{\text{peak indoor}} = 10.8 \times (919)^{0.64} = 851 \text{ gpm} \quad (\text{as calculated per R309-510})$$

converting to gpd per connection:

$$Q_{\text{peak indoor}} = 851 \text{ gpm} \times 1440 \text{ gpd/gpm} / 919 \text{ connections} = 1,333 \text{ gpd/conn.}$$

Where the state recommends use of an indoor usage value of 400 gpd/connection for average day demand, the indoor peaking factor would be $1,333/400 = 3.33$. Multiplying the peaking factor by the indoor average demand of 800 gpd/conn. as calculated above, the indoor peak instantaneous demand was calculated as 2,664 gpd/conn.

$$Q_{\text{peak indoor}} = 800 \text{ gpd/conn.} \times 3.33 = 2,664 \text{ gpd/conn.} \quad (\text{as estimated for water system})$$

For outdoor usage, the amount recommended by the state is based on irrigated acreage and some factor by which it is multiplied. This factor is based on location of the water system. Hildale City is located in Zone 5 which has a factor of 4.52 for peak day demand and 9.04 for peak instantaneous demand. We have already established that peak day demand is twice the average day demand; and, based on the state's factors, the outdoor peak instantaneous demand can be expected to be twice the outdoor peak day demand. Therefore, the outdoor peak instantaneous demand can be expected to be 4 times the outdoor average day demand for a peaking factor or 4. Multiplying the peaking factor by the outdoor average demand of 627 gpd/conn as calculated above, the outdoor peak instantaneous demand was calculated as 2,508 gpd/conn.

$$Q_{\text{peak outdoor}} = 627 \text{ gpd/conn.} \times 4 = 2,508 \text{ gpd/conn.} \quad (\text{as estimated for water system})$$

The total peak instantaneous demand was found by adding the outdoor and indoor peak instantaneous demands to be 5,172 gpd/connection. This represents an overall peaking factor of 3.62.

$$Q_{\text{peak instantaneous demand}} = 2,508 \text{ gpd/conn.} + 2,664 \text{ gpd/conn.} = \mathbf{5,172 \text{ gpd/conn.}}$$

H. COMPARISON TO STATE'S AVERAGE

In comparison to other communities in the State of Utah, the daily average use for the water system is significantly higher. The higher usage is likely due to the larger household size in Hildale City and the Town of Colorado City. In a study conducted in 2009, the Utah Department of Natural Resources (DNR) studied a number of Utah communities to determine the average water usage in Utah. The results of this study, as compared to the water system

usage is shown on the following page. Please note that the indoor usage for Hildale/Colorado City was approximated from the usage in the months December, January, and February.

The comparison between the average usage determined by the DNR study for the state of Utah and the average usage as determined by this study shows that while the system's overall usage per household is higher than the state average, the overall usage per capita falls more in line with state average. This can be explained by the differences in household size.

Table II.H-1: State Average Comparison

		Hildale/Colorado City	2009 DNR Study (Utah)
per Household	Population	8.46	2.93
	Indoor Usage (gpd)	800	182
	Outdoor Usage (gpd)	627	393
	Total Usage (gpd)	1427	575
per Capita	Indoor Usage (gpcd)	94	62
	Outdoor Usage (gpcd)	74	134
	Total Usage (gpcd)	169	196

I. CONSERVATION

As shown above, the system's per capita total usage seems to be right in line with, or slightly less than, the state average. The system's outdoor usage per capita is 45% less than the state average; although when comparing per household, the system's outdoor usage is 60% more than the state average. Also, the state average indoor usage per capita is 34% less than the system's indoor usage. Hildale and Colorado City should continue to promote conservation to maintain or decrease the average usage across the system.

This plan assumes a conservation of 0.5% per year over the planning period. The 0.5% per year would be with respect to the current usage yielding a total conservation of 10% at the end of the 20-year planning period and 20% at the end of the 40-year horizon. This conservation may come from a combination of conservation from the existing connections and new connections using less than the average usage.

At the end of the 20-year planning period, the assumed conservation would result in a 10% decrease from the existing average day usage of 1,427 gpd/conn. to 1,284 gpd/conn. and from the existing peak day usage of 2,854 gpd/conn. to 2,569 gpd/conn. Average day usage at the end of the 40-year horizon would be reduced by 20% to 1,142 gpd/conn.

Year 2034 Projected Average Day Usage per Conn.:	$1,427 (1-0.005*20) = 1,284$ gpd/conn.
Year 2034 Projected Peak Day Usage per Conn.:	$2,854 (1-0.005*20) = 2,569$ gpd/conn.
Year 2054 Projected Average Day Usage per Conn.:	$1,427 (1-0.005*40) = 1,142$ gpd/conn.

III. WATER RIGHTS ANALYSIS

A. EXISTING WATER RIGHT

Because the water system is located in both Utah and Arizona, water rights will be looked at separately for each state.

Utah:

The existing culinary water rights owned for the water system in Utah are listed in Table III.A-1 below. The water rights are listed according to number, source, and flow. The water rights listed below are for municipal use.

Table III.A-1: Water Rights

Water Rights (Municipal Use)			Flow		
W.R. #	Owner	Source	gpm	cfs	AcFt.
81-295	TCWW	Springs (6) and 1 well	12.12	0.03	14.90
81-951	TCWW	Springs (6) and 1 well	17.05	0.04	18.00
81-1638	Hildale City	Underground Water Well (3 existing and 1 new)	228.89	0.51	369.22
81-3795	TCWW	Springs (6) and 1 well	100.08	0.22	161.45
Total Water Rights			358.1	0.80	563.6
*Water rights owned by Twin City Water Works (TCWW) or Hildale City as specified.					

Arizona:

Sunrise Engineering has discussed the Colorado City water wells with the Arizona Department of Water Resources personnel. The following information is helpful to understand the well permitting, water use, and the need, if any, to have a valid water right in the State of Arizona.

In the Colorado City geographical area there is no requirement to possess a water right per say. The wells are non-restricted, must be registered with the Arizona Department of Water Resources, drilled by a licensed driller, and the water put to a beneficial use.

The water available from these wells is only restricted by the actual physical quality and quantity of the water produced. The quantity of water that can be produced from the wells is addressed in Section IV on source capacity.

The following hyperlink is for the Arizona Department of Water Resources as a reference and planning guide:

http://www.azwater.gov/AzDWR/StatewidePlanning/WaterAtlas/WesternPlateau/documents/Volume_6_Final.pdf

The detailed “Arizona Water Atlas Volume 6 Western Plateau Planning Area” is produced by the Arizona Department of Water Resources. The plan is over 300 pages of resource information for all communities in the area.

Also the Arizona Department of Water Resources personnel was asked if there is any reason the water pumped from within Arizona would be restricted to be used within Arizona? No response was received to the question at the time this information was published. However, the system has been operating as a combined system since 1976 and in 1997 an agreement was signed between the Arizona Department of Environmental Quality, the Utah Division of Drinking Water, Hildale City Utah, Colorado City Arizona, and the Twin City Water Works Company. This agreement “covers the drinking water system serving the communities of Hildale, Utah and Colorado City, Arizona. It further sets forth the division of regulatory duties between the Utah Division of Drinking Water and the Arizona Department of Environmental Quality.” Although the agreement does not discuss water rights, it does acknowledge the combined water system and provides instruction for its operation and oversight.

From the above mentioned information and conversations with the Arizona Department of Water Resources, it can be concluded that the water use from wells in Mojave County are not in an “Active Management Area” thus, there is no current requirement to report water use to the Arizona Department of Water Resources annually.

B. EXISTING REQUIRED WATER RIGHT

The State of Utah Public Drinking Water Regulation, R309-510, states that a community should have adequate water right to supply each culinary connection with 400 gallons per day for indoor water use, plus an amount for outdoor use as dictated by irrigated acreage and a consumptive use value obtained from the State guidelines. The community may substitute historical use data for indoor and outdoor requirements.

For the case of water rights, this historical use data is the average usage. The average usage for the water system have already been established as 1,427 gallons per day per connection as outlined in Section II.

Utah:

From Table III.A-1, the total amount of water right available in Utah is 563.6 Ac-Ft. As shown in Table III.B-1, the existing required water right for the connections in Hildale, Utah is calculated as 554.7 Ac-Ft and the existing water right surplus is calculated as 8.9 Ac-Ft.

Table III.B-1: Existing Water Rights - Utah

Existing Required Water Rights Calculations					1,427 gpd/conn.	
Average Demand (Total Use)						
347	Conn.	$\frac{1,427 \text{ gpd}}{\text{Conn.}}$	$\times \frac{1 \text{ day}}{24 \text{ hr}}$	$\times \frac{1 \text{ hr}}{60 \text{ min.}}$	=	344 gpm
347	Conn.	$\frac{1,427 \text{ gpd}}{\text{Conn.}}$	$\times \frac{365 \text{ day}}{1 \text{ yr}}$	$\times \frac{1 \text{ Acft.}}{325,829 \text{ gal}}$	=	554.7 Ac-Ft
Existing Culinary System Water Right Surplus					8.9	Ac-Ft

Arizona:

As shown in Table III.B-2 below, the existing required water right for the connections in Colorado City, Arizona is calculated as 914.4 Ac-Ft. As stated in Section III.A, the wells are presumably only restricted by the actual physical quality and quantity of the water produced.

Table III.B-2: Existing Water Rights - Arizona

Existing Required Water Rights Calculations					1,427 gpd/conn.	
Average Demand (Total Use)						
572	Conn.	<u>1,427 gpd</u>	X	<u>1 day</u>	X	<u>1 hr</u>
		Conn.		24 hr		60 min.
					=	567 gpm
572	Conn.	<u>1,427 gpd</u>	X	<u>365 day</u>	X	<u>1 Acft.</u>
		Conn.		1 yr		325,829 gal
					=	914.4 Ac-Ft

C. PROJECTED REQUIRED WATER RIGHT (2034)

The projected required water right at the end of the 20-year planning period can be calculated by using the projected number of connections in place of the current number of connections. Table III.C-1 and Table III.C-2 show the calculations for the projected required water rights. Please note that the projected average usage has been decreased by 0.5% per year to adjust for assumed water conservation.

Utah:

As shown in Table III.C-1, the projected required water right is calculated as 729.4 Ac-Ft and the projected water right deficit is calculated as 165.8 Ac-Ft. The projected required average day usage of 1,284 gpd/conn. takes into account assumed conservation as detailed in Section II.

Table III.C-1: 20-Year Projected Req'd Water Rights - Utah

Projected Required Water Rights Calculations						1,284 gpd/conn.
Average Demand (Total Use)						
507	Conn.	<u>1,284 gpd X</u>	<u>1 day X</u>	<u>1 hr</u>	=	452 gpm
		Conn.	24 hr	60 min.		
507	Conn.	<u>1,284 gpd X</u>	<u>365 day X</u>	<u>1 Acft.</u>	=	729.4 Ac-Ft
		Conn.	1 yr	325,829 gal		
Projected Culinary System Water Right Deficit						-165.8 Ac-Ft

Arizona:

As shown in Table III.C-2 below, the projected required water right is calculated as 1,205.6 Ac-Ft. As stated in Section III.A, the wells are presumably only restricted by the actual physical quality and quantity of the water produced. The projected required average day usage of 1,284 gpd/conn. takes into account assumed conservation as detailed in Section II.

Table III.C-2: 20-Year Projected Req'd Water Rights - Arizona

Projected Required Water Rights Calculations						1,284 gpd/conn.
Average Demand (Total Use)						
838	Conn.	<u>1,284 gpd X</u>	<u>1 day X</u>	<u>1 hr</u>	=	747 gpm
		Conn.	24 hr	60 min.		
838	Conn.	<u>1,284 gpd X</u>	<u>365 day X</u>	<u>1 Acft.</u>	=	1205.6 Ac-Ft
		Conn.	1 yr	325,829 gal		

D. PROJECTED REQUIRED WATER RIGHT (2054)

As previously mentioned, the state of Utah requires that water rights be analyzed on a 40-year planning period. The projected required water right at the end of the 40-year planning period can be calculated by using the projected number of connections in place of the current number of connections. Table III.D-1 and Table III.D-2 show the calculations for the projected required water rights. Please note that the projected average usage has been decreased by 0.5% per year to adjust for assumed water conservation.

Utah:

As shown in Table III.D-1 below, the projected required water right is calculated as 927.2 Ac-Ft and the projected water right deficit is calculated as 363.6 Ac-Ft. The projected required average day usage of 1,142 gpd/conn. takes into account assumed conservation as detailed in Section II.

Table III.D-1: 40-Year Projected Req'd Water Rights - Utah

Projected Required Water Rights Calculations						1,142 gpd/conn.
Average Demand (Total Use)						
725	Conn.	$\frac{1,142 \text{ gpd}}{\text{Conn.}}$	$\times \frac{1 \text{ day}}{24 \text{ hr}}$	$\times \frac{1 \text{ hr}}{60 \text{ min.}}$	=	575 gpm
725	Conn.	$\frac{1,142 \text{ gpd}}{\text{Conn.}}$	$\times \frac{365 \text{ day}}{1 \text{ yr}}$	$\times \frac{1 \text{ Acft.}}{325,829 \text{ gal}}$	=	927.2 Ac-Ft
Projected Culinary System Water Right Deficit						-363.6 Ac-Ft

Arizona:

As shown in Table III.D-2 below, the projected required water right is calculated as 1,529.5 Ac-Ft. As stated in Section III.A, the wells are presumably only restricted by the actual physical quality and quantity of the water produced. The projected required average day usage of 1,142 gpd/conn. takes into account assumed conservation as detailed in Section II.

Table III.D-2: 40-Year Projected Req'd Water Rights - Arizona

Projected Required Water Rights Calculations						1,142 gpd/conn.
Average Demand (Total Use)						
1,196	Conn.	$\frac{1,142 \text{ gpd}}{\text{Conn.}}$	$\times \frac{1 \text{ day}}{24 \text{ hr}}$	$\times \frac{1 \text{ hr}}{60 \text{ min.}}$	=	948 gpm
1,196	Conn.	$\frac{1,142 \text{ gpd}}{\text{Conn.}}$	$\times \frac{365 \text{ day}}{1 \text{ yr}}$	$\times \frac{1 \text{ Acft.}}{325,829 \text{ gal}}$	=	1529.5 Ac-Ft

E. RECOMMENDED WATER RIGHT IMPROVEMENTS

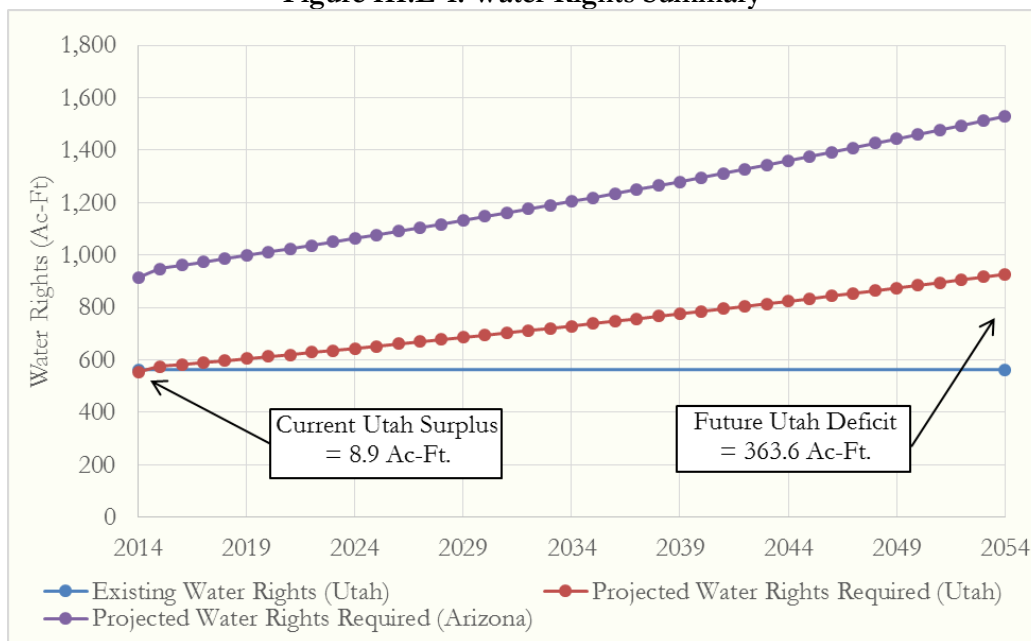
The projections in this analysis show that the Utah water rights are almost running a deficit and are projected to run a deficit in the year 2016. In order to alleviate this, rights with irrigation use should be converted to municipal use or other water rights should be obtained in Utah.

The water rights projections show that the system will have sufficient Arizona water rights.

The water rights should be reviewed at least every five years in order to ensure that the system is able to meet future demands and maintain a right to the water. If additional sources are developed, the City may be required to submit a change application to move existing water rights to the new source location. For more information on the water rights calculations see Appendix B.

Figure III.E-1 shows the existing water rights compared to the projected requirements up to year 2054 under historic use.

Figure III.E-1: Water Rights Summary



In October 2013, Sunrise Engineering completed a water right inventory for Hildale City. The comments and recommendations from the water right inventory for the Utah municipal water rights are listed below. A summary of all the water rights and their comments and actions is included in Appendix C.

WATER RIGHT 81-295:

Twin City Water Works – Municipal use only

This water right is represented by recently approved change application a35413. The right has seven (7) points of diversion, six (6) springs and one (1) existing underground well. The water right is a 0.027 CFS or 14.9 acre-feet municipal right. The proof is due 1/31/2017. DWRi requires substantial water use before proof can be filed. Preparation of a Proof matrix will help eliminate spending effort and dollars for proof preparation that may not result in certification of the water right.

ACTIONS:

1. Complete a Proof of Beneficial Use Matrix evaluation to determine if the proof can be filed.
2. Based upon Proof of Beneficial Use Matrix, prepare and file required extensions and/or proof of beneficial use.

WATER RIGHT 81-951:

Twin City Water Works – Municipal use only

This water right is represented by a recently approved change application a35414. The right has seven (7) points of diversion, six (6) springs and one (1) existing underground well. The water is a 0.038 CFS or 18 acre-feet municipal right. The proof is due 1/31/2017. DWRi requires substantial water use before proof can be filed. Preparation of a Proof matrix will help eliminate spending effort and dollars for proof preparation that may not result in certification of the water right.

ACTIONS:

1. Complete a Proof of Beneficial Use Matrix evaluation to determine if the proof can be filed.
2. Based upon Proof of Beneficial Use Matrix, prepare and file required extensions and/or proof of beneficial use.

WATER RIGHT 81-1638:

Hildale City – Municipal use only

This water right status is approved, the 2001 change a25875 is also approved. The Proof due date is 1/31/2016. The change permits four (4) underground wells, with three (3) underground wells existing at the time of change application approval. The water right is a 0.51 CFS municipal right. The Proof of Beneficial use was filed, however the certificate was not allowed by the Division of Water Rights (DWRi) and the proof was withdrawn. Also there have been four (4) extensions historically approved. Caution: proper on-time management is advised; due diligence will be key to any approvals of future extension applications. Since the Proof was filed, DWRi has changed its proof policy, DWRi now requires that the water be placed in use. That may prevent DWRi certification of the water right based on any current proof. Any recent water system improvements can be used to document “Due Diligence” to help secure future extension application approvals. If this water right and all of the historical certificated rights are “in use” and are used “substantially” the right can be Proofed then certificated.

ACTIONS:

1. Document Due Diligence work completed in recent years.
2. Complete a Proof of Beneficial Use Matrix evaluation to determine if the proof can be filed.
3. Based upon Proof of Beneficial Use Matrix, prepare and file required extensions and/or proof of beneficial use.

WATER RIGHT 81-3795:

Twin City Water Works – Municipal use only

This water right is represented by a recently approved change application a35415. The right has seven (7) points of diversion, six (6) springs and one (1) existing underground well. The water is a 0.223 CFS or 161.45 acre-feet municipal right. The proof has recently been submitted for

approval. DWRI requires substantial water use before proof can be filed. Preparation of a Proof matrix will help eliminate spending effort and dollars for proof preparation that may not result in certification of the water right.

ACTIONS:

1. Complete a Proof of Beneficial Use Matrix evaluation to determine if the proof can be filed.
2. Based upon Proof of Beneficial Use Matrix, prepare and file required extensions and/or proof of beneficial use.

IV. WATER SOURCE CAPACITY ANALYSIS

A. EXISTING WATER SOURCE CAPACITY

To analyze source capacity, all available culinary water sources must first be identified. These sources are listed in Table IV.A-1. The flow capacity numbers were acquired from Hildale City. The wells have not been tested for a long time and Twin City Water Works has indicated they at times are not able to maintain or guarantee 1,200 gpm. Recently Twin City Water Works has had problems with Well 17 “sucking air.” The pump was lowered in the well and the pumping rate reduced from 120 gpm to 80 gpm.

Table IV.A-1: Existing Water Source Capacity

Hildale City and Town of Colorado City Sources		Total Flow	
Well #	Twin City Water Works Wells	CFS	gpm
24	350 S 450 W Colorado City	0.334	150
22	350 S 450 W Colorado City	0.412	185
11	350 S 450 W Colorado City	0.334	150
8	585 W. Johnson Avenue	0.134	60
4a, 4b	195 S Richard St.	0.334	150
10	155 S Richard St.	0.189	85
21	5 S Richard St.	0.468	210
15	5 N Richard St.	0.056	25
19	730 W Township Ave.	0.323	145
17	330 N Willow	0.178	80
Wells Total =		2.763	1,240
Springs			
Jans Canyon		0.036	16
Maxwell Canyon		0.143	64
Springs Total =		0.178	80
Source Total =		2.941	1,320

Listed spring flows are relatively constant year in and year out. These springs were developed from a horizontal bore into the Navajo sandstone formation.

B. EXISTING REQUIRED WATER SOURCE CAPACITY

The State of Utah Public Drinking Water Regulations, Section 5, states that a community should have an adequate water source capacity to physically meet the anticipated peak day demand. The peak day demand has already been determined as 2,854 gpd per connection.

The existing required source capacity calculations are shown in Table IV.B-1.

Table IV.B-1: Existing Required Water Source Capacity

Existing Required Water Source Capacity Calculations						
Required Indoor/Outdoor Source - Historic Usage						
919	Conn.	X	2,854 gpd	X	1 day	X 1 hr
			Conn.		24 hr	60 min.
					=	1,821 gpm
Existing Culinary System Source Capacity Deficit						-501 gpm

The existing source capacity surplus or deficit is determined by subtracting the existing required source capacity of 1,821 gpm from the total available source capacity of 1,320 gpm, which yields a deficit of 501 gpm.

It should be noted that during peak summer months the system capacity is seriously stressed. During those times usage restrictions have been put into place and the Power Plant well has supplemented the system on a limited basis. Also, for short durations the treatment plant has been able to process greater than the 1,200 gpm average. The addition to the power plant well and the difference seen at the treatment plant during the summer months explains the current deficit shown above.

C. PROJECTED REQUIRED WATER SOURCE CAPACITY (2034)

Projected required water source capacity at the end of the planning period is determined from the same information and calculations explained above, except the projected number of culinary water connections is substituted in the calculations for the current number of connections. The projected required source capacity calculations are shown in Table IV.C-1. Please note that the projected peak day usage has been decreased by 0.5% per year to adjust for assumed water conservation.

Table IV.C-1: 20-Year Projected Required Water Source Capacity

Projected Required Source Capacity Calculations (2034)						
Required Indoor/Outdoor Source - Historic Usage						
1,345	Conn.	X	2,569 gpd	X	1 day	X 1 hr
			Conn.		24 hr	60 min.
					=	2,399 gpm
Projected Culinary System Source Capacity Deficit						-1,079 gpm

The projected source capacity surplus or deficit is determined by subtracting the projected required source capacity of 2,399 gpm from the total available source capacity of 1,320 gpm, which yields a projected deficit of 1,079 gpm at the end of the planning period.

D. RECOMMENDED WATER SOURCE CAPACITY IMPROVEMENTS

With a projected source capacity shortage of 1,079 gpm at the end of the 20-year planning period and an existing source capacity deficit of 501 gpm, it is imperative that Hildale/Colorado City increase their source capacity as soon as possible.

Colorado City will soon begin a study that will look closer at groundwater resources. That report should provide additional analysis or other potential recommendations to develop additional source capacity. The following are some initial recommendations for source capacity development. We recommend the City test and measure flows of each existing source in order to provide an accurate accounting of capacities.

E. MEASURE EXISTING SOURCE CAPACITIES RECOMMENDED

We recommend that the existing source flows be measured since there are not currently meters on individual sources. This is because conventional meters at the wells in the Alluvial Aquifer are unable to be maintained due to the high iron content. Updated flow rates could be used to amend this study in the future.

Power Plant Well:

Hildale City is currently working with the Utah Division of Environmental Quality to gain formal approval as a Drinking Water Source. The “Power Plant Well” shown below is anticipated to pump 240 gpm but may require blending to bring the radionuclides level into compliance with Drinking Water Standards. Hildale City should continue to work toward approval of this well as it can provide additional source capacity in a timely manner.

Figure IV.A-1: Power Plant Well

Academy Avenue Well:

One of the first anticipated improvements to increase the source capacity is to develop a well on Academy Avenue. A well was drilled about ten years ago; however, we understand that because of defective welding and damage to the well casing, the well was abandoned. A new well in this area is being planned and is anticipated in 2015, contingent upon a funding application. A new well in this area is thought to be capable of producing 200 gpm. A waterline will need to be installed from this well to the nearest well that runs to the treatment plant.

Other Arizona Wells:

Because Arizona considers the surrounding area an “open basin,” additional wells may be drilled and developed for the community. Experience would indicate that the quality of the water will likely require treatment. The Colorado City Water Planning Study will do more to identify

quantity and quality of groundwater from both shallow and deep aquifers. We recommend that these potential wells be seriously pursued as a means to provide additional source capacity in the least amount of time.

3,000 ft. Well:

Some time ago, a private company drilled an exploratory well on private property to a depth of approximately 3,000 feet. This well or a comparable well should be looked at further as a potential source of water. Previously, this well was not developed because of the significant capital cost involved to test and equip the well and the power costs involved with pumping the water. However, considering the source capacity shortage, further research to develop this well should be considered.

Water Canyon Spring Collection:

A geologist, Bryce Montgomery, during 1986, investigated potential sources of culinary water in the area. His report, dated December 13, 1986, stated that the Navajo sandstone formation was the best potential source of good culinary water. The report stated that undeveloped springs in Water Canyon flowed at over 600 gpm, and the source of these springs was the Navajo sandstone layer. The report identified potential well sites in Water Canyon and Squirrel Canyon where horizontal bores into the Navajo sandstone formation could be effectively made. Mr. Montgomery's Hydrogeologic Report is included in this plan as Appendix D.

It is recommended that Hildale/Colorado City obtain the necessary rights and begin the process to develop this potential source of water in Water Canyon. Once developed by horizontal bore, this source may produce dependable volumes of quality water at relatively low cost, especially if the bores intercept large fractures in the sandstone formation. This source would require construction of 3 miles of gravity flow pipeline to the City. The City may need to obtain new water rights located in Water Canyon or may need to transfer new or existing water rights to a new point or new points of diversion.

Unfortunately, Water Canyon is on Federal land administered by USDI-BLM and the environmental issues of the project would be very challenging. It is also recognized that the springs are located in the visual resource management (VRM) class I area where very limited management activity is allowed. Created contrasts must not attract attention. This classification applies to wilderness areas, wild and scenic rivers, primitive areas, some natural areas, and similar sites where landscape modification activities should be restricted. The area is also located in a Rights-of-Way (ROW) Avoidance Area where a ROW should be avoided if at all possible.

It appears it will be challenging and costly to obtain a ROW for the pipeline and spring development. However, this option should not be ruled out. For the VRM class, the springs are located well out of view from any public roads. Therefore, construction of pipelines and spring development would not attract attention. However, to bring the water to the system, it is not possible to avoid a ROW through the area.

Therefore, the City will need to go through the NEPA process and obtain a ROW from BLM. The City would need to show all alternatives that have developed in the planning work and that no other alternatives could meet the objective to bring Hildale City the quantity and quality water it needs.

Well – Near Rosy Canyon Road:

Another option for additional source capacity would be drilling a well on private property not in the general Hildale/Colorado City vicinity. For example, a well on private property located in Arizona east of Cane Beds could produce significant water. Advantages would be the lesser permitting requirement on private land as well as potentially better quality of water. However, a pipeline would be expensive as it would have to be piped approximately 10 miles and perhaps cross BLM wilderness study area.

Lake Powell Pipeline:

The Lake Powell pipeline may ultimately be the most reliable long term source for a significant volume of water. This would require coordination with the Washington County Water Conservancy District (WCWCD).

The Lake Powell Pipeline has been proposed to meet the water demands of southwestern Utah as it would take water from Lake Powell and transport it to Washington and Kane counties.

According to the Utah Division of Water Resources:

The project will consist of approximately 139 miles buried of 69-inch pipe from Lake Powell to Sand Hollow Reservoir near St. George. It also includes pumping facilities near Glen Canyon Dam with booster pumping stations along the pipeline alignment to provide the approximately 2,000 foot lift needed to carry the water over the high point in the pipeline. Hydroelectric generation facilities will be included to utilize the roughly 2,900 foot drop between the high point and the end of the pipeline. Power sales will be used to help offset pumping costs.

At full development the pipeline is expected to annually deliver up to 82,000 acre-feet (26.7 billion gallons) to Washington County Water Conservancy District, 4,000 acre-feet (1.30 billion gallons) to Kane County Water Conservancy District. The water diverted into the pipeline will be a portion of Utah's Upper Colorado River Compact allocation, and will consist of water rights to be held or acquired by the two water districts and the Board of Water Resources.

The state will build the project and the districts will repay the costs through water sales.

The following is the timeline as anticipated by the Utah Division of Water Resources:

- May 1, 2006 Lake Powell Pipeline Development Act
- October, 2006 Project manager chosen for Preliminary Engineering and Environmental Studies phase.

- February, 2007 MWH Americas, Inc selected to perform Preliminary Engineering and Environmental Studies.
- March 2008 Begin FERC Licensing and NEPA compliance
- 2015 Licenses, Permits, ROD issued
- 2017 Final design begins
- 2020 Construction begins
- 2025 Water delivery begins

A map showing the proposed alignment of the pipeline is shown in Appendix E as obtained from the Utah Division of Water Resources. As can be seen, the pipeline would come in close proximity of Hildale City. As stated by the Utah Division of Water Resources:

Numerous pipeline alignments have been investigated; however, the following has been submitted to the Federal Energy Regulatory Commission as the proposed action:

This alignment follows the major highway from Glen Canyon Dam to a point about ten miles east of Kanab where it turns southwest and primarily follows existing road and power line alignments south of the Kaibab Paiute Indian Reservation, then returns to the highway and on to Hildale, Utah. At that point it heads north and west to the Hurricane Cliffs then on to Sand Hollow Reservoir.

Various aspects of the alignment are still being investigated by MHW as part of its study and are subject to change.

Discussions with the WCWCD have revealed that connecting Hildale to the pipeline is a possibility and has been discussed. A likely scenario may be tying into the proposed treatment plant location near Apple Valley and piping treated water back to Hildale.

However, there are complications because of the combined system that includes Arizona, the fact that other communities in Washington County have already been paying impact fees and a monthly surcharge, and the conservation measures required by the WCWCD. Recent attempts to communicate with WCWCD have been unsuccessful. This study recommends that Hildale City resume discussion immediately with the WCWCD regarding these and any other potential issues that may arise.

Other WCWCD Connections (via Apple Valley):

The WCWCD could still potentially provide water to Hildale City even if not through the Lake Powell Pipeline. There has been past discussions of extending a WCWCD line to Apple Valley from Virgin. If this line were to happen in the future, it could be sized adequately to extend the waterline to Hildale City. Although these are not immediate options, they should be considered and discussed with the WCWCD.

Reuse/Secondary Irrigation/Recharge:

Another method of increasing water capacity is to implement water reclamation for secondary water use. This would include treating wastewater and piping the reclaimed water for use in

gardens, landscaping, and other uses. Reclamation has the potential for a significant decrease in the source capacity required because outdoor usage would be reduced.

Using the reclaimed water does bring about potential issues such as significant initial costs to treat the water and construct the additional infrastructure needed throughout the City and additional operating costs. There is also a potential of high salinity in the water which could have a negative effect on plants unless further treatment measures are taken.

A similar option would be increasing water availability through recharge. This would include injecting reclaimed water and/or storm water into the ground thus increasing the supply of groundwater. This option will be looked at further by the Town of Colorado City in an upcoming study.

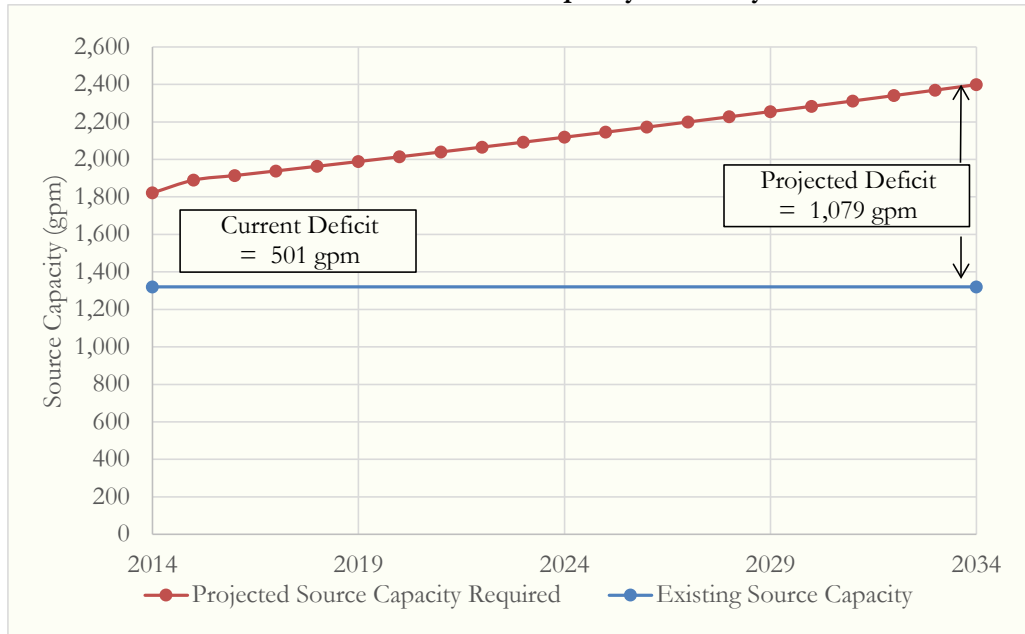
Another secondary irrigation alternative that the City should pursue is drilling a shallow well (approximately 100 ft.) to provide non-culinary water for areas such as parks. This would have the potential to free up existing source capacity by alleviating demand on culinary water during the summer months. A cost estimate for the irrigation well is shown in Appendix H.

Water Conservation:

This report has already assumed that water conservation will reduce usage by the rate of 0.5% per year. If this were not assumed, the projected deficit would be even larger. If Hildale and Colorado City could find a way to conserve more than has been shown, this deficit would decrease even more. It is recommended that Hildale and Colorado City continue conservation efforts and develop additional conservation measures in order to reach the assumed water conservation and possibly even more.

F. SOURCE CAPACITY SUMMARY

Figure IV.D-1 graphically represents a comparison between the current water source capacity and the projected required peak day demand flows over the planning period.

Table IV.D-1: Source Capacity Summary

V. WATER STORAGE CAPACITY ANALYSIS

A. EXISTING WATER STORAGE CAPACITY

The culinary water storage capacity for Hildale City is identified in Table V.A-1.

Table V.A-1: Storage Capacity Summary

Existing Storage Capacity:	
Saddle Tank	60,000 gal.
800,000 Gallon Tank	800,000 gal.
600,000 Gallon Tank	600,000 gal.
1245 North Elm Street Tank	1,000,000 gal.
Total Existing Storage Capacity	2,460,000 gal.

There are currently four existing water storage tanks in the Hildale City area. The Saddle Tank is higher than the other three and it receives the water from the springs. The outlet to the Saddle tank is near the top of the tank allowing unpressurized outflow. In an emergency, there is a valve that can be opened to utilize the storage in the tank. The other three tanks all have the same high water elevation and receive water from the wells through the treatment plant.

B. EXISTING REQUIRED WATER STORAGE CAPACITY

Water storage capacity requirements are found in the State of Utah Public Drinking Water Regulations, R309-510. These regulations require storage for a community's culinary water system to meet one full day's average use requirement for all connections in the community in addition to fire flows for a minimum of two hours and emergency storage as deemed necessary.

As shown in previous sections, the average water use per connection in the water system for 2014 is 1,427 gallons per day of culinary water for indoor and outdoor use. Storage requirements for fire protection vary slightly from community to community. In general, fire flow requirements are set by the local Fire Chief or are based on building size and type of construction. The Statewide minimum fire flow is 1,000 gpm. The minimum fire flow requirements given by Hildale City that will be used for this plan are 1,500 gpm. Also included in required storage is emergency storage as determined by the Owner and Engineer. For planning purposes, this master plan will use an amount of 25% of the total required storage from equalization and fire protection storage.

Based on the requirements for required storage capacity, the required storage capacity is calculated as shown in Table V.B-1.

Table V.B-1: Existing Required Storage Capacity

Existing Required Storage Capacity						
	1427 gpd	X	919	Conn.	=	1,311,315 gpd
	Conn.					
Fire Demand						
1,500 gpm	X	60 min	X	2 hr	=	180,000 gal.
	1 hr					
Emergency Supply						
25% of required storage						372,829 gal.
Total Existing Required Storage						1,864,144 gal.
Total Existing Storage Capacity						2,460,000 gal.
Existing Storage Capacity Surplus						595,856 gal.

The existing water storage capacity surplus or deficit is determined by subtracting the existing required water storage capacity of 1,864,144 gallons from the total available water storage capacity of 2,460,000 gallons, which yields an existing surplus of 595,856 gallons. The existing storage capacity has helped temporarily when the source cannot keep up with the demand during the summer months.

C. PROJECTED REQUIRED WATER STORAGE CAPACITY

The projected required culinary water storage capacity at the end of the planning period is determined from the same factors explained in part B above, but the projected number of culinary water connections is inserted into the calculations in place of the current number of connections. Please note that the projected average usage has been decreased by 0.5% per year to adjust for assumed water conservation.

Table V.A-1: Projected Required Storage Capacity

Projected Required Storage Capacity in 2034						
	1284 gpd	X	1,345	Conn.	=	1,727,008 gpd
	Conn.					
Fire Flow						
1,500 gpm	X	60 min	X	2 hr	=	180,000 gal.
	1 hr					
Emergency Supply						
25% of required storage						476,752 gal.
Total Required Storage						2,383,760 gal.
Total Existing Storage Capacity						2,460,000 gal.
Future Storage Capacity Surplus						76,240 gal.

The projected water storage capacity surplus or deficit is determined by subtracting the projected required water storage capacity of 2,383,760 gallons from the total available water storage capacity of 2,460,000 gallons, which yields a projected surplus of 76,240 gallons at build out.

D. EXISTING ELEVATION CONSTRAINTS

The elevations of the existing tanks are such that the maximum water elevation would be approximately 5,226 ft. This number is approximate and should not be used for design purposes. The state recommends being able to maintain a minimum static pressure of 50 psi. Therefore, the existing water system can only realistically serve developments at or below the 5,110 ft. elevation line. If subdivisions were proposed at higher elevations, higher tanks would need to be constructed and separate pressure zones possibly developed.

The existing subdivisions are, for the most part, below 5,110 ft. of elevation. However, there are a few small areas near the Elm Street Tank and Saddle Tanks that are higher than 5,110 ft. of elevation. The effect of this is shown in the distribution system analysis (see Section VII) as these are the areas where the minimum required pressures cannot be met.

The State of Utah Public Drinking Water Regulations require that a minimum of 40 psi of pressure be maintained during peak day demand at all points in the system. If a portion of the water system cannot meet the 50 psi static pressure recommendation, they may still be able to meet the 40 psi peak day demand requirement if it is near a tank. Developments above 5,133 ft. of elevation would theoretically experience static pressures greater than 40 psi but could still not meet the 40 psi peak day demand requirement depending on location.

E. RECOMMENDED WATER STORAGE CAPACITY IMPROVEMENTS

Hildale City currently has adequate storage and is projected to have adequate storage through the planning period according to historic usage as is shown in Figure V.E-1. New tanks should only be needed to meet system pressure requirements or as the existing tanks age and become unusable. When building new tanks, it is recommended that the City consider construction at an elevation sufficient to meet the peak day pressure requirements and at locations in the vicinity of new development.

Due to the current pressures experienced in the area near the Elm Street Tank, and the potential for future development in this area, it is recommended that a water tank be constructed north of the existing Elm Street Tank. This water tank is anticipated to be 500,000 gallons in capacity. Providing water to this tank will require the addition of a pump station near the existing distribution system to pump water to the new tank, and a pressure reducing valve in the system to create a separate/upper pressure zone.

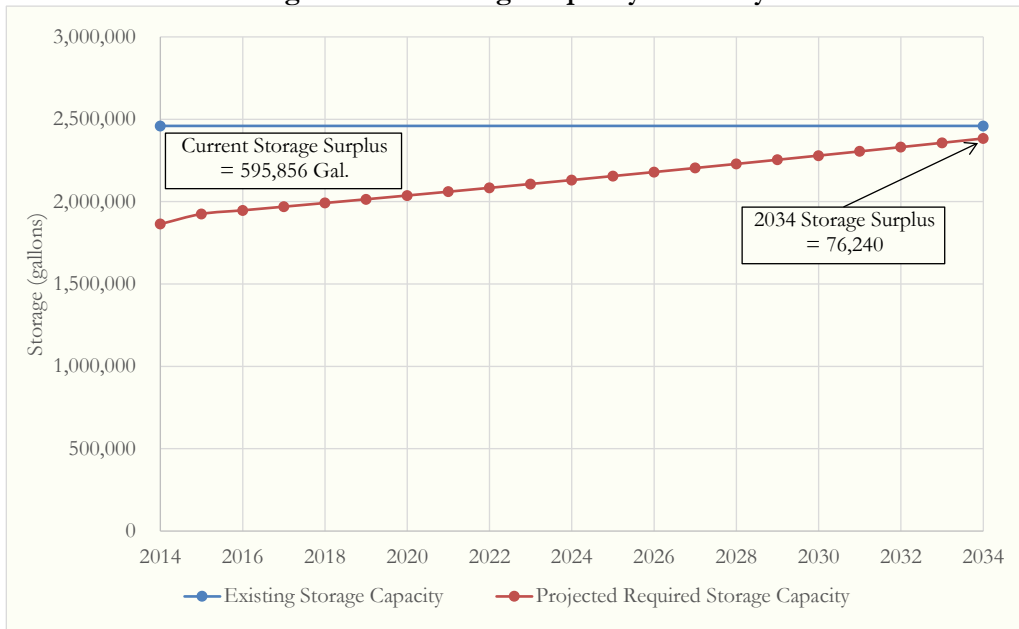
Similarly, a water tank is recommended near the existing Saddle Tank. This tank is anticipated to be 300,000 gallons in capacity and could be built to have the same high water elevation as the system's other tanks. This tank would help alleviate existing pressure problems in that area during peak instantaneous demand and fire flows. Until the tank becomes more feasible, another option consists of constructing another waterline across Short Creek. This option was

reviewed with the water model and would provide additional flow to the area near the existing Saddle Tank. See Section VII for more details.

F. STORAGE CAPACITY SUMMARY

Hildale City and the Town of Colorado City should review their storage needs every five years to ensure that they continue to provide enough storage for the culinary water system.

Figure V.E-1: Storage Capacity Summary



VI. WATER TREATMENT REQUIREMENTS

A. GENERAL REQUIREMENTS

The State of Utah Public Drinking Water Regulations, in accordance with the National Safe Drinking Water Act, have adopted “primary” regulations for the protection of public health and “secondary” regulations related to taste and aesthetics. The regulations recommend that all culinary water sources have provisions for continuous disinfection. Hildale/Colorado City have a water treatment facility to treat most of the City’s existing wells to ensure that the culinary water meets minimum requirements.

Recent water sampling has shown a low presence of Radium in the source water for the Power Plant Well in Hildale. This radioactive isotope must be taken out of the water through treatment, or blended to reduce concentration levels, if the concentration of radiation exceeds 5 pCi/L. Hildale has implemented a program to monitor the radium levels in the Power Plant well. Treatment and monitoring are likely required to ensure levels remain under the threshold of 5 pCi/L. Hildale City also has the capability to chlorinate water from the Power Plant well.

B. EXISTING TREATMENT FACILITIES

At present, culinary water from the wells in the system is pumped into a potassium permanganate media water treatment plant. The water treatment plant chlorinates the well water and treats it for high iron and manganese content through a rapid greensand filter process. The treatment plant currently has a capacity averaging near 1,200 gpm.

C. RECOMMENDED WATER TREATMENT FACILITY IMPROVEMENTS

Modifications to Existing Treatment Plant:

City staff have indicated that the existing treatment plant is not performing as it should. The City is having to run the treatment plant in series instead of running it in parallel which has reduced the capacity. Even then, it still may not be performing as desired. Hildale City has been modifying the plant in an attempt to increase the capacity. For example, booster pumps have been added to increase the capacity of the plant when it is running in series. It is recommended that Hildale City conduct a more focused analysis of the treatment process to find alternatives to provide more efficient treatment and allow the plant to be run in parallel rather than series and thereby increase capacity.

Expansion of Existing Treatment Plant:

The treatment plant appears to be at its capacity. The source capacity from the wells shown in Section IV is near 1,240 gpm. The plant should either be reconfigured so that it does not need to be run in series, or an additional treatment plant constructed perhaps nearer to other or future wells so as to facilitate the projected required additional source capacity. Staff has indicated that the plant has treated as much as 1,500 gpm during the peak of the summer.

Chlorination Capability at Saddle Tank:

The city should have the capability to automatically disinfect all sources of water to the culinary water system, to protect the public drinking water supply. The City did originally chlorinate the water at the Saddle tank; however, due to the purity of the water, that capability was removed.

Water from the Navajo sandstone formation will likely not require treatment in the City's treatment plant, and therefore, it should be less expensive after the initial capital costs to develop the source have been paid off. However, provisions should be made to allow chlorination of the water before it enters any of the City's storage facilities (at or near the Saddle Tank), if it became necessary, to ensure safety of the public drinking water source. This recommendation becomes more applicable if the City develops the potential sources in Water Canyon, and adds this flow to the Saddle Tank.

Power Plant Well:

For the Power Plant Well to be approved as a culinary water source, the State requires a plan be put in place to address the condition that occurs when radium exceeds the maximum contaminant level.

Two of the different radium treatment methods that are available are adsorption filtration and media filtration. Adsorptive media filters pull contaminants out of the water by the size, shape, and treatment of the adsorptive media needs to be replaced normally every 3-12 months depending on the system design and water chemistry. The spent media is then radioactive because it is full of Radium. No water is wasted in this process, and the only by product is the used up media.

Pressure filtration uses sands and anthracite as filtration media, along with Hydrous Manganese Oxide (HMO) to filter contaminants out of water. A chemical feed of HMO sticks to contaminants and causes them to coagulate and precipitate out of the water. The process collects more than just Radium. Iron, manganese, and other water quality issues are treated simultaneously by precipitating out of the water. This process must backwash the filters, causing a wastewater stream of precipitate solution, referred to as sludge or backwash water. Backwash frequency will depend on how much precipitant is created, but a safe assumption is to backwash the filters daily. Eventually, the media will lose effectiveness and need to be replaced about every 10 years; again, this will depend on how much precipitate precipitates out of the water.

Other options for treatment are reverse osmosis and blending. Reverse osmosis treatment creates a pressure differential and draws water through many membrane tubes to filter the water. This treatment option carries high capital costs, high operating costs, and high volume of water lost in treatment. Blending treatment requires that a secondary clean water source be used to mix with water from the Power Plant Well source water. Standards for Radium concentration regulate that there is to be no more than 5 pCi/L. Blending contaminated water with uncontaminated water will drop the concentration of Radium in the water delivered to the distribution system.

This plan weighs three different options for treatment of the Power Plant well: onsite pressure filtration, in-line blending, and blending in the storage tank.

- The pressure media filter plant would be installed next to the well to limit infrastructure needed for treatment. The treated water would then enter the distribution system right out of the treatment plant.
- In line blending of the water to bring the concentration of radium down to acceptable levels involves pumping water from the distribution system into a pipe with the well water with significant enough velocity to induce blending over a distance. Several check valves plus a connection to the existing distribution system some distance away from the well will ensure the outflow of blended water will not continuously be used for blending, thus reducing the effectiveness of the blending treatment. This study recommends that connection be south of Uzona Avenue in conjunction with a check valve to ensure the blended water does not immediately return to be blended again.
- Blending in a storage tank uses the same principles as the in line blending. The water from the well would be directly pumped to the storage tank thus blending with the water in the tank.

This plan recommends blending clean water from a secondary source, such as the current distribution system water, with the Power Plant Well source water. This alternative will likely be the most economical option in terms of capital costs and net present value. Planning and design will need to consider the concentration of water from the existing system and where the blended water can be reintroduced into the system.

VII. WATER DISTRIBUTION SYSTEM ANALYSIS

A. EXISTING DISTRIBUTION SYSTEM ANALYSIS

The State of Utah Public Drinking Water Regulations, R309-105-9, require that no connection experience less than 20 psi at any time during operation of the system. The regulations also require that the distribution system be sized to maintain 20 psi during peak day conditions with fire flow demands, 30 psi during conditions of peak instantaneous demand, and 40 psi during peak day demand. As a general guideline, it is desirable that the system be able to provide a minimum static pressure of 50 psi at every point in the distribution system.

Existing peak flows per connection were calculated in Section II. These flows are shown below as well as the total demand for the entire system:

$$\text{Peak day demand: } 2,854 \frac{\text{gpd}}{\text{ERU}} \times 919 \text{ Connections} \times \frac{1 \text{ day}}{1,440 \text{ min}} = 1,821 \text{ gpm}$$

$$\text{Peak instantaneous demand: } 5,172 \frac{\text{gpd}}{\text{ERU}} \times 919 \text{ Connections} \times \frac{1 \text{ day}}{1,440 \text{ min}} = 3,301 \text{ gpm}$$

Fire flow added to peak day demand: 1,500 gpm

The existing Hildale and Colorado City culinary water distribution systems have been modeled using the computer program H2ONET® by Innovyze, Inc. For the existing network under peak day demands, there are areas which provide less than the required 40 psi of pressure for peak day demands, areas that provide less than 30 psi for peak instantaneous demands, and areas that do not provide adequate fire flow. For the most part, the same areas do not meet all three requirements. These areas are near the Elm Street Tank (between Jessop Ave. and Newel Ave.), near the Saddle Tank (Canyon St., Carling St., and Louis St.), and on the east side of the system along Johnson Ave. and Edson Ave.). These areas are discussed further below:

- Area near Elm Street Tank – This area suffers from poor fire flow, lack of hydrants, and low pressure during peak day demands and peak instantaneous demands. Fire flows in this area have been modeled as low as 700 gpm during peak day demand. This largely is a result of elevations similar to the tank, smaller line sizes, and lack of looping. Peak day demands in this area are as low as 22 psi and peak instantaneous demands less than 8 psi. The lack of hydrants is likely due to the lack of available flow for potential hydrants in these areas.
- Area near Saddle Tank – This area suffers from poor fire flow, lack of hydrants, and low pressure during peak instantaneous demands. Fire flows in this area have been modeled as low as 770 gpm during peak day demand. This largely is a result of proximity to a tank (the Saddle tank only delivers approximately 80 gpm), smaller line sizes, and lack of looping. Peak day demands in this area are as low as 39 psi and peak instantaneous demands less than 10 psi.

- Area near Johnson Ave. and east end of Edson Ave. – The area on the east end of Edson Ave. at Johnson Ave. (in the cove) suffers from poor fire flow, lack of hydrants, and low pressure during peak instantaneous demands. Fire flows in this area have been modeled as low as 890 gpm during peak day demand. This largely is a result of proximity to a tank, smaller line sizes, and lack of looping. Peak day demands in this area are above the required 40 psi but peak instantaneous demands are less than 10 psi.

B. PROJECTED DISTRIBUTION SYSTEM ANALYSIS

The projected distribution system analysis is performed using the same assumptions as in the existing system analysis, except that the projected number of connections is inserted into the calculations. The calculations for the projected distribution demands are shown below:

$$\text{Peak day demand: } 2,854 \frac{\text{gpd}}{\text{ERU}} \times 1,345 \text{ Connections} \times \frac{1 \text{ day}}{1,440 \text{ min}} = 2,666 \text{ gpm}$$

$$\text{Peak instantaneous demand: } 5,172 \frac{\text{gpd}}{\text{ERU}} \times 1,345 \text{ Connections} \times \frac{1 \text{ day}}{1,440 \text{ min}} = 4,831 \text{ gpm}$$

Fire flow added to peak day demand: 1,500 gpm

Using each of the above listed flows, the water system model was used to analyze the existing culinary water system. The same areas that are not meeting the current requirements are those that would continue to not meet the requirements at the end of the planning period.

C. RECOMMENDED DISTRIBUTION SYSTEM IMPROVEMENTS

From the system deficiencies observed in the analysis, specific improvements are recommended which will remedy problems in deficient areas.

In another model, all recommended storage and distribution system changes have been incorporated and modeled. With these modifications, the system would be able to meet peak day demands with a 1,500 gpm fire flow at any node equipped with a fire hydrant while maintaining a minimum of 20 psi throughout the system, peak instantaneous demands while maintaining a minimum of 30 psi throughout the system, and peak day demands while maintaining 40 psi throughout the system.

State regulations require all new fire hydrants to be served from 8-inch diameter or larger pipelines unless it can be proven through the use of modeling that 6-inch lines are sufficient. There are a number of hydrants that are on 6-inch pipes; however, with the recommended improvements, these would meet the required fire flow with the exception of one hydrant on Canyon St. This line should be upsized to an 8" line.

State requirements also require that the average hydrant spacing be no more than 500 feet. There are numerous locations throughout the system where additional fire hydrants are needed to meet the required 500 foot minimum spacing.

Recommended improvements needed to meet future demands are shown in Appendix F.

Recommended Distribution Improvements:

1. Where possible, upsize all 4" waterlines or smaller to 8" waterlines where hydrants are needed to meet the minimum required spacing. Also provide looping in problem areas such as near the Elm Street Tank. On Academy Avenue and Homestead St., install 6" waterlines where they are already stubbed for a 6" line. Modeling has shown 6" waterlines in these areas are sufficient. These improvements are shown in Appendix F.
2. Add additional fire hydrants to meet the minimum required spacing as shown in Appendix F.
3. In conjunction with the recommended tank near the existing Elm Street Tank, install a 12" waterline from the proposed new Sand Hill tank to the existing distribution system, a booster pump station and a pressure reducing valve, and 8" waterlines along Newel Ave (See Appendix F).
4. Install an 8" waterline to connect Edson Ave. with Memorial St (See Appendix F).
5. There are two options presented in this study to provide additional flow to the area near existing Saddle tank.
 - 1) In conjunction with the recommended tank near the existing Saddle Tank, install a 10" waterline from the new tank to the existing water system (at Carling St.).
 - 2) Installing a new 12" waterline along Hildale St. across Short Creek. This would connect between Academy Avenue and Uzona Ave.

Running the water model analysis with the proposed improvements shows the water system would be in compliance with the State rules previously mentioned with a few exceptions. For example, Williams Ave. should be upsized to an 8" waterline when the line in that street needs to be replaced.

VIII. SUMMARY OF RECOMMENDED SYSTEM IMPROVEMENTS

A. PRIORITY OF IMPROVEMENTS

Below is a list of the proposed improvements, the estimated cost in today's dollars, the year when these improvements are anticipated, and the inflated cost (assuming inflation rate of 3%):

Table VII.A-1: Recommended Improvements

Project	Current Costs	Year	Costs w/ Inflation
Water Rights (2015-2024)	\$ 392,477		\$ 456,315
Water Rights (2025-2034)	\$ 376,300		\$ 579,746
Academy Avenue Well	\$ 516,400	2016	\$ 229,600
Additional Wells 2016	\$ 1,549,200	2016	\$ 1,643,500
Well (Near Rosy Canyon Road)	\$ 3,220,300	2030	\$ 5,167,600
3000 ft Well (test pump)	\$ 189,800	2026	\$ 270,600
Water Canyon Spring Collection Phase I	\$ 288,500	2017	\$ 315,300
Water Canyon Spring Collection Phase II	\$ 1,090,300	2025	\$ 1,509,200
Power Plant Well Treatment Options			
Option 1 (Radium Treatment)	\$ 528,275		
Option 2 (Blending in Line)	\$ 190,800		
Option 3 (Blending to Tank)	\$ 280,400		
*Option 4 (Blended at Treatment Plant)	\$ 195,700	2016	\$ 207,600
Sand Hill Tank (500,000) gallons	\$ 1,203,500	2026	\$ 1,715,900
Saddle Tank Alternatives			
Hildale St and Canyon St Pipeline	\$ 181,600	2019	\$ 210,500
Saddle Tank (300,000 gallons)	\$ 628,500	2029	\$ 979,200
Additional Treatment Capacity	\$ 2,271,100	2017	\$ 2,481,700
Miscellaneous Distribution Improvements	\$ 1,443,800	2016-2036	\$ 1,867,582
Impact Fee Analysis Update (2019, 2024, 2029, 2034)	\$ 120,000	5 yr inc.	\$ 75,096
Total:			\$ 17,709,439

B. PRELIMINARY ENGINEER'S OPINION OF PROBABLE COST

A table showing the opinion of probable cost for the recommended water improvements projects is provided in Appendix H.

Included in the Opinion of Probable Cost for the proposed projects are anticipated construction costs, a contingency budget, and a budget for other normal project costs such as survey, administration, engineering, legal services, fiscal costs, permitting, environmental, rights-of-way, etc.

The proposed improvements have taken into consideration the 20-year planning period and other desires of the City. A review of the locations of the proposed improvements can be found on Appendix G.

C. PROJECTED SPECIAL COURT COSTS

Hildale and Colorado City have been subjected to court ordered special costs and potential costs. Although the total amounts are not settled, they could have a significant impact to the costs associated with the culinary water system. A modest amount is reflected in the Proposed Financing Plan. Table VIII.C-1.

D. PROPOSED FINANCING PLAN

Table VIII.C-1 outlines a possible financing plan for FY 2016 for the immediate recommended improvements. The financing plan includes the blending for the Power Plant Well. The Academy Avenue well, additional water rights, and miscellaneous distribution system improvements have been included but have been assumed to not require financing. The water rights are assumed to be paid for with impact fees. The Academy Avenue well is anticipated to be funded through a combination of impact fees, user rates, and potentially grant funds. It should be noted that the possible financing for the blending of the Power Plant Well and Academy Avenue Well are examples and other funding options may be considered including allocating grant funds for the Power Plant Well. The total proposed cost for the Power Plant Well blending is \$207,600. This cost is assumed to be funded by a funding agency. The financing plan assumes the loan has an interest rate of 2.50% and payback term of 20 years. The financing plan should be revised when the actual terms are known. The Academy Avenue Well is also assumed to be funded at 2.50%, but for 10 years. Only a portion of the project is anticipated to be financed; \$300,000 is anticipated to come from grant funds, 60% of the remaining funds or \$133,740 is anticipated to be paid in FY2016, and the remaining 40% or \$89,160 to be funded with a bond.

In order to pay for the improvements, the City would need to address the monthly water user fee. The proposed amount for these fees can be found in Table IX.D-1. The average monthly water user fee was calculated using the sample financing plan by taking all the expected expenditures, projects, and debt service and subtracting off the other expected revenues obtained that year. The amount was then divided by the number of expected connections in the system that year to come up with the average monthly water user fee per connection of \$95.46. It should be noted that this amount includes all sizes of meters and should not be thought of the average user fee per $\frac{3}{4}$ " meter. Section IX lays out possible water rate structures set to cover the average monthly water user fees.

Table VIII.C-1: Proposed Financing Plan

PROPOSED FINANCING PLAN				
2016 PROJECTS (SELF FUNDED)				
Distribution System Improvements				\$74,356
Water Rights				\$44,917
Academy Avenue Well				\$133,740
2016 PROJECTS (FINANCED)				
Proposed Funding:	Rate	Term	Principal	Est. Payment
*Option 4 (Blended at Treatment Plant)	2.50%	20	\$ 207,600	\$ 23,720
PROJECTED SPECIAL COURT COSTS				\$ 40,000
TOTAL PROJECT COSTS (2016):				\$316,733
O&M EXPENSES: (First Year of New Debt Service Payment)				
Contract Wages and Benefits				\$135,945
Office Expenses and Travel				\$21,308
Repairs and Maintenance				\$128,957
Utilities				\$62,509
Insurance				\$30,590
Legal and Professional Fees				\$91,559
Purchased Water				\$391,764
Renewal & Replacement Fund				\$33,864
Interest Income				(\$3,180)
Subtotal Expenses:				\$893,316
EXISTING DEBT SERVICE				
Existing Debt Service				\$18,996
Subtotal Existing Annual Debt Service:				\$18,996
GRAND TOTAL EXPENSES:				\$1,229,044
ANNUAL INCOME				
Impact Fees Expended for 2016 Projects			\$	111,786.82
Total Number Of <u>Connections</u>				975
Average Monthly Water User Rate/Connection				\$95.46
Charges for Services, Fees, etc.				\$1,117,257
GRAND TOTAL INCOME:				\$1,229,044

IX. WATER RATE ANALYSIS

A. GENERAL

Generally, water rates are a combination of base rates and overage rates wherein a base amount of water is provided for the base rate charge. The base rate is charged to all connections in the system whether or not water is used, and should cover all fixed costs of the system. Overage rates are normally set to encourage water conservation, but should always cover all variable costs of the system. Hildale City and the Town of Colorado City have established the service fee rate structure shown in Table IX.A-1. The table shows the existing costs and an example of the water bill for certain usage.

Table IX.A-1: Existing Water Rate Structure		
HILDALE CITY/TOWN OF COLORADO CITY		
Existing Residential Water Rate Structure		
Total Base Rate	\$22.00 per ERU/Month	
Includes	0 Gallons	
Overage Steps		
Cost Per 1,000 Gal.	Low Gallons	High Gallons
\$1.10	1	& UP
Example of Water User's Bill Based on Usage		
Usage	Amount	
(Gallons)	Existing Rates	
0	\$ 22.00	
5,000	\$ 27.50	
15,000	\$ 38.50	
43,405 (Average)	\$ 69.75	
80,000	\$ 110.00	

B. AVERAGE RATE DETERMINATION FOR 2015

Table IX.B-1 on the following page shows a method used to determine the average water rate per connection which should be divided among all system customers.

Annual revenues must be sufficient to cover the expenses incurred by the construction, maintenance, and administration of the water system. These expenses include debt service, utilities, personnel salaries and benefits, system maintenance, legal and professional fees, and other miscellaneous items. It is recommended that the water department maintain a funded depreciation account or a replacement fund to provide the money necessary for replacement and repair of water department facilities and pipelines in the future. The loan for the proposed project may require a fund where at least 5% of the expenses, including debt service, be set aside for this purpose. Hildale City and Town of Colorado City currently do fund a renewal and replacement fund which is considered in the analysis.

Using the averages of costs from audits in 2010-2012 and projecting forward at an inflation rate of 3%, expected expenses for 2016 total \$1,229,044. This includes anticipated projects of which some are estimated to be funded through impact fees. The amount anticipated to be funded through impact fees, \$111,787, was subtracted from the total expenses which resulted in an amount of \$1,117,257 that would need to be funded through user rates. This amount divided by the estimated number of billable connections in the system in that year, 975, then again by 12 months results in \$95.46 per connection per month to cover expenses. Under the existing fee schedule, the amount paid by a customer using the average amount of water used by current customers is estimated to be \$69.75 as shown in Table IX.A-1.

Table IX.B-1: Fixed Rate Analysis

HILDALE CITY/TOWN OF COLORADO CITY			
FIXED RATE ANALYSIS			
2016 O&M Expenses	Fixed	Variable	Total
Contract Wages and Benefits	\$135,945	\$0	\$135,945
Office Expenses and Travel	\$10,654	\$10,654	\$21,308
Repairs and Maintenance	\$64,478	\$64,478	\$128,957
Utilities	\$12,502	\$50,007	\$62,509
Insurance	\$24,472	\$6,118	\$30,590
Legal and Professional Fees	\$22,890	\$68,670	\$91,559
Purchased Water	\$0	\$391,764	\$391,764
Renewal & Replacement Fund	\$6,773	\$27,091	\$33,864
Interest Income	-\$1,590	-\$1,590	-\$3,180
EXISTING DEBT SERVICE			
	\$18,996	\$0	\$18,996
NEW PROJECTS/DEBT SERVICE			
Distribution System Improvements	\$74,356	\$0	\$74,356
Water Rights	\$0	\$44,917	\$44,917
Academy Avenue Well	\$0	\$133,740	\$133,740
*Option 4 (Blended at Treatment Plant)	\$23,720	\$0	\$23,720
Projected Special Court Costs	\$40,000	\$0	\$40,000
Total Expenses:	\$433,195	\$795,849	\$1,229,044
Revenue from Impact Fees	\$0	\$111,787	\$111,787
Revenue from User Rates	\$433,195	\$684,062	\$1,117,257
Total Projected System Connections in 2016	975	975	975
Monthly Cost/Conn. in 2015	<u>\$37.01</u>	<u>\$58.44</u>	<u>\$95.46</u>

C. BASE AND OVERAGE RATE DETERMINATION

This study includes separating the average user rate into base and overage rates, and investigates possible rate structures that would promote conservation and work hand-in-hand with drought management policies. In order to determine a base and overage schedule, the projected expenses of the water system for 2016 have been separated into fixed and variable expenses (Table IX.B-1). It is recommended that the base rate should cover the fixed expenses of the system. Table

IX.B-1 suggests a possible scenario for determining base and overage rates for Hildale City. Fixed costs are covered by the base rate and variable costs are covered by the overage rates. This rate scenario simply identifies base and overage rates that should satisfy the revenue requirements based on estimated operation and maintenance (O&M) expenses and on projected water usage. Hildale City is able to set the rate structure to any amount it deems to be fair. However, the rates should be such that the system remains financially viable. Hildale City may decide to lower the base rate and increase variable costs in order to promote further conservation.

Hildale City will need to determine a rate schedule that will result in revenues that will average \$95.46/connection/month in order to provide the necessary culinary water system improvements as recommended in this Plan and maintain the current level of O&M. The base and overage rates should be examined each year to ensure that enough revenue is being generated to cover the expenses.

D. POSSIBLE RATE STRUCTURE

Table IX.D-1 displays a possible change to the rate structure. Table IX.D-2 and Figure IX.D-1 illustrate alternate rate structures based on the base and overage rates suggested in Section C. The overage rate structure is stepped to promote conservation by charging a higher amount for excessive water usage. By including a small amount of or no base gallons, residents have a greater incentive to conserve water. The tables also include some examples of water bills based on the proposed rate structure and show bills based on existing rates for comparison. The tables are shown for a 3/4" meter. When including the larger meter sizes, the estimated water bills would be higher and the average water bill has been estimated near the \$95.46 shown in Table IX.B-1. The best way to confirm that the average rate produced will cover annual expenses is to implement the structure and evaluate the results after a full year of use.

Table IX.D-1: Possible Water Rate Structure

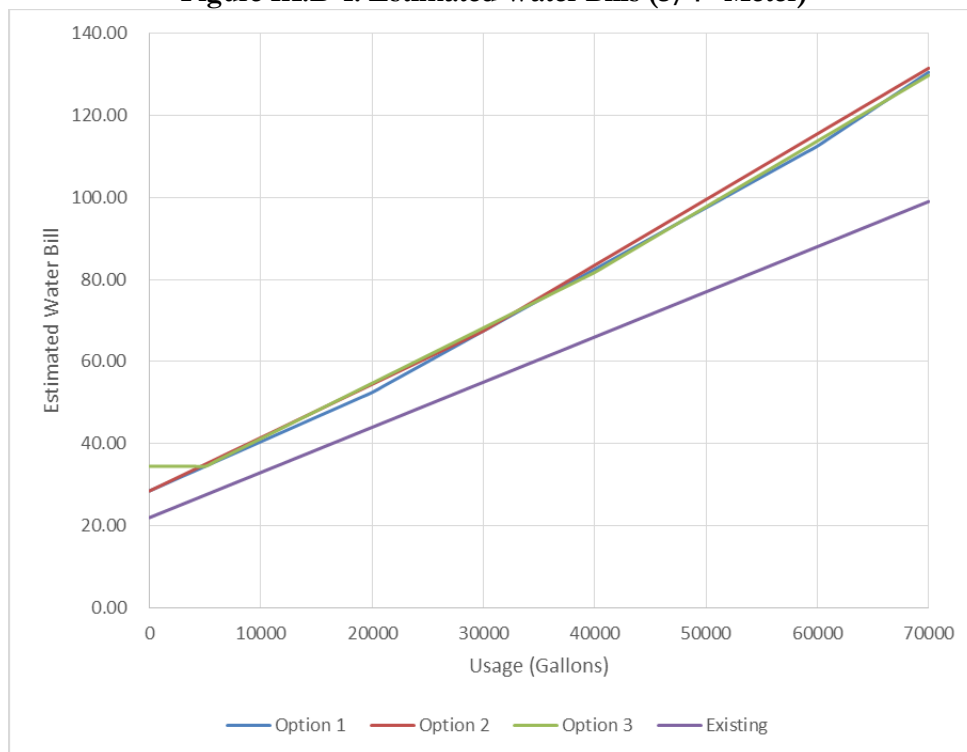
HILDALE CITY/TOWN OF COLORADO CITY Possible Water Rate Structure (Option 1) 3/4" Meter		
Base Rate	\$28.50	Conn./Month
Includes	0	Gallons
Overage Steps		
Cost Per 1,000 Gal.	Low Gallons	High Gallons
\$1.20	1	20,000
\$1.50	20,001	60,000
\$1.80	60,001	& UP
Example of Water User's Bill Based on Usage		
Usage	Amount	
(Gallons)	New Rate	Existing Rate
0	\$ 28.50	\$ 22.00
5,000	\$ 34.50	\$ 27.50
15,000	\$ 46.50	\$ 38.50
43,405 (Average)	\$ 87.61	\$ 69.75
80,000	\$ 148.50	\$ 110.00

Table IX.D-2: Possible Water Rate Structure

HILDALE CITY/TOWN OF COLORADO CITY					
Possible Water Rate Structures (Options 2 and 3) 3/4" Meter					
Base Rate \$28.50 Conn./Month Includes 0 Gallons			Base Rate \$34.50 Conn./Month Includes 5,000 Gallons		
Overage Steps			Overage Steps		
Cost Per 1,000 Gal.	Low Gallons	High Gallons	Cost Per 1,000 Gal.	Low Gallons	High Gallons
\$1.30	1	30,000	\$1.35	5,001	40,000
\$1.60	30,001	80,000	\$1.60	40,001	80,000
\$2.00	80,001	& UP	\$2.00	80,001	& UP
Example of Water User's Bill Based on Usage					
Usage	Rates		Usage	Rates	
(Gallons)	New Rate	Existing Rate	(Gallons)	New Rate	Existing Rate
0	\$ 28.50	\$ 22.00	0	\$ 34.50	\$ 22.00
5,000	\$ 35.00	\$ 27.50	5,000	\$ 34.50	\$ 27.50
15,000	\$ 48.00	\$ 38.50	15,000	\$ 48.00	\$ 38.50
43,405 (Average)	\$ 88.95	\$ 69.75	43,405 (Average)	\$ 87.20	\$ 69.75
80,000	\$ 147.50	\$ 110.00	80,000	\$ 145.75	\$ 110.00

The chart below shows the estimated water bills for the existing rate structure and each option based on usage. As can be seen from the possible rate structures provided, the water bills would increase at a faster rate after the average water bill is exceeded.

Figure IX.D-1: Estimated Water Bills (3/4" Meter)



E. METER SIZES

The water system includes multiple meter sizes (3/4", 1", 1-1/2", and 2"). Hildale City and the Town of Colorado City currently have a separate base rate for each meter size as shown in the table below. The table below also shows the base rate amounts for each meter size if the current ratio between meter sizes is kept. Because larger meters typically use more water, the amount of gallons included in each tier may vary. For the example rate schedule Option 1 shown above, a scenario of the number of gallons included in each tier based on meter size is shown below. These numbers of gallons were determined based on the ratio of base rate amounts.

Table IX.E-1: Varying Meter Sizes (Option 1)

Meter Size	3/4"	1"	1-1/2"	2"
Ex. Base Rate	\$ 22.00	\$ 42.00	\$ 62.00	\$ 82.00
Proposed Base Rate	\$ 28.50	\$ 54.00	\$ 80.00	\$ 105.00
Tier 1 High Gallons	20,000	38,000	56,000	75,000
Tier 2 High Gallons	60,000	115,000	169,000	224,000
Tier 3 High Gallons	& UP	& UP	& UP	& UP

The proposed base rates for Option 1 shown above have been calculated based on the required fixed revenue \$433,195 as shown in the Fixed Rate Analysis (Table IX.B-1) in conjunction with the percent of total connections of each meter size.

X. IMPACT FEES

A. IMPACT FEE

The Impact Fees Act allows for the charging of Impact Fees to pay for culinary water facilities needed to mitigate the impact of new water connections on the water system. A portion or all of these improvements will be designated as Impact Fee eligible due to the City needing to install the necessary infrastructure to provide for new growth.

An Impact Fee Analysis has been performed based on the improvements indicated in previous sections of this report. This Impact Fee Analysis only looks at improvements needed within the ten year window. Impact fees collected in Utah must be expended within 6 years and Impact Fees collected in Arizona must be expended within 15 years. As stated previously, the ten year window for calculating impact fees has been chosen as 2016-2025 (from the first of FY2016 to the end of FY2025). The future improvements have been shown and justified by previous sections of this report. The improvements shown below are deemed impact fee eligible because they are needed due to an increase in the source capacity, storage capacity, treatment capacity, and distribution system caused by new growth.

Below is a list of the projects, cost, and estimated percent Impact Fee Eligible amounts prior to adding estimated financing or inflation, after adding inflation, after adding financing costs and after removing the portion not impact fee eligible in the current 10-year planning period. The breakdown of the estimated project costs can be seen in the Engineer's Opinion of Probable Cost (see Appendix H).

Table X.A-1: Impact Fee Eligible Improvements

	Current Costs	Year	Grant \$	Inflated Costs	Financed Costs	% IF El.	IF El. Cost
Water Rights (2015-2024)	\$ 392,477			\$ 456,315		100.0%	\$ 456,315
Academy Avenue Well	\$ 516,400	2015	\$ 300,000	\$ 222,900		50.0%	\$ 111,450
Additional Wells 2016	\$ 1,549,200	2016		\$ 1,643,500	\$ 2,108,516	33.3%	\$ 702,839
Water Canyon Spring Collection Phase I	\$ 288,500	2017		\$ 315,300	\$ 360,258	100.0%	\$ 360,258
Additional Treatment Capacity	\$ 2,271,100	2016		\$ 2,409,400	\$ 3,091,122	42.8%	\$1,321,659
Impact Fee Analysis Update (2019, 2024, 2029, 2034)	\$ 120,000			\$ 176,018		42.7%	\$ 75,096
Total							\$3,027,616

The Academy Avenue Well was assumed to be 50% impact fee eligible. The non-impact fee eligible portion will cover the addition of the 30 connections that cannot be charged impact fees. The additional wells in 2016 are assumed to be 33% Impact Fee Eligible because, of the three planned wells, one was deemed necessary due to new growth. The Water Canyon Spring Collection Phase I was assumed to be 100% impact fee eligible because the impact fee eligible portions of these projects combined are anticipated to produce less than the source capacity anticipated to be required by growth in the next 10 years. The treatment improvements are expected to be 42.8% impact fee eligible for the planning period because growth in the next 10 years is anticipated to require 298 gpm of treatment capacity and the cost assumed for additional

treatment capacity is for a 1 MGD plant (694 gpm). The ratio (298/694) gives the 42.8% impact fee eligible.

It is recommended that an impact fee be charged on all new connections at the time of plat approval to help with the necessary capital improvements that Hildale and Colorado City will be taking on. It should be noted that the connection fees may not be combined into the impact fee. The State of Utah has mandated that connection fees may only be charged for the actual costs of the connection into the water system.

B. CALCULATION

The total cost that is eligible for the impact fee assessment is equal to the existing debt service from previous water improvements projects that can be attributed to new growth plus the portion of the proposed water improvements project that will be constructed to accommodate new growth and any other projects needed in the next ten years. The combined total cost that is due to new growth is divided by the projected number of new connections that will be added to the system within the service area. In this case, that number of new connections will be adjusted (by an “equivalent connections” amount) to account for the water meters that will be larger than 3/4” and would therefore be charged a higher impact fee.

The total impact fee eligible amount is as shown below:

	% IF El.	IF El. Cost
Water Rights (2015-2024)	100.0%	\$ 456,315
Academy Avenue Well	50.0%	\$ 111,450
Additional Wells 2016	33.3%	\$ 702,839
Water Canyon Spring		
Collection Phase I	100.0%	\$ 360,258
Additional Treatment		
Capacity	42.8%	\$1,321,659
Impact Fee Analysis Update		
(2019, 2024, 2029, 2034)	42.7%	\$ 75,096
Total		\$3,027,616

The amount of interest estimated from Impact Fees in the next 10 years is estimated from the cashflow spreadsheet as \$36,549. This amount will be subtracted from the total impact fee eligible amount for a value of \$2,991,067.

Number of connections in the 10-yr planning period = 1,145 – 958 = 187 Connections

As shown later in this section, larger meters will be charged higher impact fees due to expected higher usage. In order to take this into consideration while calculating the impact fee, additional “equivalent connections” (due to the larger meter size) will be assumed. This number has been estimated at 58 equivalent connections for a total of 245.

Maximum Eligible Impact Fee = \$2,991,067 / 245 = \$12,210

Based on this analysis, the maximum eligible impact fee is **\$12,210** for a ¾" meter. Hildale City and the Town of Colorado City may choose to adopt this fee or any lower fee.

The impact fee cost for other meter sizes is shown in Table X.B-1. The impact fee charges for the larger meters were calculated by multiplying by the ratios shown in the table. These ratios are the same ratios currently used to determine the base rate charge per meter size.

Table X.B-1: Impact Fee by Meter Size

Meter Size	Ratios	IF Charge
¾" Impact Fee	1.00	\$ 12,210
1" Impact Fee	1.91	\$ 23,310
1-1/2" Impact Fee	2.82	\$ 34,410
2" Impact Fee	3.73	\$ 45,510

C. NEW DEVELOPMENT

Any new development (additions where a connection already exists) that necessitate a larger meter size as determined by the City shall be charged an impact fee equivalent to the difference between the impact fees of the meter size that is required and the meter size they currently have.

D. IMPACT FEE CERTIFICATION

The Impact Fee Certification is included as Appendix I.

E. IMPACT FEE RELATED ITEMS

There are a few items related to Impact Fees that Hildale and Colorado City staff should keep in mind when planning for, collecting, and expending impact fees.

Generally it is a good idea to update this plan at least every five years or more frequently if occasion arises. This plan assumes that it will be updated every 5 years – 2 times in the next 10 years.

City staff should be made aware that, in conformance with Utah Code 11-36a-602 and Arizona Revised Statutes A.R.S. §9-463.05, impact fees can only be expended for a system improvement that is identified in the Impact Fee Facilities Plan and that is for the specific public facility type for which the fee was collected (i.e. transportation impact fees cannot be used for water or sewer projects). Also, impact fees in Utah must be expended or encumbered for a permissible use within six years of their receipt unless 11-36a-602(2)(b) applies. In Arizona, impact fees must be expended or encumbered within fifteen years of their receipt according to A.R.S. §9-463.05.

City staff should also ensure that proper accounting of the Impact Fees occurs (track each fee in and out). See Utah Code 11-36a-601.

APPENDIX A

GROWTH & USER ANALYSIS

Year	Hildale Population	Colorado City Population	Est. combined Population (Census)	Est. Growth Rate (per Census Est.)	Number of connections
1990	1,342	2,469	3,811		452
1995	1,998	3,258	5,256	6.64%	623
2000	1,895	3,334	5,229	-0.10%	789
2005	2,392	4,350	6,742	5.21%	919
2006	2,540	4,560	7,100	5.31%	893
2007	2,637	4,690	7,327	3.20%	899
2008	2,692	4,743	7,435	1.47%	898
2009	2,713	4,777	7,490	0.74%	900
2010	2,726	4,821	7,547	0.76%	909
2011	2,905	4,845	7,750	2.69%	912
2012	2,923	4,830	7,753	0.04%	917
2013	2,916	4,812	7,728	-0.32%	916
2014	2,945	4,860	7,805	1.00%	925
2015	2,975	4,909	7,883	1.00%	964
2016	3,028	4,997	8,025	1.80%	982
2017	3,083	5,087	8,170	1.80%	999
2018	3,138	5,179	8,317	1.80%	1,017
2019	3,195	5,272	8,466	1.80%	1,036
2020	3,252	5,367	8,619	1.80%	1,054
2021	3,311	5,463	8,774	1.80%	1,073
2022	3,370	5,562	8,932	1.80%	1,093
2023	3,431	5,662	9,093	1.80%	1,112
2024	3,493	5,764	9,256	1.80%	1,132
2025	3,556	5,867	9,423	1.80%	1,153
2026	3,620	5,973	9,593	1.80%	1,174
2027	3,685	6,081	9,765	1.80%	1,195
2028	3,751	6,190	9,941	1.80%	1,216
2029	3,819	6,301	10,120	1.80%	1,238
2030	3,887	6,415	10,302	1.80%	1,260
2031	3,957	6,530	10,488	1.80%	1,283
2032	4,028	6,648	10,676	1.80%	1,306
2033	4,101	6,768	10,869	1.80%	1,330
2034	4,175	6,889	11,064	1.80%	1,354

APPENDIX B

FIVE POINT ANALYSIS

Year	Number of Conn.	Percent Reduction in Usage per Connection	Avg. Usage (gpd/ conn.)	Water Rights Required (Ac-ft)	Hildale Connections	Utah Water Rights Req'd	Arizona Rights Req'd
2014	919	0.0%	1427	1,469	347	555	914
2015	958	0.5%	1420	1,524	362	576	948
2016	975	1.0%	1413	1,543	368	582	961
2017	993	1.5%	1406	1,564	375	590	973
2018	1011	2.0%	1398	1,584	381	597	987
2019	1029	2.5%	1391	1,604	388	605	999
2020	1048	3.0%	1384	1,625	395	612	1,013
2021	1066	3.5%	1377	1,644	402	620	1,024
2022	1086	4.0%	1370	1,667	410	629	1,037
2023	1105	4.5%	1363	1,687	417	637	1,050
2024	1125	5.0%	1356	1,708	424	644	1,065
2025	1145	5.5%	1349	1,730	432	653	1,077
2026	1166	6.0%	1341	1,752	440	661	1,091
2027	1187	6.5%	1334	1,774	448	670	1,105
2028	1208	7.0%	1327	1,796	456	678	1,118
2029	1230	7.5%	1320	1,819	464	686	1,133
2030	1252	8.0%	1313	1,841	472	694	1,147
2031	1275	8.5%	1306	1,865	481	704	1,161
2032	1298	9.0%	1299	1,888	490	713	1,175
2033	1321	9.5%	1291	1,911	498	720	1,191
2034	1345	10.0%	1284	1,935	507	729	1,206
2035	1369	10.5%	1277	1,959	517	740	1,219
2036	1394	11.0%	1270	1,983	526	748	1,235
2037	1419	11.5%	1263	2,007	535	757	1,251
2038	1444	12.0%	1256	2,031	545	767	1,265
2039	1470	12.5%	1249	2,056	555	776	1,280
2040	1497	13.0%	1241	2,082	565	786	1,296
2041	1524	13.5%	1234	2,107	575	795	1,312
2042	1551	14.0%	1227	2,132	585	804	1,328
2043	1579	14.5%	1220	2,158	596	815	1,344
2044	1607	15.0%	1213	2,184	606	823	1,360
2045	1636	15.5%	1206	2,210	617	833	1,376
2046	1666	16.0%	1199	2,237	629	845	1,392
2047	1696	16.5%	1192	2,264	640	854	1,410
2048	1726	17.0%	1184	2,290	651	864	1,426
2049	1757	17.5%	1177	2,317	663	874	1,443
2050	1789	18.0%	1170	2,345	675	885	1,460
2051	1821	18.5%	1163	2,372	687	895	1,477
2052	1854	19.0%	1156	2,401	700	906	1,494
2053	1887	19.5%	1149	2,428	712	916	1,512
2054	1921	20.0%	1142	2,457	725	927	1,529

Year	Number of Conn.	Percent Reduction in Usage per Conn.	Peak Day Usage (gpd/conn.)	Source Capacity Required (gpm)
2014	919	0.0%	2854	1,821
2015	958	0.5%	2840	1,889
2016	975	1.0%	2825	1,914
2017	993	1.5%	2811	1,938
2018	1011	2.0%	2797	1,963
2019	1029	2.5%	2783	1,988
2020	1048	3.0%	2768	2,014
2021	1066	3.5%	2754	2,040
2022	1086	4.0%	2740	2,065
2023	1105	4.5%	2726	2,092
2024	1125	5.0%	2711	2,118
2025	1145	5.5%	2697	2,145
2026	1166	6.0%	2683	2,172
2027	1187	6.5%	2668	2,199
2028	1208	7.0%	2654	2,227
2029	1230	7.5%	2640	2,255
2030	1252	8.0%	2626	2,283
2031	1275	8.5%	2611	2,312
2032	1298	9.0%	2597	2,340
2033	1321	9.5%	2583	2,369
2034	1345	10.0%	2569	2,399

Storage Capacity Analysis								
Year	Number of Conn.	Percent Reduction in Usage per Conn.	Avg. Usage (gpd/conn.)	Storage Required	Fire Flow Stg Rqd	Emergency Supply (25%)	Existing Stg Capacity	Total Stg Rqd
2014	919	0.0%	1,427	1,311,315	180,000	372,829	2,460,000	1,864,144
2015	958	0.5%	1,420	1,360,402	180,000	385,100	2,460,000	1,925,502
2016	975	1.0%	1,413	1,377,930	180,000	389,482	2,460,000	1,947,412
2017	993	1.5%	1,406	1,395,648	180,000	393,912	2,460,000	1,969,560
2018	1,011	2.0%	1,398	1,413,558	180,000	398,389	2,460,000	1,991,947
2019	1,029	2.5%	1,391	1,431,660	180,000	402,915	2,460,000	2,014,575
2020	1,048	3.0%	1,384	1,449,956	180,000	407,489	2,460,000	2,037,445
2021	1,066	3.5%	1,377	1,468,446	180,000	412,112	2,460,000	2,060,558
2022	1,086	4.0%	1,370	1,487,133	180,000	416,783	2,460,000	2,083,916
2023	1,105	4.5%	1,363	1,506,016	180,000	421,504	2,460,000	2,107,521
2024	1,125	5.0%	1,356	1,525,098	180,000	426,274	2,460,000	2,131,372
2025	1,145	5.5%	1,349	1,544,378	180,000	431,095	2,460,000	2,155,473
2026	1,166	6.0%	1,341	1,563,859	180,000	435,965	2,460,000	2,179,823
2027	1,187	6.5%	1,334	1,583,540	180,000	440,885	2,460,000	2,204,425
2028	1,208	7.0%	1,327	1,603,423	180,000	445,856	2,460,000	2,229,279
2029	1,230	7.5%	1,320	1,623,509	180,000	450,877	2,460,000	2,254,386
2030	1,252	8.0%	1,313	1,643,799	180,000	455,950	2,460,000	2,279,748
2031	1,275	8.5%	1,306	1,664,292	180,000	461,073	2,460,000	2,305,366
2032	1,298	9.0%	1,299	1,684,992	180,000	466,248	2,460,000	2,331,239
2033	1,321	9.5%	1,291	1,705,897	180,000	471,474	2,460,000	2,357,371
2034	1,345	10.0%	1,284	1,727,008	180,000	476,752	2,460,000	2,383,760

APPENDIX C

WATER RIGHTS COMMENTS

HILDALE CITY 2013 WATER RIGHTS COMMENTS AND RECOMMENDED ACTIONS

WATER RIGHT 81-84

CHANGES: a8413

QUANTITY: 0.507 CFS 0 AF from Water Canyon Creek

USE: Irrigation of 37.74 acres

STORAGE: Maximum of 2 Acre Feet, with a 10-foot dam

OWNERS: Centennial Utah Properties, L.C., Jared Stubbs, Twin City Improvement Association, Inc., and Twin City Water Works Inc.

SUNRISE ENGINEERING COMMENTS:

This water right is Certificated, the priority is 7/3/1920, and is a Water Canyon Creek surface water right. Could the right be changed to an underground right if needed? We assume the surface Point of Diversion does not produce sufficient water flows to irrigate the 37.74 acres annually. This right also has storage. This water right has four (4) owners, each owner would need to approve the allocation of beneficial uses to each owner in an effort to identify who owns which portion of the right. No changes have been filed historically.

ACTIONS:

1. Research the Ground Water Management Plan or regional policy for the area to see if the right can be converted to an underground municipal water right.
2. Submit and process to completion a change application to convert the existing water right to an underground municipal water right with a new point of diversion.
3. Consolidate the owner entities if one would be sufficient.
4. Segregate the ownership to simplify the management of the right.
5. Prepare, distribute and encourage completion of a Sole Supply Statement for each owner.

WATER RIGHT 81-150**CHANGES:** a1491**QUANTITY:** 0.0962 CFS 0 AF from Maxwell Creek**OWNER:** United Effort Plan c/o Fred Jessop**SUNRISE ENGINEERING COMMENTS:**

The water right was Certificated in 1953, has one owner, the priority is 9/2/1939, and is a Maxwell Creek surface water right. Could the right be changed to an underground right if needed? We assume the surface Point of Diversion does not produce sufficient water flows to irrigate the 33.0 acres annually. The water right has the present status of "Disallowed"; however, the water right can be researched. Some success of changing the disallowed status of this type of right does exist. Further research is required.

ACTIONS:

1. Examine all of the related file information to determine why the water right has a current status of Disallowed.
2. Should the Disallowed status of the water right appear to changeable, take the actions necessary to change the Disallowed status of the water right.
3. Research the Ground Water Management Plan or regional policy for the area to see if the existing water right can be converted to an underground municipal water right.
4. Submit and process to completion a change application to convert the existing water right to an underground municipal water right with a new point of diversion.

WATER RIGHT 81-189**QUANTITY:** 0.96 CFS 0 AFA from Water Canyon Creek**STORAGE:** Maximum of 2 Acre Feet, with a 10-foot dam**OWNER:** United Effort Plan c/o Fred Jessop**SUNRISE ENGINEERING COMMENTS:**

This water right is Certificated, the priority is 10/15/1945, and is a Water Canyon Creek surface diversion water right. Could the right be changed to an underground right if needed? The water right has two supplemental use groups associated with the right. One group irrigates 20.25 acres with 81-189, 81-3329 and the other irrigates 88.64 acres with 81-189, 81-182, 81-3329. The supplemental nature of the right will need to be evaluated to a sole supply quantity if the right is changed in any manner in the future. This right also has storage. No changes have been filed historically.

ACTIONS:

1. Research the Ground Water Management Plan or regional policy for the area to see if the existing water right can be converted to an underground municipal water right.
2. Submit and process to completion a change application to convert the existing water right to an underground municipal water right with a new point of diversion.
3. Prepare and complete Declarations of Beneficial Use for each right within the supplemental groups.

WATER RIGHT 81-282

QUANTITY: 5 CFS OR 2,290 AF from Short Creek

OWNER: United Effort Plan Trust c/o Bruce R, Wisan, Fiduciary

SUNRISE ENGINEERING COMMENTS:

This water right is a larger certificated right tied to a 2,290 acre-foot surface diversion in Short Creek. The right is approved for 1,024.27 acres of irrigation. The water right has three (3) supplemental use groups: 81-189, 81-282, 81-3329; 81-282; and 81-282, 81-295. The water rights need to be evaluated for a sole supply quantification. The priority is 12/01/1960.

ACTIONS:

1. Determine if this water right supplies sufficient water to irrigate the full acreage, then no actions are recommended.
2. Evaluate supplemental use groups for sole supply quantification.
3. If the water source is insufficient to irrigate the full acreage, then a possible change application submittal to add an underground Point of Diversion can be researched.

WATER RIGHT 81-295

CHANGES: a35413

QUANTITY: 0.27 CFS or 14.9 AF from 6 Springs and 1 Well

OWNER: Twin City Water Works

SUNRISE ENGINEERING COMMENTS:

This water right is represented by recently approved change application a35413. The right has seven (7) points of diversion, six (6) springs and one (1) existing underground well. The water right is a .027 CFS or 14.9 acre-feet municipal right. The proof is due 1/31/2017. DWRi requires substantial water use before proof can be filed. Preparation of a Proof matrix will help eliminate spending effort and dollars for proof preparation that may not result in certification of the water right.

ACTIONS:

1. Complete a Proof of Beneficial Use Matrix evaluation to determine if the proof can be filed.
2. Based upon Proof of Beneficial Use Matrix, Prepare and file required extensions and/or proof of beneficial use.

WATER RIGHT 81-553**QUANTITY:** 0 CFS 0 AF Underground Water Well**OWNER:** United Effort Plan, UT**SUNRISE ENGINEERING COMMENTS:**

This right is an underground well right, the right is Lapsed. No files exist for this right indicating that this right is "Lapsed Destroyed" so no effort can upgrade the right to a valid status. The priority date is 1/1/1860.

ACTIONS:

1. Recommend that no further effort or dollars should be spent researching this right.

WATER RIGHT 81-951**CHANGES:** a35414**QUANTITY:** 0.38 CFS or 18 AF from 6 Springs and 1 Well**OWNER:** Twin City Water Works**SUNRISE ENGINEERING COMMENTS:**

This water right is represented by a recently approved change application a35414. The right has seven (7) points of diversion, six (6) springs and one (1) existing underground well. The water is a .038 CFS or 18 acre-feet municipal right. The proof is due 1/31/2017. DWRi requires substantial water use before proof can be filed. Preparation of a Proof matrix will help eliminate spending effort and dollars for proof preparation that may not result in certification of the water right.

ACTIONS:

1. Complete a Proof of Beneficial Use Matrix evaluation to determine if the proof can be filed.
2. Based upon Proof of Beneficial Use Matrix, Prepare and file required extensions and/or proof of beneficial use.

WATER RIGHT 81-1638**CHANGES:** a25875 (Approved)**QUANTITY:** 0.51 CFS Underground Water Well**OWNER:** Town of Hildale**SUNRISE ENGINEERING COMMENTS:**

This water right status is approved, the 2001 change a25875 is also approved. The Proof Due date is 1/31/2016. The change permits four (4) underground wells, with three (3) underground wells existing at the time of change application approval. The water right is a municipal right. The Proof of Beneficial use was filed, however the certificate was not allowed by the Division of Water Rights (DWRi) and the proof was withdrawn. Also there have been four (4) extensions historically approved, caution, proper on time management is advised, due diligence will be key to any approvals of future extension applications. Since the Proof was filed, DWRi has changed its proof policy, DWRi now requires that the water be placed in use. That may prevent DWRi certification of the water right based on any current proof. Any recent water system improvements can be used to document "Due Diligence" to help secure future extension application approvals. If this water right and all of the historical certificated rights are "in use" and are used "substantially" the right can be Proofed then certificated.

ACTIONS:

1. Document Due Diligence work completed in recent years.
2. Complete a Proof of Beneficial Use Matrix evaluation to determine if the proof can be filed.
3. Based upon Proof of Beneficial Use Matrix, Prepare and file required extensions and/or proof of beneficial use.

WATER RIGHT 81-1730**QUANTITY:** 0. CFS or 0 AF from Underground Water Well**OWNER:** Hildale Town Corporation**SUNRISE ENGINEERING COMMENTS:**

This right is an underground well right. The right is Lapsed. No State Engineer files exist for this right indicating that this right is "Lapsed Destroyed" so no effort can upgrade the right to a valid status.

ACTIONS:

1. Recommend that no further effort or dollars should be spent researching this right.

WATER RIGHT 81-3328**QUANTITY:** 0.138 CFS from Water Canyon Creek**STORAGE:** Maximum of 2 Acre Feet, with a 10-foot dam**OWNER:** United Effort Plan Trust**SUNRISE ENGINEERING COMMENTS:**

This water right is Certificated, the priority is 7/13/1920, and is a Water Canyon Creek surface water right. Could the right be changed to an underground right if needed? The water right has no supplemental use groups associated with the right. The water right has associated storage. The irrigation right is associated with 8.26 acres.

ACTIONS:

1. Research the Ground Water Management Plan or regional policy for the area to see if the existing water right can be converted to an underground municipal water right.
2. Submit and process to completion a change application to convert the existing water right to an underground municipal water right with a new point of diversion.

WATER RIGHT 81-3329**QUANTITY:** 0.735 CFS from Water Canyon Creek**STORAGE:** Maximum of 2 Acre Feet, with a 10-foot dam**OWNER:** United Effort Plan c/o Fred Jessop**SUNRISE ENGINEERING COMMENTS:**

This water right is Certificated, the priority is 7/13/1920, and is a Water Canyon Creek surface water right. Could the right be changed to an underground right if needed? The water right has associated storage. The right is associated with two supplemental groups: 81-189, 81-3329 and 81-189, 81-282, 81-3329.

ACTIONS:

1. Research the Ground Water Management Plan or regional policy for the area to see if the existing water right can be converted to an underground municipal water right.
2. Submit and process to completion a change application to convert the existing water right to an underground municipal water right with a new point of diversion.

WATER RIGHT 81-3795**CHANGES:** a35415**QUANTITY:** 0.223 CFS or 161.45 AF from 6 Springs and 1 Well**OWNER:** Twin City Water Works Inc.**SUNRISE ENGINEERING COMMENTS:**

This water right is represented by a recently approved change application a35414. The right has seven (7) points of diversion, six (6) springs and one (1) existing underground well. The water is a .027 CFS or 14.9 acre-feet municipal right. The proof is due 11/30/2014. DWRi requires substantial water use before proof can be filed. Preparation of a Proof matrix will help eliminate spending effort and dollars for proof preparation that may not result in certification of the water right.

ACTIONS:

1. Complete a Proof of Beneficial Use Matrix evaluation to determine if the proof can be filed.
2. Based upon Proof of Beneficial Use Matrix, Prepare and file required extensions and/or proof of beneficial use.

WATER RIGHT 81-3877**QUANTITY:** 4 CFS from Underground Water Well**OWNERS:** Colorado City, Arizona and Hildale City, Utah**SUNRISE ENGINEERING COMMENTS:**

This water right is an underground right that was rejected by the DWRi on October 9, 2008. The DWRi sent a letter to Hildale City asking if the applicant wanted to pursue the application. No response from the applicant was received by DWRi, and the right was rejected as a consequence. Could the right be revived? Further research is necessary to determine whether or not further action can revive the water right.

ACTIONS:

1. Contact the Utah Attorney General's Office to see if the applicant has any further rights in this matter.

WATER RIGHT 81-3878

CHANGES: a18095 (Approved) and a25875 (Approved)

QUANTITY: 3 CFS from Underground Water Well

OWNERS: Colorado City, Arizona and Hildale City, Utah

SUNRISE ENGINEERING COMMENTS:

This water right is an underground right that was rejected by the DWRi on October 9, 2008. The DWRi sent a letter to Hildale City asking if the applicant wanted to pursue the application. No response from the applicant was received by DWRi, and the right was rejected as a consequence. Could the right be revived? Further research is necessary to determine whether or not further action can revive the water right.

ACTIONS:

1. Contact the Utah Attorney General's Office to see if the applicant has any further rights in this matter.

APPENDIX D

HYDROGEOLOGIC REPORT - 1986

HYDROGEOLOGIC REPORT
HILDALE-COLORADO CITY CULINARY IMPROVEMENTS PROJECT

for

SUNRISE ENGINEERING INC.
Fillmore, Utah

by

S. Bryce Montgomery, Geologist
Bountiful, Utah

December 1986

HYDROGEOLOGIC REPORT, HILDALE-COLORADO CITY CULINARY PROJECT

INTRODUCTION: At the request of Mr. Alden C. Robinson, P. E., Project Engineer, Sunrise Engineering, Inc., Fillmore, Utah, I have made a hydrogeologic study to determine the best potential for developing potable ground water to serve Hildale, Utah, - Colorado City, Arizona.

The area is located in the southeast corner of Washington County, Utah, and adjacent Arizona, within the Short Creek drainage.

A hydrogeologic map of the area has been prepared and is attached to this report. Research was made of the water well records in the Utah State Engineer's Office in addition to well data provided by Mr. Robinson; the Geologic Map of Washington County, Utah, by E. F. Cook (1960), Utah Geological and Mineralogical Survey Bulletin 70; U. S. Geological Survey topographic maps; U. S. Geological Survey Map I-132, by C. L. Pillmore (1956), "Photogeologic Map of the Springdale SW Quadrangle, Kane and Washington Counties, Utah, Mohave Co., Arizona;" Technical Publication No. 70, by R. M. Cordova (1981), "Ground-Water Conditions in the Upper Virgin River and Kanab Creek Basins Area, Utah, with Emphasis on the Navajo Sandstone" published jointly by the Utah Department of Natural Resources and the U. S. Geological Survey, and personal files from previous work in the general area.

HYDROGEOLOGY: The subject area is situated within the canyon bottoms and mouth of southwesterly draining Short Creek which has cut into the steep, southerly facing escarpment (Vermillion Cliffs) of the broad plateau of southern Utah. This broad plateau is the southern and southwestern limb of a large, structural basin containing rock strata that dip gently to the northeast. The plateau is the southwestern part of the larger Colorado Plateau which extends over all of southeastern Utah, western Colorado, northern Arizona and northwestern New Mexico. Gradual uplift with associated, extensive normal faulting has elevated the plateau into mountains which have subsequently been dissected and gradually eroded downward by stream action, forming the present-day topography of mesas, escarpments and valleys. The study area is upon one of the large step blocks situated between the northerly trending Hurricane Fault to the west 18 miles and the Sevier Fault to the east 14 miles. Locally, the rock strata dip eastward 1-3 degrees from horizontal.

Rock strata present which have affect on the ground water, from oldest to youngest (lowest to highest in exposure), are the Triassic-age Moenkopi Formation that outcrops to the west 4-5 miles, consisting of chocolate-reddish brown with some light green siltstone, shale, very fine grained sandstone, gypsum and minor purple limestone, with low porosity, about 1700 feet thick; the Triassic-age Shinarump Sandstone of white to gray-yellow, medium-coarse grained, conglomeratic sandstone and conglomerate with fossilized wood and moderate-high porosity, from 0-120 feet thick; the Triassic-age Chinle Formation of mainly gray, lavender, red and purple, bentonitic shale, siltstone and minor sandstone, having scattered gypsum, with low-nil porosity, about 350 feet thick; the Triassic-age Moenave Formation of light brown-reddish brown, gray and some green siltstone, shale, and fine-coarse grained sandstone with some conglomerate, of low-moderate porosity, about 300-400 feet thick; Triassic-age Kayenta Formation of reddish-brown to brown siltstone and shale with very fine-grained sandstone, low-moderate porosity, about 700 feet thick; and the prominently jointed, Jurassic-age Navajo Sandstone of light yellow-grayish, brown-reddish brown fine, sub-rounded grained, massive-bedded, quartzose sandstone, loosely cemented with

-2-

small-high porosity depending on amount of jointing present, about 2000 feet thick. The above thicknesses stated are full, uneroded sections. Most of the stated formations in exposure have been variably eroded-down to a lesser thickness.

Unconformably overlying any of the above formations within the broad strike valley to the northwest and to the south of the twin cities, through which Highway 59 passes, and within the bottom of Short Creek Canyon, is Quaternary-age alluvium consisting of sand, clay, silt and gravel, of varying thickness from 0-90 feet, with moderate to good porosity.

Within Short Creek Canyon in some places, intercalated between the alluvium and bedrock, are patchy deposits of late Tertiary-age, weakly cemented conglomerate, 0-30 feet thick with low-high porosity.

Average annual precipitation over the area is low, being 12 inches in the lower elevation of the valleys (4800 feet) and grading upward to 16-inches on the highest mesas and ridges north of Hildale. All recharge to any of the groundwater aquifers has to come from a part of this limited precipitation.

Water wells in the twin city area have been drilled 2-6 miles to the northwest near Highway 59 in both the alluvium and through the remnant Chinle shale section, into the Shinarump Sandstone. Alluvial wells are few to a total depth of 125 feet and have a reported yield of up to 75 gpm for short periods of production. The Shinarump wells are 120-300 feet deep with the top of the sandstone being encountered from 120-250 feet deep, and the reported yields 15-30 gpm, from a static level of 136-240 feet deep. The water has been mainly used for stockwater. Because of the aquifer being adjacent to the overlying Chinle Shale which contains scattered gypsum, there is probably a considerable content of calcium sulfate in it.

Within the mouth and bottom of Short Creek Canyon at least three wells have been drilled into the alluvium and are producing from that aquifer as shown on the attached map. The maximum reported thickness of the alluvium is 90 feet and deepest well is 94 feet, with a static water level between 14-30 feet. Yields of 190-200 gpm have been reported with pumping drawdown 43-53 feet after pumping 5-24 hours, or a specific capacity (gpm/ft dd) 3.8-4.4.

Springs (natural groundwater spillage) are discharging from the upper section of the Kayenta Formation within the northern tributaries of Short Creek. These springs are actually producing ground water stored mainly in the Navajo Sandstone and lesser volume in the Kayenta Formation. Since the Kayenta Formation has low to nil porosity except for some local joints, the downward moving ground water in the Navajo Sandstone is deflected outward laterally to the sharply incised Jans, Maxwell, Water and Squirrel Canyons. Cordova (1981) reported measured flows of June 1978 from some of these springs as follows: Jans Canyon in SE/4 NW/4 SE/4 Sec 21-T43S-R10W at 20 gpm; Maxwell Canyon in NW/4 SE/4 SW/4 Sec 22-T43S-R10W at 20 gpm; and Water Canyon in SE/4 NE/4 NW/4 Sec 23-T43S-R10W at 630 gpm. From electrical, field specific conductance measurements of all of these waters, the total dissolved mineral solids was shown to be less than 150 ppm.

- 3 -

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS: From the limited average annual precipitation over the extent of infiltration-recharge areas to all of the above stated aquifers and the nature, storage capacity, and water bearing qualities of the different aquifers, for the highest sustained yield of best quality potable water, the Navajo Sandstone located north of Hildale is the most favorable to pursue. However, it is the farthest away (3-3.5 pipeline miles to Hildale) from the twin cities, but discharge can be had from it by natural gravity flow. In order to intercept this aquifer ground water before it naturally reaches the surface, horizontal wells can be drilled into it at the basal contact of the Navajo Sandstone with the underlying Kayenta Formation. The best location for these horizontal drill holes are on the down-dip, canyon-intercepted edge of the Navajo Sandstone formation and where prominent, long-extending joints can be intercepted. Such locations are in the upper west side of Water Canyon in the W/4 W/2 W/2 Sec 14 and the W/2 W/2 NW/4 Sec 23-T43S-R10W; and the west side of Squirrel Canyon in the E/2 E/2 E/2 Sec 14 and W/2 W/2 NW/4 Sec 13-T43S-R10W. The holes should be drilled west a length of 1000 feet or longer and cased with perforations placed in the best yield zones. The rotary drilling should be done with air or water, using no mud circulation. Specific drill sites would best be located by a field inspection, but I have marked tentative sites by arrows on the attached map. Similar horizontal wells have been drilled into the Navajo Sandstone for the town of Fredonia, to the east 20 miles.

Wayne M. Cox Drilling, a past Utah licensed driller, located to the southeast about 7 miles at Cane Beds, Arizona, has had in the past the type of drilling equipment necessary to do such horizontal drilling.

The second-best aquifer to pursue is the alluvium in the bottom of Short Creek Canyon. This aquifer is benefiting from the spillage out of the Navajo-Kayenta aquifers as that water seeps into the sands and gravels tributary to Short Creek Canyon. This water moves as underflow in the streambed alluvium on down to Hildale. As heretofore stated, already at least three wells are producing from this aquifer for supplying the Hildale area. However, to maximize the withdrawal of the available water, I recommend drilling 2 or 3 additional wells completely through the alluvium and into bedrock at least 50 feet for a total depth of about 150 feet, in the narrows of the canyon, near the center of Sec 26-T43S-R10W. These proposed locations are shown on the attached map. Because the aquifer is probably poorly graded sand and gravel (more fine sand than gravel), I recommend that the holes be drilled and completed to receive an artificial gravel pack. Furthermore, to minimize or prevent well damage from cloudburst-storm runoff flooding, I recommend that the surface casing be heavy-duty 16-20 inches in diameter and after drilling be extended well above high flood stage level. The wells can best be drilled with cable tools, being careful to take at least 2-pound sized samples of every 5 feet of material drilled for later examination and sieve analysis (for the aquifer and adjacent materials).

Gallon-sized water samples should be collected upon encountering water and from each water-bearing zone thereafter, for later reference and possible electrical conductance or chemical analysis.

-4-

After conducting a sieve analysis of the aquifer and adjacent materials, a proper screen slot size should be selected (probably not wider than 0.050 inch) and artificial gravel-pack gradation determined. I recommend that only stainless steel screen be used with a solid cap on the bottom end and an adequate seal for the top overlap section inside the main well casing.

Also, I recommend that the artificial gravel pack be rounded quartz grains with no limestone, shale, or angular-crushed material allowed. The best material available is from Pueblo, Colorado, and is usually shipped into Utah by truck. One of the suppliers there is Fountain Sand & Gravel. In order to prevent plugging of the screen slots, I recommend that none of the gravel-pack gradation be of the exact same size as the slot size. Furthermore, to insure that the gravel-pack gets completely around the screen, I recommend that the screen section be centralized and that a tremie pipe be used to place the gravel-pack. The tremie (1-2 inch diameter) would be installed inside the main well casing into the top of the seal placed between the screened section and well casing. When the well is developed by block-surfing and bailing and during the test pumping, additional gravel-pack material should be on hand to maintain a full tremie pipe. I recommend that the artificial gravel pack gradation be such that not more than 7 percent of it passes through the screen into the well bore during developing and test pumping.

A blank section of pipe with closed bottom can be welded onto the screen section, extending into the 50 feet of bedrock. This will provide room for complete cleaning of the screen and later sediment collection, and allow low placement of the production pump bowls to maximize drawdown of the pumping water level, especially during and following drought years.

Following block-surfing and cleaning of the well, it should be test pumped with a line-shaft pump, powered at the well head with a variable speed engine. Test pumping should commence with the lowest possible rpm, with gradually increasing the rpm after regular surfing. After the well has cleaned-up, it should be pumped at increasing, variable rates for time intervals of at least 2 hours until a maximum rate is reached, then pumped at the maximum rate for at least 24 hours. Regular pumping water levels and discharge measurements should be taken every half hour and properly recorded. At the beginning and end of the pumping period, gallon-sized water sample should be collected.

Immediately upon shutting the pump off, water level recovery measurements should be taken, initially at one minute intervals, then after 15 minutes at 15 minute intervals, then 30 minute intervals, thence at hourly intervals until complete or nearly complete recovery to the original static level.

An alternative to installing stainless steel screen and artificial gravel pack, but more risky of resulting in a sand producing well, is to drill the wells completely down through the alluvium with cable tools into bedrock 50 feet, followed by perforating selected gravel zones with a Mills Knife of 8 slots to round, every foot, followed by block-surfing and cleaning the well. The block-surfing and cleaning should be long enough to completely build a natural filter, gravel pack around the slot perforations and clean the well completely. This may take a couple or more days of work. Then test pumping should follow as outlined above.

- 5 -

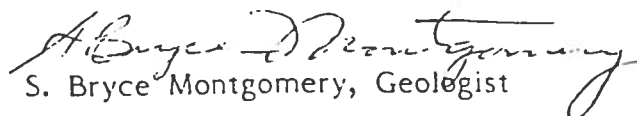
Which ever way of completion, the annular space around the casing above the upper-most aquifer gravel (likely above 60 feet) must be pressure-grout cemented to form a protective seal against infiltrating water. Such grouting should be done before block-surfing and test pumping the well. It must be approved by the State Division of Health and Division of Water Rights and may result in the wells being classified as 'shallow', requiring restricted uses in the area around the wells, and possibly later chlorinating the produced water.

Following the installation of the production pump in the wells, the inside of the well including the casing, pump column and water in the well should be sterilized with a resultant chlorine solution of 100 ppm.

Discharge and conveyance pipelines from the wells will need to be protected from potential floods and stream scouring. I, therefore, recommend that earth mounds be built-up around the completed wells with extended surface casing, that the mounds be riprapped with durable rock which has a layer of graded sand and gravel sandwiched between the riprap and the underlying, properly compacted earth mound. The conveyance pipelines need to be buried deep, at least 6 feet below stream bed, properly bedded and then protected with overlying riprap of durable rock in the trench. The best riprap material in the area is black basalt volcanic rock found near Highway 59, 16 miles to the northwest in Secs 19, 20, 21, 22, 27, 28 and 29-T42S-R12W.

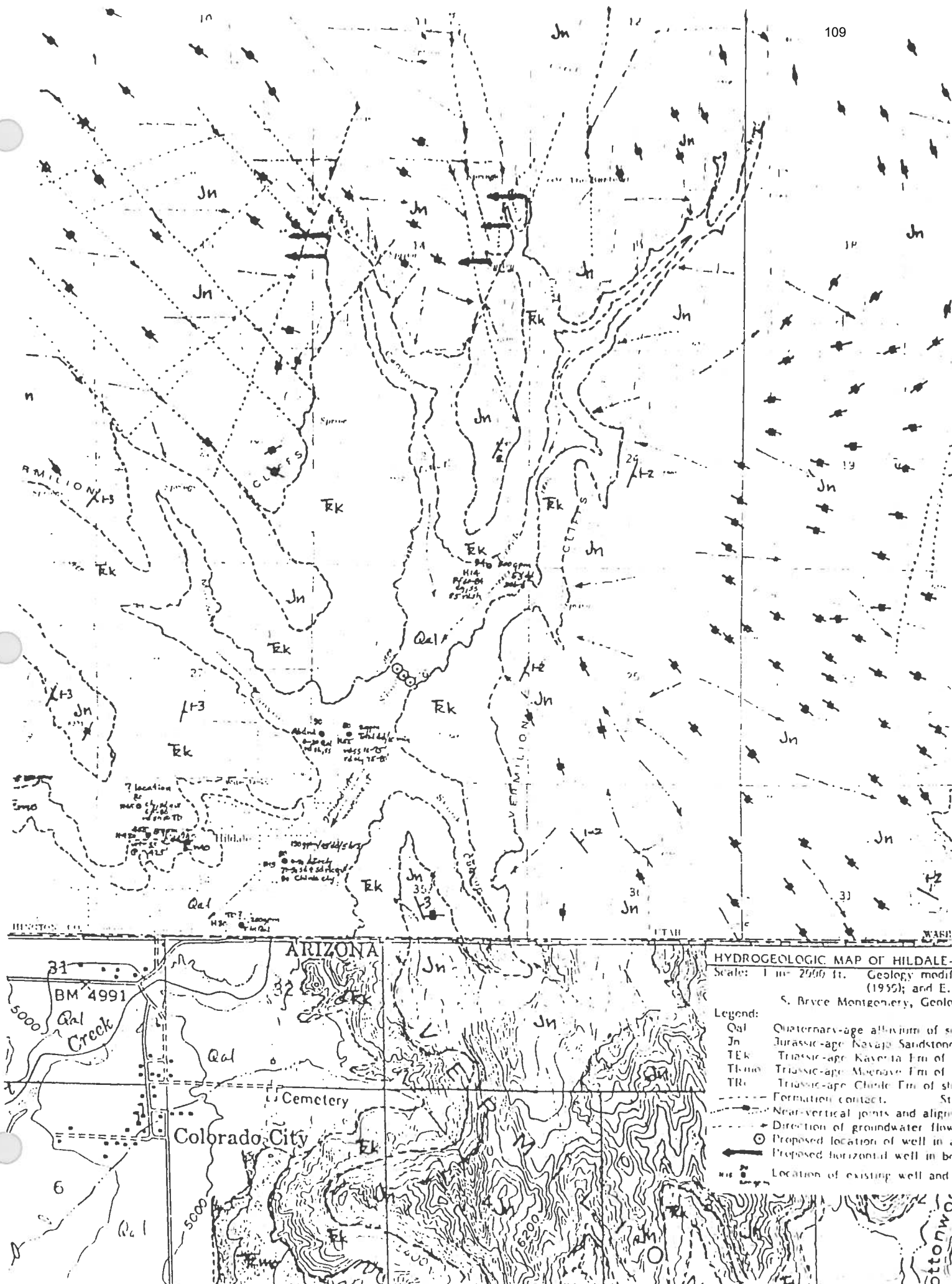
Respectfully submitted,

December 13, 1986


S. Bryce Montgomery, Geologist

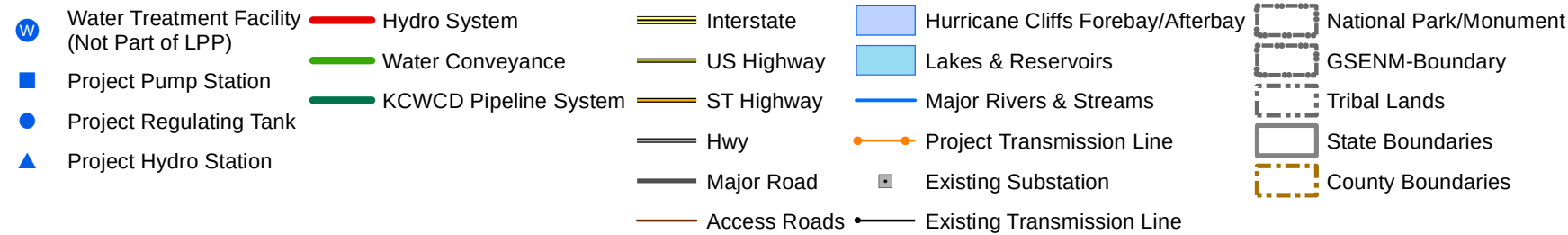
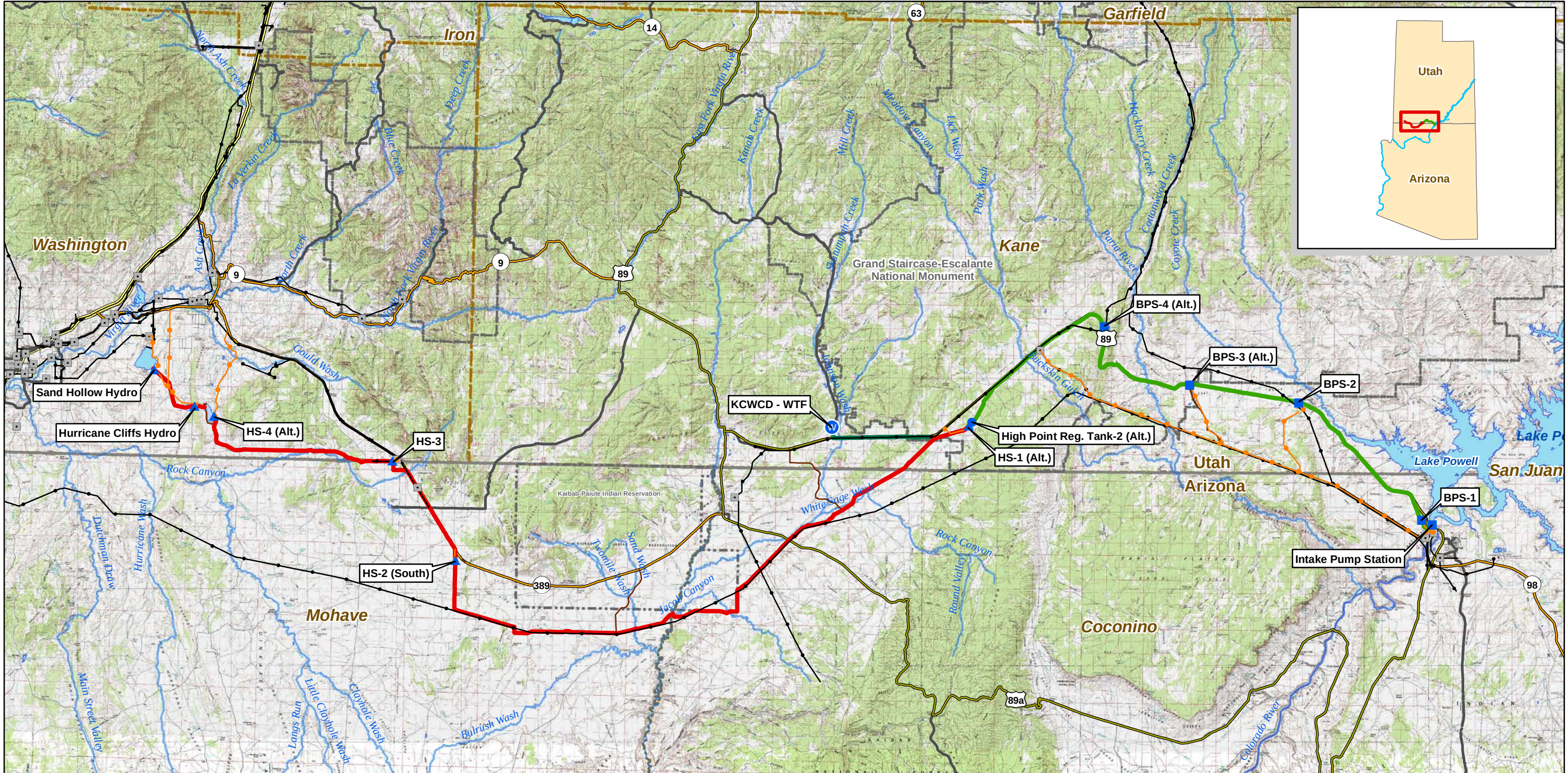
3512 South 100 East
Bountiful, Utah 84010

Telephone 295-8592 home
298-9108 office

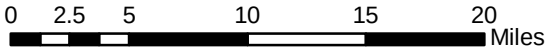


APPENDIX E

**LAKE POWELL PIPELINE
PROPOSED ALIGNMENT**



FERC Project Number:
12966-001
BLM Serial Numbers:
AZA-34941
UTU-85472



Lake Powell Pipeline Project

Spatial Reference: UTM Zone 12N, NAD-83

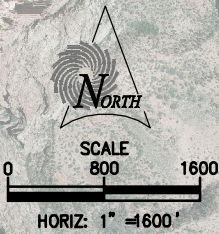
UDWR Figure 1-1

**Lake Powell Pipeline
Proposed Project**

APPENDIX F

DISTRIBUTION SYSTEM / STORAGE IMPROVEMENTS

RECOMMENDED DISTRIBUTION IMPROVEMENTS



LEGEND

EX. 10" (OR LARGER)

PROPOSED 8" DISTRIBUTION LINE

EX. 8"

PROPOSED 6" DISTRIBUTION LINE

EX. 6"

EX. 4" (OR SMALLER)

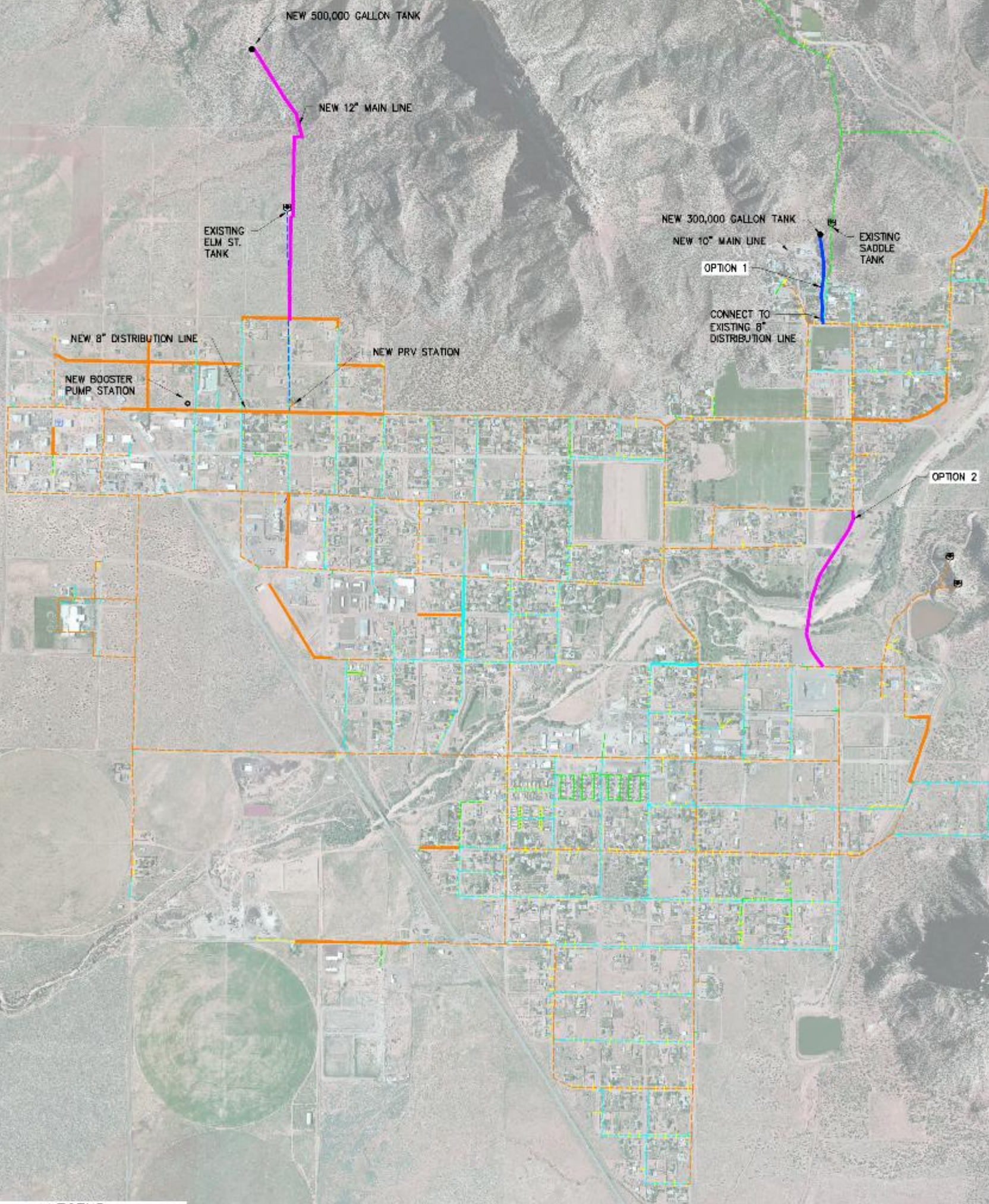
EX. HYDRANT

PROPOSED HYDRANT



11 NORTH 300 WEST
WASHINGTON, UT 84780
TEL 435.652.8450 • FAX 435.652.8416

RECOMMENDED
STORAGE IMPROVEMENTS
(W/ ASSOCIATED DISTRIBUTION)



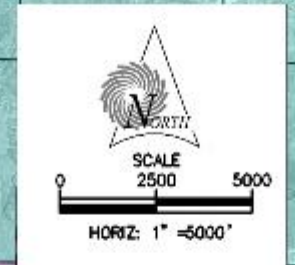
LEGEND

- NEW 12" MAIN LINE
- NEW 10" MAIN LINE
- EX. 10" (OR LARGER)
- NEW 8" DISTRIBUTION LINE
- EX. 8"
- NEW 6" SUPPLY LINE
- EX. 6"
- EX. 4" (OR SMALLER)

APPENDIX G

POTENTIAL SOURCE OPTIONS

POTENTIAL SOURCE ALTERNATIVES



WATER CANYON SPRING COLLECTION

HWY 59

POWER PLANT WELL

3000' WELL

ACADEMY AVENUE WELL

UTAH / ARIZONA BORDER

WELL (NEAR ROSY CANYON ROAD)

LEGEND

- Private
- State
- BLM
- BLM Wilderness Area

- OTHER**
- FUTURE CONNECTION TO LAKE POWELL PIPELINE.
 - OTHER W.C.W.C.D. WATER VIA APPLE VALLEY CONNECTION.
 - CONSERVATION EFFORTS.
 - RE-USE AND SECONDARY IRRIGATION.
 - OTHER ARIZONA WELLS.



SUNRISE
ENGINEERING

11 NORTH 300 WEST
WASHINGTON, UT 84783
TEL 435.652.8450 • FAX 435.652.8416
WWW.SUNRISE-ENG.COM

APPENDIX H

**ENGINEER'S OPINION OF
PROBABLE COST**

SUNRISE ENGINEERING, INC.
 11 North 300 West, Washington, Utah 84780
 Tel: (435) 652-8450 Fax: (435) 652-8416
Engineer's Opinion of Probable Cost

Storage Improvements

26-Nov-14

Hildale City/Town of Colorado City

SBH

NO.	DESCRIPTION	Estimated Quantity	Units	Unit Price	TOTAL COST
Sand Hill Tank (500,000) gallons					
1	Mobilization/Other Miscellaneous	1	LS	\$ 77,000	\$ 77,000
2	Materials Sampling & Testing	1	LS	\$ 8,000	\$ 8,000
3	Earthwork	1	LS	\$ 30,000	\$ 30,000
4	500K Concrete Storage Tank	1	LS	\$ 450,000	\$ 450,000
5	Tank Site Appurtenances	1	LS	\$ 20,000	\$ 20,000
6	6' Chain Link Fence	800	LN FT	\$ 20.00	\$ 16,000
7	Booster Pump Station/PRV Station	1	LS	\$ 35,000	\$ 35,000
8	Metering Station	1	LS	\$ 20,000	\$ 20,000
9	12" C900 PVC, Fittings, Installation, Pipe Bedding, Trench Backfill	3840	LN FT	\$ 30.00	\$ 115,200
10	12" Butterfly Valve Assembly	5	EACH	\$ 2,500	\$ 12,500
11	Combination Air Valve	2	EACH	\$ 6,000	\$ 12,000
12	6" Untreated Base Course	23000	SQ FT	\$ 0.30	\$ 6,900
13	Tie-ins & Connections	1	LS	\$ 20,000	\$ 20,000
14	Solid Rock Excavation	1000	LN FT	\$ 20.00	\$ 20,000
15					
16	Subtotal				\$ 842,600
17	Contingency	15%			\$ 126,400
18	Total Construction				\$ 969,000
Professional Services/Incidentals					
19	Engineering Design	7.50%	LS	\$ 73,400	\$ 73,400
20	Construction Administration & Observation	8.00%	HR	\$ 78,300	\$ 78,300
21	Electrical Design	0.95%	HR	\$ 9,300	\$ 9,300
22	Right-of-Way & Easement	3.50%	HR	\$ 34,300	\$ 34,300
23	Environmental	3.00%	LS	\$ 29,400	\$ 29,400
24	Miscellaneous Services	1.00%	HR	\$ 9,800	\$ 9,800
25					
26	TOTAL PROJECT COST				\$ 1,203,500
Saddle Tank (300,000 gallons)					
27	Mobilization	1	LS	\$ 39,000	\$ 39,000
28	Materials Sampling & Testing	1	LS	\$ 5,000	\$ 5,000
29	Earthwork	1	LS	\$ 20,000	\$ 20,000
30	300K Concrete Storage Tank	1	LS	\$ 300,000	\$ 300,000
31	Tank Site Appurtenances	1	LS	\$ 18,000	\$ 18,000
32	6' Chain Link Fence	600	LN FT	\$ 20.00	\$ 12,000
33	10" C900 PVC, Fittings, Installation, Pipe Bedding, Trench Backfill	1400	LN FT	\$ 25.00	\$ 35,000
34	Tie-ins & Connections	1	LS	\$ 3,000	\$ 3,000
35					
36	Subtotal				\$ 432,000
37	Contingency	15%			\$ 64,800
38	Total Construction				\$ 496,800
Professional Services/Incidentals					
39	Engineering Design	8.52%	LS	\$ 42,300	\$ 42,300
40	Construction Administration & Observation	8.00%	HR	\$ 39,700	\$ 39,700
41	Right-of-Way & Easement	5.00%	HR	\$ 24,800	\$ 24,800
42	Environmental	4.00%	HR	\$ 19,900	\$ 19,900
43	Miscellaneous Services	1.00%	HR	\$ 5,000	\$ 5,000
44					
45	TOTAL PROJECT COST				\$ 628,500
Hildale St and Canyon St Pipeline (Alternative for 300K gal Tank)					
46	12" C900 PVC, Fittings, Installation, Pipe Bedding, Trench Backfill	2500	LN FT	\$ 30.00	\$ 75,000
47	12" Butterfly Valve Assembly	4	EACH	\$ 2,500	\$ 10,000
48	Tie-ins & Connections	1	LS	\$ 10,000	\$ 10,000
49	Creek Crossing	1	LS	\$ 30,000	\$ 30,000
50					
51	Subtotal				\$ 125,000
52	Contingency	15%			\$ 18,800
53	Total Construction				\$ 143,800
Professional Services/Incidentals					
54	Engineering Design	10.50%	LS	\$ 15,100	\$ 15,100
55	Construction Administration & Observation	8.00%	HR	\$ 11,500	\$ 11,500
56	Miscellaneous Services	1.00%	HR	\$ 1,400	\$ 1,400
57					
58	TOTAL PROJECT COST				\$ 181,600

In providing opinions of probable construction cost, the Client understands that the Engineer has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinion of probable construction cost provided herein is made on the basis of the Engineer's qualifications and experience. The Engineer makes no warranty, expressed or implied, as to the accuracy of such opinions compared to bid or actual costs.

SUNRISE ENGINEERING, INC.

11 North 300 West, Washington, Utah 84780

Tel: (435) 652-8450 Fax: (435) 652-8416

Engineer's Opinion of Probable Cost**Academy Avenue Well**

26-Nov-14

Hildale City/Town of Colorado City

SBH/dws

NO.	DESCRIPTION	Estimated Quantity	Units	Unit Price	TOTAL COST
Academy Avenue Well					
<i>Construction (Well)</i>					
1	Mobilization	1	LS	\$ 12,500	\$ 12,500
2	Construct Temporary Detention Ponds	1	LS	\$ 7,500	\$ 7,500
3	8" Diameter Test Well Drilling	0	LF	\$ 50	\$ -
4	Develop and Pump Test Well	0	LS	\$ 10,000	\$ -
5	Water Sampling (Full Drinking Water Standard)	0	EA	\$ 3,000	\$ -
6	Furnish and Install Conductor Casing (Production Well)	1	LS	\$ 7,000	\$ 7,000
7	20" Diameter Production Well Drilling	700	LF	\$ 125	\$ 87,500
8	12" Diameter Casing	450	LF	\$ 50	\$ 22,500
9	12" Diameter Stainless Steel Screen	250	LF	\$ 175	\$ 43,800
10	3" Galvanized Gravel Pack Tremie Pipe	450	LF	\$ 20	\$ 9,000
11	2" Conduit for Level Indicator	700	LF	\$ 12	\$ 8,400
12	Concrete Grout and Seal	6	CY	\$ 750	\$ 4,500
13	Furnish and Install Pea Gravel (Disinfected)	16	CY	\$ 100	\$ 1,600
14	Bentonite Plug	1	LS	\$ 500	\$ 500
15	Furnish and Install Fine Silica Sand	20	CY	\$ 700	\$ 14,000
16	Develop Production Well	120	HR	\$ 200	\$ 24,000
17	Production Well Test Pump Equipment	1	LS	\$ 15,000	\$ 15,000
18	Test Pump Production Well	48	HR	\$ 200	\$ 9,600
19	Recovery Testing	12	HR	\$ 100	\$ 1,200
20	Disinfection and Capping	1	LS	\$ 500	\$ 500
21	Plug and Abandon Existing Well	0	LS	\$ 4,000	\$ -
22					
23	Subtotal				\$ 269,100
22	Contingency	15%			\$ 40,400
24	Total Construction				\$ 309,500
<i>Construction (Well Site, Controls, & Transmission Line to NW Corner of Township and Oak)</i>					
25	Mobilization	1	LS	\$ 12,500	\$ 12,500
26	Traffic Control & Site Security	1	LS	\$ 500	\$ 500
27	Materials Sampling & Testing	1	LS	\$ 2,000	\$ 2,000
28	Dust Control & Watering	1	LS	\$ 1,000	\$ 1,000
29	Subsurface Investigation	8	HR	\$ 150	\$ 1,200
30	Sitework, Grading, and Gravel Surface	1	LS	\$ 8,000	\$ 8,000
31	Pump Control Building	0	LS	\$ 125,000	\$ -
32	Pump Control Building Electrical	0	LS	\$ 35,000	\$ -
33	Pump to Waste Basin	0	LS	\$ 4,500	\$ -
34	Well Site Piping	1	LS	\$ 2,800	\$ 2,800
35	Saw Cut Asphalt	0	LF	\$ 2.25	\$ -
36	3-Inch Bituminous Asphalt w/ Base	0	SY	\$ 17.50	\$ -
37	6" C900 PVC, Fittings, Installation, Pipe Bedding, Trench Backfill	2,000	LF	\$ 18.00	\$ 36,000
38	6" Gate Valve Assembly	2	EA	\$ 1,150	\$ 2,300
39	10-Inch MJxFL Gate Valve	0	EA	\$ 2,000	\$ -
40	Miscellaneous Connections, Fittings, and Tie-Ins	1	LS	\$ 5,500	\$ 5,500
41	6' Chain Link Fence	300	LF	\$ 18.00	\$ 5,400
42	Equip Well	1	LS	\$ 40,000	\$ 40,000
43					
44	Subtotal				\$ 117,200
45	Contingency	15%			\$ 17,600
46	Total Construction				\$ 134,800
<i>Professional Services/Incidentals</i>					
47	Well Siting	0.95%	LS	\$ 3,700	\$ 3,700
48	Civil Engineering Design	6.87%	LS	\$ 26,500	\$ 26,500
49	Electrical Engineering Design	1.65%	LS	\$ 6,400	\$ 6,400
50	Construction Administration & Observation	6.00%	HR	\$ 23,200	\$ 23,200
51	Water Rights Transfer	0.48%	HR	\$ 1,900	\$ 1,900
52	Source Protection Plan	1.74%	HR	\$ 6,700	\$ 6,700
53	Right-of-Way & Easement	0.00%	HR	\$ -	\$ -
54	Miscellaneous Services	0.97%	HR	\$ 3,700	\$ 3,700
55					
56	TOTAL PROJECT COST				\$ 516,400

In providing opinions of probable construction cost, the Client understands that the Engineer has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing, and that the opinion of probable construction cost provided herein is made on the basis of the Engineer's qualifications and experience. The Engineer makes no warranty, expressed or implied, as to the accuracy of such opinions compared to bid or actual costs.

SUNRISE ENGINEERING, INC.

11 North 300 West, Washington, Utah 84780

Tel: (435) 652-8450 Fax: (435) 652-8416

Engineer's Opinion of Probable Cost**Additional Wells 2016**

26-Nov-14

Hildale City/Town of Colorado City

SBH/dws

NO.	DESCRIPTION	Estimated Quantity	Units	Unit Price	TOTAL COST
Additional Wells 2016					
<i>Construction (Well)</i>					
57	Mobilization	1	LS	\$ 37,500	\$ 37,500
58	Construct Temporary Detention Ponds	1	LS	\$ 22,500	\$ 22,500
59	8" Diameter Test Well Drilling	0	LF	\$ 50	\$ -
60	Develop and Pump Test Well	0	LS	\$ 10,000	\$ -
61	Water Sampling (Full Drinking Water Standard)	0	EA	\$ 3,000	\$ -
62	Furnish and Install Conductor Casing (Production Well)	3	EA	\$ 7,000	\$ 21,000
63	20" Diameter Production Well Drilling	2100	LF	\$ 125	\$ 262,500
64	12" Diameter Casing	1350	LF	\$ 50	\$ 67,500
65	12" Diameter Stainless Steel Screen	750	LF	\$ 175	\$ 131,300
66	3" Galvanized Gravel Pack Tremie Pipe	1350	LF	\$ 20	\$ 27,000
67	2" Conduit for Level Indicator	2100	LF	\$ 12	\$ 25,200
68	Concrete Grout and Seal	18	CY	\$ 750	\$ 13,500
69	Furnish and Install Pea Gravel (Disinfected)	49	CY	\$ 100	\$ 4,900
70	Bentonite Plug	3	EA	\$ 500	\$ 1,500
71	Furnish and Install Fine Silica Sand	60	CY	\$ 700	\$ 42,000
72	Develop Production Well	360	HR	\$ 200	\$ 72,000
73	Production Well Test Pump Equipment	3	EA	\$ 15,000	\$ 45,000
74	Test Pump Production Well	144	HR	\$ 200	\$ 28,800
75	Recovery Testing	36	HR	\$ 100	\$ 3,600
76	Disinfection and Capping	3	EA	\$ 500	\$ 1,500
77	Plug and Abandon Existing Well	0	LS	\$ 4,000	\$ -
78					
79	Subtotal				\$ 807,300
78	Contingency	15%			\$ 121,200
80	Total Construction				\$ 928,500
<i>Construction (Well Site, Controls, & Transmission Line to NW Corner of Township and Oak)</i>					
81	Mobilization	1	LS	\$ 37,500	\$ 37,500
82	Traffic Control & Site Security	1	LS	\$ 1,500	\$ 1,500
83	Materials Sampling & Testing	1	LS	\$ 6,000	\$ 6,000
84	Dust Control & Watering	1	LS	\$ 3,000	\$ 3,000
85	Subsurface Investigation	24	HR	\$ 150	\$ 3,600
86	Sitework, Grading, and Gravel Surface	1	LS	\$ 24,000	\$ 24,000
87	Pump Control Building	0	LS	\$ 125,000	\$ -
88	Pump Control Building Electrical	0	LS	\$ 35,000	\$ -
89	Pump to Waste Basin	0	LS	\$ 4,500	\$ -
90	Well Site Piping	1	LS	\$ 8,400	\$ 8,400
91	Saw Cut Asphalt	0	LF	\$ 2.25	\$ -
92	3-Inch Bituminous Asphalt w/ Base	0	SY	\$ 17.50	\$ -
93	6" C900 PVC, Fittings, Installation, Pipe Bedding, Trench Backfill	6,000	LF	\$ 18.00	\$ 108,000
94	6" Gate Valve Assembly	6	EA	\$ 1,150	\$ 6,900
95	10-Inch MJxFL Gate Valve	0	EA	\$ 2,000	\$ -
96	Miscellaneous Connections, Fittings, and Tie-Ins	3	EA	\$ 5,500	\$ 16,500
97	6' Chain Link Fence	900	LF	\$ 18.00	\$ 16,200
98	Equip Well	3	EA	\$ 40,000	\$ 120,000
99					
100	Subtotal				\$ 351,600
101	Contingency	15%			\$ 52,800
102	Total Construction				\$ 404,400
<i>Professional Services/Incidentals</i>					
103	Well Siting	0.96%	LS	\$ 11,100	\$ 11,100
104	Civil Engineering Design	6.86%	LS	\$ 79,500	\$ 79,500
105	Electrical Engineering Design	1.66%	LS	\$ 19,200	\$ 19,200
106	Construction Administration & Observation	6.01%	HR	\$ 69,600	\$ 69,600
107	Water Rights Transfer	0.49%	HR	\$ 5,700	\$ 5,700
108	Source Protection Plan	1.73%	HR	\$ 20,100	\$ 20,100
109	Right-of-Way & Easement		HR	\$ -	\$ -
110	Miscellaneous Services	0.96%	HR	\$ 11,100	\$ 11,100
111					
112	TOTAL PROJECT COST				\$ 1,549,200

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SUNRISE ENGINEERING, INC.
 11 North 300 West, Washington, Utah 84780
 Tel: (435) 652-8450 Fax: (435) 652-8416
Engineer's Opinion of Probable Cost

Well (Near Rosy Canyon Road)
 Hildale City/Town of Colorado City

26-Nov-14

SBH/dws

NO.	DESCRIPTION	Estimated Quantity	Units	Unit Price	TOTAL COST
Well (Near Rosy Canyon Road)					
113	Mobilization	1	LS	\$ 111,000	\$ 111,000
114	Construct Temporary Detention Ponds	1	LS	\$ 7,500	\$ 7,500
115	8" Diameter Test Well Drilling	500	LF	\$ 50	\$ 25,000
116	Develop and Pump Test Well	1	LS	\$ 8,000	\$ 8,000
117	Water Sampling (Full Drinking Water Standard)	1	EA	\$ 3,000	\$ 3,000
118	Furnish and Install Conductor Casing (Production Well)	1	LS	\$ 7,000	\$ 7,000
119	20" Diameter Production Well Drilling	500	LF	\$ 125	\$ 62,500
120	12" Diameter Casing	350	LF	\$ 50	\$ 17,500
121	12" Diameter Stainless Steel Screen	150	LF	\$ 175	\$ 26,300
122	3" Galvanized Gravel Pack Tremie Pipe	450	LF	\$ 20	\$ 9,000
123	2" Conduit for Level Indicator	500	LF	\$ 12	\$ 6,000
124	Concrete Grout and Seal	6	CY	\$ 750	\$ 4,500
125	Furnish and Install Pea Gravel (Disinfected)	11	CY	\$ 100	\$ 1,100
126	Bentonite Plug	1	LS	\$ 500	\$ 500
127	Furnish and Install Fine Silica Sand	15	CY	\$ 700	\$ 10,500
128	Develop Production Well	120	HR	\$ 200	\$ 24,000
129	Production Well Test Pump Equipment	1	LS	\$ 12,000	\$ 12,000
130	Test Pump Production Well	48	HR	\$ 200	\$ 9,600
131	Recovery Testing	12	HR	\$ 100	\$ 1,200
132	Disinfection and Capping	1	LS	\$ 500	\$ 500
133	Traffic Control & Site Security	1	LS	\$ 500	\$ 500
134	Materials Sampling & Testing	1	LS	\$ 2,000	\$ 2,000
135	Dust Control & Watering	1	LS	\$ 1,000	\$ 1,000
136	Subsurface Investigation	12	HR	\$ 150	\$ 1,800
137	Sitework, Grading, and Gravel Surface	1	LS	\$ 8,000	\$ 8,000
138	Pump Control Building	1	LS	\$ 125,000	\$ 125,000
139	Pump Control Building Electrical	1	LS	\$ 35,000	\$ 35,000
140	Pump to Waste Basin	1	LS	\$ 4,500	\$ 4,500
141	Well Site Piping	1	LS	\$ 2,800	\$ 2,800
142	3-Inch Bituminous Asphalt w/ Base	70	SY	\$ 17.50	\$ 1,200
143	6" Untreated Base Course	2300	SY	\$ 2.70	\$ 6,200
144	12" C900 PVC, Fittings, Installation, Pipe Bedding, Trench Backfill	53500	LF	\$ 30.00	\$ 1,605,000
145	12" Butterfly Valve Assembly	55	EA	\$ 2,500	\$ 137,500
146	Miscellaneous Connections, Fittings, and Tie-Ins	1	LS	\$ 5,000	\$ 5,000
147	6' Chain Link Fence	300	LF	\$ 18	\$ 5,400
148	Equip Well	1	LS	\$ 35,000	\$ 35,000
149					
150	Subtotal				\$ 2,322,600
151	Contingency	15%			\$ 348,400
152	Total Construction				\$ 2,671,000
Professional Services/Incidentals					
153	Well Siting	0.20%	LS	\$ 4,600	\$ 4,600
154	Civil Engineering Design	6.00%	LS	\$ 139,400	\$ 139,400
155	Electrical Engineering Design	1.00%	LS	\$ 23,200	\$ 23,200
156	Construction Administration & Observation	8.00%	HR	\$ 185,800	\$ 185,800
157	Source Protection Plan	0.30%	LS	\$ 7,000	\$ 7,000
158	Right-of-Way & Easement	5.00%	Est	\$ 116,100	\$ 116,100
159	Miscellaneous Services	1.00%	HR	\$ 23,200	\$ 23,200
160	State Well Drilling Approval		Est	\$ 10,000	\$ 10,000
161	Land Acquisition		Est	\$ 40,000	\$ 40,000
162					
163	TOTAL PROJECT COST				\$ 3,220,300

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SUNRISE ENGINEERING, INC.

11 North 300 West, Washington, Utah 84780

Tel: (435) 652-8450 Fax: (435) 652-8416

Engineer's Opinion of Probable Cost**3000 ft Well, and Water Canyon Spring Collection**

26-Nov-14

Hildale City/Town of Colorado City

SBH/dws

NO.	DESCRIPTION	Estimated Quantity	Units	Unit Price	TOTAL COST
3000 ft Well					
164	Test Pump Existing Well	1	LS	\$ 150,000	\$ 150,000
165	Engineering & Construction Administration	1	HR	\$ 15,000	\$ 15,000
166					
167	Subtotal				\$ 165,000
168	Contingency	15%			\$ 24,800
169	Total Construction				\$ 189,800
170					
Water Canyon Spring Collection					
171	Mobilization/Miscellaneous	1	LS	\$ 36,645	\$ 36,600
172	Materials Sampling & Testing	1	LS	\$ 25,000	\$ 25,000
173	Dust Control & Watering	1	LS	\$ 5,000	\$ 5,000
174	8" C900 PVC, Fittings, Installation, Pipe Bedding, Trench Backfill	19000	LF	\$ 22.00	\$ 418,000
175	8" Gate Valve Assembly	20	EA	\$ 1,600	\$ 32,000
176	Miscellaneous Connections, Fittings, and Tie-Ins	1	LS	\$ 2,000	\$ 2,000
177	3-Inch Bituminous Asphalt w/ Base	50	SY	\$ 17.50	\$ 900
178	Drilling & Spring Collection	1	LS	\$ 250,000	\$ 250,000
179					\$ -
180	Subtotal				\$ 769,500
181	Contingency	20%			\$ 153,900
182	Total Construction				\$ 923,400
183					
Professional Services/Incidentals					
183	Engineering Design	8.13%	LS	\$ 62,600	\$ 62,600
184	Construction Administration & Observation	8.00%	HR	\$ 61,600	\$ 61,600
185	Right-of-Way & Easement	5.00%	HR	\$ 38,500	\$ 38,500
186	Miscellaneous Services	1.00%	HR	\$ 7,700	\$ 7,700
187	Environmental	1	Est	\$ 250,000	\$ 250,000
188	Water Right Transfer	1	Est	\$ 5,000	\$ 5,000
189	Survey	1	Est	\$ 20,000	\$ 20,000
190	Drinking Water Source Protection	1	LS	\$ 10,000	\$ 10,000
191					
192	TOTAL PROJECT COST				\$ 1,378,800

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Engineer's Opinion of Probable Cost**Power Plant Well**

26-Nov-14

Hildale City/Town of Colorado City

SBH/dws

NO.	DESCRIPTION	Estimated Quantity	Units	Unit Price	TOTAL COST
Power Plant Well Option 1 (Radium Treatment)					
193	Mobilization	1	LS	\$ 21,875	\$ 21,875
194	Pressure Filter Treatment System	1	LS	\$ 290,000	\$ 290,000
195	Treatment House	1	LS	\$ 50,000	\$ 50,000
196	Tie-ins & Connections	1	LS	\$ 10,000	\$ 10,000
197	Professional Services/Incidentals	1	Est	\$ 87,500	\$ 87,500
198					
199					
200	Subtotal				\$ 459,375
201	Contingency	15%			\$ 68,900
202	Total Construction				\$ 528,275
Power Plant Well Option 2 (Blending in Line)					
203	Mobilization	1	LS	\$ 7,900	\$ 7,900
204	Booster Pump Building	1	EA	\$ 60,000	\$ 60,000
205	Check Valve Manhole	1	EA	\$ 12,000	\$ 12,000
206	Tie-ins & Connections	1	LS	\$ 10,000	\$ 10,000
207	4" C900 PVC, Fittings, Installation, Pipe Bedding, Trench Backfill	2500	LNFT	\$ 14.00	\$ 35,000
208	Professional Services/Incidentals	1	Est	\$ 41,000	\$ 41,000
209					
210	Subtotal				\$ 165,900
211	Contingency	15%			\$ 24,900
212	Total Construction				\$ 190,800
Power Plant Well Option 3 (Blending at Tank)					
213	Mobilization	1	LS	\$ 11,600	\$ 11,600
214	Booster Pump Building	1	EA	\$ 50,000	\$ 50,000
215	Tie-ins & Connections	1	LS	\$ 10,000	\$ 10,000
216	4" C900 PVC, Fittings, Installation, Pipe Bedding, Trench Backfill	6300	LNFT	\$ 14.00	\$ 88,200
217	Highway Bore	80	LF	\$ 300.00	\$ 24,000
218	Professional Services/Incidentals	1	Est	\$ 60,000	\$ 60,000
219					
220	Subtotal				\$ 243,800
221	Contingency	15%			\$ 36,600
222	Total Construction				\$ 280,400
Power Plant Well Option 4 (Blending at Treatment Plant)					
223	Mobilization	1	LS	\$ 8,100	\$ 8,100
224	Tie-ins & Connections (Connect at Academy)	1	LS	\$ 10,000	\$ 10,000
225	4" C900 PVC, Fittings, Installation, Pipe Bedding, Trench Backfill	6150	LNFT	\$ 14.00	\$ 86,100
226	Highway Bore	80	LF	\$ 300.00	\$ 24,000
227	Professional Services/Incidentals	1	Est	\$ 42,000	\$ 42,000
228					
229	Subtotal				\$ 170,200
230	Contingency	15%			\$ 25,500
231	Total Construction				\$ 195,700

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SUNRISE ENGINEERING, INC.

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Engineer's Opinion of Probable Cost

Distribution System Improvements

26-Nov-14

Hildale City

RBF/sbh

NO.	DESCRIPTION	Estimated Quantity	Units	Unit Price	TOTAL COST
Distribution Improvements					
1	Mobilization	1	LS	\$ 47,000	\$ 47,000
2	10" Gate Valve Assembly	2	Each	\$ 2,000	\$ 4,000
3	8" C900 PVC, Fittings, Installation, Pipe Bedding, Trench Backfill	16,100	Ln. Ft.	\$ 22.00	\$ 354,200
4	8" Gate Valve Assembly	36	Each	\$ 1,600	\$ 57,600
5	6" C900 PVC, Fittings, Installation, Pipe Bedding, Trench Backfill	2,000	Ln. Ft.	\$ 18.00	\$ 36,000
6	6" Gate Valve Assembly	14	Each	\$ 1,150	\$ 16,100
7	Fire Hydrant Assembly w/ Gate Valve	60	Each	\$ 4,800	\$ 288,000
8	Radio Read Water Meter	0	Each	\$ 350	\$ -
9	Meter Setter Assembly w/ Backflow Prevention	63	Each	\$ 550	\$ 34,700
10	Service Saddle W/ Corp Stop	63	Each	\$ 250	\$ 15,800
11	Service Lateral Pipe	3,150	Ln. Ft.	\$ 8.50	\$ 26,800
12	6" Untreated Base Course	3,700	SY	\$ 2.70	\$ 10,000
13	Bituminouse Surface Course	310	Cu. Yd.	\$ 250	\$ 77,500
14					
15	Sub-Total				\$ 967,700
16	Contingency	15%			\$ 145,200
17	Total Construction				\$ 1,112,900
Professional Services/Incidentals					
18	Civil Engineering Design	5.6%	L.S.		\$ 80,400
19	Engineering Construction Services (Full Time - 90 Days)	6.4%	Hourly		\$ 92,000
20	SWPPP (Storm Water Pollution Protection Plan)		Est.		\$ 3,500
21	Environmental Report (EA or CATEX)		Est.		\$ 30,000
22	Geotechnical Report		Est.		\$ 10,000
23	Geotechnical and Materials Testing		Est.		\$ 25,000
24	Construction Staking		Est.		\$ 5,000
25	Land & RoW Acquisition		Est.		\$ 25,000
26	Land & RoW Negotiation		Est.		\$ 5,000
27	GIS Mapping		Est.		\$ 20,000
28	Bonding & Attorney Fees		Est.		\$ 25,000
29	Miscellaneous Engineering Services		Est.		\$ 10,000
30					
31	TOTAL PROJECT COST				\$ 1,443,800

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Engineer's Opinion of Probable Cost**1 MGD Culinary Water Treatment Plant (Assumed Technology)**

26-Nov-14

Hildale City

RBF/sbh

NO.	DESCRIPTION	Estimated Quantity	Units	Unit Price	TOTAL COST
New Culinary Water Treatment Plant					
1	Mobilization	1	LS	\$ 75,000.00	\$ 75,000
2	Reinforced Concrete Foundation & Floor	1	LS	\$ 80,000.00	\$ 80,000
3	Pre-Engineered Steel Building (40' x 60')	1	LS	\$ 75,000.00	\$ 75,000
4	Interior Framing & Finish	1	LS	\$ 45,000.00	\$ 45,000
5	Electrical Improvements	1	LS	\$ 200,000.00	\$ 200,000
6	Mechanical Improvements	1	LS	\$ 40,000.00	\$ 40,000
7	Plumbing Improvements	1	LS	\$ 20,000.00	\$ 20,000
8	Multi-Media Pressure Filter System	1	LS	\$ 425,000.00	\$ 425,000
9	Ultra-Violet Disinfection System	1	LS	\$ 150,000.00	\$ 150,000
10	On-Site Sodium Hypochlorite Generation System	1	LS	\$ 75,000.00	\$ 75,000
11	Misc. Treatment Building Piping, Valves & Equipment	1	LS	\$ 175,000.00	\$ 175,000
12	SCADA System Components	1	LS	\$ 130,000.00	\$ 130,000
13	Site Improvements	1	LS	\$ 80,000.00	\$ 80,000
14					
15	Sub-Total				\$ 1,570,000
16	Contingency	15%			\$ 235,500
17	Total Construction				\$ 1,805,500
Professional Services/Incidentals					
18	Civil Engineering Design	6.3%	L.S.		\$ 144,100
19	Engineering Construction Services (Full Time - 120 Days)	5.3%	Hourly		\$ 120,000
20	Operation and Maintenance Manual		Est.		\$ 20,000
21	SWPPP (Storm Water Pollution Protection Plan)		Est.		\$ 3,500
22	Environmental Report (EA or CATEX)		Est.		\$ 35,000
23	Geotechnical Report		Est.		\$ 10,000
24	Geotechnical and Materials Testing		Est.		\$ 5,000
25	Electrical Engineering Design		Est.		\$ 30,000
26	SCADA Design		Est.		\$ 30,000
27	Construction Staking		Est.		\$ 3,000
28	Land & RoW Acquisition		Est.		\$ 25,000
29	Land & RoW Negotiation		Est.		\$ 5,000
32	Bonding & Attorney Fees		Est.		\$ 25,000
33	Miscellaneous Engineering Services		Est.		\$ 10,000
34					
35	TOTAL PROJECT COST				\$ 2,271,100

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Engineer's Opinion of Probable Cost**Irrigation Well**

12-Dec-14

Hildale City/Town of Colorado City

SBH/dws

NO.	DESCRIPTION	Estimated Quantity	Units	Unit Price	TOTAL COST
Irrigation Well					
<i>Construction (Well)</i>					
1	Mobilization	1	LS	\$ 10,000	\$ 10,000
2	Construct Temporary Detention Ponds	1	LS	\$ 5,000	\$ 5,000
3	Furnish and Install Conductor Casing (Production Well)	1	LS	\$ 7,000	\$ 7,000
4	16" Diameter Production Well Drilling	100	LF	\$ 105	\$ 10,500
5	10" Diameter Casing	60	LF	\$ 45	\$ 2,700
6	10" Diameter Stainless Steel Screen	40	LF	\$ 160	\$ 6,400
7	3" Galvanized Gravel Pack Tremie Pipe	100	LF	\$ 20	\$ 2,000
8	2" Conduit for Level Indicator	100	LF	\$ 12	\$ 1,200
9	Concrete Grout and Seal	1	CY	\$ 750	\$ 800
10	Furnish and Install Pea Gravel (Disinfected)	2.7	CY	\$ 100	\$ 300
11	Bentonite Plug	1	LS	\$ 500	\$ 500
12	Furnish and Install Fine Silica Sand	2.5	CY	\$ 700	\$ 1,800
13	Develop Production Well	60	HR	\$ 200	\$ 12,000
14	Production Well Test Pump Equipment	1	LS	\$ 5,000	\$ 5,000
15	Test Pump Production Well	48	HR	\$ 200	\$ 9,600
16	Recovery Testing	12	HR	\$ 100	\$ 1,200
17	Disinfection and Capping	1	LS	\$ 500	\$ 500
18					
19	Subtotal				\$ 76,500
18	Contingency	15%			\$ 11,500
20	Total Construction				\$ 88,000
<i>Construction (Well Site, Controls, & Transmission Line to NW Corner of Township and Oak)</i>					
21	Mobilization	1	LS	\$ 10,000	\$ 10,000
22	Traffic Control & Site Security	1	LS	\$ 500	\$ 500
23	Materials Sampling & Testing	1	LS	\$ 1,000	\$ 1,000
24	Dust Control & Watering	1	LS	\$ 500	\$ 500
25	Subsurface Investigation	8	HR	\$ 150	\$ 1,200
26	Sitework, Grading, and Gravel Surface	1	LS	\$ 4,000	\$ 4,000
27	Well Site Piping	1	LS	\$ 2,800	\$ 2,800
28	6" C900 PVC, Fittings, Installation, Pipe Bedding, Trench Backfill	2,000	LF	\$ 18.00	\$ 36,000
29	6" Gate Valve Assembly	2	EA	\$ 1,150	\$ 2,300
30	Miscellaneous Connections, Fittings, and Tie-Ins	1	LS	\$ 3,000	\$ 3,000
31	6' Chain Link Fence	300	LF	\$ 18.00	\$ 5,400
32	Equip Well	1	LS	\$ 20,000	\$ 20,000
33					
34	Subtotal				\$ 86,700
35	Contingency	15%			\$ 13,000
36	Total Construction				\$ 99,700
<i>Professional Services/Incidentals</i>					
37	Well Siting	0.95%	LS	\$ 1,600	\$ 1,600
38	Civil Engineering Design	8.35%	LS	\$ 13,600	\$ 13,600
39	Electrical Engineering Design	1.65%	LS	\$ 2,700	\$ 2,700
40	Construction Administration & Observation	6.00%	HR	\$ 9,800	\$ 9,800
41	Water Rights Transfer	1.15%	HR	\$ 1,900	\$ 1,900
42	Right-of-Way & Easement	0.00%	HR	\$ -	\$ -
43	Miscellaneous Services	0.97%	HR	\$ 1,600	\$ 1,600
44					
45	TOTAL PROJECT COST				\$ 218,900

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APPENDIX I

IMPACT FEE CERTIFICATION

CERTIFICATION OF IMPACT FEE ANALYSIS BY CONSULTANT

In accordance with Utah Code Annotated, § 11-36a-306 Steven B. Hall, P.E., on behalf of Sunrise Engineering, Inc., make the following certification:

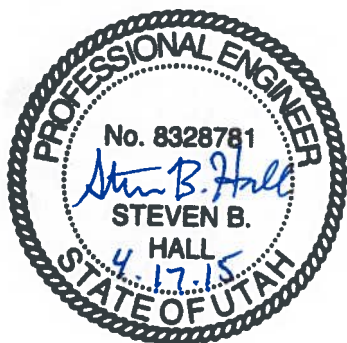
I certify that the attached impact fee facilities plan and impact fee analysis:

1. Includes only the costs for qualifying public facilities that are:
 - a. Allowed under the Impact Fees Act; and
 - b. Actually incurred; or
 - c. Projected to be incurred or encumbered within six years after each impact fee is paid;
2. Does not include:
 - a. costs of operation and maintenance of public facilities;
 - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents;
 - c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and that methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement; and
3. Offsets costs with grants or other alternate sources of payment (if grants or other sources of payment have been applied for and received and such information was made available when the Impact Fee Analysis was prepared); and
4. Complies in each and every relevant respect with the Impact Fees Act.

Steven B. Hall, P.E. makes this certification with the following qualifications:

1. All of the recommendations for implementations of the Impact Fee Facilities Plan (“IFFP”) made in the IFFP documents or in the Impact Fee Analysis documents are followed in their entirety by Hildale City, Utah and Town of Colorado City, Arizona staff and elected officials.
2. If all or a portion of the IFFP’s or Impact Fee Analyses are modified or amended, this certification is no longer valid.

3. All information provided to Sunrise Engineering, Inc., its contractors or suppliers is assumed to be correct, complete and accurate. This includes information provided by Hildale City, Utah and Town of Colorado City, Arizona and outside sources.
4. The undersigned is trained and licensed as a professional engineer and has not been trained or licensed as an lawyer. Nothing in the foregoing certification shall be deemed an opinion of law or an opinion of compliance with law which under applicable professional licensing laws or regulations or other laws or regulations must be rendered by a lawyer licensed in the State of Utah.
5. The foregoing Certification is an expression of professional opinion based on the undersigned's best knowledge, information and belief and shall not be construed as a warranty or guaranty of any fact or circumstance.
6. The foregoing certification is made only to Hildale City, Utah and Town of Colorado City, Arizona and may not be used or relied upon by any other person or entity without the expressed written authorization of the undersigned.



Sunrise Engineering, Inc.

By: Steven Hall

Dated: 4.17.15

APPENDIX J

CASHFLOW SPREADSHEET

Cashflow Analysis - Hildale City/Town of Colorado City Impact Fee Analysis											
Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
1 Revenues											
2 Charges for Services, Fees, etc.	\$ 891,345	\$ 1,117,257	\$ 1,182,058	\$ 1,203,335	\$ 1,224,995	\$ 1,247,045	\$ 1,269,492	\$ 1,292,343	\$ 1,315,605	\$ 1,365,598	
3 Interest Income	\$ 3,180	\$ 3,180	\$ 3,180	\$ 3,180	\$ 3,180	\$ 3,180	\$ 3,180	\$ 3,180	\$ 3,180	\$ 3,180	
4 Impact Fees Collected	\$ 73,443	\$ 275,671	\$ 280,633	\$ 285,685	\$ 290,827	\$ 296,062	\$ 301,391	\$ 306,816	\$ 312,339	\$ 317,961	
5											
6 Total:											
7 <i>Annual Increase in Charges for Services</i>	0.0%		4.0%								2.0%
8 Expenses											
9 Contract Wages and Benefits	\$ 131,985	\$ 135,945	\$ 140,023	\$ 144,224	\$ 148,551	\$ 153,007	\$ 157,597	\$ 162,325	\$ 167,195	\$ 172,211	
10 Office Expenses and Travel	\$ 20,688	\$ 21,308	\$ 21,947	\$ 22,606	\$ 23,284	\$ 23,983	\$ 24,702	\$ 25,443	\$ 26,206	\$ 26,993	
11 Repairs and Maintenance	\$ 125,201	\$ 128,957	\$ 132,826	\$ 136,810	\$ 140,915	\$ 145,142	\$ 149,496	\$ 153,981	\$ 158,601	\$ 163,359	
12 Utilities	\$ 60,688	\$ 62,509	\$ 64,384	\$ 66,315	\$ 68,305	\$ 70,354	\$ 72,465	\$ 74,639	\$ 76,878	\$ 79,184	
13 Insurance	\$ 29,699	\$ 30,590	\$ 31,508	\$ 32,453	\$ 33,426	\$ 34,429	\$ 35,462	\$ 36,526	\$ 37,622	\$ 38,750	
14 Legal and Professional Fees	\$ 88,893	\$ 91,559	\$ 94,306	\$ 97,135	\$ 100,049	\$ 103,051	\$ 106,143	\$ 109,327	\$ 112,607	\$ 115,985	
15 Purchased Water	\$ 380,353	\$ 391,764	\$ 403,517	\$ 415,622	\$ 428,091	\$ 440,933	\$ 454,161	\$ 467,786	\$ 481,820	\$ 496,274	
16 Renewal & Replacement Fund	\$ 32,878	\$ 33,864	\$ 34,880	\$ 35,927	\$ 37,004	\$ 38,115	\$ 39,258	\$ 40,436	\$ 41,649	\$ 42,898	
17 Existing Debt Service	\$ 18,997	\$ 18,995	\$ 18,996	\$ 18,996	\$ 6,978						
18 PROJECTED SPECIAL COURT COSTS	\$ -	\$ 40,000	\$ 40,000	\$ 40,000	\$ 40,000	\$ 40,000					
19											
20 Total:	\$ 889,381	\$ 955,491	\$ 982,387	\$ 1,010,088	\$ 1,026,603	\$ 1,049,014	\$ 1,039,284	\$ 1,070,463	\$ 1,102,577	\$ 1,135,654	
21 <i>Annual Increase in Expenses</i>	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
22 Projects											
23 Water Rights (2015-2024)	\$	44,917	\$ 46,264	\$ 47,652	\$ 49,082	\$ 50,554	\$ 52,071	\$ 53,633	\$ 55,242	\$ 56,899	
24 Water Rights (2025-2034)											
25 Academy Avenue Well	\$	133,740	\$ 10,187	\$ 10,187	\$ 10,187	\$ 10,187	\$ 10,187	\$ 10,187	\$ 10,187	\$ 10,187	
26 Additional Wells 2016			\$ 105,426	\$ 105,426	\$ 105,426	\$ 105,426	\$ 105,426	\$ 105,426	\$ 105,426	\$ 105,426	
27 Well (Near Rosy Canyon Road)											
28 3000 ft Well (test pump)											
29 Water Canyon Spring Collection Phase I			\$ 63,060	\$ 63,060	\$ 63,060	\$ 63,060	\$ 63,060				
30 Water Canyon Spring Collection Phase II											
31 *Option 4 (Blended at Treatment Plant)	\$	23,720	\$ 23,720	\$ 23,720	\$ 23,720	\$ 23,720	\$ 23,720	\$ 23,720	\$ 23,720	\$ 23,720	
32 Sand Hill Tank (500,000) gallons											
33 Saddle Tank (300,000 gallons)											
34 Hildale St and Canyon St Pipeline					\$ 24,051	\$ 24,051	\$ 24,051	\$ 24,051	\$ 24,051	\$ 24,051	
35 Additional Treatment Capacity			\$ 159,194	\$ 159,194	\$ 159,194	\$ 159,194	\$ 159,194	\$ 159,194	\$ 159,194	\$ 159,194	
36 Miscellaneous Distribution Improvements	\$	74,356	\$ 76,586	\$ 78,884	\$ 81,250	\$ 83,688	\$ 86,199	\$ 88,785	\$ 91,448	\$ 94,192	
37 Impact Fee Analysis Update (2019, 2024, 2029, 2034)						\$ 34,778				\$ 40,317	
38											
39 Total:	\$ -	\$ 276,733	\$ 484,438	\$ 488,123	\$ 515,971	\$ 554,659	\$ 523,908	\$ 464,996	\$ 469,269	\$ 513,987	
40 Project Funds											
41 From Impact Fees	\$ -	\$ 111,786.82	\$ 308,753.84	\$ 310,141.77	\$ 311,571.34	\$ 347,822.01	\$ 314,560.42	\$ 253,062.55	\$ 254,671.54	\$ 296,646.29	
42 From Revenue Fund	\$ -	\$ 164,946	\$ 175,684	\$ 177,982	\$ 204,400	\$ 206,837	\$ 209,348	\$ 211,934	\$ 214,597	\$ 217,341	
43											
44 Revenue Fund Calculations											
45 Net Annual Increase/Decrease	\$ 5,144	\$ 1	\$ 27,168	\$ 18,446	\$ (2,827)	\$ (5,625)	\$ 24,040	\$ 13,127	\$ 1,611	\$ 15,784	
46 Revenue Fund est. interest (@2%)	\$ -	\$ 103	\$ 105	\$ 650	\$ 1,032	\$ 996	\$ 904	\$ 1,403	\$ 1,693	\$ 1,759	
47 Revenue Fund w/ interest	\$ 5,144	\$ 5,248	\$ 32,521	\$ 51,617	\$ 49,822	\$ 45,193	\$ 70,137	\$ 84,666	\$ 87,971	\$ 105,514	
48											
49 Impact Fee Fund Calculations											
50 Net Annual Increase/Decrease	\$ 73,443	\$ 163,884	\$ (28,121)	\$ (24,457)	\$ (20,744)	\$ (51,760)	\$ (13,170)	\$ 53,753	\$ 57,667	\$ 21,314	
51 Impact Fee Fund est. interest (@2%)	\$ -	\$ 1,469	\$ 4,776	\$ 4,309	\$ 3,906	\$ 3,569	\$ 2,605	\$ 2,394	\$ 3,517	\$ 4,741	
52 Impact Fee Fund w/ interest	\$ 73,443	\$ 238,796	\$ 215,452	\$ 195,303	\$ 178,465	\$ 130,274	\$ 119,710	\$ 175,857	\$ 237,042	\$ 263,097	

Cashflow Analysis - Hildale City/Town of Colorado City Imp											
Year	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
1 Revenues											
2 Charges for Services, Fees, etc.	\$ 1,390,179	\$ 1,526,417	\$ 1,553,892	\$ 1,581,862	\$ 1,610,336	\$ 1,752,045	\$ 1,801,102	\$ 1,851,533	\$ 1,884,861	\$ 1,937,637	
3 Interest Income	\$ 3,180	\$ 3,180	\$ 3,180	\$ 3,180	\$ 3,180	\$ 3,180	\$ 3,180	\$ 3,180	\$ 3,180	\$ 3,180	
4 Impact Fees Collected	\$ 346,342	\$ 352,576	\$ 358,922	\$ 365,383	\$ 371,960	\$ 608,679	\$ 619,635	\$ 630,789	\$ 642,143	\$ 653,702	
5											
6 Total:											
7 <i>Annual Increase in Charges for Services</i>	8.0%7.0%1.0%1.0%1.0%										
8 Expenses											
9 Contract Wages and Benefits	\$ 177,377	\$ 182,698	\$ 188,179	\$ 193,825	\$ 199,640	\$ 205,629	\$ 211,798	\$ 218,152	\$ 224,696	\$ 231,437	
10 Office Expenses and Travel	\$ 27,802	\$ 28,636	\$ 29,495	\$ 30,380	\$ 31,292	\$ 32,231	\$ 33,197	\$ 34,193	\$ 35,219	\$ 36,276	
11 Repairs and Maintenance	\$ 168,260	\$ 173,307	\$ 178,507	\$ 183,862	\$ 189,378	\$ 195,059	\$ 200,911	\$ 206,938	\$ 213,146	\$ 219,541	
12 Utilities	\$ 81,560	\$ 84,006	\$ 86,527	\$ 89,122	\$ 91,796	\$ 94,550	\$ 97,386	\$ 100,308	\$ 103,317	\$ 106,417	
13 Insurance	\$ 39,913	\$ 41,110	\$ 42,344	\$ 43,614	\$ 44,922	\$ 46,270	\$ 47,658	\$ 49,088	\$ 50,560	\$ 52,077	
14 Legal and Professional Fees	\$ 119,464	\$ 123,048	\$ 126,740	\$ 130,542	\$ 134,458	\$ 138,492	\$ 142,647	\$ 146,926	\$ 151,334	\$ 155,874	
15 Purchased Water	\$ 511,163	\$ 526,498	\$ 542,292	\$ 558,561	\$ 575,318	\$ 592,578	\$ 610,355	\$ 628,666	\$ 647,526	\$ 666,951	
16 Renewal & Replacement Fund	\$ 44,185	\$ 45,511	\$ 46,876	\$ 48,282	\$ 49,731	\$ 51,223	\$ 52,760	\$ 54,342	\$ 55,973	\$ 57,652	
17 Existing Debt Service											
18 PROJECTED SPECIAL COURT COSTS											
19											
20 Total:	\$ 1,169,724	\$ 1,204,816	\$ 1,240,960	\$ 1,278,189	\$ 1,316,534	\$ 1,356,030	\$ 1,396,711	\$ 1,438,613	\$ 1,481,771	\$ 1,526,224	
21 <i>Annual Increase in Expenses</i>	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
22 Projects											
23 Water Rights (2015-2024)											
24 Water Rights (2025-2034)	\$ 50,572	\$ 52,089	\$ 53,651	\$ 55,261	\$ 56,919	\$ 58,626	\$ 60,385	\$ 62,197	\$ 64,062	\$ 65,984	
25 Academy Avenue Well	\$ 10,187	\$ 10,187									
26 Additional Wells 2016	\$ 105,426	\$ 105,426	\$ 105,426	\$ 105,426	\$ 105,426	\$ 105,426	\$ 105,426	\$ 105,426	\$ 105,426	\$ 105,426	
27 Well (Near Rosy Canyon Road)											
28 3000 ft Well (test pump)		\$ 30,016	\$ 30,016	\$ 30,016	\$ 30,016	\$ 30,016	\$ 30,016	\$ 30,016	\$ 30,016	\$ 30,016	
29 Water Canyon Spring Collection Phase I											
30 Water Canyon Spring Collection Phase II											
31 *Option 4 (Blended at Treatment Plant)	\$ 23,720	\$ 96,811	\$ 96,811	\$ 96,811	\$ 96,811	\$ 96,811	\$ 96,811	\$ 96,811	\$ 96,811	\$ 96,811	
32 Sand Hill Tank (500,000) gallons		\$ 106,863	\$ 106,863	\$ 106,863	\$ 106,863	\$ 106,863	\$ 106,863	\$ 106,863	\$ 106,863	\$ 106,863	
33 Saddle Tank (300,000 gallons)											
34 Hildale St and Canyon St Pipeline	\$ 24,051	\$ 24,051	\$ 24,051								
35 Additional Treatment Capacity	\$ 159,194	\$ 159,194	\$ 159,194	\$ 159,194	\$ 159,194	\$ 159,194	\$ 159,194	\$ 159,194	\$ 159,194	\$ 159,194	
36 Miscellaneous Distribution Improvements	\$ 97,017	\$ 99,928	\$ 102,926	\$ 106,013	\$ 109,194	\$ 112,470	\$ 115,844	\$ 119,319	\$ 122,899	\$ 126,586	
37 Impact Fee Analysis Update (2019, 2024, 2029, 2034)											\$ 54,183
38											
39 Total:	\$ 470,167	\$ 684,564	\$ 678,938	\$ 659,583	\$ 711,161	\$ 781,287	\$ 1,033,316	\$ 1,038,603	\$ 1,044,048	\$ 1,103,840	
40 Project Funds											
41 From Impact Fees	\$ 250,001.05	\$ 413,965.72	\$ 410,434.72	\$ 412,044.26	\$ 460,441.11	\$ 415,409.65	\$ 664,064.17	\$ 665,875.73	\$ 667,741.62	\$ 723,846.84	
42 From Revenue Fund	\$ 220,166	\$ 270,599	\$ 268,503	\$ 247,539	\$ 250,720	\$ 365,878	\$ 369,252	\$ 372,727	\$ 376,306	\$ 379,993	
43											
44 Revenue Fund Calculations											
45 Net Annual Increase/Decrease	\$ 3,469	\$ 54,183	\$ 47,610	\$ 59,314	\$ 46,262	\$ 33,317	\$ 38,320	\$ 43,374	\$ 29,964	\$ 34,600	
46 Revenue Fund est. interest (@2%)	\$ 2,110	\$ 2,222	\$ 3,350	\$ 4,369	\$ 5,643	\$ 6,681	\$ 7,481	\$ 8,397	\$ 9,432	\$ 10,220	
47 Revenue Fund w/ interest	\$ 111,093	\$ 167,498	\$ 218,457	\$ 282,141	\$ 334,046	\$ 374,044	\$ 419,845	\$ 471,615	\$ 511,011	\$ 555,831	
48											
49 Impact Fee Fund Calculations											
50 Net Annual Increase/Decrease	\$ 117,655	\$ 56,265	\$ 4,753	\$ (41,908)	\$ (130,390)	\$ 62,880	\$ 18,451	\$ (16,635)	\$ (42,234)	\$ (112,379)	
51 Impact Fee Fund est. interest (@2%)	\$ 5,262	\$ 7,720	\$ 9,000	\$ 9,275	\$ 8,622	\$ 6,187	\$ 7,568	\$ 8,089	\$ 7,918	\$ 7,232	
52 Impact Fee Fund w/ interest	\$ 386,014	\$ 449,999	\$ 463,753	\$ 431,119	\$ 309,352	\$ 378,419	\$ 404,439	\$ 395,892	\$ 361,576	\$ 256,429	

APPENDIX K

PROPOSED WATER RATES AND FEES

P.O. BOX 840490 320 E. NEWEL AVE. HILDALE, UTAH 84784 PHONE: 435-874-1160 FAX: 435-874-2603

Proposed Water Rates and Fees

12-9-2014

50.00	Application Fee for New Service Location Due at time of Completed Application
200.00	New Account Security Deposit Due Upon Application and refundable after twelve months from application or last delinquency. (Represents Two months Average Usage.)
At Cost	Construction Costs Including Engineering Costs
75.00	Meter Connect Fee at Service Locations with an Existing Meter During Working Hours
90.00	Meter Connect Fee at Service Locations with an Existing Meter During non-working hours
300.00	¾" Meter Install Fee for New Customers
360.00	1" Meter Install Fee for New Customers
650.00	1-1/2" Meter Install Fee for New Customers
850.00	2" Meter Install Fee for New Customers
110.00	Monthly Fire Hydrant Meter Fee
700.00	Fire Hydrant Meter Refundable Deposit
5.00	Standpipe, fire hydrant rate per thousand gallons
20.00	Monthly private fire protection demand charge. (<i>Fire Sprinkler Connections shall have its own dedicated service.</i>)
5%	Late payment charge of delinquent amount

35.00	Returned Check Charge
75.00	Existing Meter Testing Rate
2x Fees	Illegal Connection to Water Main

Base Rates Per Month (applies whether the water meter is active or inactive)

28.50	$\frac{3}{4}$ " Meter
54.00	1" Meter
80.00	1 $\frac{1}{2}$ " Meter
105.00	2" Meter

Monthly Usage Per 1,000 Gallons for a $\frac{3}{4}$ " Meter

1.20	0 – 20,000 gallons
1.20	20,000 – 60,000 gallons
1.80	60,000 & over gallons

Monthly Usage Per 1,000 Gallons for a 1" Meter

1.20	0 – 38,000 gallons
1.50	38,000 – 115,000 gallons
1.80	115,000 & over gallons

Monthly Usage Per 1,000 Gallons for a 1-1/2" Meter

1.20	0 – 56,000 gallons
1.50	56,000 – 169,000 gallons
1.80	169,000 & over gallons

Monthly Usage Per 1,000 Gallons for a 2" Meter

1.20	0 – 75,000 gallons
1.50	75,000 – 224,000 gallons
1.80	224,000 & over gallons