



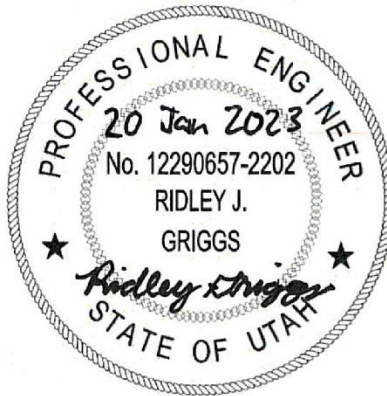
# DRINKING WATER IMPACT FEE FACILITY PLAN AND IMPACT FEE ANALYSIS

(HAL Project No.: 412.23.100)

January 2023

**PAYSON CITY**  
**DRINKING WATER IMPACT FEE**  
**FACILITY PLAN AND ANALYSIS**

**(HAL Project No.:412.23.100)**



**Ridley J. Griggs, P.E.**  
**Project Engineer**



**JANUARY 2023**

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# ACKNOWLEDGEMENTS

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Hansen, Allen & Luce thanks the following individuals for their contributions to this project:

Payson City Government

Bill Wright, Mayor  
Linda Carter, Councilperson  
Brett Christensen, Councilperson  
Taresa Hiatt, Councilperson  
Kirk Beecher, Councilperson  
Bob Provstgaard, Councilperson

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## **IMPACT FEE CERTIFICATION**

The Utah Impact Fee Act requires certifications for the Impact Fee Facilities Plan (IFFP) and the Impact Fee Analysis (IFA). Hansen, Allen & Luce provides these certifications with the understanding that the recommendations in the IFFP and IFA are followed by City Staff and elected officials. If all or a portion of the IFFP or IFA are modified or amended, or if assumptions presented in this analysis change substantially, this certification is no longer valid. All information provided to Hansen, Allen & Luce, Inc. is assumed to be correct, complete, and accurate.

### **IFFP Certification**

Hansen, Allen & Luce, Inc. certifies that the Impact Fee Facilities Plan (IFFP) prepared for the drinking water system:

1. includes only the costs of 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 the day on which 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 the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement; and
3. complies in each and every relevant respect with the Impact Fees Act.

**HANSEN, ALLEN & LUCE, INC.**

### **IFA Certification**

Hansen, Allen & Luce, Inc. certifies that the Impact Fee Analysis (IFA) prepared for the drinking water system:

1. includes only the costs of 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 the day on which 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 the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement;
  - d. costs with grants or other alternate sources of payment; and
3. complies in each and every relevant respect with the Impact Fees Act.

**HANSEN, ALLEN & LUCE, INC.**

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## IMPACT FEE SUMMARY

The **purpose** of the Impact Fee Facility Plan (IFFP) and Impact Fee Analysis (IFA) is to comply with the requirements of the Utah Impact Fees Act by identifying demands placed on the existing drinking water system by new development and by identifying the means by which the City will meet these new demands. The Payson City Drinking Water System Master Plan has been used in support of this analysis. There are several growth-related capital facilities anticipated to be needed in the next 10 years, so the calculated impact fee is based on anticipated capital facility projects as well as existing excess capacity and documented historic costs.

The impact fee **service area** is the drinking water system service area, which includes the current city boundary and future areas anticipated to be annexed into the city.

The existing and proposed **level of service** for the drinking water system includes the following:

### Water Supply

- Peak Day Indoor Source Capacity: 500 gallons per day per equivalent residential connection (gpd/ERC)
- Indoor Source Volume: 0.30 acre-feet/ERC (Annual Demand)
- Indoor Storage Capacity: 250 Gallons/ERC
- Peak Day Outdoor Source Capacity: 8,640 gallons per day per irrigated acre
- Outdoor Source Volume: 3.2 acre-feet per irrigated acre (Annual Demand)
- Transmission Capacity: 40 pounds per square inch (psi) minimum during peak day demand conditions and 30 psi minimum during peak instantaneous conditions

### Fire Suppression

- Minimum Fire Flow: 1,000 gpm for 2 hours (120,000 gallons)
- Maximum Fire Flow: 5,000 gpm for 4 hours (1,200,000 gallons)
- Minimum Pressure: 20 psi residual during peak day + fire flow event

The existing system served about 12,117 equivalent residential connections and 25 irrigated acres at the end of 2021. Projected **growth** adds 4,697 equivalent residential connections and 36 irrigated acres in the next 10 years for a total of 16,814 connections or equivalent and 61 irrigated acres.

This IFFP and IFA does not consider projects needed to correct existing deficiencies. The costs calculated for the capacity required for growth in the next 10 years comes from the proportional historical buy-in costs of **excess capacity** and **new projects** required entirely to provide capacity for new development.

The **drinking water impact fee** is calculated based on the buy-in cost for facilities which have capacity remaining, and the estimated cost of projects required to support future growth. These costs were added together and divided by the number of equivalent residential connections (ERCs) that are served by these facilities.

Components of the impact fee are presented in the table below. The proposed drinking water system impact fee for one ERC is **\$2,004** for indoor use only.

### PROPOSED IMPACT FEE BY COMPONENT

Component	Per Typical Residential Connection (Indoor Use)	Per Irrigated Acre
Source	\$218.78	\$3,780.59
Storage	\$412.69	\$7,131.20
Transmission <sup>1</sup>	\$1,363.53	\$0.00
Planning <sup>2</sup>	\$9.28	\$0.00
<b>Total</b>	<b>\$2,004</b>	<b>\$10,912</b>

1. Pipes were not upsized beyond the 8-inch diameter minimum size requirement to serve irrigated acreage. Thus, no additional distribution cost is attributable to irrigated acreage.
2. It is assumed that any irrigated acreage will be associated with indoor ERCs. Planning costs are accounted for in the indoor fees

Impact fees for irrigated acreage should only be charged to developments which do not have access to the pressurized irrigation system. The proposed drinking water system impact fee for one irrigated acre is **\$10,912**. For purposes of this study, a typical single-family residence in Payson will be defined as a 15,000 square foot lot with an irrigated area of 0.15 acres, plus 0.03 irr-ac for parks and open space. Accordingly, the proposed drinking water system impact fee for one typical residential connection with 0.18 acres irrigated with the drinking water system is **\$3,968** (\$2,004 + (0.18 x \$10,912)). Alternatively, the City may calculate an impact fee for a non-residential connection based on projected peak day water use according to the following formulas.

$$\text{ERCs} = (\text{Peak Day Water use, gpd}) / (500 \text{ gpd per ERC})$$

$$\text{Impact fee} = \text{ERC} * \$2,004$$

For example, if a customer will use 20 gpm of water on the peak day, the impact fee may be calculated as follows

$$\text{Peak day water use} = 20 \text{ gal/min} * 1,440 \text{ min/day} = 28,800 \text{ gpd}$$

$$\text{ERCs} = (28,800 \text{ gpd}) / (500 \text{ gpd per ERC}) = 57.6 \text{ ERCs}$$

$$\text{Impact fee} = 57.6 \text{ ERCs} * \$2,004/\text{ERC} = \mathbf{\$115,430}$$



# **SECTION 1 INTRODUCTION**

## **1.1 Background**

Payson is located in southern Utah County, alongside I-15 and between Payson Canyon and West Mountain. Payson has an estimated population of 22,030. The primary drinking water sources for Payson are springs in Payson Canyon and several wells.

## **1.2 Purpose**

The City has recognized the need to plan for increased demands on its drinking water system as a result of growth. To do so, an Impact Fee Facility Plan (IFFP) and Impact Fee Analysis (IFA) were completed to allow the City to charge an impact fee to help pay for capital projects necessary to support future growth.

This report identifies those items that the Utah Impact Fees Act specifically requires, including demands placed upon existing facilities by new development and the proposed means by which the municipality will meet those demands. This analysis was based on continued monitoring of the system that has shown revised growth areas and projections. The Drinking Water Master Plan that was prepared in 2019 was also used to support this analysis. The master plan identified several growth-related projects needed within the 10-year planning window. Therefore, the calculated impact fee is based on excess capacity and documented historic costs, as well as future capital projects.

## **1.3 Impact Fee Collection**

Impact fees enable local governments to finance public facility improvements necessary for growth, without burdening existing customers with costs that are exclusively attributable to growth.

An impact fee is a one-time charge on new development to pay for that portion of a public facility that is required to support that new development.

In order to determine the appropriate impact fee, the cost of the facilities associated with future development must be proportionately distributed. As a guideline in determining the “proportionate share”, the fee must be found to be roughly proportionate and reasonably related to the impact caused by the new development.

## **1.4 Master Planning**

A Drinking Water System Master Plan was prepared in 2019 and used in conjunction with this analysis. The master plan for the City’s drinking water system is more comprehensive than the IFFP and IFA. It provides the basis for the IFFP and IFA and identifies all capital facilities required for the drinking water system inside the 20-year planning range, including maintenance, repair,

replacement, and growth-related projects. This updated IFFP and IFA is also based on ongoing planning undertaken since the last report was completed. The projected rates and areas of growth have been revised to more accurately reflect the recent development that the City has seen.

The recommendations made within the master plan are in compliance with current City policies and standard engineering practices.

A hydraulic model of the drinking water system was used to complete the Drinking Water System Master Plan. The model was used to assess existing performance, level of service, to establish a proposed level of service and to confirm the effectiveness of the proposed capital facility projects to maintain the proposed level of service over the next 10 years.

## **SECTION 2 EXISTING SYSTEM AND REMAINING CAPACITY**

### **2.1 General**

The purpose of this section is to provide information regarding the existing drinking water system, identify the current level of service, and analyze the remaining capacity of the existing system's facilities.

Payson's existing drinking water system is comprised of a pipe network, water storage facilities, and water sources. These facilities are found within three separate pressure zones. Figure 2-1 illustrates the existing water system that services the entire City.

### **2.2 Pressure Zones**

The distribution network is comprised of four pressure zones with the highest (and smallest) pressure zone serving the portion of the City south of the High Line Canal. The Upper and Lower pressure zones are located progressively to the north and serve the majority of the City, with the Lower pressure zone extending to the Nebo Power Plant and the Payson wastewater treatment plant. The City has recently constructed the fourth pressure zone in the northeastern portion of the City, in the vicinity of Arrowhead Trail Road. This pressure zone is known as the Arrowhead pressure zone. The pressure zones were designed to provide pressures between 40-100 psi.

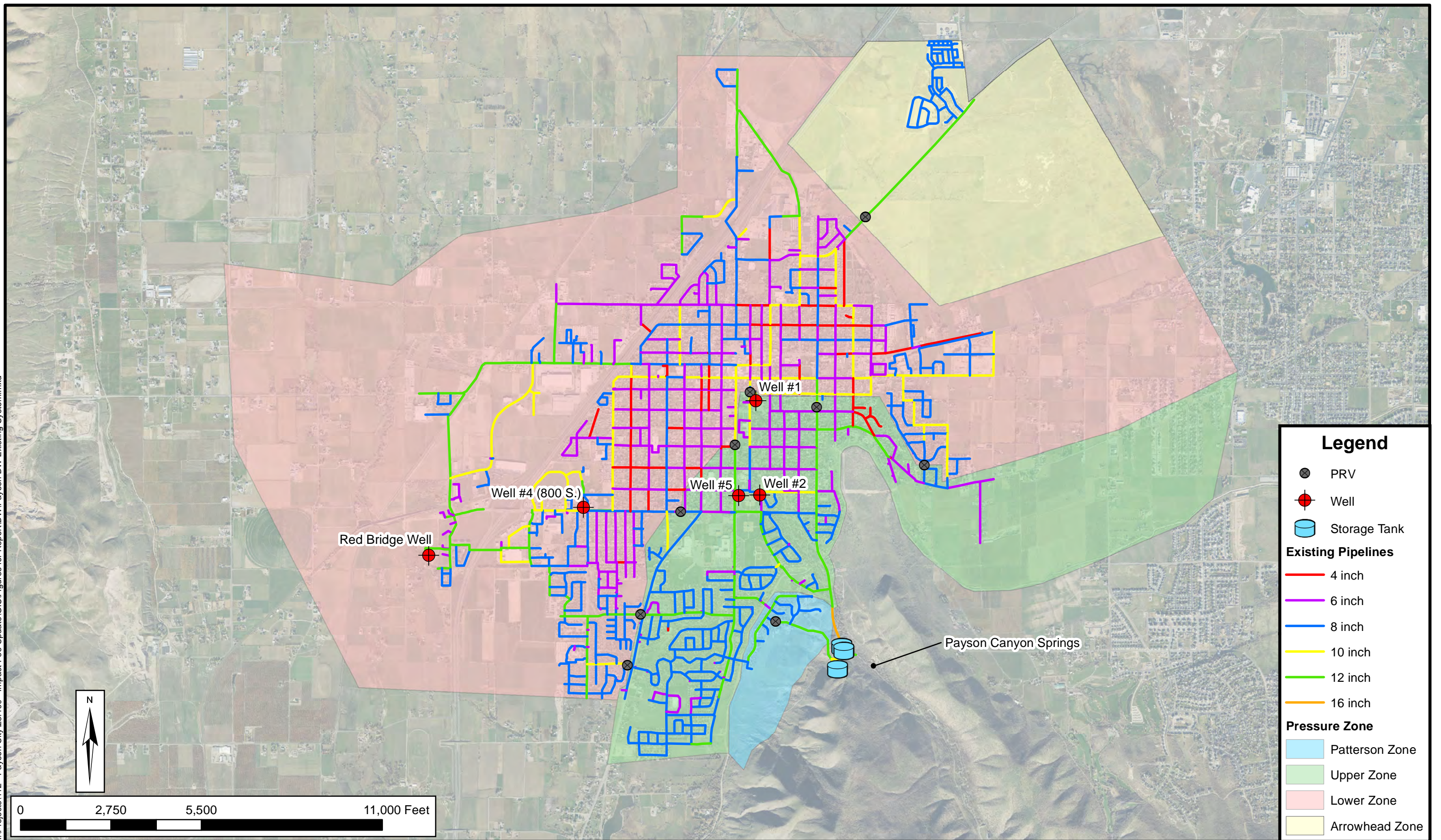
### **2.3 Existing Equivalent Residential Connections and Irrigated Acreage**

Water demands from non-residential water users, such as commercial, industrial, or civic water users have been determined in terms of an Equivalent Residential Connection (ERC). The use of ERCs is a common engineering practice used to describe the entire system's usage based on a common unit of measurement. An ERC is equal to the average demand of one residential connection. Using ERCs for analysis is a way to allocate existing and future demands over non-residential land uses. For this analysis, all residential connections, including townhouses and apartments were equated to one ERC for indoor water demands.

In areas of the system not served by the City's pressurized irrigation system, the City considers outdoor water demand in terms of irrigated acres.

The City assigns non-residential development an ERC value based on meter size.

At the end of 2021, the City was estimated to have 12,117 ERCs and 25 irrigated acres served by the drinking water system.



## **2.4 Level of Service**

The proposed level of service provided by the drinking water system has been established by the City to provide a reasonable supply of water to their residents. This level of service establishes the sizing criteria for the City's distribution (pipelines), source, storage facilities, and water rights for the drinking water system. The proposed level of service standards are provided below:

### **Water Supply**

- Indoor Source Capacity: 500 gpd/ERC (Peak Day)
- Indoor Source Volume: 0.30 ac-ft/ERC (Annual Demand)
- Indoor Storage Capacity: 250 Gallons/ERC
- Outdoor Source Capacity: 8,640 gpd/irr-ac (Peak Day)
- Outdoor Source Volume: 3.2 ac-ft/irr-ac (Annual Demand)
- Outdoor Storage Capacity: 4,320 Gallons/irr-ac
- Transmission Capacity: 40 psi minimum during peak day demand conditions and 30 psi minimum during peak instantaneous conditions

### **Fire Suppression**

- Minimum Fire Flow: 1,000 gpm for 2 hours (120,000 gallons) as directed by the Fire Chief from the International Fire Code (IFC), issued by the International Code Council.
- Maximum Fire Flow: 5,000 gpm for 4 hours (1,200,000 gallons) as directed by the Fire Chief from the IFC.
- Minimum Pressure: 20 psi residual during peak day + fire flow event

## **2.5 Methodology Used to Determine Existing System Capacity**

Each component of the drinking water system was assessed a capacity in terms of gallons per minute (for peak day source), acre-feet per year (for annual source), or gallons (for storage). Demands on each component were computed by applying the level of service to the amount of ERCs and irrigated areas served by each component. The difference between the capacity of the component and the demand on the component is the component's remaining capacity, which can be used to serve either ERCs or irrigated acres. A hydraulic model was developed for the purpose of assessing system operation and transmission capacity.

## **2.6 Water Source & Remaining Capacity**

Payson City's source of drinking water comes from springs in Payson Canyon and several wells. Table 2-1 summarizes the information of each source and all sources total.

**Table 2-1  
Existing Water Sources**

<b>Source</b>	<b>Available Flow (gpm)</b>	<b>Existing Demand (ERCs)</b>	<b>Existing Demand (irr-ac)</b>	<b>Existing Demand (gpm)</b>	<b>Remaining Capacity (gpm)</b>
Springs	585	-	-	-	-
Red Bridge Well <sup>2</sup>	2,000				
Well #4 (800 S.) <sup>3</sup>	1,800				
Well #1	1,100				
Well #2	1,600				
Well #5	1,100				
<b>TOTAL</b>	<b>8,185</b>	<b>12,117</b>	<b>25</b>	<b>4,357</b>	<b>3,828</b>

1. Irrigated acreage served by these wells is limited, and is accounted for in the ERC count rather than separately
2. The well has a physical capacity of 2,000 gpm. 1,040 gpm has been acquired by Payson City for future growth. The remainder will be made available to the Red Bridge development. See Appendix C.
3. Well #4 is physically configured so it can supply either the drinking water system or the Pressurized Irrigation (PI) system. Because the City's long-term plan is to reserve groundwater for drinking water and use surface water for PI water, it is considered a drinking water source for purposes of this report. It is currently being used in the PI system due to physical supply needs and water quality constraints.

Projections for source requirements indicate that the Payson drinking water system will not require additional source capacity to support growth within the 10-year planning window. Several existing projects have been completed in the last several years to provide source for that window and are impact fee eligible.

## **2.7 Storage Facilities & Remaining Capacity**

Payson currently operates three concrete water storage tanks totaling 5.6 MG. The storage level of service is 250 gallons of storage per ERC plus fire flow storage. The fire flow storage requirements were provided by the Fire Chief during the 2019 master planning effort as per IFC. A summary of each tank is shown below in Table 2-2.

**Table 2-2  
Existing Water Storage**

<b>Tank</b>	<b>Capacity (MG)</b>	<b>Existing Equalization Demand (MG)</b>	<b>Fire Storage (MG)</b>	<b>Emergency Storage (MG)</b>	<b>Existing Storage Demand (MG)</b>	<b>Remaining Capacity (MG)</b>
Patterson	0.60	0.14	0.18	0	0.32	0.28
Tank 1	2.50	1.50	0.60	0	2.10	0.40
Tank 2	2.50	1.50	0.60	0	2.10	0.40
<b>Total</b>	<b>5.60</b>	<b>3.14</b>	<b>1.38</b>	<b>0</b>	<b>4.52</b>	<b>1.08</b>

Projections indicate that the Payson drinking water system will require more storage capacity to support growth within the 10-year planning window.

### **2.8 Water Rights & Remaining Capacity**

The City owns a total of 6,785 acre-feet (AF) of water rights that are available to the drinking water system. The level of service for water rights is 0.30 ac-ft/ERC and 3.2 ac-ft/irr-ac.

Water rights are not included in the impact fee. The City addresses water rights separately as specified in City code.

### **2.9 Distribution System**

Pipe diameters range from 4 inches to 16 inches in diameter, with the majority being 6 and 8 inches in diameter. The larger pipes in the system were provided as transmission lines to fill the storage tanks and meet peak day and fire flow demands. Figure 2-1 illustrates the existing distribution pipelines. More pipes will be needed to support future growth. Costs attributable to replacement or correction of existing deficiencies have not been incorporated into this analysis.

### **2.10 Capital Facilities to Meet System Deficiencies**

The existing drinking water system meets the proposed level of service.

## **SECTION 3 IMPACT FEE FACILITY PLAN AND ANALYSIS**

### **3.1 General**

This section relies on the data presented in the previous sections to calculate a proposed impact fee based on an appropriate buy-in cost of available existing excess capacity previously purchased by the City, and the cost of projects needed to support projected growth.

The costs of the drinking water system facility projects are presented. Also included in this section are the possible revenue sources that the City may consider to fund the recommended projects.

### **3.2 Growth Projections**

The development of impact fees requires growth projections over the next ten years. Growth projections for Payson were made by incorporating the growth rate presented in the Master Plan. Total growth projections for the City through 2032 are summarized in Table 3-1.

**TABLE 3-1  
GROWTH PROJECTIONS OVER NEXT TEN YEARS**

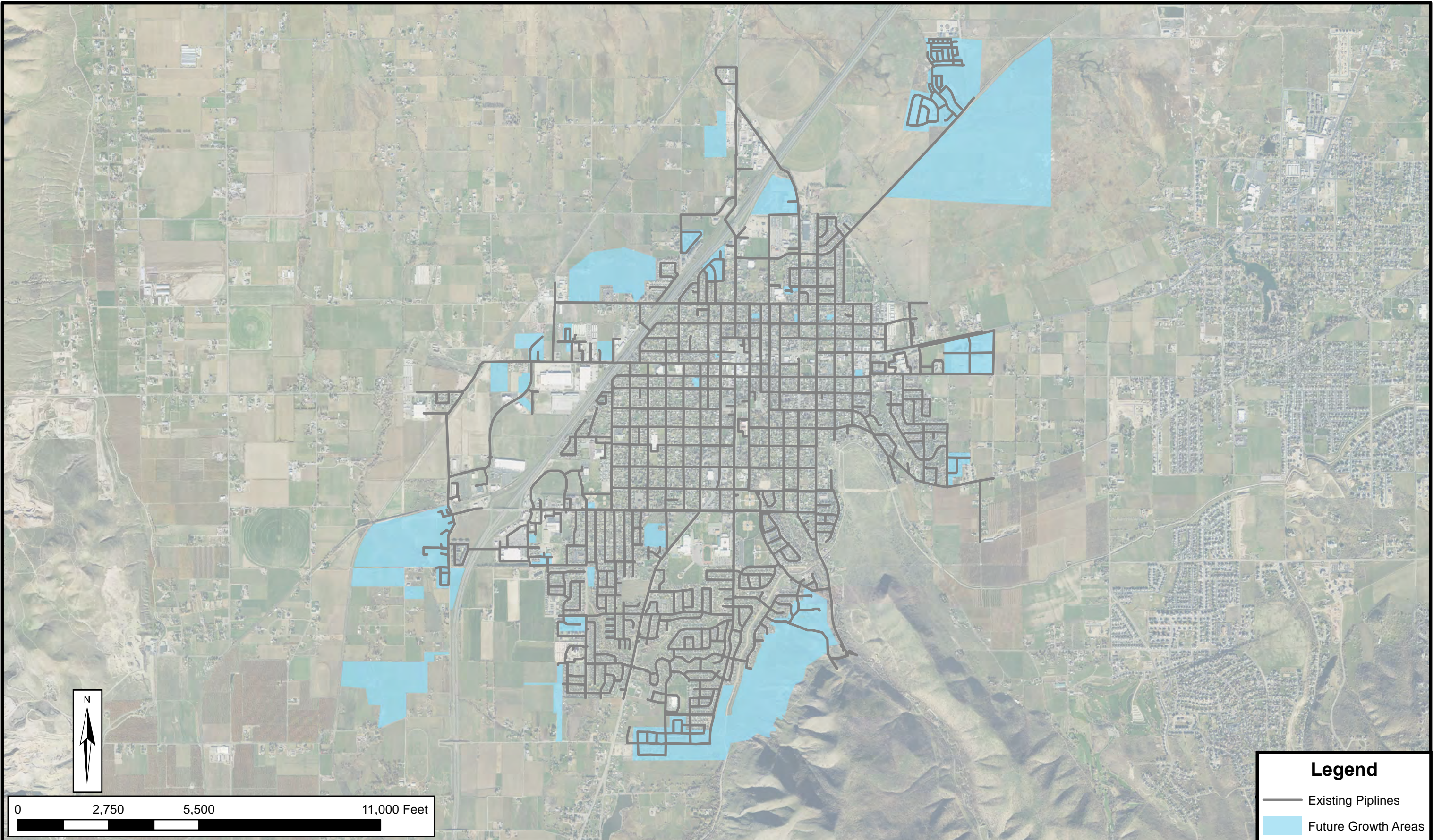
<b>Year</b>	<b>ERCs</b>	<b>Irrigated Acres</b>
2022	12,117	25
2023	12,520	28
2024	12,937	31
2025	13,368	35
2026	13,813	39
2027	14,273	44
2028	14,749	49
2029	15,240	55
2030	15,747	61 <sup>1</sup>
2031	16,272	61 <sup>1</sup>
2032	16,814	61 <sup>1</sup>

1. Expected buildout Irrigated Acres

The existing system served about 12,117 ERCs and 25 irrigated acres at the end of 2021. Projected growth adds 4,697 ERCs and 36 irrigated acres in the next 10 years for a total of 16,814 ERCs and 61 irrigated acres. The projected 10-year growth is shown in Figure 3-1.

### **3.3 Cost of Existing and Future Drinking Water Facilities**





**Legend**

- Existing Pipelines
- Future Growth Areas



**PAYSON CITY**

**PROJECTED 10-YEAR GROWTH AREAS**

Future growth can be served either by excess capacity in existing facilities or by constructing new facilities. Projected growth will necessitate the construction of more facilities. Both excess capacity and future projects were considered when developing impact fees. Table 3-2 shows the capacity needed based on the assumed growth projections in the next 10 years.

**Table 3-2  
Existing and Future Capacity Requirements**

<b>Component</b>	<b>Growth (ERC)</b>	<b>Growth (Irr-ac)</b>	<b>Additional Required<sup>1</sup></b>	<b>Existing Requirement<sup>2</sup></b>	<b>10-Year Requirement</b>	<b>Existing Capacity<sup>2</sup></b>	<b>Surplus/Deficit (+/-)</b>
Source (gpm)	4,697	36	1,847	4,357	6,204	8,185	1,981
Storage (MG)	4,697	36	1.33	4.52	5.85	5.60	-0.25

1. Calculated at the level of service shown in Section 2.4.
2. See Table 2-1 and 2-2.

It can be observed that source capacity is expected to be adequate for the 10-year horizon with the addition of the Red Bridge Well and the planned conversion of the 800 S well to the drinking water system. An additional storage tank is needed to serve projected growth within 10 years.

Previously constructed drinking water projects which have remaining capacity to support growth are shown in Table 3-3.

**Table 3-3  
Type and Cost of Existing Facilities**

<b>Year</b>	<b>Master Plan Project Number</b>	<b>Project</b>	<b>Source</b>	<b>Transmission</b>	<b>Storage</b>	<b>Total</b>
2012	N/A	5 MG of storage	\$0.00	\$0.00	\$2,975,200.40	\$2,975,200.40
2019	2	Arrowhead Transmission	\$0.00	\$17,432.00	\$0.00	\$17,432.00
2019	6	Well #4 (800 S.) Well	\$420,380.00	\$0.00	\$0.00	\$420,380.00
2021	N/A	Red Bridge Well	\$1,386,741.72	\$0.00	\$0.00	\$1,386,741.72
<b>Total</b>			<b>\$1,807,121.72</b>	<b>\$17,432.00</b>	<b>\$2,975,200.40</b>	<b>\$4,799,754.12</b>

The impact fee eligible cost for each existing facility is shown below in Table 3-4. These values are based on the remaining capacity for each facility. The remaining cost is attributable to growth and can be counted towards the impact fee.

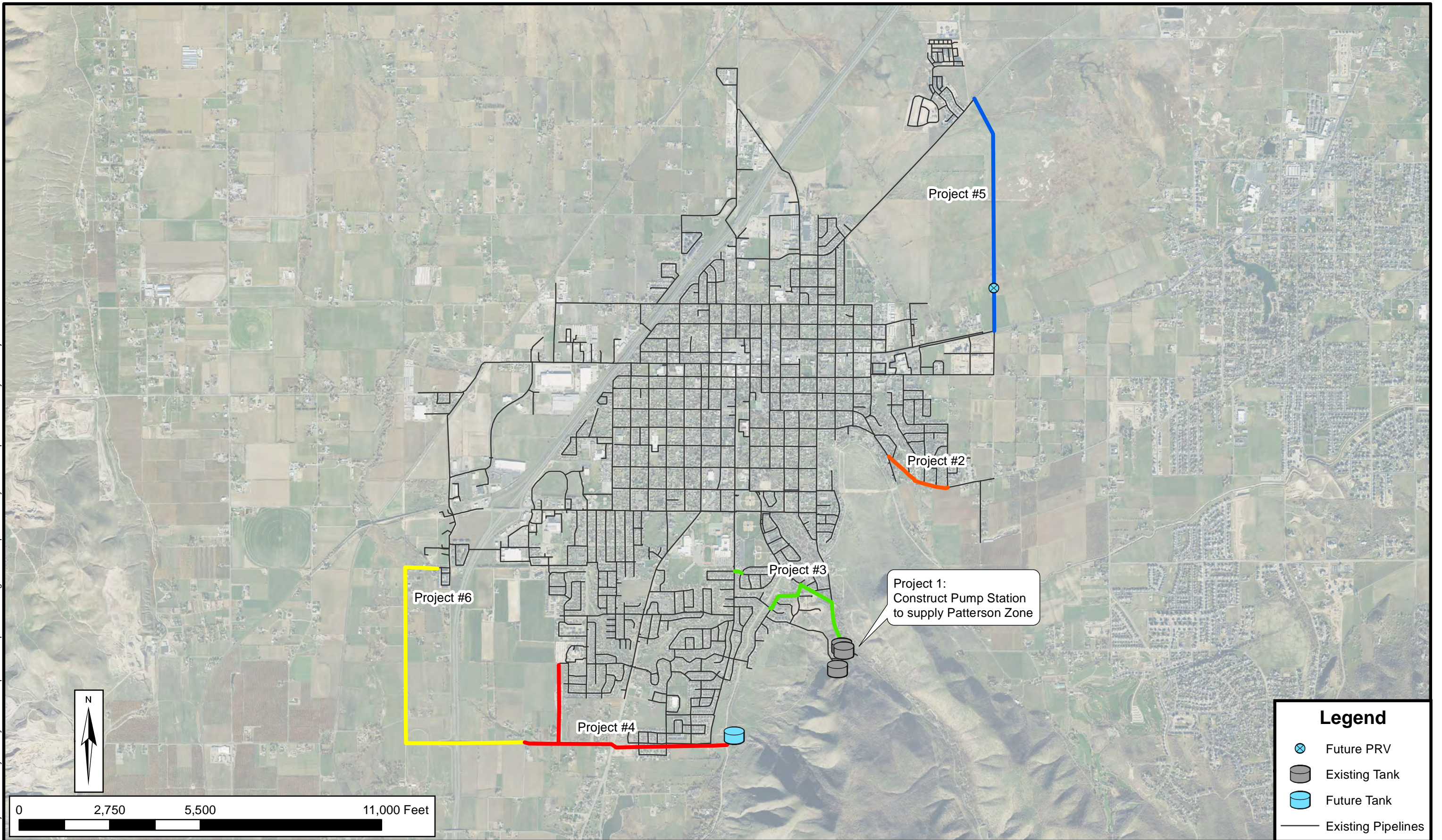
**Table 3-4  
Impact Fee Eligible Cost of Existing Facilities**

<b>Project</b>	<b>Total Cost</b>	<b>% To Growth</b>	<b>Eligible Source Cost</b>	<b>Eligible Transmission Cost</b>	<b>Eligible Storage Cost</b>	<b>Total</b>
5 MG of storage	\$2,975,200.40	21.7% <sup>1</sup>	\$0.00	\$0.00	\$644,279.65	\$644,279.65
Arrowhead Transmission	\$17,432.00	86.8% <sup>2</sup>	\$0.00	\$15,131.77	\$0.00	\$15,131.77
Well #4 (800 S.) Well	\$420,380.00	100% <sup>3</sup>	\$420,380.00	\$0.00	\$0.00	\$420,380.00
Red Bridge Well	\$1,386,741.72	100% <sup>3</sup>	\$1,386,741.72	\$0.00	\$0.00	\$1,386,741.72
<b>Total</b>	<b>\$4,799,754.12</b>	<b>-</b>	<b>\$1,807,121.72</b>	<b>\$15,131.77</b>	<b>\$644,279.65</b>	<b>\$2,466,533.14</b>

1. Calculated as the remaining capacity in the entire system (1.08 MG) divided by the total capacity of the tanks (5.0 MG).
2. Distribution infrastructure is sized to accommodate future users through year 2050. A remaining capacity of 11,078 ERCs was calculated as the projected year 2050 ERCs (23,195) minus ERCs existing at the beginning of year 2021 (12,117). This was then divided by 12,762 ERCs, the difference between the ERCs were estimated in 2019 at the time of construction (10,433) and the 2050 ERCs (23,195).
3. The portion of the capacity in the Red Bridge Well acquired by Payson City is attributable to growth and eligible for impact fees. See Appendix C for details.

Future facilities needed to support growth are shown in Table 3-5 and on Figure 3-2.

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**PAYSON CITY**

**IMPACT FEE FACILITY PLAN PROJECTS**

**FIGURE  
3-2**

**Table 3-5  
Estimated Impact Fee-Eligible Cost of Future Facilities**

<b>Project</b>	<b>Map ID</b>	<b>Source</b>	<b>Transmission</b>	<b>Storage</b>	<b>Total</b>
Patterson Pump Station	1	\$0.00	\$900,000.00	\$0.00	\$900,000.00
Salem Canal Road Transmission	2	\$0.00	\$210,000.00	\$0.00	\$210,000.00
Upsize Pipe out of Tank	3	\$0.00	\$2,260,000.00	\$0.00	\$2,260,000.00
Southern Lower City Zone Expansion <sup>1</sup>	4	\$0.00	\$3,440,000.00	\$4,440,000.00	\$7,880,000.00
Arrowhead Zone Transmission Expansion	5	\$0.00	\$3,090,000.00	\$0.00	\$3,090,000.00
1950 West Transmission	6	\$0.00	\$5,190,000.00	\$0.00	\$5,190,000.00
<b>Totals</b>		<b>\$0.00</b>	<b>\$15,090,000.00</b>	<b>\$4,440,000.00</b>	<b>\$19,530,000.00</b>

1. Includes costs for water storage facilities.

### 3.4 Impact Fee Unit Calculation

Only those costs attributed to the new growth in the next 10 years can be included in the impact fee. The following sections describe the impact fee calculation for each component.

#### Source

The City has recently funded the construction of several source projects to meet the demands in the DW Water System (See Table 3-4). The impact fee eligible costs as well as the costs for future sources projects is shown in Table 3-6.

**Table 3-6  
Source Impact Fee Unit Calculation**

	Existing <sup>1</sup>	Future <sup>2</sup>	Total
Eligible Cost	\$1,807,121.72	\$0.00	\$1,807,121.72
Capacity (gpm)	2,868	0	2,868
Source Impact (per gpm) <sup>3</sup> :			\$630.10
Source Impact (per ERC) <sup>4</sup> :			\$218.78
Source Impact (per irr-ac) <sup>5</sup>			\$3,780.59

1. See Tables 2-1 and 3-4. The portion of capacity in the Red Bridge Well reserved for the Red Bridge development has been excluded from the capacity listed above.
2. See Table 3-5
3. Calculated as the sum of existing and future eligible costs divided by the sum of existing and future eligible capacity
4. Calculated at a proposed level of service of 500 gpd/ERC or 0.347 gpm/ERC
5. Calculated at a proposed level of service of 8,640 gpd/irr-ac or 6 gpm/irr-ac

The portion of source costs attributable to growth within 10 years was calculated considering capacity remaining in existing infrastructure. These results are shown in Table 3-7.

**Table 3-7  
Source Cost by Time Period**

Time Period	ERCs served	Irr-ac Served	Buy-in Cost	Growth Cost	Total Cost
Existing	12,117	25	\$0.00	\$0.00	\$0.00
Next 10 years	4,697	36	\$1,163,730.17	\$0.00	\$1,163,730.17
Beyond 10 years	6,381	0	\$643,391.55	\$0.00	\$643,391.55
<b>Total</b>	<b>23,195</b>	<b>61</b>	<b>\$1,807,121.72</b>	<b>\$0.00</b>	<b>\$1,807,122.58</b>

## Storage

The City's existing storage tanks have remaining capacity that is eligible for impact fees (See Table 3-4); however, another storage tank will be required to maintain the level of service while accommodating projected growth. The estimate cost for these projects is shown in Table 3-8.

**Table 3-8  
Storage Impact Fee Unit Calculation**

	Existing <sup>1</sup>	Future <sup>2</sup>	Total
Eligible Cost	\$644,729.65	\$4,440,000.00	\$5,084,279.65
Capacity (gal)	1,080,000	2,000,000	3,080,000
<b>Storage impact (per gal)<sup>3</sup></b>			\$1.65
<b>Storage impact (per ERC)<sup>4</sup></b>			\$412.69
<b>Storage Impact (per Irr-ac)<sup>5</sup></b>			\$7,131.20

1. See Table 2-2 and 3-4
2. See Table 3-5
3. Calculated as the sum of existing and future eligible costs divided by the sum of existing and future eligible capacity
4. Calculated at the proposed level of service of 250 gal/ERC.
5. Calculated at the proposed level of service of 4,320 gal/irr-ac.

The portion of the storage costs attributable to growth within 10 years was calculated considering remaining capacity in existing storage facilities and the additional capacity needed to accommodate growth in the next 10 years. These results are shown in Table 3-9.

**Table 3-9  
Storage Cost by Time Period**

Time Period	ERCs served	Irr-ac Served	Buy-in Cost	Growth Cost	Total Cost
Existing	12,117	25	\$2,330,920.75	\$0.00	\$2,330,920.75
Next 10 years	4,697	36	\$278,163.55	\$1,916,941.17	\$2,195,104.72
Beyond 10 years	6,381	0	\$366,116.09	\$2,523,058.83	\$2,889,174.92
<b>Total</b>	<b>23,195</b>	<b>61</b>	<b>\$2,975,200.40</b>	<b>\$4,440,000.00</b>	<b>\$7,415,200.40</b>

## Transmission

Several transmission projects will be required to support projected growth through the 10-year planning period. The portion of the impact fee for these projects is shown in Table 3-10. This includes projects that the City has recently funded and have remaining capacity for growth.

**Table 3-10  
Transmission Impact Fee Calculation**

	<b>Existing<sup>1</sup></b>	<b>Future<sup>2</sup></b>	<b>Total</b>
Eligible Cost	\$15,131.77	\$15,090,000.00	\$15,105,131.77
Capacity (ERCs) <sup>3</sup>	11,078	11,078	11,078
<b>Transmission Impact (per ERC)<sup>4</sup></b>			<b>\$1,363.53</b>

1. See Table 3-4
2. See Table 3-5
3. Transmission infrastructure is sized to accommodate future users through year 2050. A remaining capacity of 11,078 ERCs was calculated as the projected year 2050 ERCs (23,195) minus ERCs existing at the beginning of year 2022 (12,117).
4. Calculated as the sum of existing and future eligible costs divided by the sum of existing and future eligible capacity

Expected transmission costs by time period are listed in Table 3-11. Transmission facilities are expected to support growth for more than 10 years. The portion of their costs attributable to growth outside of the 10-year planning window is not impact fee-eligible.

**Table 3-11  
Transmission Cost by Time Period**

<b>Time Period</b>	<b>ERCs Served<sup>1</sup></b>	<b>Buy-in Cost</b>	<b>Growth Cost</b>	<b>Total Cost</b>
Existing	12,117	\$2,300.23	\$0.00	\$2,300.23
Next 10 Years	4,697	\$6,415.77	\$6,398,061.92	\$6,404,477.70
Beyond 10 Years	6,381	\$8,716.00	\$8,691,938.08	\$8,700,654.08
<b>Total</b>	<b>23,195</b>	<b>\$17,432.00</b>	<b>\$15,090,000.00</b>	<b>\$15,107,432.00</b>

**Planning**

The planning portion of the impact fee was calculated as shown in Table 3-12. Portions of the City's 2019 master plan study that are attributable to growth (approximately 60% of total expenditures) are impact fee eligible. 100% of costs associated with the Impact Fee Facility Plan and Impact Fee Analysis are impact fee eligible.



**Table 3-12  
Planning Component of Impact Fee**

<b>Planning Document</b>	<b>Cost</b>	<b>% of Plan Associated with Growth</b>	<b>Cost Associated with Growth</b>	<b>ERCs Served</b>	<b>Cost per ERC</b>
2019 Master Plan	\$28,640	60%	\$17,184.00	2,326	\$7.39
2022 IFFP and IFA	\$8,900	100%	\$8,900.00	4,697	\$1.89
<b>Total</b>	<b>\$37,540</b>	<b>-</b>	<b>\$26,084.00</b>	<b>-</b>	<b>\$9.28</b>

The excepted planning costs by time period is shown in Table 3-13. It is assumed that the City will require another Drinking Water Master Plan in the next 10 years, and that the unit cost per ERC for planning will be similar to the previous master plan. That cost is factored into the next 10 years for the growth cost.

**Table 3-13  
Planning Cost by Time Period**

<b>Time Period</b>	<b>ERCs Served<sup>1</sup></b>	<b>Buy-in Cost</b>	<b>Growth Cost</b>	<b>Total Cost</b>
Existing	12,117	\$12,441.04	\$0.00	\$12,441.04
Next 10 Years	4,697	\$4,742.96	\$38,857.49	\$43,600.45
Beyond 10 Years	6,381	\$0.00	\$0.00	\$0.00
<b>Total</b>	<b>23,195</b>	<b>\$17,184.00</b>	<b>\$38,857.49</b>	<b>\$56,041.49</b>

### 3.5 Total Impact Fee Calculation

The proposed drinking water system impact fee for one ERC is **\$2,004** for indoor use only. See Table 3-14. The proposed drinking water system impact fee for one for one irrigated acre is \$10,912.

**Table 3-14  
Total Proposed Impact Fee**

<b>Component</b>	<b>Per Typical Residential Connection (Indoor Use)</b>	<b>Per Irrigated Acre</b>
Source	\$218.78	\$3,780.59
Storage	\$412.69	\$7,131.20
Transmission	\$1,363.53	\$0.00
Planning	\$9.28	\$0.00
<b>Total</b>	<b>\$2,004.00</b>	<b>\$10,912.00</b>

1. It is assumed that any irrigated acreage will be associated with indoor ERCs. Planning costs are accounted for in the indoor fees.

For purposes of this study, a typical single-family residence in Payson will be defined as a 15,000 square foot lot with an irrigated area of 0.15 acres, plus 0.03 irr-ac for parks and open space. Accordingly, the proposed drinking water system impact fee for one typical residential connection with 0.18 acres irrigated with the drinking water system is **\$3,968** (\$2,004 + (0.18 x \$10,912)). Alternatively, the City may calculate an impact fee for non-residential connections based on projected peak day water use according to the following formulas.

$$\text{ERCs} = (\text{Peak Day Water use, gpd}) / (500 \text{ gpd per ERC})$$

$$\text{Impact fee} = \text{ERC} * \$2,004$$

For example, if a customer will use 20 gpm of water on the peak day, the impact fee may be calculated as follows

$$\text{Peak day water use} = 20 \text{ gal/min} * 1,440 \text{ min/day} = 28,800 \text{ gpd}$$

$$\text{ERCs} = (28,800 \text{ gpd}) / (500 \text{ gpd per ERC}) = 57.6 \text{ ERCs}$$

$$\text{Impact fee} = 57.6 \text{ ERCs} * \$2,004/\text{ERC} = \mathbf{\$115,430}$$

Table 3-15 is a summary of the total proposed impact fee for a typical single-family connection without access to the pressurized irrigation system.

**Table 3-15  
Proposed Impact Fee Per Typical  
Single-Family Connection**

<b>Component</b>	<b>Indoor</b>	<b>Outdoor (0.18 irrigated acres<sup>1</sup>)</b>	<b>Indoor and Outdoor (0.18 irrigated acres)</b>
Source	\$218.78	\$680.51	\$899.29
Storage	\$412.69	\$1,283.62	\$1,696.30
Transmission	\$1,363.53	\$0.00	\$1,363.53
Planning	\$9.28	\$0.00	\$9.28
<b>Total</b>	<b>\$2,004.00</b>	<b>\$1,964.00</b>	<b>\$3,968.00</b>

1. The average lot in Payson has approximately 0.18 irrigated acres.

### 3.6 Impact Fees for Nonresidential Users

The impact fee has been calculated based on 1 ERC which would correspond to a standard 1” meter. Larger meters are necessary to serve more than 1 ERC and will have a higher corresponding impact fee. Table 3-16 indicates a suggested impact fee rate schedule based on water meter size. The ERC factor is calculated based on American Water Works Association (AWWA) rated capacity for each meter size.

**Table 3-16  
Payson City Drinking Water  
Impact Fee Based on Meter Size**

<b>Water Meter Size</b>	<b>ERC</b>	<b>Impact Fee</b>
1”	1.00	\$2,004
1 ½ “	2.00	\$4,009
2”	3.20	\$6,414

It must be noted that water use varies even among customers with meters of similar size. The values in Table 3-16 are representative fees; however, it is recommended that it be specified in development agreements that customers whose water use exceeds the ERC value associated with their meter size be charged additional impact fees to account for actual water use. The procedure for doing so is explained below.

Properties that use multiple meters should pay one impact fee corresponding to the meter size that would have been necessary if the property had used only one meter.

Alternatively, the City may calculate an impact fee for non-residential connections based on projected peak day water use according to the following formulas.

$$\text{ERCs} = (\text{Peak Day Water use, gpd}) / (500 \text{ gpd per ERC})$$

$$\text{Impact fee} = \text{ERC} * \$2,004$$

For example, if a customer will use 20 gpm of water on the peak day, the impact fee may be calculated as follows

$$\text{Peak day water use} = 20 \text{ gal/min} * 1,440 \text{ min/day} = 28,800 \text{ gpd}$$

$$\text{ERCs} = (28,800 \text{ gpd}) / (500 \text{ gpd per ERC}) = 57.6 \text{ ERCs}$$

$$\text{Impact fee} = 57.6 \text{ ERCs} * \$2,004/\text{ERC} = \mathbf{\$115,430}$$

### 3.7 Costs by Time Period

Table 3-17 is a summary of the existing and future facility costs by drinking water system component and by time period. Existing costs are those costs attributed to capacity currently being used by existing connections. Costs attributed to the next 10 years are costs for the existing capacity or new capacity for the assumed growth in the next 10 years (including impact fee eligible planning costs expected to be collected). Costs attributed to beyond 10 years are costs for the existing capacity or new capacity for the assumed growth beyond 10 years.

**Table 3-17  
Facility Cost by Time Period**

	Existing	Next 10 Years	Beyond 10 Years	Total
Source	\$0.00	\$1,163,730.17	\$643,391.55	\$1,807,121.72
Storage	\$2,330,920.75	\$2,195,104.72	\$2,889,174.92	\$7,415,200.40
Transmission	\$2,300.23	\$6,404,477.70	\$8,700,654.08	\$15,107,432.00
Planning	\$12,441.04	\$43,600.45	\$0.00	\$56,041.49
<b>Total Cost</b>	<b>\$2,345,662.02</b>	<b>\$9,807,031.40</b>	<b>\$12,233,220.55</b>	<b>\$24,385,795.61</b>

### 3.8 Revenue Options

Revenue options for the recommended projects include: general obligation bonds, revenue bonds, State/Federal grants and loans, user fees, and impact fees. Although this analysis focuses on impact fees, the City may need to consider a combination of these funding options. The following discussion describes each of these options.

## **General Obligation Bonds through Property Taxes**

This form of debt enables the City to issue general obligation bonds for capital improvements and replacement. General Obligation (G.O.) Bonds would be used for items not typically financed through the Water Revenue Bonds (for example, the purchase of water source to ensure a sufficient water supply for the City in the future). G.O. bonds are debt instruments backed by the full faith and credit of the City which would be secured by an unconditional pledge of the City to levy assessments, charges or ad valorem taxes necessary to retire the bonds. G.O. bonds are the lowest-cost form of debt financing available to local governments and can be combined with other revenue sources such as specific fees, or special assessment charges to form a dual security through the City's revenue generating authority. These bonds are supported by the City as a whole, so the amount of debt issued for the water system is limited to a fixed percentage of the real market value for taxable property within the City. For growth related projects this type of revenue places an unfair burden on existing residents as they had previously paid for their level of service.

## **Revenue Bonds**

This form of debt financing is also available to the City for utility related capital improvements. Unlike G.O. bonds, revenue bonds are not backed by the City as a whole, but constitute a lien against the water service charge revenues of a Water Utility. Revenue bonds present a greater risk to the investor than do G.O. bonds, since repayment of debt depends on an adequate revenue stream, legally defensible rate structure /and sound fiscal management by the issuing jurisdiction. Due to this increased risk, revenue bonds generally require a higher interest rate than G.O. bonds, although currently interest rates are at historic lows. This type of debt also has very specific coverage requirements in the form of a reserve fund specifying an amount, usually expressed in terms of average or maximum debt service due in any future year. This debt service is required to be held as a cash reserve for annual debt service payment to the benefit of bondholders. Typically, voter approval is not required when issuing revenue bonds. For growth related projects this type of revenue places an unfair burden on existing residents as they had previously paid for their level of service.

## **State/Federal Grants and Loans**

Historically, both local and county governments have experienced significant infrastructure funding support from state and federal government agencies in the form of block grants, direct grants in aid, interagency loans, and general revenue sharing. Federal expenditure pressures and virtual elimination of federal revenue sharing dollars are clear indicators that local government may be left to its own devices regarding infrastructure finance in general. However, state/federal grants and loans should be further investigated as a possible funding source for needed water system improvements.

It is also important to assess likely trends regarding federal / state assistance in infrastructure financing. Future trends indicate that grants will be replaced by loans through a public works revolving fund. Local governments can expect to access these revolving funds or public works trust funds by demonstrating both the need for and the ability to repay the borrowed monies, with

interest. As with the revenue bonds discussed earlier, the ability of infrastructure programs to wisely manage their own finances will be a key element in evaluating whether many secondary funding sources, such as federal/state loans, will be available to the City.

Not charging impact fees or significantly lowering them could be viewed negatively from the perspective of State/Federal funding agencies. Charging a proper impact fee signals to these agencies that the community is using all possible means to finance the projects required to provide vital services their residents.

### **User Fees**

Similar to property taxes on existing residents, user fees to pay for improvements related to new growth-related projects places an unfair burden on existing residents as they had previously paid for their level of service.

### **Impact Fees**

As discussed in Section 1, an impact fee is a one-time charge to a new development for the purpose of raising funds for the construction of improvements required by the new growth and to maintain the current level of service. Impact fees in Utah are regulated by the Impact Fee Statute and substantial case law. Impact fees are a form of a development exaction that requires a fee to offset the burdens created by the development on existing municipal services. Funding the future improvements required by growth through impact fees does not place the burden on existing residents to provide funding of these new improvements.

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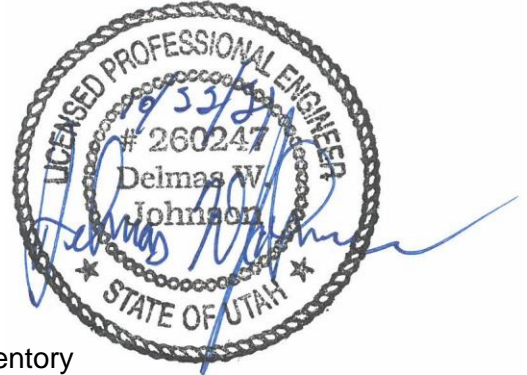
# **APPENDIX A**

## Payson Water Rights and Irrigation Shares Inventory Memo

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# MEMORANDUM

DATE: October 22, 2021  
TO: Travis Jockumsen, P.E.  
Payson City Public Works Director & City Engineer  
439 West Utah Avenue  
Payson, Utah 84651  
FROM: Delmas Johnson, P.E.  
Hansen, Allen & Luce, Inc. (HAL)  
859 West So. Jordan Pkwy – Suite 200  
South Jordan, Utah 84095  
SUBJECT: Payson City Water Rights and Irrigation Shares Inventory  
PROJECT NO.: 412.19.100



## PURPOSE

This memorandum provides an inventory of existing water rights and irrigation shares in the name of Payson City. A water right approved for municipal use allows the City to divert water into their pressurized irrigation and/or drinking water systems from a specific location on a water source and use the water within the service area of the City.

Potential future municipal water rights were also part of the inventory. This includes water rights and irrigation company shares held by the City but not approved for municipal use and water rights owned by others with approved use on City water sources.

Information on water rights listed in this report was obtained from the State's database accessed through September 2021. Original documents on each water right such as memorandum decisions and certificates issued by the State Engineer, decrees, etc. are the controlling source of this summarized information and can be found in the scanned documents of the DWRi's website for each water right unless otherwise cited (DWRi, 2021). To account for irrigation shares, Payson City provided copies of their share certificates in irrigation companies. Information on the irrigation companies was found on the DWRi's website and also provided by representatives of the corresponding irrigation companies.

The purpose of this inventory is to quantify what is currently available or potentially available on City water rights for municipal use. In this process, water rights requiring immediate action were identified. A listing of the rights and irrigation company certificates has been shared with the City online to allow the City to more easily edit information and keep records up-to-date.

## EXISTING MUNICIPAL WATER RIGHTS

### Municipal Well Water Rights

Table 1-1 lists municipal water rights in the name of Payson City that are currently recognized



by the State Engineer as approved for municipal use from City wells as recorded by the Division of Water Rights, (DWRI, 2021). This table includes the water right number, approved change application number or status of the right.

**TABLE 1-1  
PAYSON CITY MUNICIPAL WELL WATER RIGHTS  
(DWRI, 2021)**

<b>Water Right Number</b>	<b>Change Application Number or Status</b>	<b>Type of Right</b>	<b>Base Priority/ Change Priority</b>	<b>Source</b>	<b>Quantity (acre-feet)</b>
51-7250	a22765	21 Shares, SJCC	2002/1870	City Wells	103.74
51-7251	a22766	10.5 Shares, SJCC	1998/1870	City Wells	51.87
51-7244	a22723	1 Share, SJCC	2002/1870	City Wells	4.94
59-5951	a43191	83 Shares, USLCC	2017/1870	City Wells	380.97
51-7268	a23129	1 Share, EJIC	2007/1877	City Wells	4.84
51-7294	a23259	2 Share, EJIC	2007/1877	City Wells	9.68
51-7303	a23349	2 Shares, EJIC	2007/1877	City Wells	9.68
51-7314	a23441	11 Shares, EJIC	2007/1877	City Wells	53.24
51-7315	a23464	42 Shares, EJIC	2007/1877	City Wells	203.28
51-7336	a23774	42 Shares, EJIC	1999/1877	City Wells	203.28
51-7316	a23465	1 Shares, EJIC	2007/1877	City Wells	4.84
51-7785	a27885	39 Shares, EJIC	2003/1877	City Wells	80.00
51-7403	a24258	10 Shares, EJIC	2003/1877	City Wells	48.40
51-7551	a25118	33 Shares, EJIC	2000/1877	City Wells	159.72
51-7580	a25513	1 Shares, EJIC	2001/1877	City Wells	4.84
51-7241	a22703	10 Shares, EJIC	2002/1877	City Wells	48.4
51-7224	a22496	10 Shares, EJIC	2002/1877	City Wells	48.4
51-7203	a22131	10 Shares, EJIC	1998/1877	City Wells	48.4
51--7192	a21935	28 Shares, EJIC	1998/1877	City Wells	135.52
51-7113 51-7114 51-7247	a42862	75 Shares, EJIC	2017/1877	City Wells	360.58
51-7328	a23644	4 Shares, FFLDC	2014/1860	City Wells	27.55
51-7161	a42910	4 Shares, FFLDC	2017/1860	City Wells	31.48
51-7400	a24147	4 Shares, FFLDC	2003/1860	City Wells	27.55
51-7555	a25222	6 Shares, FFLDC	2009/1860	City Wells	47.22

Water Right Number	Change Application Number or Status	Type of Right	Base Priority/ Change Priority	Source	Quantity (acre-feet)
51-7615	a25961	6 Shares, FFLDC	2001/1860	City Wells	47.22
59-5907	a41283	89 Shares, ULDC	2016/1870	City Wells	454.79
51-8552	a41784	U22201	2016/1918	City Wells	8.07
51-7146	a42783	A32164	2017/1960	City Wells	69.00
51-7277	a23879	Decree	1999/1895	City Wells	151.00
51-7614 <sup>1</sup>	a25944	5 Shares, EJIC	2001/1877	City Wells	24.20
51-7278 <sup>1</sup>	a23095	20 Shares, EJIC	1999/1877	City Well	96.80
51-3499 51-4712 51-4732 51-4776	a42050	U22384 A49525 D2602 A50526	2016/1896 2016/1977 2016/1977 2016/1977	City Wells	28.81
51-1313 51-1397 51-1398 51-1762 51-1763 51-1764 51-1765 51-2525 51-2694 51-3781 51-4070 51-7228 51-7388 51-7572 51-8442	a46862	A26046 A28567 A28567a U1136 U1137 U1138 U1139 U17404 U20979 U22552 U22709 A71302 A32648 A29845 A33351	1954 1956 1956 1934 1934 1934 1934 1934 1920 1935 1928 1958 1961 1958 1961	City Wells	3807.43
<b>TOTAL</b>					<b>6,785.73</b>

<sup>1</sup>Payson City municipal Water Rights 51-7614 and 51-7278 list other owners than the City and EJIC. Only the portion owned by the City is included in the quantity.

Each of the Water Rights listed in Table 1-1 have approved change applications. These approved change applications permit the City to put the water to beneficial use as a municipal water right within a specified amount of time before a proof of use or extension must be filed. A more secure status for a municipal water right is a perfected water right which can be obtained by fully developing the water right and submitting a proof application to the DWRi. An approved proof is certificated by the State Engineer.

A water right included as part of a decree is also considered a perfected water right that does not require a proof. Although Water Right 51-7277 is based on a decreed water right, a change application was filed which requires the right to be fully developed according to the change and subsequently proofed.

Table 1-1 also includes a category labeled “Type of Right.” A water right is established with the DWRi through receiving permission to beneficially use public waters through an Application to Appropriate (“A” numbers), Diligence Claim (“D” numbers), Underground Water Claim (“U” numbers), Decree, or Share Statement. If the water right is listed as a Share Statement, it is based on irrigation company certificates held by the City and the number of shares in the irrigation company is listed with the company name.

The irrigation company is still the owner of the base water right but is also listed as an owner along with the shareholder on a water right established as a Share Statement. In order for this water right to remain valid, the City is required to dedicate the shares to the purpose of the water right and maintain the shares with the irrigation company, paying all assessments. If the City no longer holds the original share certificate on which the Share Statement is established or doesn’t maintain the shares, the water right is not considered valid.

As part of the water right inventory, HAL reviewed copies of all of the City’s irrigation company certificates. The following canal companies are referenced in Table 1-1 as the basis for Share Statements: South Jordan Canal Company (SJCC), East Jordan Irrigation Company (EJIC), Fort Field Little Dry Creek Water Users Association (FFLDC), Utah and Salt Lake Canal Company (USLCC), and Utah Lake Distributing Company (ULDC).

Also listed for each right in Table 1-1 is the priority date of the base water right and approved change application and, if applicable, approved source(s), and allowable diversion listed as a volume in acre-feet per year.

Water Rights 51-7614 and 51-7278 list owners besides the canal company and City. It is recommended that the City turn in a Report of Conveyance to transfer Steven Schramm’s ownership on Water Right 51-7614(a25944). The City has the certificate in their name for all the EJIC shares on which this water right is based.

The City should also discuss with Bill Marcovecchio, president of EJIC, the City’s partial ownership listed on Water Right 51-7278(a23095). The DWRi’s record shows that the City holds 20 shares in EJIC represented by this right but a specific certificate number isn’t listed.

Table 1-1 shows that Payson has 6,785.73 acre-feet of water approved for municipal use. This assumes that these water rights are being properly maintained in accordance with the statutes of the State and that water rights based on share certificates in irrigation companies have been specifically allocated for this purpose. Additional summarized information on water rights listed in Table 1-1 is found in Appendix A and also shared with the City online.

### **Municipal Spring/Creek Water Rights**

Table 1-2 lists all spring or creek water rights in the name of Payson City that are currently recognized by the State Engineer as approved for municipal use from spring or creek sources as recorded by the DWRi (DWRi, 2021). This table is organized like Table 1-1 and the descriptions for each column in Table 1-1 also apply to Table 1-2. For all water rights in Table 1-1, a volume is listed in the DWRi’s database. In Table 1-2, the volume of the decreed water right is based on an approved flow listed on the DWRi’s database and applied with continuous use over one year. The table shows 12,773.53 acre-feet of water available on paper for the City’s spring and creek water rights.

**TABLE 1-2  
PAYSON CITY MUNICIPAL SPRING OR CREEK WATER RIGHTS  
(DWRi, 2021)**

<b>Water Right Number</b>	<b>Change Application Number or Status</b>	<b>Type of Right</b>	<b>Base Priority/ Change Priority</b>	<b>Source</b>	<b>Flow (cfs)</b>	<b>Quantity (acre-feet)</b>
51-6272	a16278	Decree	2000/1902	Payson Canyon Springs/Creeks	23.5	11,373.53 <sup>1</sup>
51-1266	a29452	A24028	2004/1952	Spring Lake Runoff	3.33	1,400.00
51-7974	Perfected	Decree	2005/1921	Spring Lake	0 <sup>2</sup>	0 <sup>2</sup>
<b>Total</b>						<b>12,773.53</b>

<sup>1</sup>This water right is based on the Booth Decree and a decreed maximum flow of 23.5 cfs awarded to Payson City. The DWRi has listed a municipal sole supply of 11,373.53 acre-feet and separate sole supply for irrigation. The Booth Decree may allow for an amount exceeding 11,373.53 acre-feet per year depending on interpretation of the Decree.

<sup>2</sup>Water Right 51-7974 was created by the DWRi and represents the same diversion from Spring Creek as Water Right 51-1266 but ties it to a 1923 Decree that awards the Spring Creek water to the City.

Water Right 51-6272 is based on the “Booth Decree,” George Patten vs. Payson City dated July 1, 1902 with J. E. Booth, judge (Booth, 1902). A change application filed on this water right adding points of diversion, requires a proof to be submitted to perfect this right according to the change but the base water right is a perfected City right. Although a group total of 1,410 acres of irrigation is specifically listed on this water right, a separate municipal use is also listed with a sole supply of 11,373.53 acre-feet per year.

If the Booth Decree is interpreted as allowing up to 23.5 cubic feet per second (cfs) a year-round for municipal use, a greater annual quantity could be argued, although the actual physical supply in Payson Canyon should also be considered. The physical supply of water in Payson Canyon was estimated in the Regional Water Supply Study for Mt. Nebo Water Agency (Mt. Nebo, 2019). The Study lists an annual average volume of 9,089 acre-feet for Peteetneet Creek. Additional annual average volume from three springs in Payson Canyon (Canyon Springs, Dixon Spring, and Picayune Spring) was estimated to be 2,670 acre-feet per year for a total creek and spring estimate of the average amount of water available in Payson Canyon of 11,759 acre-feet per year, close to the municipal sole supply listed for this water right.

Water Right 51-7974 appears as a perfected “Decreed” water right in the DWRi’s database owned by Payson City but assigned a diversion of zero. A letter from the Division to Payson City in 2005, in the scanned documents, explains its existence. Jared Manning, the assistant regional engineer at the time states that he issued a water right number, 51-7974 for Payson City’s “unfiled diligence rights” listed in a Decree with Strawberry High Line Canal vs. Payson City and others, dated January 12, 1923, with Elias Hansen, judge (Hansen, 1923). Manning points out that the same rights for Spring Lake runoff are covered on Water Right 51-1266 from a 1952 application to appropriate on which a change application was filed in 2004, a29452.

Manning suggests that Payson City file a new change application to include Water Right 51-7974, so that the right would be linked to the decree. HAL also recommends that the City work with the Regional Engineer's office of the DWRi to find the best solution to linking their Spring Lake water with an earlier priority date and perfected right based on the 1923 Decree.

Additional summarized information on water rights listed in Table 1-2 is found in Appendix A and also shared with the City online.

## **FUTURE MUNICIPAL WATER RIGHTS**

### **Background**

In 2008 the General Session of the Utah State Legislature passed House Bill 51 amending Utah Code 73-1-4 dealing with the forfeiture of water rights (See Appendix B). Water rights owned by Payson City, including municipal rights, irrigation, and stock watering rights, and shares of stock in mutual water companies that are held for the reasonable future water requirements of the public are protected from forfeiture for nonuse under the revised statute, as long as they were acquired before May 5, 2008.

This protection also applies to water rights acquired on or after this date provided the City submits a change application for municipal use and the state engineer approves the application prior to the passing of seven years. The reasonable future water requirement of the public is defined by the statute as the amount of water needed in the next 40 years by the persons within the public water supplier's projected service area, based on anticipated population growth or other water use demand.

### **City Owned Water Rights Not Approved for Municipal Use**

Table 1-3 lists water rights that are owned by Payson City that are not approved for municipal use. All of the water rights listed in Table 1-3 were acquired prior to 2008 except Water Right 59-5984 which the City acquired in the year 2019. This right must be put to beneficial use within seven years or approved for municipal use to hold the water for future public use beyond seven years according to State law. The columns in Table 1-3 match the description described previously for Table 1-1.

**TABLE 1-3  
PAYSON CITY WATER RIGHTS  
NOT APPROVED FOR MUNICIPAL USE  
(DWRI, 2021)**

<b>Water Right Number</b>	<b>Change Application Number or Status</b>	<b>Type of Right</b>	<b>Priority Date</b>	<b>Source</b>	<b>Quantity (acre-feet)</b>
51-7197	Change Application Needed	33.75 Shares, EJIC	1877	Jordan River/Utah Lake	163.35
51-7198	Change Application Needed	45.5 Shares, SJCC	1870	Jordan River/Utah Lake	224.77

<b>Water Right Number</b>	<b>Change Application Number or Status</b>	<b>Type of Right</b>	<b>Priority Date</b>	<b>Source</b>	<b>Quantity (acre-feet)</b>
59-5984	Change Application Needed	1 Share, SJCC	1870	Jordan River/Utah Lake	4.94
51-1711	Change Application Needed	D 585	1897	Dixon Spring	3.25
55-9505	Change Application Needed	13 Shares, EJIC	1877	Jordan River/Utah Lake	62.92
51-7052	Lapsed Change Application, New One Needed	6 Shares, SJCC	1870	Jordan River/Utah Lake	29.64
<b>Total</b>					<b>488.87</b>

Additional summarized information on water rights listed in Table 1-3 is found in Appendix A and also shared with the City online.

#### **Water Rights Approved for Municipal Use but Owned by Others**

Water rights listed in Table 1-4 have been approved for municipal use on City sources but are not owned by the City. In order for a water right point of diversion to be changed to a City source, the City must approve the change application. The City is listed on the change application as an “interested party” meaning, the City is interested in acquiring this right. There is no requirement for the current owner, however, to sell their water right to the City. For this reason, the total quantity of these rights will not be considered as future municipal water rights although the water rights listed in Table 1-4 are likely candidates to become municipal water rights. As shown in Table 1-4, these water rights allow municipal use of 346.59 acre-feet from City wells.

**TABLE 1-4  
WATER RIGHTS OWNED BY OTHERS  
APPROVED FOR MUNICIPAL USE IN PAYSON CITY  
(DWRI, 2021)**

<b>Water Right Number</b>	<b>Change Application Number</b>	<b>Type of Right</b>	<b>Priority Date</b>	<b>Source</b>	<b>Quantity (acre-feet)</b>
51-2904 51-8748	a42787	A25222ak A23393	2017/1969 2017/1951	Wells	4.78
51-7819 51-7820 51-7821 51-7822	a38736	U24159	2013/1935	Wells	74.00

Water Right Number	Change Application Number	Type of Right	Priority Date	Source	Quantity (acre-feet)
517824 51-7825 51-7826 51-7827					
51-8624 55-2526 55-12667	a40432	U10705	2015/1900 2015/1934 2015/1934	Wells	13.44
51-8527	a43997	U22201	2018/1918	Wells	8.26
53-1447	a42539	2 Shares, SJCC	2017/1870	Wells	7.90
57-10573	a44416	30.25 Shares, EJIC	2019/1877	Wells	146.41
59-5983	a44411	25 Shares, USLCC	2019/1870	Wells	91.80
<b>Total</b>					<b>346.59</b>

\* These water rights are owned by South Utah Valley Municipal Water Association (SUVMWA) and are described below.

### SUVMWA Water Rights

Payson City is a member municipality of South Utah Valley Municipal Water Association (SUVMWA). SUVMWA owns two water rights that are approved for use in member cities, including Payson City. These water rights are not included in Table 1-4 since they are approved for use in many cities.

Approved Change Application a21684 (51-7170) and approved Change Application a21820 (51-7182) allow for the total diversion of 400 acre-feet of water for year-round, municipal use in the following cities: Springville, Mapleton, Spanish Fork, Salem, Woodland Hills, Elk Ridge, Payson, Genola, and Goshen. The approved points of diversion list a well from each city, including Park Well, also referred to as Well #1, for Payson City. According to the DWRi database, a few additional water rights are owned by SUVMWA but have not been changed to allow use by its member municipalities.

Assuming Payson City has a 17.57% share in SUVMWA, based on imported water agreements with SUVMWA and a 17.57% share of the water from water rights owned by SUVMWA, Payson is allowed an allotment of 70.28 acre-feet of water at the Park Well throughout the year.

There has been some question at the DWRi of whether or not SUVMWA fits the legal description of a public water supplier. SUVMWA may not be able to continue filing extensions on their change applications. Payson City should maintain their association with SUVMWA and

negotiate ownership of their water rights if it is to be included in the planning portfolio of water rights.

**IRRIGATION COMPANY SHARES**

Payson City is required to have share certificates set aside to cover all of the Share Statements issued by the DWRi with water right numbers in the name of the City. In recent years, the DWRi has required copies of share certificates be submitted when issuing a Share Statement. In past years, however, the State did not keep a consistent record of which City certificates correspond to water rights based on the shares. The irrigation companies keep track of certificate ownership but do not have any record of Share Statements or City water rights. It is the responsibility of the City to keep this record.

The second column on Table 1-5 lists the total number of shares that appear on irrigation company certificates in the name of Payson City for the following irrigation companies: South Jordan Canal Company (SJCC), East Jordan Irrigation Company (EJIC), Fort Field Little Dry Creek Water Users Association (FFLDC), Utah and Salt Lake Canal Company (USLCC), Salem Irrigation and Canal Company (SICC) and Utah Lake Distributing Company (ULDC). HAL requested copies of all Payson City certificates in these companies.

**TABLE 1-5  
PAYSON CITY IRRIGATION SHARES**

<b>Irrigation Company</b>	<b>Total Shares Held by Payson City</b>	<b>Number of Shares assigned a Share Statement and/or Approved for Municipal Use</b>	<b>Number of Shares Deficient to Cover City Share Statements/Water Rights</b>
South Jordan Canal Company	39.5	85.0	45.5
East Jordan Irrigation Company	232	388.25	156.25
Utah Lake Distributing Company	89	89	0
Fort Field-Little Dry Creek Water Users Association	23.5	24	0.5
Salem Irrigation and Canal Company	19.29	0	0



Utah and Salt Lake Canal Company	0	83	0
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From our inventory of Payson City’s irrigation company share certificates and the DWRI’s record of water rights, it appears that some Payson City irrigation company share certificates may be missing or may have been used more than once to request a Share Statement and corresponding water right number from the DWRI. As shown in Table 1-5, the City has more Share Statements than they have shares on certificates to represent them. Column 4 of Table 1-5 shows the discrepancy.

Many of these shares have been approved in change applications for municipal use in City wells and these water rights/change applications are listed in Table 1-1 and accounted for by the number of shares listed in Table 1-5. The remaining irrigation company shares accounted for in Column 3 of Table 1-5 have been issued a Share Statement with a corresponding Water Right Number in the name of the canal company and Payson City but have not had an approved change application for municipal use. These water rights appear in Table 1-3.

EJIC assessed Payson City for 265.5 shares in May 2021. This indicates that EJIC records account for at least 265.5 shares held by Payson City. HAL contacted the secretary of EJIC and compared certificate numbers they had on file for the City. Notes from this comparison of City and Company records of share certificates are found in Appendix C. Additional work needs to continue to match the City’s EJIC Share Statements with valid certificates.

The City holds a few certificates in SICC. They have not been used to issue Share Statements with the DWRI. A change application would be difficult to have approved at this time since SICC has not established its share value with the DWRI. Payson City may consider exchanging these shares for Strawberry Highline Canal shares from Salem City.

The summary of Payson irrigation shares shown in Table 1-5 is included with additional detail in Appendix C. This list includes share certificate numbers and corresponding change applications if noted in the City’s records or in the DWRI’s files.

In addition to the irrigation companies listed in Table 1-5, Payson City has share certificates amounting to 120 shares in Douglas Percolating Pipe-line Waterworks Company. This small irrigation company was established in 1905 but is no longer in service. It appears to have gone out of service at the time the City acquired the shares. Water Right 51-2449 is in the name of Douglas Percolating Pipe-line Waterworks Company and the place of use listed on the water rights is now served by Payson City. If the City has a deed or other documents transferring the shares to the City, the water right may be able to transfer to the City’s name for a possible total diversion of 28 acre-feet. Further legal action, however, may be required by the State for a transfer to the City.

**WATER RIGHT AVAILABILITY**

All volumes listed for water rights in Table 1-1, Table 1-2, and Table 1-3 are based on the City’s right to use water diverted from the specified location on the source listed as allowed by the State Engineer (DWRI, 2021). This portfolio of established water rights can be referred to as “paper water.” The amount of water the City is actually able to physically divert depends on the

availability of water at the source and capacity of the City's diversion system. This is called "wet water." Table 1-1 shows the City has the right to divert **6,785.73 acre-feet per year** from City wells, assuming the maximum depletion allowed on each water right is not exceeded and water rights based on shares have valid certificates specifically dedicated to one Share Statement.

As shown in Table 1-2, the City has the right to divert an additional **12,773.53 acre-feet per year** of water from springs and creeks for municipal purposes. Again, the availability of this paper right to physical water will vary, especially in the case of the spring or creek sources. Water availability depends on the year and also on the capacity of diversion infrastructure available to the City.

Payson City also holds shares to Strawberry High Line Canal Company. As of the year 2020, the City held 3,790 shares which allow the City to receive 3,790 acre-feet of water per year into its pressurized irrigation system through the Highline Canal. Currently the DWRi has not allowed change applications to be filed for municipal use of this water from Strawberry Reservoir due to federal contracts stating this water is for irrigation purposes only. The City, however, should participate in negotiations to allow this water, tied to land within the boundaries of the City and serviced by the City's pressurized irrigation system, to be protected as municipal water rights in the future.

Table 1-3 shows the potential for an additional 488.87 acre-feet per year to be changed to municipal use on City sources depending on the State Engineer's approval of a change application filing by the City. This total for potential water rights doesn't include water rights with approved change applications to municipal for use in Payson City but fully owned by others.

## **RECOMMENDATIONS AND CONCLUSION**

In order to preserve Payson City's existing water rights and acquire additional municipal water rights, HAL recommends the following actions are completed:

1. It is recommended that the City turn in a Report of Conveyance to transfer Steven Schramm's ownership on Water Right 51-7614(a25944). The City has the certificate in their name for all the EJIC shares on which this water right is based.
2. The City should discuss with Bill Marcovecchio, president of EJIC, the City's partial ownership listed Water Right 51-7278(a23095). The DWRi's record shows that the City holds 20 shares in EJIC represented by this right but a specific certificate number isn't listed. In addition to EJIC shown as an owner, Bill Marcovecchio is also shown with individual ownership of this water right.
3. Water Right 51-7052 was previously approved as a municipal water right based on 6 shares in SJCC. The City holds Certificate Number D-07112 which contains the shares in SJCC on which the water right is based. The City should file a new change application for municipal use on City wells as soon as possible. The State Engineer currently still approves surface water to groundwater but this is not the case in north Utah County and may change at any time for south Utah County.
4. Water Rights 51-7197 and 55-9505 are based on Share Statements in EJIC in the name of Payson City. No change applications have been filed to change these surface rights to

municipal. If the City has the base certificates that can be dedicated solely to these water rights, change applications should be filed.

5. Water Rights 51-7198 and 59-5984 are based on Share Statements in SJCC in the name of Payson City. No change applications have been filed to change these surface rights to municipal. If the City has the base certificates that can be dedicated solely to these water rights, change applications should be filed.
6. Water Right 51-1711 is partially owned by Payson City, Goosenest Water Company, and other private owners. Beneficial use is listed as irrigation, domestic, and stockwatering. The City should identify their beneficial use of this water right and decide if filing a segregation and change application for municipal use would be appropriate for the City's planned use.
7. HAL recommends Payson City contact the Jordan River/Utah Lake Regional Office at the DWRi to discuss the connection of their active Spring Lake water right, Water Right 51-1266 to Water Right 51-7974. Water Right 51-7974 was established based on a decree and would give their Spring Lake source a perfected status and higher priority.
8. Payson City should maintain their association with SUVMA and help determine the best course of action for the SUVMA water right assets that have a pending status based on Utah Law. If a sale to the City can be negotiated, HAL recommends that the City own its water rights in order to maximize the future management of this important asset.
9. It is recommended that Payson City continue to meter or start metering all the use of water from the springs and creek in Payson Canyon and clearly identify which spring is being included in the metering when reporting the use to the DWRi. The City has large paper water rights to the water in Payson Canyon that could possibly be more fully utilized with improved collection, distribution, and record keeping practices.
10. The City should work with EJIC and SJCC to determine if they are missing share certificates that have previously been submitted to the DWRi for Share Statements, the basis of water rights in the City's name. It is possible that shares may still be in possession of the previous owner with the water right changed by a recorded deed but the transfer of the underlying shares overlooked. Missing share certificates may be able to be reissued by the canal company depending on their requirements. The City may need to obtain a missing instrument bond.
11. The City should work with EJIC and SJCC and the DWRi to determine if any of the same share certificates were mistakenly used more than once to obtain Share Statements and corresponding water right numbers. According to DWRi records, EJIC Certificate Number C2757 may have been applied to Water Right 51-7785 and 51-7113.
12. The City should obtain and apply an addition 0.5 share certificate to Water Right 51-7328(a23644) based on Fort Field-Little Dry Creek Water Users Association shares. The water right was established based on 4 shares but the City has a certificate for 3.5 shares. Alternatively, the City could work with the DWRi and possibly file a new change application on just 3.5 shares.
13. The City holds a few shares in SICC. It is recommended that these shares be put to beneficial use. Payson City may consider filing a change application to municipal

although this may be difficult considering SICC hasn't established their share value with the DWRi. They may also consider exchanging these shares for Strawberry Highline Canal Company shares from Salem City.

14. The City should look for any deeds or other documents pertaining to the transfer of 120 shares of Douglas Percolating Pipe-line Waterworks Company to the City in the early 1900's. The City may be able to file a Report of Conveyance on Water Right 51-2449 to transfer the ownership to the City.
15. It is recommended that the City should participate in negotiations with SWUA, DWRi, federal authorities, and other water users to allow their shares in Strawberry High Line Canal Company to be protected as municipal water rights in the future.

After addressing the recommendations for water right numbers and share certificates stated in this inventory, the City should consider modification of their existing forty-year plan or preparing a new forty-year plan when the need arises for an extension to be filed on a change application that has exceeded forty years.

In a new or modified forty-year plan, future water use data should be considered from the Drinking Water and Pressurized Irrigation System Master Plans completed in 2020. The last forty-year plan was prepared by Jim Riley Engineering LC in 2017 with water rights compiled in 2016. This plan states the City has not completed a Water Master Plan in the past 20 years which now has changed. The City has also acquired new water rights and addressed most of the recommendations in the past forty-year plan including refiling the majority of their lapsed change applications. It is essential that a forty-year plan submitted to the DWRi is aligned with the City's current vision and objectives.

## REFERENCES

Booth, 1902. George Patten vs. Payson City (Booth Decree). July 1, 1902. J. E. Booth, judge, Fourth Judicial District, Utah County, State of Utah.

Hansen, 1923. Strawberry High Line Canal vs. Payson City and Others. January 12, 1923. Elias Hansen, judge, Fourth Judicial District, Utah County, State of Utah.

DWRi (Utah Division of Water Rights). 2021. Water Rights Search. Accessed September 2021. <https://waterrights.utah.gov/search/>

DWRi Area 51 (Utah Division of Water Rights). 2021. Area 51 Water Right Policies. <https://waterrights.utah.gov/wrinfo/policy/wrareas/area51.asp>

Mt. Nebo, 2019. Mt. Nebo Water Agency Regional Water Supply Study, May 2019, adopted June 2019 by Mt. Nebo Water Agency, Prepared by Hansen, Allen & Luce, Inc.

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# **APPENDIX B**

## Capital Project Cost Estimates

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**Payson City Capital Facility Plan  
Drinking Water Recommended Improvements  
Preliminary Engineers Cost Estimates**

Item	Unit	Unit Price	Quantity	Total Cost
<b>1 Source - Patterson Zone Pump Station</b>				
Pump Station (800 gpm)	LS	\$ 750,000	1	\$ 750,000
		Engineering & Admin. (10%)		\$ 75,000
		Contingency (10%)		\$ 75,000
		<b>Total to Source - Patterson Zone Pump Station</b>		<b>\$ 900,000</b>
<b>2 Transmission - Salem Canal Rd (Impact Fee Eligible)</b>				
Upsize to 12" diameter	LF	\$ 78	2200	\$ 172,524
(Only a small portion of this project can be considered growth-related. Most cost is to resolve a deficiency.)		Engineering & Admin. (10%)		\$ 17,252
		Contingency (10%)		\$ 17,252
		<b>Total to Transmission - Salem Canal Rd (Impact Fee Eligible)</b>		<b>\$ 210,000</b>
<b>3 Upsize Pipe out of Tank</b>				
24" Transmission Line (18-in Parallel)	LF	\$ 495	1356	\$ 671,328
20" Transmission Line	LF	\$ 534	1099	\$ 587,394
12" Transmission Line	LF	\$ 387	1424	\$ 551,715
10" Transmission Line (8-in Parallel)	LF	\$ 309	224	\$ 69,220
		Engineering & Admin. (10%)		\$ 187,966
		Contingency (10%)		\$ 187,966
		<b>Total to Upsize Pipe out of Tank</b>		<b>\$ 2,260,000</b>
<b>4 Southern Lower City Zone Expansion</b>				
2.0 MG Storage Tank	GAL	\$ 1.75	2000000	\$ 3,500,000
Land - Tank	AC	\$ 200,000	1	\$ 200,000
16" Transmission Line	LF	\$ 441	6500	\$ 2,865,720
		Engineering & Admin. (10%)		\$ 656,572
		Contingency (10%)		\$ 656,572
		<b>Total to Southern Lower City Zone Expansion</b>		<b>\$ 7,880,000</b>
<b>5 Arrowhead Zone Transmission Expansion</b>				
10" PRV	EA	\$ 50,000	1	\$ 50,000
12" Transmission Line	LF	\$ 351	7200	\$ 2,524,896
		Engineering & Admin. (10%)		\$ 257,490
		Contingency (10%)		\$ 257,490
		<b>Total to Arrowhead Zone Transmission Expansion</b>		<b>\$ 3,090,000</b>
<b>6 1950 West Transmission</b>				
Bore Under I-15	LS	\$ 450,000	1	\$ 450,000
12" Transmission Line	LF	\$ 387	10000	\$ 3,874,400
		Engineering & Admin. (10%)		\$ 432,440
		Contingency (10%)		\$ 432,440
		<b>Total to 1950 West Transmission</b>		<b>\$ 5,190,000</b>
		<b>Total for Improvements</b>		<b>\$ 19,530,000</b>

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# **APPENDIX C**

## Pioneering Agreement for Red Bridge Well

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# RED BRIDGE

6/22/2022

## SEWER CAPACITY ANALYSIS PID SEWER PHASES A & C

Exist Payson City 21" Sewer Outfall Line in Utah Ave at 75% Capacity		4.980 cfs ✓
Measured flowrate of existing Payson City Sewer @ PID tie-in location in Utah Ave		1.19 cfs ✓
Total available PID Sewer Capacity @ tie-in to existing sewer system		3.790 cfs ✓
Red Bridge Station - Sewer Capacity Reservation		1.723 cfs ✓
1240 Dwelling Units		
560 Additional ERU's (Mtech, Hotels, Retail, Restaurants)		
Projected Peak Hourly Flow		1.723 cfs ✓
Remaining PID Sewer Capacity for areas South of Red Bridge Development		2.067 cfs ✓
Projected South Service Area of PID Sewer Line	360 ac	
Projected South Service Area Zoning	3.0 DU/ac	
Projected Total # of Dwelling units	1,080 DU	
Projected Peak Hourly Flow		2.064 cfs

## CONSTRUCTION COSTS

<u>Description</u>	<u>Total Cost</u>
Red Bridge PID - Sewer Outfall Phase 1 A Overall Cost	\$ 2,934,486.83
Red Bridge PID - Sewer Outfall Phase 1 C Overall Cost	\$ -
Engineering & Surveying	\$ 119,400.00
Easements	\$ 96,656.00
<b>Total Red Bridge PID - Sewer Outfall Cost</b>	<b>\$ 3,150,542.83</b>

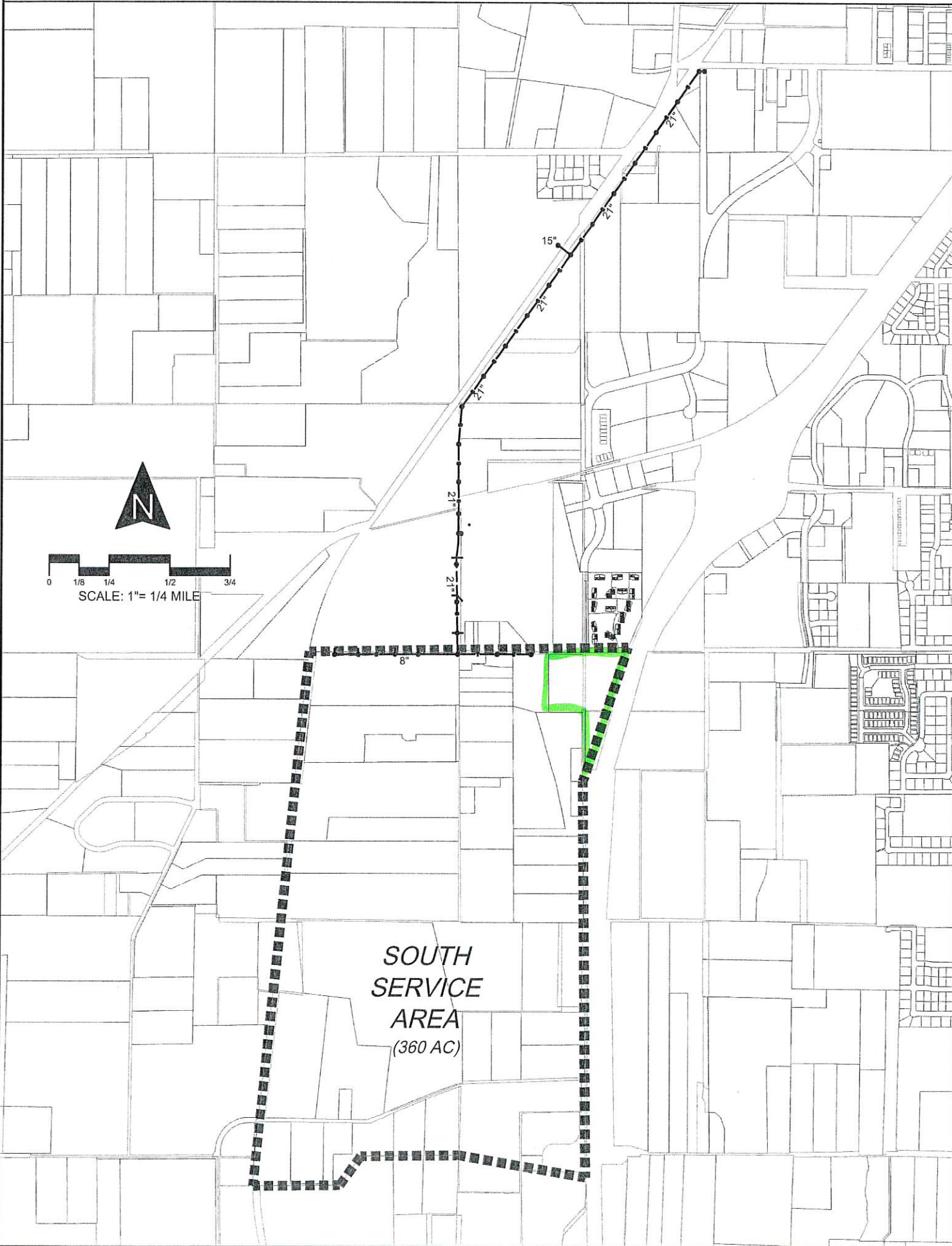
## SOUTH SERVICE AREA - PIONEERING AGREEMENT CONNECTION FEE

TOTAL RED BRIDGE PID - SEWER OUTFALL		\$ 3,150,542.83	
	<u>Peak Flowrate</u>	<u>% of Flowrate</u>	
RED BRIDGE	1.723 cfs	45%	\$1,433,426.27
SOUTH SERVICE AREA	2.064 cfs	55%	\$1,717,116.56
<b>TOTALS</b>	<b>3.787 cfs</b>	<b>100%</b>	<b>\$3,150,542.83</b>
SOUTH SERVICE AREA TOTAL PIONEERING AMOUNT			\$1,717,116.56
SOUTH SERVICE AREA - TOTAL # OF DWELLING UNITS	1,080 DU		

**PIONEERING AGREEMENT CONNECTION FEE PER DU**

**\$1,589.92**

# RED BRIDGE PID SEWER OUTFALL



**SOUTH  
SERVICE  
AREA**  
(360 AC)

# RED BRIDGE

6/22/2022

## WATER ANALYSIS PID WELL

RED BRIDGE PID - WELL IMPROVEMENTS YIELD ANALYSIS  
As per the HAL pump letter the well has the capacity as stated

6,000 eru

## CONSTRUCTION COSTS

Description	Total Cost
Well Drilling	\$ 894,350.00
Well Pumphouse & Equipment	\$ 1,460,000.00
Engineering & Surveying	\$ 276,461.00
Easements	\$ 36,000.00
<b>Total Red Bridge PID - Well Improvements</b>	<b>\$ 2,666,811.00</b>

## WELL - PIONEERING AGREEMENT CONNECTION FEE

TOTAL RED BRIDGE PID - WELL IMPROVEMENTS \$ 2,666,811.00

	ERU	% of Well Yield	
RED BRIDGE	1,800 eru	30%	\$800,043.30
SOUTH SERVICE AREA ** based on sewer capacity **	1,080 eru	18%	\$480,025.98
PAYSON CITY (WEST SERVICE AREA) [CAPITAL FACILITY]	3,120 eru	52%	\$1,386,741.72
<b>TOTALS</b>	<b>6,000 eru</b>	<b>82%</b>	<b>\$2,666,811.00</b>

TOTAL PIONEERING AMOUNT \$480,025.98  
TOTAL # OF DWELLING UNITS 444 eru ?

**PIONEERING AGREEMENT CONNECTION FEE PER ERU \$1,080.00**

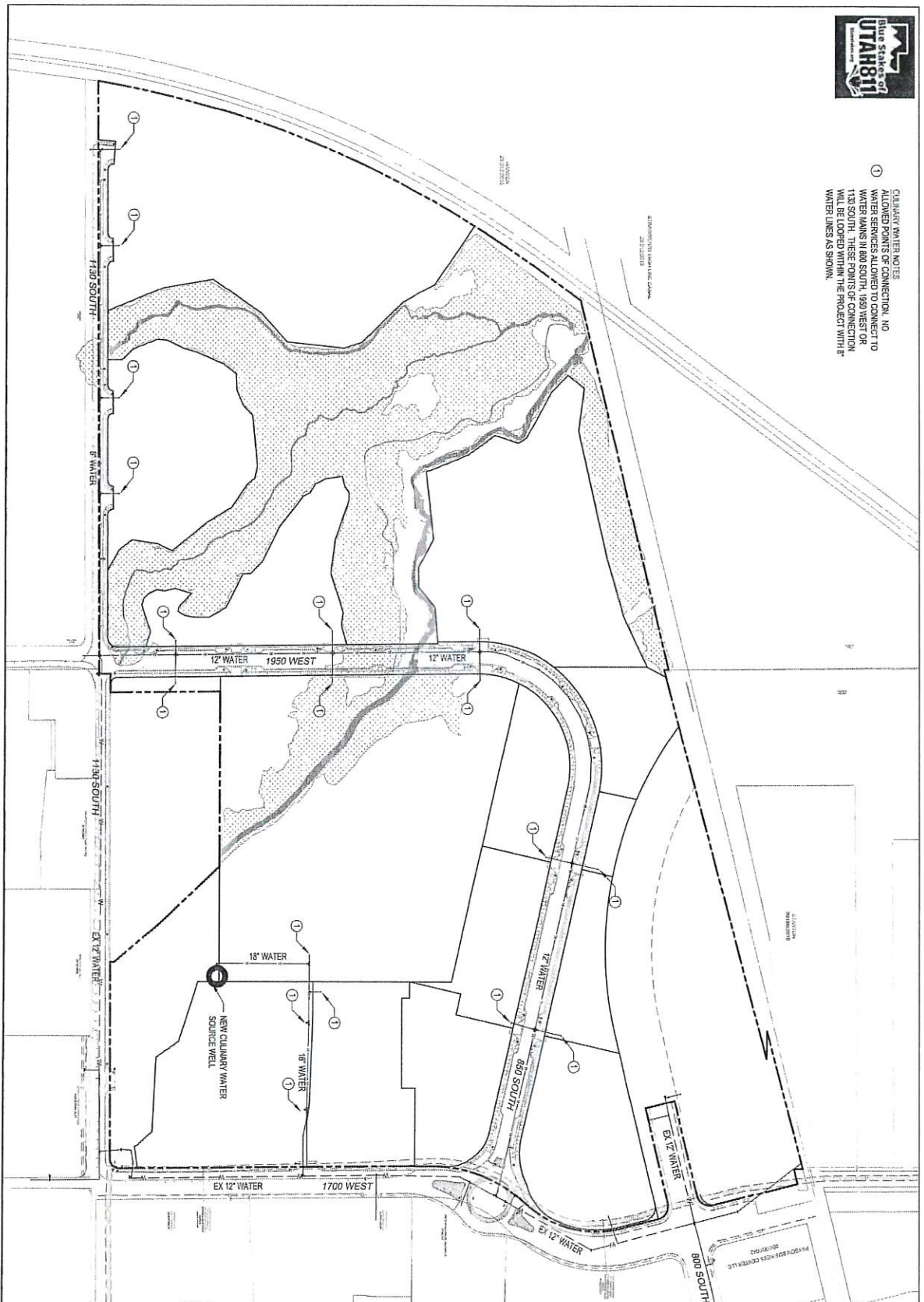
**PAYSON CITY DIRECT PURCHASE AS PER CAPITAL FACILITY PLAN \$1,386,741.72**

*Impact Fee would need to include this.*

FIGURE 5.1A RED BRIDGE STATION AMENDMENT #1 PID WATER SYSTEM IMPROVEMENTS



① CALLAWAY WATER NOTE  
 ALLOWED POINTS OF CONNECTION, NO  
 WATER SERVICES ALLOWED TO CONNECT TO  
 WATER MAINS IN 800 SOUTH, 1690 WEST OR  
 1130 SOUTH. THESE POINTS OF CONNECTION  
 WILL BE LOOPED WITHIN THE PROJECT WITH 8"  
 WATER LINES AS SHOWN.



RED BRIDGE  
 STATION

PAYSON SOUTH  
 MEADOWS  
 PARTNERS, LLC  
 505 S. OREM BLVD  
 OREM, UT 84058  
 (801) 369-2538



SCALE: 1" = 120'

**GERG**  
 CIVIL ENGINEERING  
 16205 N. HIGHLAND AVE. SUITE 400  
 OREM, UT 84058  
 (801) 369-1377  
 (801) 369-1377

NO.	REVISION	DATE
1	ISSUED FOR PERMIT	08/20/24
2	REVISED PER COMMENTS	09/10/24
3	REVISED PER COMMENTS	09/10/24
4	REVISED PER COMMENTS	09/10/24
5	REVISED PER COMMENTS	09/10/24
6	REVISED PER COMMENTS	09/10/24
7	REVISED PER COMMENTS	09/10/24
8	REVISED PER COMMENTS	09/10/24
9	REVISED PER COMMENTS	09/10/24
10	REVISED PER COMMENTS	09/10/24

RED BRIDGE  
 STATION

PID  
 SUPER PAD  
 IMPROVEMENT  
 DRAWINGS

OVERALL  
 WATER  
 C2A

**From:** Sheila Michaelis <commercialagent10@gmail.com>  
**Sent:** Thursday, February 17, 2022 5:56 PM  
**To:** Lance Nielsen <lance@halengineers.com>  
**Subject:** Fwd: RB Station General Plan Amendment Redlines 2/17

Will you call me about this?

Sent from my iPhone

Begin forwarded message:

**From:** Sheila Michaelis <commercialagent10@gmail.com>  
**Date:** February 17, 2022 at 4:50:39 PM MST  
**To:** Lance Nielsen <lance@halengineers.com>  
**Subject:** Fwd: RB Station General Plan Amendment Redlines 2/17

Lance, are you able to update your analysis on the water lines and sewer as per the attached redlines from Payson city staff?

Sent from my iPhone

Begin forwarded message:

**From:** Chris Van Aken <chrisv@payson.org>  
**Date:** February 17, 2022 at 1:17:09 PM MST  
**To:** Sheila Michaelis <commercialagent10@gmail.com>  
**Cc:** Robert Mills <robertm@payson.org>  
**Subject:** RB Station General Plan Amendment Redlines 2/17

Sheila,

See attached DRC redlines for the General Plan Amendment submittal. Let me know if you have any questions.

Thanks,

Chris Van Aken



Planner II

801.465.5204

[chrisv@payson.org](mailto:chrisv@payson.org)

[www.paysonutah.org](http://www.paysonutah.org)

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Katie Jacobsen <katie@halengineers.com> Wed, Mar 2, 2022 at 5:15 PM  
To: "commercialagent10@gmail.com" <commercialagent10@gmail.com>  
Cc: Steven Jones <steve@halengineers.com>, Lance Nielsen <lance@halengineers.com>, "Travis Jockumsen (travisj@payson.org)" <travisj@payson.org>

Sheila,

Lance passed this on to me.

He said you need to know the number of residential units that can be supplied by the Red Bridge Well.

With a safe yield of 1733 gpm, and a Level of Service of 500 gallons per day per ERC (for indoor water use only), the well can supply the indoor water needs for 4991 residential units.

With a safe yield of 2000 gpm, and a Level of Service of 500 gallons per day per ERC (for indoor water use only), the well can supply the indoor water needs for 5760 residential units.

The State typically sets the safe yield at 2/3 of the flow rate achieved during a 24-hour constant rate pump test. The test flow rate was 2600 gpm, and 2/3 of that is 1733 gpm. It is possible the State may allow a higher flow of up to 2,000 gpm for the safe yield because the pump test was continued for several days.

In response to your emailed question below --

It appears that the recommendations from our 2021 water and PI reviews do not need to be updated. Our most recent evaluation of Red Bridge was in June 2021. At the time, we were using the following land use acreages and residential units (first table). The number of residential units we were using in 2021 is higher than what Red Bridge is proposing now (second table). The acreages are slightly different. The results of our water and PI analysis won't change much. Do you have an updated breakdown of how much of each land use (acreage, commercial square feet, and/or residential units) is on each Lot? The current table shows "Parks/Open Space" at 18.3 acres. How much of this is planned to be irrigated?

We are still working through sewer modeling with the City. At this point, we don't have a final answer, but we anticipate that the 21-inch pipe cited in the City's redlines will not need to be upsized for the Red Bridge development alone. With other developments added after Red Bridge, the pipe will need to be upsized eventually.

Please let me know if you have any other questions or need anything else.

Land Use Type	Acres	Residential Units	Retail/ Office
Red Bridge Station	4.36	0	0
MTECH Campus	13.31	0	0
Mixed Use	10.84	370	57836
Multi-Family	38.65	1033	9000
Commercial	8.34	0	0
Public Roads	6.91	0	0
Wetlands	13.3	0	0
Totals	95.7	1403	66836

Steve Jones said that the level of service is based on what the State will allow based on the cities current usage. After we have a history from our project of usage this level will drop and we should negotiate with the city on who gets that credit.

Also, the level of loss won't be as high for our project because we are putting in new pipes, new systems, new buildings, so that should also decrease over time and we should also get that credit.

The average level of service is 200 - 250 gallons per day, so the 500 gallons per day being assessed is really high.

**RED BRIDGE STATION AMENDMENT #2**  
**BASE SCENARIO vs HIGHER EDUCATION (AMENDED)**  
**LAND USE PLAN**

LAND USE	FIGURE 4.1			FIGURE 4.2		
	HIGHER EDUCATION SCENARIO AMENDMENT #1			HIGHER EDUCATION SCENARIO AMENDMENT #2		
	AREA (ac)	Density DU/AC	Max Number of Dwelling Units	AREA (ac)	Density DU/AC	Max Number of Dwelling Units
MIXED USE	15.47	MU Zone	490	22.07	MU Zone	966
COMMERCIAL	9.38	n/a	n/a	9.38	MU Zone	n/a
RESIDENTIAL - 15 DU/AC	42.36	15	635	35.76	15	379
RESIDENTIAL - 2 DU/AC	0	2	0	0	2	0
SCHOOL	13.31	n/a	0	13.31	n/a	0
PARKS/OPEN SPACE	18.32	n/a	0	18.32	n/a	0
TOTALS	98.84		1125	98.84		1345

Thanks,

**Katie Gibson Jacobsen, P.E.**  
 Project Manager

**HANSEN, ALLEN & LUCE, INC.**  
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 South Jordan, UT 84095  
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