PRESSURIZED IRRIGATION WATER IMPACT FEE FACILITY PLAN AND IMPACT FEE ANALYSIS

(HAL Project No.: 260.48.100)

DRAFT

MARCH 2020

SPRINGVILLE CITY

PRESSURIZED IRRIGATION WATER

IMPACT FEE ANALYSIS

(HAL Project No.:260.48.100)

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HANSEN ALLEN & LUCE INC
ENGINEERS

MARCH 2020

IMPACT FEE CERTIFICATION

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IFA are modified or amended, or if assumptions presented in this analysis change substantially, this certification is no longer valid.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

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IFA Certification

Hansen, Allen & Luce, Inc. certifies that the Impact Fee Analysis (IFA) prepared for the pressurized irrigation 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.

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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 Pressurized Irrigation Water System by new development and by identifying the means by which the City will meet these new demands. The Springville City Pressurized Irrigation 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 pressurized irrigation 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 pressurized irrigation water system includes the following:

Level of Service

- Peak Day Source Capacity: 8.5 gallons per minute per irrigated acre (gpm/irr-ac)
- Source Volume: 4.0 acre-feet/irr-ac (Annual Demand)
- Storage Capacity: 6,120 Gallons/irr-ac
- Transmission Capacity: 50 pounds per square inch (psi) minimum during peak day demand conditions

The existing system served about 434 irrigated acres at the end of 2018. Projected **growth** adds 208 irrigated acres in the next 10 years, for a total of 642 irrigated acres.

The existing pressurized irrigation water system has no 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 **pressurized irrigation water impact fee** is calculated based on the estimated cost of projects needed to support anticipated growth. The fee is calculated to be $10,011 per irrigated acre or $1,502 per typical single-family connection. A typical single-family connection is assumed to have an area of 0.15 irrigated acres.

TOTAL PROPOSED IMPACT FEE PER IRRIGATED ACRE AND TYPICAL SINGLE-FAMILY CONNECTION

Component	Per Irrigated Acre	Per Typical Residential Connection
Infrastructure	$9,434	$1,415
Planning	$577	$87
Total	$10,011	$1,502

SECTION 1
INTRODUCTION

1.1 Background

Springville is located in central Utah County, alongside I-15 and on the southern end of the Provo-Orem metropolitan area. Springville had an estimated population of 33,294 in July 2017 (United States Census Bureau, 2017). The primary pressurized irrigation water sources for Springville are Hobble Creek, Springville Irrigation Ditch #1, and the Mapleton-Springville Strawberry Pipeline.

1.2 Purpose

The City has recognized the need to plan for increased demands on its pressurized irrigation 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. A Pressurized Irrigation Water Master Plan was prepared 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 Pressurized Irrigation Water System Master Plan was prepared in conjunction with this analysis. The master plan for the City's pressurized irrigation 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 Pressurized irrigation Water System inside the 20-year planning range, including maintenance, repair, replacement, and growth-related projects. The recommendations made within the master plan are in compliance with current City policies and standard engineering practices.

A hydraulic model of the Pressurized Irrigation Water System was used to complete the Pressurized irrigation 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
SYSTEM DEMAND AND CAPACITY

2.1 General

The purpose of this section is to identify the current level of service, characterize the facilities of the existing system, and determine the remaining capacity of these facilities.

The existing pressurized irrigation water system is comprised of a pipe network, water sources, and a water storage pond. Figure 2-1 illustrates the existing water system and its service area.

2.2 Existing Irrigated Acreage

Water demands for all users have been determined in terms of irrigated acreage. The use of irrigated acreage is a common engineering practice to describe the entire system's usage based upon a common unit of measurement. Using irrigated acres for analysis is a way to allocate existing and future demands over both residential and non-residential land uses.

At the end of 2018, the City was estimated to have 434 irrigated acres served by the pressurized irrigation water system. Irrigated areas served by the drinking water system were not considered in this analysis.

2.3 Level of Service

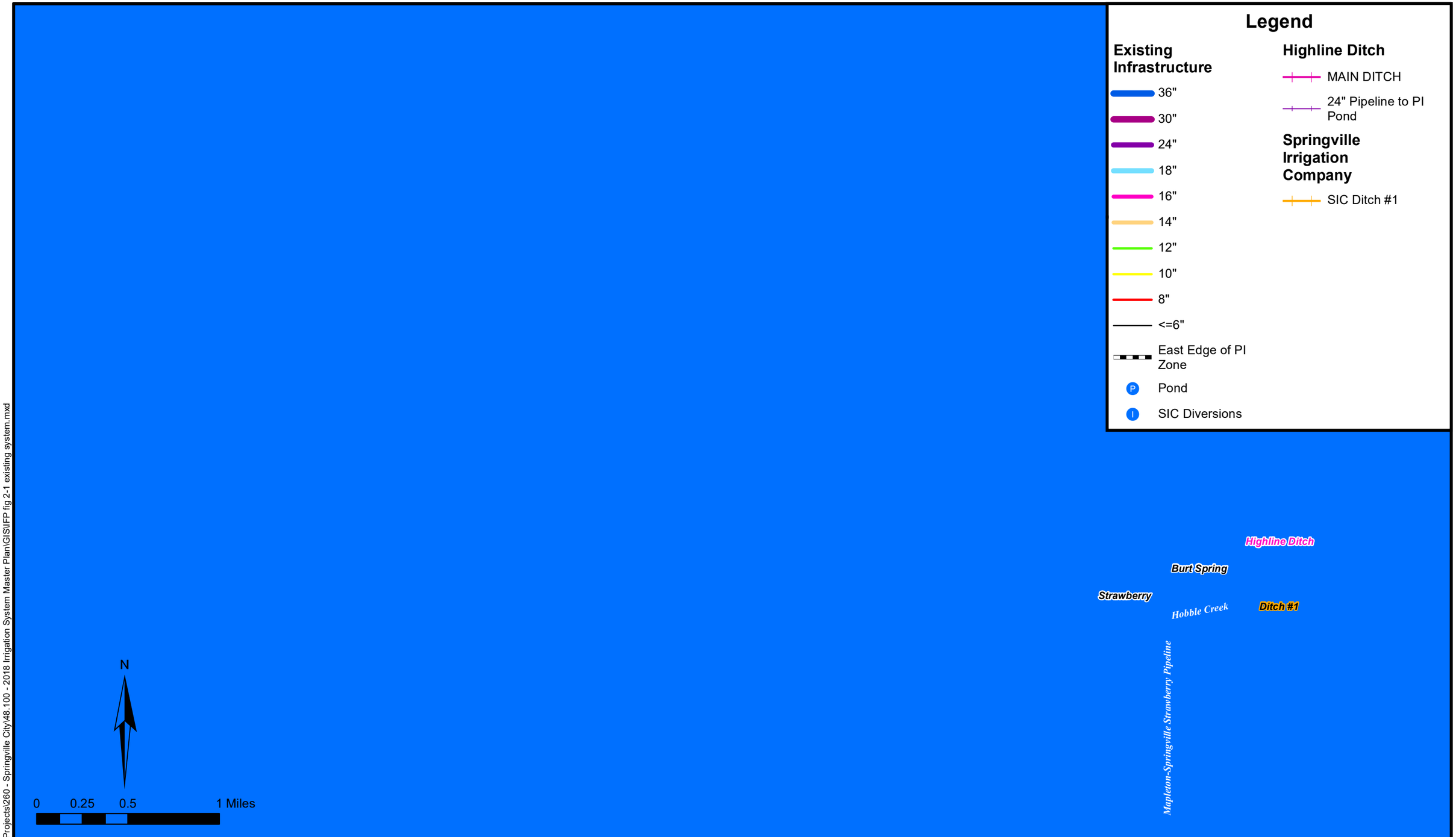
The City has established a level of service for the Pressurized Irrigation Water System. It establishes the sizing criteria for the City's distribution (pipelines), source, storage facilities, and water rights. The level of service standards are shown below:

Level of Service

- Source Capacity: 8.5 gpm/irr-ac (Peak Day)
- Source Volume: 4.0 ac-ft/irr-ac (Annual Demand)
- Storage Capacity: 6,120 Gallons/irr-ac
- Transmission Capacity: 50 psi minimum pressure during peak demand of 17.0 gpm/irr-ac

2.4 Methodology Used to Determine Existing System Capacity

Each component of the Pressurized irrigation Water System was assessed a capacity in terms of irrigated acres. Irrigated acreage was calculated based on lot areas and defined irrigation factors for each land use type, which were determined by analyzing aerial imagery for each land use type across Springville City.



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Document Path: H:\Projects\260 - Springville City\48.100 - 2018 Irrigation System Master Plan\GIS\IFP fig 2-1 existing system.mxd

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EXISTING PRESSURIZED IRRIGATION SYSTEM

FIGURE 2-1

System components include: Source (surface water facilities and pump stations), Storage (ponds), transmission (pipes), planning, and water rights. The remaining capacity of a facility is defined as the difference between its capacity and the demand imposed on it (both expressed in terms of irrigated acreage). A hydraulic model was developed for the purpose of assessing system operation and transmission capacity.

2.5 Water Source & Remaining Capacity

Springville City's sources of pressurized irrigation water come from Hobble Creek, Springville Irrigation Ditch #1, and the Mapleton-Springville Strawberry Pipeline. Table 2-1 summarizes the information of each source and all sources total.

TABLE 2-1
EXISTING WATER SOURCES

Source	Available Flow (gpm)	Capacity (irr-ac)	Existing Demand (irr-ac)	Remaining Capacity (irr-ac)
Hobble Creek/Highline Ditch	2,245	950	434	516
Springville Irrigation Ditch #1	0*			
Mapleton-Springville Strawberry Pipeline	5,835			
TOTAL	**8,080**	**950**	**434**	**516**

* Ditch #1 is often dry when peak day demand occurs

2.6 Storage Facilities & Remaining Capacity

Bartholomew Pond is the only water storage facility in the pressurized irrigation system. It doubles as a recreational facility, so only the top 6 feet of the pond are utilized as equalization storage.

TABLE 2-2
EXISTING WATER STORAGE

Pond	Capacity (ac-ft)	Capacity (irr-ac)	Existing Storage Demand (irr-ac)	Remaining Capacity (irr-ac)
Bartholomew Pond - Total	32.0	-	-	-
Bartholomew Pond – 6 feet fluctuation	17.1	910	434	476

2.7 Water Rights & Remaining Capacity

The City owns a total of 3,097 acre-feet (AF) of water rights for water used in the pressurized irrigation system.

TABLE 2-3
ANNUAL SOURCE CAPACITY

Water Right	Annual Capacity (ac-ft)	Capacity (irr-ac)	Existing Demand (ac-ft)	Remaining Capacity (irr-ac)
Springville Irrigation Co – Strawberry Water	1,970	774	434	340
Springville Irrigation Co – Non-Strawberry Water	513			
51-6025	499			
51-6219	115			
TOTAL	**3,097**	**774**	**434**	**340**

2.8 Distribution System and Remaining Capacity

Pipe diameters range from 6 inch to 36 inches in diameter. The larger pipes in the system were provided as transmission lines to provide conveyance from Bartholomew Pond to the service area. Figure 2-1 illustrates the existing distribution pipelines. The current area served by distribution pipes is limited, so more pipes will be needed to support future growth.

Modeling showed that pressures in the future distribution system would become unacceptable if peak instantaneous flow in the main 36-inch diameter pipe exceeds 16,100 gpm (a velocity of 5.1 ft/sec). At a peak instantaneous level of service of 17.0 gpm, the pipe has capacity to serve **947** irrigated acres.

2.9 Capital Facilities to Meet System Deficiencies

The City has identified five locations in the pressurized irrigation system that must be served by crossover connections to operate. These crossover connections are described in the Capital Facility Plan, but are not impact fee-eligible and will not be discussed further in this report.

SECTION 3
IMPACT FEE FACILITY PLAN AND ANALYSIS

3.1 General

Data presented in the previous section was used to calculate a proposed impact fee based on an appropriate buy-in cost of existing excess capacity and the cost of projects required to support growth. This section documents expenses previously incurred and estimated cost of future projects, and discusses possible revenue sources for the City to consider.

3.2 Growth Projections

The development of impact fees requires growth projections over the next ten years. Growth projections for Springville were made by applying irrigation factors to areas identified by City personnel as most likely to develop during the next ten years. Total growth projections for the City through 2029 are summarized in Table 3-1.

TABLE 3-1
GROWTH PROJECTIONS
OVER NEXT TEN YEARS

Year	Irrigated Acres
2018	434
2019	453
2020	472
2021	491
2022	510
2023	530
2024	550
2025	572
2026	594
2027	618
2028	642
Change	**+208**

The existing system served about 434 irrigated acres at the end of 2018. Projected growth adds 208 irrigated acres in the next 10 years for a total of 642 irrigated acres.

3.3 Cost of Existing Pressurized Irrigation Water Facilities

In 2011, the City obtained a $9 million federal grant to build its PI system. On top of that, the City has furnished $1,103,606 in additional funds which are eligible to be repaid by impact fees (see Appendix A), for a total existing cost of $10,103,606. These funds contributed to the construction of Bartholomew Pond and the major transmission line to the service area of the system.

Some of this cost can be attributed to existing users, while some can be attributed to future growth.

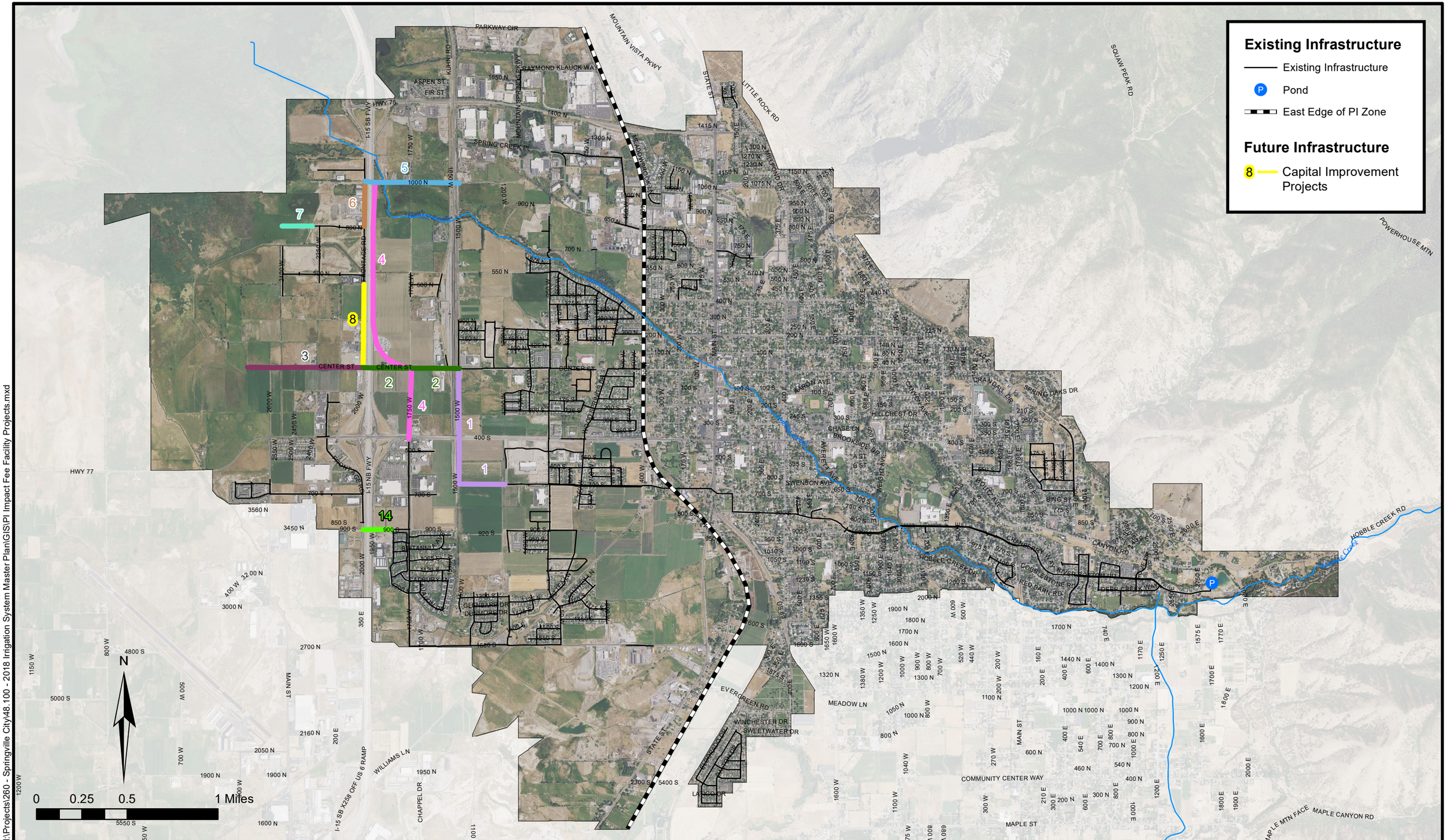
3.4 Cost of Future Pressurized Irrigation Water Facilities

A buildout hydraulic model was used to determine the facilities necessary to serve growth through the 10-year planning period. These facilities are shown in Table 3-2 and on Figure 3-1. Estimated costs include only the portion of cost anticipated to be paid by the City.

TABLE 3-2
ESTIMATED COST OF 10-YEAR PROJECTS

Project	Map ID*	Estimated Cost
20-inch Pipeline – 700S/1500 W	1	$732,000
16-inch Pipeline – Center Street	2	$834,000
12-inch Pipeline – Center Street	3	$132,000
10-inch pipeline – 1750 W	4	$326,000
10-inch pipeline – 1000 N	5	$541,000
8-inch pipeline – W Frontage Road (north phase)	6	$127,000
8-inch pipeline – 800 N	7	$24,000
8-inch pipeline – W Frontage Road (south phase)	8	$234,000
8-inch pipeline – W Frontage Road (south phase)	14	$188,000
	Totals:	**$3,138,000**

* See Figure 3-1 (Details on cost estimates are included in the Master Plan)



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PRESSURIZED IRRIGATION SYSTEM IMPACT FEE FACILITIES PLAN

FIGURE 3-1

3.5 Impact Fee Unit Calculation

Currently, the City reviews proposed developments and notes the anticipated irrigated area of all development within the boundaries of the pressurized irrigation service area. It is recommended that the City continue to document irrigated areas of development and charge impact fees accordingly.

Infrastructure

The total system cost through 2060 was used to compute the impact fee. This cost is shown in Table 3-3. Detailed costs are included in Appendix A.

TABLE 3-3
IMPACT FEE ELIGIBLE INFRASTRUCTURE COSTS

Item	Amount
System costs to date	$10,103,606
Future costs through 2060	$8,245,000
Total Costs	**$18,348,606**
Less Grant Money	($9,000,000)
Impact Fee Eligible Costs	**$9,348,606**

Hydraulic modeling was used to determine that the existing storage pond and transmission pipeline have a total capacity of 910 irrigated acres. To serve the anticipated 991 irrigated acres in the system by 2060, a pump station is proposed (as discussed in the Master Plan Report document). This is included in the above costs. See Appendix A for details.

The infrastructure component of the impact fee was calculated considering total irrigated acreage in 2060 and total system costs through 2060 as shown in Table 3-4.

TABLE 3-4
PROPOSED INFRASTRUCTURE COMPONENT OF FEE

Item	Amount
Impact Fee Eligible Costs	$9,348,606
Irrigated Acreage	991
Cost per Irrigated Acre	**$9,434**

Planning

Planning services will also be needed to support growth. Within the next 10 years, it is anticipated that the City will commission two plan updates at a cost of approximately $60,000 each. The planning portion of the impact fee was calculated by dividing the total anticipated planning cost ($120,000) by the projected growth in irrigated acreage over the next 10 years (208 irrigated acres). The proposed planning portion of the impact fee is

$120,000 / 208 irr-ac = **$577/irr-ac (planning)**

Table 3-5 shows the proposed impact fee per irrigated acre.

TABLE 3-5
TOTAL PROPOSED IMPACT FEE

Component	Per Irrigated Acre
Infrastructure	**$9,434**
Planning	**$577**
Total	**$10,011**

3.6 Total Impact Fee Calculation for a Typical Single-Family Residence

A typical single-family residence in Springville has an average of 0.15 irrigated acres. Accordingly, the proposed Pressurized irrigation Water System impact fee for one typical residential connection is **$1,502** (see Table 3-6).

TABLE 3-6
TOTAL PROPOSED IMPACT FEE PER SINGLE-FAMILY RESIDENCE

Component	Per Typical Residential Connection
Infrastructure	**$1,415**
Planning	**$87**
Total	**$1,502**

3.7 Facility Cost by Time Period

Only those costs attributed to the new growth in the next 10 years can be included in the impact fee. Table 3-7 is a summary of the existing and future facility costs by Pressurized Irrigation Water System component and by time period. Existing costs are those costs attributed to capacity currently being used by existing connections. Costs over the next 10 years are costs for the existing capacity or new capacity for the assumed growth in the next 10 years. Costs attributed to beyond 10 years are costs which will be incurred within 10 years, but provide capacity for growth beyond 10 years.

TABLE 3-7
FACILITY COST BY TIME PERIOD

	Existing	Next 10 Years	Beyond 10 Years*	Total
Infrastructure	$4,094,142	$1,962,170	$3,292,294	$9,348,606
Planning	$0	$120,000	$0	$120,000
Total Cost	$4,094,142	$2,082,170	$3,292,294	$9,468,606

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 finances 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.

Cost of Existing Facilities

PI Project Payment History

		FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	
GL #	DESCRIPTION	6/30/2010	6/30/2011	6/30/2012	6/30/2013	6/30/2014	6/30/2015	6/30/2016	6/30/2017	6/30/2018	6/30/2019	6/30/2020	Total
516800033	WEST SIDE PI SYSTEM DESIGN	$ -	$ 274,876	$ 1,615	$ 35,720	$ 300,243	$ 317,552	$ 1,339	$ -	$ -	$ -	$ -	$ 931,345
516800034	PI Phase 1	$ -	$ -	$ -	$ -	$ 3,002,777	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,002,777
516190811	PI Phase 2	$ -	$ -	$ -	$ -	$ -	$ 3,352,495	$ 2,549,258	$ 43,048	$ -	$ -	$ -	$ 5,944,801
	PI Connection	$ 20,476	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 20,476
	6" Pipes	$ -	$ 54,999	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 54,999
	Pipe upsizing	$ -	$ -	$ 6,294	$ 14,212	$ -	$ -	$ -	$ 66,349	$ -	$ 62,353	$ -	$ 149,208
												Sub-Total	$ 10,103,606
												CUWCD Grant	$ 9,000,000
												City Expense	**$ 1,103,606**

NOTE:

Payment history data for accounts 516800033, 516800034, and 516190811 taken from end of year finance reports run for each GL# associated with the West Side PI project. Data was generated 2/27/2020

Other expenses are taken from City records.

Estimated Future Infrastructure Costs

Estimated Future Infrastructure Costs

Pipe Diameter	Installation cost/ft	Upsize cost/ft	% Upsized	Total length (ft)	Total cost
8	109	23	50%	16822	$ 1,110,000.00
10	128	42	50%	12137	$ 1,032,000.00
12	138	52	50%	10074	$ 957,000.00
14	148	62	50%	1413	$ 148,000.00
16	159	73	50%	7908	$ 917,000.00
18	175	89	50%	100	$ 13,000.00
20	188	102	50%	4662	$ 676,000.00
24	218	132	50%	189	$ 33,000.00
30	291	205	50%	9513	$ 2,359,000.00
				Subtotal	$ 7,245,000.00
				Plus future turnout pond and pump station	$ 1,000,000.00
				Total future costs	**$ 8,245,000.00**