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SARATOGA SPRINGS

PRESURRIZED IRRIGATION IMPACT FEE ANALYSIS

(HAL Project No.: 360.07.600)

October 2022

HANSEN ALLEN & LUCE inc
ENGINEERS

CITY OF SARATOGA SPRINGS

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Project Engineer

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OCTOBER 2022

IMPACT FEE CERTIFICATION

The Utah Impact Fee Act requires certifications for the 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IFA are modified or amended, or if assumptions presented in this analysis change substantially, this certification is no longer valid.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.

IFA Certification

Hansen, Allen & Luce, Inc. certifies that the Impact Fee Analysis (IFA) prepared for the pressurized irrigation 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. offsets 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 Analysis (IFA) is to comply with the requirements of the Utah Impact Fees Act by identifying demands placed on the existing Pressurized Irrigation (PI) system by new development and by identifying the means by which the City will meet these new demands. This analysis is an update to the Secondary Water System IFA prepared in 2020 to address changes in conditions and assumptions that result in an increase in the proposed PI impact fee.

The most significant **change** in this update is increased project costs. The City has constructed projects costing over $15 million to increase the capacity of the PI system. These projects added capacity to the system which has almost entirely been used by the new growth that has come into the system since 2020 The actual project costs have come in higher than the projected cost for these improvements identified in the previous IFA. This has resulted in increased projected costs for future projects in this IFA.

The PI system impact fee **service area** is the current city boundary. The existing system irrigated about 2,620 acres at the beginning of 2022. Projected **growth** adds 1,320 irrigated acres in the next 10 years for a total of 3,940 irrigated acres.

The three **components** of the PI impact fee are source, storage, and water rights. All capacities and costs are summarized into these components. The main transmission pipelines convey source and storage capacity to the developments, so each pipeline project has a calculated source and storage component assigned.

The City assigns irrigated area in acres to new development based on actual irrigated acres when the new development is platted or when a building permit is issued, whichever one comes first. Irrigated acres are the recommended **fee unit** for calculating the impact fee. The typical single-family residential PI use includes irrigated area in park strips and parks in the development which for the purposes of this study is assumed to be 0.24 acres.

It is proposed that the **level of service** for the PI system not change from the previous IFA. The level of service is an annual volume of 3.13 acre-feet per irrigated acre while maintaining a pressure of at least 30 pounds per square inch (psi) at all connections under all peak flow conditions. Peak flow conditions are defined per irrigated acre as 7.5 gallons per minute (gpm) for Peak Day Average Flow (source flow capacity) and 15.0 gpm for Peak Instantaneous Flow Capacity (pipe flow capacity). Also, a level of service for storage volume per irrigated acre of 9,216 gallons is used to maintain the minimum pressure of 30 psi at all connections.

The PI 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 the new development.

The following table is a summary of the proposed impact fee per irrigated acre. The table also has the impact fee per typical single-family residential connection for reference based on 0.24 acres of irrigation. The proposed impact fee is an increase from the current impact fee of $39,536 per irrigated acre.

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

COMPONENT	Per Irrigated Acre	Per Typical Residential Connection
Source	$22,518	$5,404
Storage	$18,650	$4,476
Water Rights	$10,979	$2,635
Total	**$52,147**	**$12,516**

IMPACT FEE CALCULATION

1. General

This section relies on the data presented in the Impact Fee Facilities Plan (IFFP) to present a proposed impact fee based on the appropriate proportion of cost of projects planned in the next 10 years to increase capacity for new growth and an appropriate buy-in cost of available existing excess capacity previously purchased by the City.

The PI system facility projects planned in the next 10 years to increase capacity for new growth included within the impact fee are presented. Also included in this section are the possible revenue sources that the City may consider to fund the recommended projects. The impact fee components are then presented with the proposed fee.

2. Growth Projections

Outdoor water demands are based on irrigated acreage. Future irrigated acreage was calculated by starting with the existing irrigated acreage and adding to it the area of land that is expected to be irrigated at projected build-out (2060), or the maximum development under current zoning and densities. Build-out projections were based on the future land use plans.

The existing system irrigates approximately 2,620 acres. Growth projections for the next 13 years were provided by Zions Public Finance Inc. and have been included in Appendix C. Total growth projections for the City through 2035 are summarized in Table 1. The projections include the number of incoming equivalent residential connections (ERUs) expected each year. These ERUs have been converted into irrigated acres using 0.24 irrigated acres per ERU. Table 1 shows that at the end of 10 years, the expected irrigated acreage will increase to 3,940 acres. This is an increase of 1,320 irrigated acres over the 10-year window. The irrigated acreage at the time of the previous impact fee was 2,397 acres. Therefore, 223 irrigated acres have been added since the previous plan.

TABLE 1
GROWTH PROJECTIONS

Year	ERU Growth	Irrigated Acre Growth	Total Projected Irrigated Acres
2022	-	-	2,620
2023	550	132	2,752
2024	550	132	2,884
2025	550	132	3,016
2026	550	132	3,148
2027	550	132	3,280
2028	550	132	3,412
2029	550	132	3,544
2030	550	132	3,676
2031	550	132	3,808
2032	550	132	3,940
2033	550	132	4,072
2034	550	132	4,204
2035	550	132	4,336

3. Cost of Existing and Future Facilities

The costs of existing facilities that have remaining capacity are presented in Table 2. These projects provide available buy-in capacity for future development. The table has each project cost broken out by impact fee component. Costs of existing facilities are also included in Appendix A. The projects presented in Table 3 are proposed projects essential to maintain the proposed level of service while accommodating future growth. The table lists the project type, description, and estimated cost. All projects have sufficient capacity for the 10-year growth projections. The facility sizing was based on City planning data and modeling. All projects have a design life greater than 10 years, as required by the Impact Fee Act. See Appendix B for cost estimate details of future projects.

TABLE 2
COST OF EXISTING FACILITIES WITH REMAINING BUY-IN CAPACITY

PROJECT	SOURCE	STORAGE	WATER RIGHTS	TOTAL
North Zone 2 Pond (Pond 8) and Booster Station	$2,599,013	$2,599,013	$0	$5,198,026

TABLE 3
IMPACT FEE FACILITY PROJECTS FOR UPCOMING 10 YEARS

TYPE	MAP ID	RECOMMENDED PROJECT	COST
Source & Storage	SW01	Zone 2 North Northgate Pipeline Upsize	$455,000
Source & Storage	SW02	Zone 1 Willow Park Source	$3,394,900
Source	SW03	Zone 1 Well #7 Equipping	$2,190,800
Source	SW04	Zone 1 16-inch & 10-inch Pipelines	$2,496,100
Source & Storage	SW05	Zone 4 North Wildflower Pump Station, 12-inch Pipeline, & 2.5 Ac-ft Pond	$6,842,000
Source	SW06	Zone 3 North Wildflower 8-inch to 12-inch Pipeline Upsize	$345,200
Source & Storage	SW07	Zone 3 North Mt Saratoga Pump Station, Pipeline Upsizes, & 5.6 Ac-ft Pond	$5,923,700
Source & Storage	SW08	Zone 2 North Mt Saratoga 16-inch Pipeline & 6 Ac-ft Pond	$4,906,600
Source	SW09	Zone 1 Pioneer Crossing 16-inch Pipeline	$646,200
Source & Storage	SW10	Zone 1 SLR 8 Ac-ft Pond & 24-inch, 18-inch, & 16-inch Pipelines	$11,714,300
Storage	SW11	Zone 1 Evans Lane Pond Expansion	$6,785,700
Source & Storage	SW12	Zone 1 Tickville ULDC Pump Station & 10 Ac-ft Pond	$6,900,100
Source	SW13	Zone 2 South Jacobs Ranch Well #9	$2,498,600
Source & Storage	SW14	Zone 2 South Lake Mtn 12-inch Pipeline & 10 Ac-ft Pond	$3,400,600
Source & Storage	SW15	Zone 1 Lake Mtn Increase Capacity of Marina PS, 5.5 Ac-ft Pond, & 30-inch & 18-inch Pipelines	$8,430,800
TOTAL			**$66,930,600**

Note: See Figure 1 for map of projects on the next page

Only those costs attributed to the new growth in the next 10 years can be included in the impact fee. Interest for bonds used to pay for existing facilities is included in the impact fee eligible project costs. The City only uses impact fees to pay bond payments for bonds used to pay for impact fee eligible projects. Financing costs are not included in the projected cost of future projects. Table 4 is a summary of the existing and future facility costs by PI system component and by time period. Existing costs are those costs attributed to capacity currently being used and paid for by existing connections since the last IFA. 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. Costs attributed to beyond 10 years are costs for the existing capacity or new capacity for the assumed

[SW05]
ZONE 4 NORTH (WILDFLOWER)
1500 GPM PUMP STATION
11,500 LF 12-INCH PIPELINE
2.5 AC-FT POND

[SW01]
ZONE 2 NORTH (WILDFLOWER)
UPSIZE 2,000 LF 6-INCH TO 8-INCH PIPELINE

[SW06]
ZONE 3 NORTH (WILDFLOWER)
UPSIZE 4,700 LF 8-INCH TO 12-INCH PIPELINE

[SW02]
ZONE 1 (WILLOW PARK)
WELL #8 EQUIPPING
2,150 LF 12-INCH PIPELINE

[SW07]
ZONE 3 NORTH (MT. SARATOGA)
5.6 AC-FT POND
1,500 GPM PUMP STATION
1,500 LF 16-INCH PIPELINE
UPSIZE 3,100 LF 8-INCH TO 12-INCH PIPELINE
UPSIZE 1,800 LF 10-INCH TO 12-INCH PIPELINE

[SW03]
ZONE 1 (NORTHSHORE)
WELL #7 EQUIPPING

[SW08]
ZONE 2 NORTH (MT. SARATOGA)
6 AC-FT POND
1,500 LF 16-INCH PIPELINE
LAND FOR 11 AC-FT POND

[SW04]
ZONE 1 (NORTHSHORE)
4,000 LF 16-INCH PIPELINE
3,000 LF 10-INCH PIPELINE

[SW12]
ZONE 1 (TICKVILLE)
3,500 GPM PUMP STATION
10 AC-FT POND

[SW11]
ZONE 1 (EVANS LANE)
POND 8 EXPANSION

[SW10]
ZONE 1 (SLR)
8 AC-FT POND 5
9,500 LF 24-INCH PIPELINE
3,800 LF 18-INCH PIPELINE
3,200 LF 16-INCH PIPELINE
LAND FOR 21 AC-FT POND

[SW09]
ZONE 1 (PIONEER CROSSING)
1,600 LF 16-INCH PIPELINE

[SW13]
ZONE 2 SOUTH (JACOBS RANCH)
NEW JACOBS RANCH WELL (WELL #9)

[SW15]
ZONE 1 (LAKE MOUNTAIN)
INCREASE MARINA PUMP STATION TO 7,750 GPM
5.5 AC-FT POND
4,500 LF 30-INCH PIPELINE
4,500 LF 18-INCH PIPELINE

[SW14]
ZONE 2 SOUTH (LAKE MTN)
10 AC-FT POND 20
2,200 LF 12-INCH PIPELINE

Mountain View Corridor
Crossroad Blvd.
Redwood Road
Pioneer Crossing
Saratoga Road
400 S.
Founders Blvd.
Grandview Blvd.
Harbor Parkway
PIB04
PIS31
PIS32
PIB05
PIS34
PIS33
PIP05
DWW07
PIP20
PIS36
PIP19
PIB19

Legend

- Source Pond
- Existing Source
- Existing Well
- Existing DW and PI Well
- Future Well
- Future DW and PI Well
- Existing Pond
- Future Pond
- Existing Booster
- Future Booster
- Existing Pipes
- Major Roadways

N

0 0.25 0.5 1 Miles

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Date: 10/26/2022
Document Path: H:\Projects\360 - Saratoga Springs City\07.500 Impact Fee Updates DW-PI 2022\GIS\Figures\Fig 1 - SW Impact Fee Improvements.mxd

HANSEN ALLEN & LUCE INC ENGINEERS

SARATOGA SPRINGS PRESSURIZED IRRIGATION SYSTEM

IMPACT FEE IMPROVEMENTS

FIGURE 1

growth beyond 10 years. There is a total of $29,723,571 attributed to source with a capacity of 1,320 irrigated acres, a total of $22,640,892 for storage with a capacity of 1,214 irrigated acres, and a total of $14,491,960 for water rights with a capacity of 1,320 irrigated acres anticipated over the next ten years. The total anticipated cost for the next 10 years is $66,856,424. There are still several developments that can only receive PI source water through the drinking water system. Costs for connecting these developments will be recouped in the future when source capacity from the drinking water system becomes available permanently.

TABLE 4
FACILITY COST BY TIME PERIOD

PI Water Component	EXISTING		NEXT 10 YEARS		BEYOND 10 YEARS		TOTAL	
	Irrigated Acres	Cost	Irrigated Acres	Cost	Irrigated Acres	Cost	Irrigated Acres	Cost
Source	0	$0	1,320	$29,723,571	220	$4,953,929	1,540	**$34,677,500**
Storage	106	$1,976,882	1,214	$22,640,892	434	$8,094,026	1,754	**$32,711,800**
Water Rights	0	$0	1,320	$14,491,960	0	$0	1,320	**$14,491,960**
TOTAL COST	**$1,976,882**		**$66,856,423**		**$13,047,955**		**$81,881,260**	

4. 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 of 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.

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

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.

5. Impact Fee Unit Calculation

Currently, the City assigns irrigated acres to new development based on actual irrigated acres when the new development is platted or when a building permit is issued, whichever one comes first. Irrigated acres are the recommended unit for calculating the impact fee. The typical residential PI water use includes irrigated area in park strips and parks in the development.

It is recommended that the City have three components to the impact fee for PI system facilities—source, storage, and water rights. Each component is discussed separately in the following paragraphs. The major distribution pipelines are sized closely proportionate to the source and storage projects so are included in the source and storage units.

Source Impact Fee Unit

The proposed level of service for source in the PI system is 7.5 gpm per irrigated acre. The total demand by the year 2032 at the proposed level of service is 3,940 irrigated acres. The existing PI source demand for the system is 2,620 irrigated acres. Subtracting the existing demand of 2,620 irrigated acres from the total demand in 2032 of 3,940 irrigated acres leaves an additional demand of **1,320 irrigated acres needed by 2032** (see Table 5).

TABLE 5
SOURCE NEEDED BY 2032

	Irrigated Acres	gpm
Predicted Demand in 2032 at the Proposed Level of Service	3,940	29,550
Existing Demand at the Proposed Level of Service	2,620	19,650
Additional Demand Capacity needed by 2032	**1,320**	**9,900**

The PI system has an existing source capacity of 2,373 irrigated acres. In addition, 467 irrigated acres are still being irrigated by the excess source capacity in the drinking water system. The system is master planned to be an independent system but is currently supplemented by excess capacity in the drinking water system for older areas that do not have PI source water available yet. Adding the 467 irrigated acres of capacity from the drinking water system to the 2,373 irrigated acres of existing capacity in the PI system is a total capacity of 2,840 irrigated acres. Subtracting the existing demand of 2,620 irrigated acres from the existing capacity of 2,840 irrigated acres leaves an excess capacity of 220 irrigated acres (see Table 6).

TABLE 6
SOURCE EXCESS CAPACITY

	Irrigated Acres	gpm
Existing Source Capacity	2,840	21,300
Existing Demand at the Proposed Level of Service	2,620	19,650
Excess Capacity	**220**	**1,650**

The current source demand plus the additional demand through 2032 leaves **1,100 irrigated acres of source capacity needed by 2032 for new growth (see Table 7)**.

TABLE 7
SOURCE CAPACITY TO BE BUILT FOR NEW GROWTH

	Irrigated Acres	gpm
Additional Demand Capacity needed by 2032	1,320	9,900
Excess Capacity	220	1,650
Capacity to be built by 2032 for new growth	**1,100**	**8,250**

The Impact Fee Facilities for the upcoming 10 years in Table 3 are planned to add 1,540 irrigated acres of source capacity to the PI system by 2032. As shown in Table 4, this leaves 220 irrigated acres capacity for growth beyond 10 years. Also shown in Table 4, the total anticipated cost for source projects over the next ten years is $29,723,571. Dividing the cost by the increase in irrigated acres of 1,320 results in a **proposed impact fee per irrigated acre of $22,518 or $5,404 per ERC** (see Table 8).

TABLE 8
PROPOSED SOURCE IMPACT FEE

	Irrigated Acres	Typical Residential Connection
Total Cost of Source Capacity Projects over next ten years	$29,723,571	$29,723,571
Anticipated Growth over next ten years	1,320	5,500
Proposed Source Impact Fee	**$22,518**	**$5,404**

Storage Impact Fee Unit

The proposed level of service for storage in the PI system is 9,216 gallons per irrigated acre (see Section 1). The total demand by the year 2032 at the proposed level of service of 9,216 is 3,940 irrigated acres. The existing PI storage demand for the system is 2,620 irrigated acres. Subtracting the existing demand of 2,620 irrigated acres from the total demand in 2032 of 3,940 irrigated acres leaves an additional demand of **1,320 irrigated acres needed by 2032** (see Table 9).

TABLE 9
STORAGE NEEDED BY 2032

	Irrigated Acres	Acre-Feet
Predicted Demand in 2032 at the Proposed Level of Service	3,940	111.4
Existing Demand at the Proposed Level of Service	2,620	74.1
Additional Demand Capacity needed by 2032	**1,320**	**37.3**

The PI system has an existing storage capacity of 2,726 irrigated acres. Subtracting the existing demand of 2,620 irrigated acres from the existing capacity of 2,726 irrigated acres leaves an excess capacity of **106 irrigated acres available for new development** (see Table 10).

TABLE 10
STORAGE EXCESS CAPACITY

	Irrigated Acres	Acre-Feet
Existing Storage Capacity	2,726	77.1
Existing Demand at the Proposed Level of Service	2,620	74.1
Excess Capacity	**106**	**3.0**

Subtracting the excess storage capacity of 106 irrigated acres from the additional demand needed by 2032 of 1,320 irrigated acres leaves **1,214 irrigated acres or 34.3 acre-feet needing to be constructed by 2032** (see Table 11).

TABLE 11
STORAGE CAPACITY TO BE BUILT FOR NEW GROWTH

	Irrigated Acres	Acre-Feet
Additional Demand Capacity needed by 2032	1,320	37.3
Excess Capacity	106	3.0
Capacity to be built by 2032 for new growth	**1,214**	**34.3**

The Impact Fee Facilities for upcoming 10 years in the Table 3 are planned to add 1,754 irrigated acres of storage capacity to the PI system by 2032. As shown in Table 4, this leaves 434 irrigated acres capacity for growth beyond 10 years. Table 4 also includes the total anticipated cost for storage projects over the next ten years of $26,617,774, which includes the impact fee eligible cost of existing facilities. Dividing the cost by the increase in irrigated acres of 1,320 results in a **proposed impact fee per irrigated acre is $18,650 or $4,476 per typical residential connection** (see Table 12).

TABLE 12
PROPOSED STORAGE IMPACT FEE

	Irrigated Acres	Typical Residential Connection
Total Cost of Storage Capacity Projects over next ten years	$24,617,774	$24,617,774
Anticipated Growth over next ten years	1,320	5,500
Proposed Storage Impact Fee	**$18,650**	**$4,476**

Water Right Impact Fee Unit

The proposed level of service for water rights is 3.13 acre-feet per irrigated acre. The total demand by the year 2032 at the proposed level of service is 12,332 acre-feet. The existing PI water right demand for the system is 8,201 acre-feet. Subtracting the existing demand of 8,201 acre-feet from the total demand at 2032 of 12,332 acre-feet leaves an additional demand of **4,131 acre-feet needed by 2032 (**see Table 13).

TABLE 13
WATER RIGHTS NEEDED BY 2032

	Irrigated Acres	Diversion Acre-Feet
Predicted Demand in 2032 at the Proposed Level of Service	3,940	12,332
Existing Demand at the Proposed Level of Service	2,620	8,201
Additional Demand Capacity needed by 2032	**1,320**	**4,131**

The City owns a total of 8,761 acre-feet of water rights attributed to the PI system. Subtracting the existing demand of 8,201 acre-feet from the 8,761 acre-feet of total water rights owned leaves **560 acre-feet (**see Table 14).

TABLE 14
WATER RIGHTS EXCESS CAPACITY

	Irrigated Acres	Acre-Feet
Water Rights Owned	2,799	8,761
Existing Demand at the Proposed Level of Service	2,620	8,201
Excess Capacity	**179**	**560**

Subtracting the excess water rights capacity of 560 acre-feet from the additional demand needed by 2032 of 4,131 acre-feet leaves **3,571 acre-feet of water rights needing to be purchased by 2032** (see Table 15). The average price the City has paid for water rights in the last 5 years has been about $3,514 per acre-foot of water rights. This would provide a price of **$10,979 per irrigated acre or $2,635 per typical residential connection.**

TABLE 15
WATER RIGHTS TO BE PURCHASED

	Irrigated Acres	Acre-Feet
Additional Demand Capacity needed by 2032	1,320	4,131
Excess Capacity	179	560
Total to be purchased by 2032	**1,141**	**3,571**

It is recommended that the City accept the water right impact fee in one of three ways: Payment of $10,979 per irrigated acre for water rights the City has available for new development, use of PI water right credit, or Deed the City a water right approved by the City Attorney.

6. Impact Fee Summary

Adding the proposed PI system impact fee units together, the total proposed impact fee would be $52,147 per irrigated acre. A typical single-family residential connection requiring 0.24 irrigated acres would have an impact fee of **$12,516** (see Table 16). This includes $5,404 for source capacity, $4,476 for storage capacity, and $2,635 for water rights.

TABLE 16
TOTAL PROPOSED IMPACT FEE PER IRRIGATED ACRE AND TYPICAL SINGLE FAMILY CONNECTION

	Per Irrigated Acre	Per Typical Residential Connection
Source	$22,518	$5,404
Storage	$18,650	$4,476
Water Rights	$10,979	$2,635
Total	**$52,147**	**$12,516**

APPENDIX A

Existing Facilities Cost

PRESSURIZED IRRIGATION SYSTEM COST

1 Zone 2 Pond Expansion

Storage	Pond 8	$2,599,013		17 Acre-ft Pond	$2,599,013
Source	16" Transmission Line	$2,599,013		Transmission Line	$2,599,013
TOTAL		**$5,198,026**		Total	$5,198,026

Note 12 – Long-term Debt - Continued

A. Special Assessment Bonds - Continued

Year Ending June 30	Principal	Interest	Total Debt Service
2017	124,000	78,396	202,396
2018	126,000	75,919	201,919
2019	127,000	72,997	199,997
2020	130,000	57,242	187,242
2021	133,000	55,037	363,321
2022-2026	724,000	230,321	830,882
2027-2029	473,000	106,882	1,149,794
	$ 1,837,000	$ 676,794	$ 3,135,551

B. Revenue Bonds

The government has issued bonds where the government pledged revenues derived from the operation of the utility system to pay the outstanding debt service. Revenue bonds are the obligations of the enterprise funds and the amounts outstanding at year end are as follows:

2014 Water Revenue Bonds

On October 22, 2014, the City issued $9,995,000 in Series 2014 Water Revenue Bonds with a maturity date of December 1, 2033 with an average coupon rate of 3.051%. The bonds were issued to (1) finance the costs associated with acquiring, constructing, and equipping portions of the City's culinary water system, (2) refund the Series 2005, 2006, and 2009 Water Revenue Bonds, and (3) finance the cost of issuance of the Series 2014 Bonds. Each principal payment is subject to prepayment and redemption at any time, in whole or in part, in inverse order, at the election of the City. The redemption price is equal to 100% of the principal amount to be prepaid or redeemed, plus accrued interest, if any, to the date of redemption. The City has pledged all water utility net revenues to pay the debt service costs through maturity in 2033. During the year the net revenue before depreciation was $2,146,220 and the debt service requirement was $692,425.

Year Ending June 30	Principal	Interest	Total Debt Service
2017	430,000	263,925	693,925
2018	435,000	255,275	690,275
2019	445,000	246,475	691,475
2020	455,000	237,475	692,475
2021	465,000	228,275	693,275
2022-2026	2,490,000	971,176	3,461,176
2027-2031	2,885,000	580,513	3,465,513
2032-2033	1,970,000	105,001	2,075,001
	$ 9,575,000	$ 2,888,115	$ 12,463,115

Note 12 – Long-term Debt - Continued

2011 Sales Tax Revenue Bonds

Sales tax revenue bonds are special limited obligations of the City backed by the portion of sales and use taxes levied by the City under the Local Sales and Use Tax Act. The bonds are obligations of the governmental funds.

On June 1, 2011, the city issued $4,000,000 in Series 2011 Sales Taxes Revenue Bonds at interest rates ranging from 3.0% to 4.125% with a maturity date of June 1, 2031. The bonds were issued to finance the costs associated with acquiring, constructing, renovating, equipping, and furnishing the City's facilities (including a public works facility, fire station, and city well improvements) and to exercise a purchase option under an outstanding financing lease for the City Hall building. Bond proceeds were also used to pay the cost of issuance of the Bonds. The Bonds maturing on or after June 1, 2021 are subject to redemption prior to maturity, in whole or in part, at the option of the City on December 31, 2020 or on any date thereafter, from such maturities or parts thereof as selected by the City. The redemption price will equal 100% of the principal amount to be repaid or redeemed, plus accrued interest, if any, to the date of redemption. The City has pledged all sales tax revenues to pay the debt service costs through maturity in 2031. During the year the sales tax revenue was $3,215,928 and the debt service requirement was $290,800 or 10% of the sales tax revenue. The City has pledges all of its sales tax revenues. Revenue bond debt service requirements to maturity are as follows:

Year Ending June 30	Principal	Interest	Total Debt Service
2017	165,000	125,587	290,587
2018	170,000	120,483	290,483
2019	175,000	113,667	288,667
2020	185,000	106,633	291,633
2021	190,000	99,217	289,217
2022-2026	1,065,000	386,366	1,451,366
2027-2031	1,300,000	158,710	1,458,710
Total	$3,250,000	$1,110,663	$ 4,360,663

C. Note Payable

Culinary Water System

Prior to the City being established in December 1997, a water company had built a water system in the area covered by the City. On February 2, 2005, the city entered into a settlement agreement to purchase the water system and the rights to the unused water capacity. The City's obligation of $21,000,000 is to be serviced by paying two-thirds, presently $2,000, of each connection or impact fee collected. By agreement, the obligation bears no interest. If the City has not paid the full obligation by February 2, 2025, then the remaining, unpaid balance becomes due at that date. The note is an obligation of the water enterprise fund. Based on the projection of 525 connections annually, the remaining obligation is expected to be retired as follows:

1. Purpose of the Bond Issue

The City's $9,710,000 Series 2016 Water Revenue Bonds are for the purpose of (i) financing the acquisition and construction of improvements to the System and (ii) paying costs of issuance of the Series 2016 Bonds.

2. Security for the Bond Issue

The Series 2016 Bonds are limited obligations of the City, payable solely from the Revenues of the System after Payment of Operation and Maintenance Expenses, as described herein. The lien of the Series 2016 Bonds on a portion of the connection fees that are part of Revenues is subordinate to the lien on such Revenues securing the hereinafter described Settlement Obligation. The Series 2016 Bonds are not general obligations of the City or the State or any agency, instrumentality, or political subdivision thereof. The issuance of the Series 2016 Bonds shall not directly, indirectly, or contingently obligate the City or the State or any agency, instrumentality, or political subdivision thereof to levy any form of taxation therefor or to make any appropriation for the payment of the Series 2016 Bonds. The City will not mortgage or grant a security interest in the System or any portion thereof to secure payment of the Series 2016 Bonds.

3. Sources and Uses of Funds

Sources:	
Par Amount of Bonds	$9,710,000.00
Reoffering Premium	581,450.35
Total Sources	$10,291,450.35
Uses:	
Deposit to Project Construction Fund	$10,000,000.00
Total Underwriter's Discount (1.519%)	147,484.46
Costs of Issuance	105,000.00
Gross Bond Insurance Premium (27.0 bp)	36,436.80
Rounding Amount	2,529.09
Total Uses	$10,291,450.35

4. Structure of the Bond Issue

The Series 2016 Bonds are fixed-rate bonds structured to produce roughly level debt service payments. Principal payments are due each December 1 beginning December 1, 2017 and interest is due semi-annually on June 1 and December 1 of each year beginning June 1, 2017. The final maturity for the Series 2016 Bonds will be December 1, 2036.

Saratoga Springs, Utah
$9,710,000 Water Revenue Bonds
Series 2016
(Final Numbers)

Debt Service Schedule

Date	Principal	Coupon	Interest	Total P+I	Fiscal Total
11/22/2016	-	-	-	-	-
06/01/2017	-	-	166,110.00	166,110.00	166,110.00
12/01/2017	155,000.00	2.000%	158,200.00	313,200.00	-
06/01/2018	-	-	156,650.00	156,650.00	469,850.00
12/01/2018	240,000.00	2.000%	156,650.00	396,650.00	-
06/01/2019	-	-	154,250.00	154,250.00	550,900.00
12/01/2019	380,000.00	2.000%	154,250.00	534,250.00	-
06/01/2020	-	-	150,450.00	150,450.00	684,700.00
12/01/2020	385,000.00	2.000%	150,450.00	535,450.00	-
06/01/2021	-	-	146,600.00	146,600.00	682,050.00
12/01/2021	395,000.00	3.000%	146,600.00	541,600.00	-
06/01/2022	-	-	140,675.00	140,675.00	682,275.00
12/01/2022	410,000.00	3.000%	140,675.00	550,675.00	-
06/01/2023	-	-	134,525.00	134,525.00	685,200.00
12/01/2023	425,000.00	5.000%	134,525.00	559,525.00	-
06/01/2024	-	-	123,900.00	123,900.00	683,425.00
12/01/2024	445,000.00	5.000%	123,900.00	568,900.00	-
06/01/2025	-	-	112,775.00	112,775.00	681,675.00
12/01/2025	470,000.00	5.000%	112,775.00	582,775.00	-
06/01/2026	-	-	101,025.00	101,025.00	683,800.00
12/01/2026	495,000.00	5.000%	101,025.00	596,025.00	-
06/01/2027	-	-	88,650.00	88,650.00	684,675.00
12/01/2027	515,000.00	3.000%	88,650.00	603,650.00	-
06/01/2028	-	-	80,925.00	80,925.00	684,575.00
12/01/2028	530,000.00	3.000%	80,925.00	610,925.00	-
06/01/2029	-	-	72,975.00	72,975.00	683,900.00
12/01/2029	545,000.00	3.000%	72,975.00	617,975.00	-
06/01/2030	-	-	64,800.00	64,800.00	682,775.00
12/01/2030	565,000.00	3.000%	64,800.00	629,800.00	-
06/01/2031	-	-	56,325.00	56,325.00	686,125.00
12/01/2031	580,000.00	3.000%	56,325.00	636,325.00	-
06/01/2032	-	-	47,625.00	47,625.00	683,950.00
12/01/2032	595,000.00	3.000%	47,625.00	642,625.00	-
06/01/2033	-	-	38,700.00	38,700.00	681,325.00
12/01/2033	615,000.00	3.000%	38,700.00	653,700.00	-
06/01/2034	-	-	29,475.00	29,475.00	683,175.00
12/01/2034	635,000.00	3.000%	29,475.00	664,475.00	-
06/01/2035	-	-	19,950.00	19,950.00	684,425.00
12/01/2035	655,000.00	3.000%	19,950.00	674,950.00	-
06/01/2036	-	-	10,125.00	10,125.00	685,075.00
12/01/2036	675,000.00	3.000%	10,125.00	685,125.00	-
06/01/2037	-	-	-	-	685,125.00
Total	$9,710,000.00	-	$3,785,110.00	$13,495,110.00	-

Yield Statistics

Bond Year Dollars	$116,777.75
Average Life	12.027 Years
Average Coupon	3.2412938%
Net Interest Cost (NIC)	2.8696769%
True Interest Cost (TIC)	2.8036045%
Bond Yield for Arbitrage Purposes	2.67717134%
All Inclusive Cost (AIC)	2.9492157%
IRS Form 8038	
Net Interest Cost	2.6419092%
Weighted Average Maturity	11.783 Years

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ZIONS ZPFI PUBLIC FINANCE, INC.

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APPENDIX B

Cost Estimates

CITY OF SARATOGA SPRINGS
IRRIGATION WATER - COST OPINIONS
2022-2031

ID# SW01

ZONE 2 NORTH - WILDFLOWER
UPSIZE 2,000 LF 6-INCH TO 8-INCH PIPELINE
Preliminary Opinion of Probable Cost

ITEM	DESCRIPTION	UNIT	QUANTITY		UNIT COST		TOTAL COST
1	Mobilization/Demobilization	LS	10%	$	350,000	$	35,000
2	Construction Surveying	LS	2%	$	350,000	$	7,000
3	SWPPP	LS	3%	$	350,000	$	11,000
4	Relocate existing utilities	LS	1	$	112,500	$	112,500
5	30-inch Jack & Bore casing installation	LF	140	$	575	$	80,500
6	8-inch HDPE Pipe installed in casing	LF	120	$	150	$	18,000
7	Upsize 6" to 8" PVC Pipeline	LF	2,000	$	21	$	42,000
8	Fittings & valves	LS	1	$	20,000	$	20,000
9	Pipeline connections	EA	2	$	20,000	$	40,000
10	Flushing, disinfecting, pressure testing	LS	1	$	10,000	$	10,000
					Sub-Total Construction	$	376,000
					Contingency and Unknowns: 10%	$	37,600
					TOTAL CONSTRUCTION	$	413,600
					Engineering Design and Construction Services 10%	$	41,400
					Preliminary Opinion of Probable Cost	**$**	**455,000**

SW02

ZONE 1 - WILLOW PARK
WELL #8 EQUIPPING, 2,150 LF 12-INCH PIPELINE
Preliminary Opinion of Probable Cost

ITEM	DESCRIPTION	UNIT	QUANTITY		UNIT COST		TOTAL COST
1	Mobilization/Demobilization	%	10%	$	3,430,000	$	343,000
2	Construction Surveying	LS	2%	$	3,430,000	$	69,000
3	SWPPP	LS	3%	$	3,430,000	$	103,000
4	Pump House Structure	LS	1	$	150,000	$	150,000
5	Generator Screening Walls & Concrete Pad	LS	1	$	20,000	$	20,000
6	Pump, shaft and motor	LS	1	$	200,000	$	200,000
7	Pump Station Piping & Valving System	LS	1	$	125,000	$	125,000
8	15-in RCP Pump-to-Waste Pipeline	LF	500	$	165	$	82,500
9	12-in yard piping and connections to existing	LF	1	$	60,000	$	60,000
10	Site Improvements	LS	1	$	100,000	$	100,000
11	Landscaping	LS	11,000	$	5	$	55,000
12	Fencing	LF	600	$	60	$	36,000
13	Extend Electric Power Supply to Well Site	LS	1	$	75,000	$	75,000
14	Electrical Systems	LS	1	$	150,000	$	150,000
15	HVAC System	LS	1	$	50,000	$	50,000
16	Control Panel, SCADA Programming	LS	1	$	40,000	$	40,000
17	Instrumentation	LS	1	$	50,000	$	50,000
18	Generator and transfer switch	LS	1	$	125,000	$	125,000
19	12-inch PVC Pipeline	LF	2,150	$	247	$	531,050
22	Valves and fitting	LS	1	$	40,000	$	40,000
23	Flushing, disinfecting, pressure testing	LS	1	$	15,000	$	15,000
24	Connections to existing pipelines	EA	2	$	10,000	$	20,000
25	Pipeline easment	ACRES	1.9	$	125,000	$	241,047
26	Land Acquisition	ACRES	0.5	$	250,000	$	125,000
					Sub-Total Construction	$	2,805,600
					Contingency and Unknowns: 10%	$	280,600
					TOTAL CONSTRUCTION	$	3,086,200
					Engineering Design and Construction Services 10%	$	308,700
					Preliminary Opinion of Probable Cost	**$**	**3,394,900**

SW03

ZONE 1 - NORTHSHORE
WELL #7 EQUIPPING
Preliminary Opinion of Probable Cost

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
1	Mobilization/Demobilization	%	10%	$ 1,580,000	$ 158,000
2	Construction Surveying	LS	2%	$ 1,580,000	$ 32,000
3	SWPPP	LS	3%	$ 1,580,000	$ 48,000
4	Pump House Structure	LS	1	$ 150,000	$ 150,000
5	Generator Screening Walls & Concrete Pad	LS	1	$ 20,000	$ 20,000
6	Pump, shaft and motor	LS	1	$ 200,000	$ 200,000
7	Pump Station Piping & Valving System	LS	1	$ 140,000	$ 140,000
8	15-in RCP Pump-to-Waste Pipeline	LF	500	$ 165	$ 82,500
9	12-in yard piping and connections to existing	LF	1	$ 60,000	$ 60,000
10	Site Improvements	LS	1	$ 100,000	$ 100,000
11	Landscaping	LS	11000	$ 5	$ 55,000
12	Off site piping	LS	1	$ 250,000	$ 250,000
13	Extend Electric Power Supply to Well Site	LS	1	$ 100,000	$ 100,000
14	Electrical Systems	LS	1	$ 150,000	$ 150,000
15	HVAC System	LS	1	$ 50,000	$ 50,000
16	Control Panel, SCADA Programming	LS	1	$ 40,000	$ 40,000
17	Instrumentation	LS	1	$ 50,000	$ 50,000
18	Generator and transfer switch	LS	1	$ 125,000	$ 125,000
				Sub-Total Construction	$ 1,810,500
				Contingency and Unknowns: 10%	$ 181,100
				TOTAL CONSTRUCTION	$ 1,991,600
				Engineering Design and Construction Services 10%	$ 199,200
				Preliminary Opinion of Probable Cost	**$ 2,190,800**

SW04

ZONE 1 - NORTHSHORE
4,000 LF 16-INCH PIPELINE, 3,000 LF 10-INCH PIPELINE
Preliminary Opinion of Probable Cost

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
1	Mobilization/Demobilization	%	10%	$ 1,970,000	$ 197,000
2	Construction Surveying	LS	2%	$ 1,970,000	$ 40,000
3	SWPPP	LS	3%	$ 1,970,000	$ 60,000
4	Connections to existing pipelines	EA	2	$ 10,000	$ 20,000
5	16" PVC Transmission Pipeline	LF	4,000	$ 270	$ 1,080,000
6	10-inch PVC Pipeline	LF	3,000	$ 234	$ 702,000
6	Valves and fittings	LS	1	$ 125,000	$ 125,000
7	Connections to existing pipelines	EA	4	$ 10,000	$ 40,000
				Sub-Total Construction	$ 2,264,000
				Contingency and Unknowns: 5%	$ 113,200
				TOTAL CONSTRUCTION	$ 2,377,200
				Engineering Design and Construction Services 5%	$ 118,900
				Preliminary Opinion of Probable Cost	**$ 2,496,100**

SW05

ZONE 4 NORTH - WILDFLOWER
1,500 GPM PUMP STATION, 11,500 LF 12-INCH PIPELINE, 2.5 AC-FT POND
Preliminary Opinion of Probable Cost

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
1	Mobilization/Demobilization	%	10%	$ 4,920,000	$ 492,000
2	Construction Surveying	%	2%	$ 4,920,000	$ 99,000
3	SWPPP	%	3%	$ 4,920,000	$ 148,000
4	Materials Testing	LS	1	$ 10,000	$ 10,000
5	Pump Station Structure	LS	1	$ 150,000	$ 150,000
6	Pumps, Valves, and Piping	LS	1	$ 100,000	$ 100,000
7	Yard Piping & Valving	LS	50%	$ 100,000	$ 50,000
8	Electrical Systems	LS	1	$ 150,000	$ 150,000
9	HVAC Systems	LS	1	$ 30,000	$ 30,000
10	Fencing	LF	500	$ 25	$ 12,500
11	Landscaping	SF	8,000	$ 5	$ 40,000
12	Pump Station Site Improvements	LS	1	$ 100,000	$ 100,000
13	12-inch PVC Pipeline	LF	11,500	$ 247.00	$ 2,840,500
14	Connections to existing pipelines	EA	2	$ 10,000	$ 20,000
15	2.5 ac-ft Pond	AC FT	2.5	$ 375,000	$ 937,500
16	Yard Piping & Valving	LS	1	$ 100,000	$ 100,000
17	Land Acquisition	ACRES	1.5	$ 250,000	$ 375,000
				Sub-Total Construction	$ 5,654,500
				Contingency and Unknowns: 10%	$ 565,500
				TOTAL CONSTRUCTION	$ 6,220,000
				Engineering Design and Construction Services 10%	$ 622,000
				Preliminary Opinion of Probable Cost	**$ 6,842,000**

SW06

ZONE 3 NORTH - WILDFLOWER
UPSIZE 4,700 LF 8-INCH TO 12-INCH PIPELINE
Preliminary Opinion of Probable Cost

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
1	Mobilization/Demobilization	%	10%	$ 240,000	$ 24,000
2	Construction Surveying	%	7%	$ 240,000	$ 17,000
3	SWPPP	%	3%	$ 240,000	$ 8,000
4	Upsize 8" to 12" PVC Pipeline	LF	4,700	$ 46.00	$ 216,200
5	Connections to existing pipelines	EA	2	$ 10,000	$ 20,000
				Sub-Total Construction	$ 285,200
				Contingency and Unknowns: 10%	$ 28,600
				TOTAL CONSTRUCTION	$ 313,800
				Engineering Design and Construction Services 10%	$ 31,400
				Preliminary Opinion of Probable Cost	**$ 345,200**

SW07

ZONE 3 NORTH - MT SARATOGA
5.6 AC-FT POND, 1,500 GPM PUMP STATION, 1,500 LF 16-INCH PIPELINE
UPSIZE 3,100 LF 8-INCH TO 12-INCH PIPELINE
UPSIZE 1,800 LF 10-INCH TO 12-INCH PIPELINE
Preliminary Opinion of Probable Cost

ITEM	DESCRIPTION	UNIT	QUANTITY		UNIT COST		TOTAL COST
1	Mobilization/Demobilization	%	10%	$	1,520,000	$	152,000
2	Construction Surveying	%	2%	$	1,520,000	$	31,000
3	SWPPP	%	3%	$	1,520,000	$	46,000
4	Materials Testing	LS	1	$	10,000	$	10,000
5	Pump Station Structure	LS	1	$	225,000	$	225,000
6	Pumps, Valves, and Piping	LS	1	$	175,000	$	175,000
7	Yard Piping & Valving	LS	50%	$	175,000	$	88,000
8	Electrical Systems	LS	1	$	200,000	$	200,000
9	HVAC Systems	LS	1	$	75,000	$	75,000
10	Fencing	LF	500	$	25	$	12,500
11	Landscaping	SF	8,000	$	5	$	40,000
12	Pump Station Site Improvements	LS	1	$	100,000	$	100,000
13	16" PVC Transmission Pipeline	LF	1,500	$	270	$	405,000
14	Upsize 8" to 12" PVC Transmission Pipeline	LF	3,100	$	46	$	142,600
15	Upsize 10" to 12" PVC Transmission Pipeline	LF	1,800	$	13	$	23,400
16	16" valves and connections to existing	EA	2	$	10,000	$	20,000
17	5.6 ac-ft Pond	AC FT	5.6	$	375,000	$	2,100,000
18	Yard Piping & Valving	LS	1	$	100,000	$	100,000
19	Land Acquisition	ACRES	3.8	$	250,000	$	950,000
					Sub-Total Construction	$	4,895,500
					Contingency and Unknowns: 10%	$	489,600
					TOTAL CONSTRUCTION	$	5,385,100
					Engineering Design and Construction Services 10%	$	538,600
					Preliminary Opinion of Probable Cost	**$**	**5,923,700**

SW08

ZONE 2 NORTH - MT SARATOGA
6 AC-FT POND, 1,500 LF 16-INCH PIPELINE, LAND FOR 11 AC-FT POND
Preliminary Opinion of Probable Cost

ITEM	DESCRIPTION	UNIT	QUANTITY		UNIT COST		TOTAL COST
1	Mobilization/Demobilization	%	10%	$	3,530,000	$	353,000
2	Construction Surveying	%	2%	$	3,530,000	$	71,000
3	SWPPP	%	3%	$	3,530,000	$	106,000
4	16-in PVC Pipeline	LF	1500	$	270	$	405,000
5	Connections to existing pipelines	EA	2	$	10,000	$	20,000
6	6 ac-ft Pond	AC FT	6.0	$	375,000	$	2,250,000
7	Yard Piping & Valving	LS	1	$	100,000	$	100,000
8	Land Acquisition	ACRES	3.0	$	250,000	$	750,000
					Sub-Total Construction	$	4,055,000
					Contingency and Unknowns: 10%	$	405,500
					TOTAL CONSTRUCTION	$	4,460,500
					Engineering Design and Construction Services 10%	$	446,100
					Preliminary Opinion of Probable Cost	**$**	**4,906,600**

SW09

ZONE 1 - PIONEER CROSSING
1,600 LF 16-INCH PIPELINE
Preliminary Opinion of Probable Cost

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
1	Mobilization/Demobilization	%	10%	$ 470,000	$ 47,000
2	Construction Surveying	%	2%	$ 470,000	$ 10,000
3	SWPPP	%	3%	$ 470,000	$ 15,000
4	16-inch PVC Pipeline	LF	1,600	$ 270	$ 432,000
5	Connections to existing pipelines	EA	2	$ 15,000	$ 30,000
				Sub-Total Construction	$ 534,000
				Contingency and Unknowns: 10%	$ 53,400
				TOTAL CONSTRUCTION	$ 587,400
				Engineering Design and Construction Services 10%	$ 58,800
				Preliminary Opinion of Probable Cost	**$ 646,200**

SW10

ZONE 1 - SLR
8 AC-FT POND #5, 9,500 LF 24-INCH PIPELINE, 3,800 LF 18-INCH PIPELINE, 3,200 LF 16-INCH PIPELINE, LAND FOR 21 AC-FT POND
Preliminary Opinion of Probable Cost

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
1	Mobilization/Demobilization	%	10%	$ 8,420,000	$ 842,000
2	Construction Surveying	%	2%	$ 8,420,000	$ 169,000
3	SWPPP	%	3%	$ 8,420,000	$ 253,000
4	24-in PVC Pipeline	LF	9500	$ 365	$ 3,467,500
5	18-in PVC Pipeline	LF	3800	$ 287	$ 1,090,600
6	16-in PVC Pipeline	LF	3200	$ 270	$ 864,000
7	Connections to existing pipelines	EA	2	$ 10,000	$ 20,000
8	8 ac-ft Pond	AC FT	8.0	$ 250,000	$ 2,000,000
9	Yard Piping & Valving	LS	1	$ 100,000	$ 100,000
10	Land Acquisition	ACRES	3.5	$ 250,000	$ 875,000
				Sub-Total Construction	$ 9,681,100
				Contingency and Unknowns: 10%	$ 968,200
				TOTAL CONSTRUCTION	$ 10,649,300
				Engineering Design and Construction Services 10%	$ 1,065,000
				Preliminary Opinion of Probable Cost	**$ 11,714,300**

SW11

ZONE 1 - EVANS LANE
POND 8 EXPANSION
Preliminary Opinion of Probable Cost

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
1	Mobilization/Demobilization	%	10%	$ 4,880,000	$ 488,000
2	Construction Surveying	%	2%	$ 4,880,000	$ 98,000
3	SWPPP	%	3%	$ 4,880,000	$ 147,000
4	Pond Expansion from 16.7 ac-ft to 29 ac-ft	AC FT	13	$ 375,000	$ 4,875,000
				Sub-Total Construction	$ 5,608,000
				Contingency and Unknowns: 10%	$ 560,800
				TOTAL CONSTRUCTION	$ 6,168,800
				Engineering Design and Construction Services 10%	$ 616,900
				Preliminary Opinion of Probable Cost	**$ 6,785,700**

SW12

ZONE 1 - TICKVILLE
3,500 GPM PUMP STATION, 10 AC-FT POND
Preliminary Opinion of Probable Cost

ITEM	DESCRIPTION	UNIT	QUANTITY		UNIT COST		TOTAL COST
1	Mobilization/Demobilization	%	10%	$	4,960,000	$	496,000
2	Construction Surveying	%	2%	$	4,960,000	$	100,000
3	SWPPP	%	3%	$	4,960,000	$	149,000
4	Materials Testing	LS	1	$	20,000	$	20,000
5	Pump Station Structure	LS	1	$	425,000	$	425,000
6	Pumps Complete	LS	1	$	200,000	$	200,000
7	Amiad Filters Complete	LS	1	$	175,000	$	175,000
8	Pump Station Piping System Complete	LS	50%	$	250,000	$	125,000
9	Electrical and HVAC System Complete	LS	1	$	300,000	$	300,000
10	Pump Station Site Improvement & Pond Access Road	LS	1	$	60,000	$	60,000
11	Fencing	LF	500	$	25	$	12,500
12	Landscaping	SF	8,000	$	5	$	40,000
13	10 ac-ft Pond	AC FT	10.0	$	250,000	$	2,500,000
14	Yard Piping & Valving	LS	1	$	100,000	$	100,000
15	Land Acquisition	ACRES	4.0	$	250,000	$	1,000,000
					Sub-Total Construction	$	5,702,500
					Contingency and Unknowns: 10%	$	570,300
					TOTAL CONSTRUCTION	$	6,272,800
					Engineering Design and Construction Services 10%	$	627,300
					Preliminary Opinion of Probable Cost	**$**	**6,900,100**

SW13

ZONE 2 SOUTH - JACOBS RANCH
NEW JACOBS RANCH WELL (WELL #9)
Preliminary Opinion of Probable Cost

ITEM	DESCRIPTION	UNIT	QUANTITY		UNIT COST		TOTAL COST
1	Mobilization/Demobilization	%	10%	$	1,770,000	$	177,000
2	Construction Surveying	%	2%	$	1,770,000	$	36,000
3	SWPPP	%	3%	$	1,770,000	$	54,000
4	Exploratory borehole (800 feet deep)	LS	1	$	200,000	$	200,000
5	Drill production well (800 feet deep, 20-inch casing)	LS	1	$	300,000	$	300,000
6	Develop production well	LS	1	$	85,000	$	85,000
7	Pump test production well	LS	1	$	100,000	$	100,000
8	Pump House Structure	LS	1	$	100,000	$	100,000
9	Generator Screening Walls & Concrete Pad	LS	1	$	20,000	$	20,000
10	Pump, shaft and motor	LS	1	$	165,000	$	165,000
11	Pump Station Piping & Valving System	LS	1	$	125,000	$	125,000
12	Site Improvements	LS	1	$	100,000	$	100,000
13	Landscaping	LS	1	$	30,000	$	30,000
14	Fencing	LF	800	$	120	$	96,000
15	Extend Electric Power Supply to Well Site	LS	1	$	20,000	$	20,000
16	Electrical Systems	LS	1	$	135,000	$	135,000
17	HVAC System	LS	1	$	35,000	$	35,000
18	Control Panel, SCADA Programming	LS	1	$	35,000	$	35,000
19	Instrumentation	LS	1	$	15,000	$	15,000
20	Generator and transfer switch	LS	1	$	125,000	$	125,000
21	Land Acquisition	ACRES	0.5	$	150,000	$	75,000
					Sub-Total Construction	$	2,028,000
					Contingency and Unknowns: 12%	$	243,400
					TOTAL CONSTRUCTION	$	2,271,400
					Engineering Design and Construction Services 10%	$	227,200
					Preliminary Opinion of Probable Cost	**$**	**2,498,600**

SW14

ZONE 2 SOUTH - LAKE MTN
10 AC-FT POND, 2,200 LF 12-INCH PIPELINE
Preliminary Opinion of Probable Cost

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
1	Mobilization/Demobilization	%	10%	$ 2,450,000	$ 245,000
2	Construction Surveying	%	2%	$ 2,450,000	$ 49,000
3	SWPPP	%	3%	$ 2,450,000	$ 73,500
4	Materials Testing	LS	1	$ 10,000	$ 10,000
5	Clear and Grub Site & stockpile topsoil	ACRES	10.81	$ 5,000	$ 54,050
6	Pond Excavation & Material Disposal	CY	16300	$ 9	$ 146,700
7	Embankment placement, compaction & final grading	LS	9000	$ 20	$ 180,000
8	18" site piping, inlet, outlet, across pond	LF	320	$ 150	$ 48,000
9	Reinforced Concrete Floor, SS, & Ramp	SY	5,600	$ 75	$ 420,000
10	Underdrain system	LS	1	$ 80,000	$ 80,000
11	Pond inlet/outlet/control valves 18"	EA	3	$ 6,000	$ 18,000
12	Pond Outlet Structure	LS	1	$ 32,000	$ 32,000
13	Flow Meter Vault Complete	LS	1	$ 25,000	$ 25,000
14	Black Vinyl Chain Link Fence	LF	1,300	$ 40	$ 52,000
15	SCADA (Solar Panels)	LS	1	$ 20,000	$ 20,000
16	Topsoil/surface restoration	ACRES	5.19	$ 6,000	$ 31,140
17	Landscaping around pond only	SF	65,000	$ 2.50	$ 162,500
18	12-in PVC Pipeline	LF	2200	$ 247.00	$ 543,400
19	Connections to existing pipelines	EA	2	$ 10,000	$ 20,000
20	Land Acquisition	ACRES	4	$ 150,000	$ 600,000
				Sub-Total Construction	$ 2,810,300
				Contingency and Unknowns: 10%	$ 281,100
				TOTAL CONSTRUCTION	$ 3,091,400
				Engineering Design and Construction Services 10%	$ 309,200
				Preliminary Opinion of Probable Cost	**$ 3,400,600**

SW15

ZONE 1 - LAKE MOUNTAIN
INCREASE MARINA PUMP STATION TO 7,750 GPM, 5.5 AC-FT POND, 4,500 LF 30-INCH PIPELINE, 4,500 LF 18-INCH PIPELINE,
Preliminary Opinion of Probable Cost

ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
1	Mobilization/Demobilization	%	10%	$ 6,060,000	$ 606,000
2	Construction Surveying	%	2%	$ 6,060,000	$ 122,000
3	SWPPP	%	3%	$ 6,060,000	$ 182,000
4	Materials Testing	LS	1	$ 10,000	$ 10,000
5	Replace All 6 Pumps	EA	6	$ 70,000	$ 420,000
6	Electrical Motor Starters (VFDs for 4 Pumps)	EA	4	$ 100,000	$ 400,000
7	Soft Start Motor Controller for 2 Pumps	EA	2	$ 75,000	$ 150,000
8	Surge Tank	EA	1	$ 150,000	$ 150,000
9	Amiad Filters Complete	LS	1	$ 250,000	$ 250,000
10	30-inch PVC Pipeline	LF	4,500	$ 438.00	$ 1,971,000
11	18-inch PVC Pipeline	LF	4,500	$ 287.00	$ 1,291,500
12	Connections to existing pipelines	EA	4	$ 10,000	$ 40,000
13	5.5 ac-ft Pond	AC FT	5.5	$ 250,000	$ 1,375,000
				Sub-Total Construction	$ 6,967,500
				Contingency and Unknowns: 10%	$ 696,800
				TOTAL CONSTRUCTION	$ 7,664,300
				Engineering Design and Construction Services 10%	$ 766,500
				Preliminary Opinion of Probable Cost	**$ 8,430,800**

APPENDIX C

Growth Projections Memo

ZIONS PUBLIC FINANCE, INC.

GROWTH PROJECTIONS MEMORANDUM

Historic Growth

Saratoga Springs has been experiencing extremely rapid growth over the past 20 years, growing by an average of 429 Equivalent Residential Units (ERUs) per year since 2000. Growth has been even more rapid in recent years, with an average increase of 551 ERUs since 2015. In 2019, the City increased by 642 ERUs; and in the first half of 2020 alone the City has seen 550 ERUs. Interestingly, there has been no discernible slowdown yet from COVID-19.

TABLE 1: HISTORIC GROWTH IN ERUS

Year	Historic ERUs	AAGR*	ERU Increase per Year
7/1/2000	235		
7/1/2001	582	148%	347
7/1/2002	896	54%	315
7/1/2003	1,223	36%	326
7/1/2004	1,655	35%	432
7/1/2005	2,109	27%	454
7/1/2006	2,656	26%	548
7/1/2007	3,167	19%	511
7/1/2008	3,938	24%	771
7/1/2009	4,238	8%	301
7/1/2010	4,399	4%	160
7/1/2011	4,569	4%	170
7/1/2012	4,771	4%	202
7/1/2013	5,097	7%	325
7/1/2014	5,630	10%	534
7/1/2015	6,097	8%	467
7/1/2016	6,603	8%	506
7/1/2017	7,150	8%	547
7/1/2018	7,743	8%	593
7/1/2019	8,385	8%	642

*AAGR = average annual growth rate

Projected Growth

Based on trends over the past two years, a sensitivity analysis of future growth has been projected first based on an average of 550 and then 600 ERUs per year. The recommended approach then uses a blend of these two assumptions, plus actual anticipated growth of 650 ERUs in 2020 (based on the record number of permits pulled halfway through 2020). Even though the City has seen increasing numbers of ERUs over the past few years, this model conservatively assumes somewhat smaller growth in 2021 and

2022 (600 ERUs per year) followed by growth of 550 ERUs per year through 2035. While the effects of the COVID-19 pandemic event are not known at this time, the growth projections included in this document reflect our best current estimate of the impact COVID-19 will have on system growth to reflect the expected slowdown in the economy associated with current conditions.

TABLE 2: PROJECTED GROWTH IN ERUS

Projected Growth	550 ERU Growth	600 ERU Growth	Recommended Growth Projections	AAGR, Recommended Growth Projections
7/1/2019	8,385	8,385	8,385	
7/1/2020	8,935	8,985	9,035	8%
7/1/2021	9,485	9,585	9,635	7%
7/1/2022	10,035	10,185	10,235	6%
7/1/2023	10,585	10,785	10,785	5%
7/1/2024	11,135	11,385	11,335	5%
7/1/2025	11,685	11,985	11,885	5%
7/1/2026	12,235	12,585	12,435	5%
7/1/2027	12,785	13,185	12,985	4%
7/1/2028	13,335	13,785	13,535	4%
7/1/2029	13,885	14,385	14,085	4%
7/1/2030	14,435	14,985	14,635	4%
7/1/2031	14,985	15,585	15,185	4%
7/1/2032	15,535	16,185	15,735	4%
7/1/2033	16,085	16,785	16,285	3%
7/1/2034	16,635	17,385	16,835	3%
7/1/2035	17,185	17,985	17,385	3%

Other Considerations

As part of this analysis, we have reviewed the availability of vacant land in Saratoga Springs and have found that there is sufficient land available that there are no constraints to development taking place or that would slow the historic growth experienced in the City.