

**ORDINANCE NO. 17-34 (11-14-17)**

**ORDINANCE AND ENACTMENT AMENDING THE CITY'S  
SECONDARY WATER IMPACT FEE FACILITIES PLAN,  
SECONDARY WATER IMPACT FEE ANALYSIS, AND  
SECONDARY WATER IMPACT FEES IN THE CITY OF  
SARATOGA SPRINGS; AND OTHER RELATED MATTERS**

**WHEREAS**, on May 17, 2017 the City properly noticed its intent to amend its Impact Fee Facilities Plan, Impact Fee Analysis, and Impact Fees for Secondary Water facilities on the Utah Public Notice Website; and

**WHEREAS**, the City held open houses on August 9, 2017 and November 1, 2017 to receive comments from the public, stakeholders, and development community regarding the City's amended Secondary Water impact fees; and

**WHEREAS**, Hansen Allen & Luce has re-assessed the level of Secondary Water facility service that is currently provided to existing residents, the excess capacity in the existing Secondary Water facilities infrastructure that is available to accommodate new growth without diminishing the current level of service provided to existing residents and the elements and cost of additional Secondary Water facilities that will be required to maintain the current level of service as projected growth occurs in the impact fee expenditure period; a copy of the 2017 Amended Secondary Water Impact Fee Facilities Plan, dated October 2017 is attached hereto as Exhibit "A"; and

**WHEREAS**, Hansen Allen & Luce certified its work as compliant with Utah Code § 11-36a-306; and

**WHEREAS**, the City has caused a Secondary Water Facilities Impact Fee Analysis to be prepared by Hansen Allen & Luce; and

**WHEREAS**, Hansen Allen & Luce has identified a maximum Secondary Water Facilities Impact Fee based on the Secondary Water Impact Fee Facilities Plan; a copy of the Secondary Water Impact Fee Facilities Analysis prepared by Hansen Allen & Luce, dated October 2017, is attached hereto as Exhibit "A"; and

**WHEREAS**, the City properly noticed its intent to amend the Secondary Water Impact Fee Facilities Plan and Analysis as well as its intent to hold a public hearing and possibly adopt this Ordinance; and

**WHEREAS**, the City of Saratoga Springs is a fourth class city of the State of Utah, authorized and organized under the provisions of Utah law and is authorized pursuant to the Impact Fee Act, Utah Code § 11-36a-101 *et seq.* to adopt Secondary Water facilities impact fees; and

**WHEREAS**, on November 2, 2017, a full copy of the proposed amended Secondary Water Impact Fee Facilities Plan, the amended Secondary Water Impact Fee Analysis, this Secondary Water Impact Fee Enactment or Ordinance, along with an executive summary of the amended Secondary Water Impact Facilities Plan and Analysis that was prepared in a manner to be understood by a lay person, were made available to the public at the Saratoga Springs public Library, posted on the City’s website, and the Utah Public Notice Website; and

**WHEREAS**, on or before November 3, 2017, the Daily Herald published notice of the date, time, and place of a public hearing to consider the Secondary Water Impact Fee Facilities Plan, Analysis, and Enactment; and

**WHEREAS**, on November 14, 2017, the City Council held a public hearing regarding the proposed and certified Secondary Water Impact Fee Facilities Plan, Secondary Water Impact Fee Analysis, and a draft of this Secondary Water Facilities Impact Fee Ordinance; and

**WHEREAS**, after careful consideration and review of the comments at the public hearing and the comments of the participants, the Council has determined that it is in the best interest of the health, safety, and welfare of the inhabitants of Saratoga Springs to adopt the amended Secondary Water Impact Fee Facilities Plan and Analysis as proposed, and in a manner that is consistent with the Impact Fees Act, enact this Ordinance to amend its current Secondary Water impact fees, provide for the calculation and collection of such fees, authorize a means to consider and accept an independent fee calculation for atypical development requests, provide for an appeal process consistent with the Impact Fees Act, and update its accounting and reporting method.

**NOW THEREFORE, BE IT ORDAINED**, by the City Council of the City of Saratoga Springs, Utah as follows.

**SECTION I – IMPACT FEE FACILITIES PLAN AND ANALYSIS: SECONDARY WATER**

The Secondary Water Impact Fee Facilities Plan and Impact Fee Analysis attached hereto as Exhibit A is hereby adopted.

**SECTION II – ENACTMENT**

The following amendments, which are shown as underlines and strikethroughs, to Chapter 7.03 of the City Code are hereby made:

**Chapter 7.03. Secondary Water Impact Fee.**

**7.03.01**

**7.03.02. Adoption of Impact Fee Facilities Plan and Impact Fee Analysis.**

**~~7.03.0203.~~ Findings and Purpose.**

**~~7.03.0304.~~ Establishment of Secondary Water Service Area.**

**7.03.0405. Adoption and Imposition of Secondary Water Impact Fee.**

**\* \* \* \* \***

**7.03.01. Definitions.**

As used in this Chapter the following terms shall have the meanings herein set out:

1. “City” means the City of Saratoga Springs and its incorporated boundaries.
2. “Development Activity” or “new development” means any construction or expansion of a building, structure, or use, any change in use of a building or structure, or any changes in the use of land that creates additional demand and need for Public Facilities.
3. “Equivalent Residential Connection” or “ERC” means that measure of impact on public facilities equal to the impacts of one typical single-family detached dwelling unit. For Secondary Water, an ERC equals .24 irrigated acres.
4. “Secondary Water Impact Fees” means the Secondary Water Impact Fees adopted and imposed by this Chapter on Development Activity within the City.
5. “Secondary Water Public Facilities” means the following capital facilities that have a life expectancy of ten or more years and are owned or operated by or on behalf of the City as well as water rights for Secondary water owned by or on behalf of the City.
6. “Utah Impact Fees Act” means Utah Code Chapter 11-36a.

(Ord. 14-7; Ord. 11-9; Ord. 05-22)

**7.03.02. Adoption of Impact Fee Facilities Plan.**

The City Council hereby adopts the Impact Fee Facilities Plan and Impact Fee Analysis prepared and certified by Hansen Allen & Luce dated October 2017.

**7.03.0203. Findings and Purpose.**

The City Council hereby finds and determines:

1. There is a need to establish a secondary water facilities impact fee for a single service area to maintain the level of service for secondary water proposed in the Secondary Water Impact Fee Facilities Plan and Analysis.
2. The 2017 Secondary Water Facilities Impact Fee Plan and Analysis identify the:
  - a. projected development activity in the City through 2020~~2026~~,
  - b. level of service for secondary water facilities that serve existing residents;
  - c. excess secondary water facilities capacity that is available to serve new growth in the existing infrastructure;
  - d. proposed level of service for the City, which does not raise the existing level of service for current residents;
  - e. additional capital facilities that are required to maintain the proposed secondary water level of service without burdening existing residents with costs of new development activity; and
  - f. maximum fee justified by the study.

(Ord. 14-7; Ord. 11-9; Ord. 05-22)

**7.03.0304. Establishment of Secondary Water Service Area.**

The City Council hereby approves and establishes the City Wide Secondary Water Service Area for which the Secondary Water Impact Fee herein provided will be imposed.

(Ord. 14-7; Ord. 11-9; Ord. 05-22)

**7.03.0405. Adoption and Imposition of Secondary Water Impact Fees.**

1. A Secondary Water Impact Fee for all new development activity shall be calculated as the sum of three components, as follows:

Type	<u>Per Irrigated Acre*</u>	Per ERC
Source	<u>\$10,902</u>	<u>\$20172,616</u>
Storage	<u>\$9,960</u>	<u>\$14782,390</u>
Water Rights	<u>\$10,018</u>	<u>\$22632404</u>
Planning	<u>\$150</u>	<u>\$2436</u>
Total	<u>\$31,030</u>	<u>\$57827,446</u>

\*Note: the percentage of developed land that is irrigated or irrigable is determined by Chapter 8.01 of the City Code and the 2017 Drinking Water Impact Fee Facilities Plan and Analysis.

2. The City shall accept payment for the Water Rights component of the secondary water impact fee as follows:
  - a. ~~\$2263~~\$10,018 per irrigated acre or \$2,404 per ERC;
  - b. surrender of an equivalent pre-paid water right credit in the City's system; or
  - c. dedication of an equivalent City-approved leased or deeded water right.

(Ord. 14-7; Ord. 11-9; Ord. 05-22)

\* \* \* \* \*

**SECTION III – AMENDMENT OF CONFLICTING ORDINANCES**

If any ordinance, resolution, policy or map of the City heretofore adopted is inconsistent herewith it is hereby amended to comply with the provisions hereof. If it cannot be amended to comply with the provisions hereof, the inconsistent provision is hereby repealed.

**SECTION IV – EFFECTIVE DATE**

This ordinance shall take effect upon publication and 90 days after its passage by a majority vote of the Saratoga Springs City Council.

**SECTION V – SEVERABILITY**

If any section, subsection, sentence, clause, phrase, or portion of this ordinance is, for any reason, held invalid or unconstitutional by any court of competent jurisdiction, such provision shall be deemed a separate, distinct, and independent provision, and such holding shall not affect the validity of the remaining portions of this ordinance.

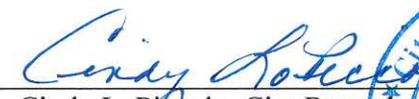
**SECTION VI – PUBLIC NOTICE**

The Saratoga Springs City Recorder is hereby ordered, in accordance with the requirements of Utah Code §§ 10-3-710—711, to:

- a. deposit a copy of this ordinance in the office of the City Recorder; and
- b. publish notice as follows:
  - i. publish a short summary of this ordinance for at least one publication in a newspaper of general circulation in the City; or
  - ii. post a complete copy of this ordinance in three public places within the City.

**ADOPTED AND PASSED** by the City Council of the City of Saratoga Springs, Utah, this 14<sup>th</sup> day of NOVEMBER 2017.

Signed:   
Jim Miller, Mayor

Attest:   
Cindy LoPiccolo, City Recorder



**VOTE**

- Shellie Baertsch
- Chris Porter
- Michael McOmber
- Ryan Poduska
- Stephen Willden

*ay*  
*ay*  
*ay*  
*ay*  
*ay*

**EXHIBIT A**  
**Impact Fee Facilities Plan and Impact Fee Analysis**

AFFP

17159-PUBLIC NOTICE Notice

### Affidavit of Publication

STATE OF UTAH }  
COUNTY OF UTAH } SS

Miranda Hubert, being duly sworn, says:

That she is Legal Billing Clerk of the Daily Herald, a newspaper of general circulation, printed and published in Provo, Utah County, Utah; that the publication, a copy of which is attached hereto, was published in the said newspaper on the following dates:

November 17, 2017

That said newspaper was regularly issued and circulated on those dates. Same was also published online at utahlegals.com, according to Section 45-1-101 - Utah Code Annotated, beginning on the first date of publication, for at least 30 days thereafter and a minimum of 30 days prior to the date of scheduled sale.

SIGNED: Miranda Hubert  
Legal Billing Clerk

Subscribed to and sworn to me this 17th day of November 2017.

Willy Shaw  
Willy Shaw, Notary Public, Utah County, Utah

My commission expires: September 24, 2021

**PUBLIC NOTICE**

Notice is hereby given that the City Council of the City of Saratoga Springs, Utah, at their meeting of November 14th 2017, passed and adopted the following Ordinances:

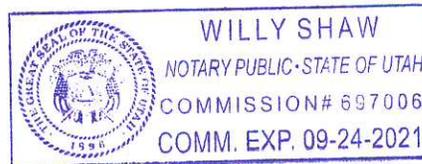
Ordinance no. 17-33 (11-14-17) an ordinance and enactment amending the city's drinking water impact fee facilities plan, drinking water impact fee analysis, and drinking water impact fees in the city of Saratoga Springs; and other related matters  
Ordinance no. 17-34 (11-14-17) an ordinance and enactment amending the city's secondary water impact fee facilities plan, secondary water impact fee analysis, and secondary water impact fees in the city of Saratoga Springs; and other related matters

Ordinance no. 17-35 (11-14-17) an ordinance granting Level 3 Communications, LLC, a Delaware limited liability company, a nonexclusive franchise to operate an internet services network in the city of Saratoga Springs.

Copies of these Ordinances are on file in the office of the City of Saratoga Springs City Recorder and are available for review during City business hours.

/s/ Cindy LoPiccolo, City Recorder

Legal Notice 17159 Published in The Daily Herald November 17, 2017.



00001102 00017159

City of Saratoga Springs - leg  
City of Saratoga Springs - legal  
1307 N. Commerce Dr.  
Saratoga Springs, UT 84045

C I T Y O F



SARATOGA SPRINGS

**SECONDARY WATER  
IMPACT FEE FACILITY PLAN  
AND IMPACT FEE ANALYSIS**

(HAL Project No.: 360.07.400)

**OCTOBER 2017**

**CITY OF SARATOGA SPRINGS**

**SECONDARY WATER  
IMPACT FEE FACILITY PLAN AND IMPACT FEE ANALYSIS**

(HAL Project No.:360.07.400)



**Steven C. Jones, P.E.**

**Project Engineer**



**OCTOBER 2017**

---

## **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. 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.

# TABLE OF CONTENTS

Page No

## IMPACT FEE CERTIFICATION

## IMPACT FEE SUMMARY

### SECTION 1 – INTRODUCTION

1.1 Background.....	1-1
1.2 Purpose.....	1-1
1.3 Impact Fee Collection.....	1-2
1.4 Master Planning .....	1-2

### CHAPTER 2 – EXISTING SECONDARY WATER SYSTEM

2.1 General .....	2-1
2.2 Pressure Zones.....	2-1
2.3 Existing Secondary Meters.....	2-1
2.4 Irrigated Acreage.....	2-2
2.5 Level of Service.....	2-2
2.6 Methodology Used to Determine Existing System Capacity .....	2-4
2.7 Water Source & Remaining Capacity .....	2-4
2.8 Distribution System & Remaining Capacity.....	2-5
2.9 Storage Facilities & Remaining Capacity .....	2-5
2.10 Water Rights & Remaining Capacity.....	2-6
2.11 Capital Facilities to Meet System Deficiencies.....	2-6

### CHAPTER 3 – IMPACT FEE FACILITY PLAN AND ANALYSIS

3.1 General .....	3-1
3.2 Impact Fee Facilities .....	3-1
3.3 Revenue Options .....	3-3
3.4 Impact Fee Unit Calculation .....	3-6
3.5 Impact Fee Summary .....	3-12

**LIST OF FIGURES**

Figure 2-1: Existing System ..... After page 2-7  
Figure 3-1: Impact Fee Facility Projects ..... After page 3-5

**LIST OF TABLES**

Table 2-1: Summary of Residential Secondary Water Use Before and After Meters ..... 2-2  
Table 2-2: Level of Service (Per Irrigated Acre) ..... 2-3  
Table 2-3: Level of Service (Per Typical Residential Connection) ..... 2-3  
Table 2-4: Existing Secondary Water Sources ..... 2-4  
Table 2-5: Existing Storage Pond Summary ..... 2-5  
Table 2-6: Existing Storage Summary by Zone ..... 2-6

Table 3-1: Residential Building Permit History ..... 3-2  
Table 3-2: Growth Projections ..... 3-3  
Table 3-3: Cost of Existing Facilities ..... 3-4  
Table 3-4: Impact Fee Facility Projects for Upcoming 10 Years ..... 3-5  
Table 3-5: Summary of Impact Fee Facility Costs ..... 3-6  
Table 3-6: Source Needed by 2026 ..... 3-9  
Table 3-7: Source Excess Capacity ..... 3-9  
Table 3-8: Source Capacity to be Built for New Growth ..... 3-10  
Table 3-9: Proposed Source Impact Fee ..... 3-10  
Table 3-10: Storage Needed by 2026 ..... 3-11  
Table 3-11: Storage Excess Capacity ..... 3-11  
Table 3-12: Storage Capacity to be Built for New Growth ..... 3-12  
Table 3-13: Proposed Storage Impact Fee ..... 3-12  
Table 3-14: Water Rights Needed by 2026 ..... 3-13  
Table 3-15: Water Rights Excess Capacity ..... 3-13  
Table 3-16: Water Rights to be Purchased ..... 3-14  
Table 3-17: Total Proposed Impact Fee Per Irrigated Acre and Typical Single Family  
Connection ..... 3-14

**APPENDICES**

- Appendix A – Existing Facilities Costs
- Appendix B – Cost Estimates

## IMPACT FEE SUMMARY

The **purpose** of the Impact Fee Facilities Plan (IFFP) and the Impact Fee Analysis (IFA) is to comply with the requirements of the Utah Impact Fees Act by identifying demands placed on the existing secondary water 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 IFFP and IFA prepared in 2014 to address changes in conditions and assumptions that result in an increase in the proposed secondary water impact fee. The Secondary Water System Master Plan and Capital Facility Plan have also been updated to support this analysis.

The significant **change** in this update is the City has completed projects costing over \$17 million to increase the capacity of the secondary water system. These projects have added excess capacity to the system available to new development. This “buy-in” cost is higher than projected in the previous IFA and has also increased projected costs for future projects. In addition, development is beginning to occur in higher pressure zones that require upfront transmission and storage pond capacity that contribute to an overall increase in cost to deliver water to the residents of Saratoga Springs.

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

The four **components** of the secondary water impact fee are source, storage, water rights, and planning. 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 secondary water 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.

The **level of service** for the secondary water system 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 have been defined per irrigated acre as 7.5 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 existing system irrigated about 1,852 acres at the beginning of 2017. Projected **growth** adds 927 irrigated acres in the next 10 years for a total of 2,779 irrigated acres.

The existing secondary 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 the new development. The following table is a summary of the projected costs associated with providing capacity for growth in the next 10 years.

**SECONDARY WATER IMPACT FEE COSTS**

<b>COMPONENT</b>	<b>COST NEXT 10 YEARS</b>
<b>SOURCE</b>	\$10,106,005
<b>STORAGE</b>	\$9,232,670
<b>WATER RIGHTS</b>	\$9,286,686
<b>PLANNING</b>	\$140,000
<b>TOTAL COST</b>	<b>\$28,765,361</b>

The **secondary water impact fee** is calculated by dividing the \$28,765,361 cost for capacity for growth in the next 10 years by the projected 927 irrigated acres. This total cost includes cost for available “buy in” capacity. The following table is a summary of the proposed impact fee per irrigated acre. Also shown per typical single family residential connection.

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

<b>COMPONENT</b>	<b>Per Irrigated Acre</b>	<b>Per Typical Residential Connection</b>
Source	\$10,902	\$2,616
Storage	\$9,960	\$2,390
Planning	\$150	\$36
Water Rights	\$10,018	\$2,404
<b>Total</b>	<b>\$31,030</b>	<b>\$7,446</b>

# SECTION 1 INTRODUCTION

## 1.1 Background

The City of Saratoga Springs has experienced tremendous growth since the early 2000's that has transformed the once largely agricultural community into an urbanized region of northern Utah County. Residential and commercial developments are being established at a rapid pace with additional open space available for future growth. As this growth continues additional secondary water facilities will be required to provide an adequate water system that meets the City's current level of service for outdoor watering.

The City has recognized the importance to plan for increased demands on its Secondary Water System from new development as a result of the rapid growth. The Secondary Water System Master Plan and Capital Facility Plan have also been updated to support this analysis.

## 1.2 Purpose

The purpose of the IFFP and IFA is to comply with the requirements of the Utah Impact Fees Act by identifying demands placed on the existing Secondary Water 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 IFFP and IFA prepared in 2014 was necessary due to significant growth in the City and increases in project costs. Several of the recently completed capital projects had actual costs that significantly outpaced the projected costs in the previous IFFP and IFA completed in 2014. In addition, development is starting to occur in the upper pressure zones requiring upfront transmission and storage costs. This report projects the need for new growth-related facilities for the 10-year planning range.

This report identifies those items that the Utah Impact Fees Act specifically requires including demands placed upon existing facilities by new development activity and the proposed means by which the municipality will meet those demands. In preparing this report a systematic approach was utilized to evaluate the existing and planned secondary water facilities identified in the City's master planning efforts. Each facility's capacity was evaluated in accordance with the selected level of service to determine the appropriate share between existing demand and future demands. This approach was taken in order to determine the "proportional share" of improvement costs between existing users and future development users. The basis for this report was to provide proposed project costs and the fractional cost associated with future development to be used within the impact fee analysis. The following analyses were performed to meet the study's objectives:

- 1) Identify the existing and proposed City secondary water facilities;
- 2) Identify the existing level of service for the system;
- 3) Identify a proposed level of service for the system;

- 4) Identify if any deficiencies are present in the existing system utilizing the proposed level of service;
- 5) Identify any excess capacity in the existing system facilities using the proposed level of service;
- 6) Identify the phasing of new development and the appropriate facilities needed to support the development;
- 7) Project growth in water demands attributable to new development within the existing system;
- 8) Determine projects required by the new water demands to provide the proposed level of service to future development without compromising the level of service provided to existing residents;
- 9) Establish construction phasing of proposed capital facilities;
- 10) Prepare detailed cost estimates for each proposed project;
- 11) Determine if proposed projects will provide capacity for growth beyond the IFFP planning period
- 12) Separate and identify infrastructure costs to maintain the proposed level of service for existing residents versus infrastructure costs to provide capacity at the proposed level of service for future development, and then identify and subtract the proportionate cost of any excess capacity for growth that is projected to occur beyond the 10 year planning window for the IFFP.

### **1.3 Impact Fee Collection**

Impact fees enable local governments to finance public facility improvements necessary to service new developments without burdening existing development with capital facility construction 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**

The Secondary Water System Master Plan and Capital Facility Plan have also been updated to support 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 as well as identifies all Capital Facilities required of the Drinking Water System for the 20-year planning range including maintenance, repair, replacement, as well as growth related project recommendations. The recommendations made within the master plan report are in compliance with current City policies and standard engineering practices.

A hydraulic model of the Secondary Water System was prepared to aid in the analyses performed to complete the Secondary 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 SECONDARY WATER SYSTEM**

### **2.1 General**

The purpose of this section is to provide information regarding the existing Secondary Water System, identify the current level of service, identify a proposed level of service and analyze the capacity of the existing system's facilities to meet the proposed level of service.

Saratoga Springs' existing Secondary Water System is comprised of a pipe network, water storage ponds, and water sources. The system is master planned to be an independent system, but is currently supplemented by excess capacity in the drinking water system. As the excess capacity in the drinking water system is needed for future growth, Secondary Water System facilities will be constructed to increase the capacity of the Secondary Water System, thus freeing up capacity for future drinking water demands. For both the Drinking Water System Master Plan and the Secondary Water System Master Plan each system was analyzed with no sharing of capacity for future projections. Figure 2-1 illustrates the existing secondary water system. This section summarizes the City's current level of service, water demands, existing system facilities and existing system capacity available for new growth.

### **2.2 Pressure Zones**

Currently, the secondary water distribution system serving Saratoga Springs has three pressure zones, though the upper two pressure zones are split between the north and south as they are not interconnected yet. Only Zone 1 is currently connected. Pressure zones are identified on Figure 2-1.

### **2.3 Secondary Meters**

The secondary system currently has individual meters at all connections. The City bills residents according to water use. Before the meters were installed in 2014, most connections used water in excess of City's adopted level of service. The recently installed meters along with a fee schedule that promotes conservation of water, residents have been using less water that is close to the selected level of service. Table 2-1 is a comparison of preliminary residential secondary water meter data before and after the city-wide installation of meters and billing according to water use. The per residence use includes the proportional share of irrigated areas outside of the parcel including park strips and neighborhood parks.

**Table 2-1  
Summary of Residential Secondary Water Use Before and After Meters**

	BEFORE METERS		AFTER METERS	
	PER RESIDENCE	PER IRRIGATED ACRE	PER RESIDENCE	PER IRRIGATED ACRE
<b>Average Yearly Water Use</b> (acre-feet)	0.97	4.46	0.78	2.54
<b>Estimated Average Peak Day Water Use</b> (gpm)	2.53	11.50	1.57	5.11

## 2.4 Irrigated Acreage

Outdoor water demands are based on irrigated acreage. Irrigated acres is the unit used for the Secondary Water System Impact Fee. For typical single-family residential developments, irrigable acreage is 64% of land being developed. The amount of irrigated acres for multi-family and non-residential developments are based on actual landscaped areas. The percentage of irrigated acres is 90 percent for land used for irrigated open space and parks. For new development Title 19 of City Code defines the amount of landscaped area for each land use type.

Data in this report is presented by impact fee unit (irrigated acres) and also typical single-family residential connection for reference. A typical single-family is defined in this report as 0.24 irrigated acres which includes the proportional amount per residence of irrigated area outside of the parcel including park strips and neighborhood parks.

The total number of existing irrigated acres as of this analysis is 1,852 acres or 5,796.8 acre-feet. This includes all development that has been platted and assumes the recommended irrigated acres of 64% of land developed and 3.13 acre-feet per irrigated acre. It is the City's policy to receive impact fees and water rights at plat recordation for the secondary water system. Therefore, the existing system provides capacity for these recorded developments whether or not building permits have been issued.

## 2.5 Level of Service

The level of service for the secondary water system 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 have been defined per irrigated acre as 7.5 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. Table 2-2 is the level of service for the Secondary Water System per irrigated acre. Table 2-3 is the same per typical residential connection. The level of service represents the historic level of service the system has been designed to serve and consistent with recent measured use. The level of service also represents the capacity needed to irrigate turf in Saratoga Springs. Level of service also accounts for factors such as the low quality of the water that is available to the City, and other unavoidable system losses. Secondary water sources within Saratoga Springs are high in dissolved salts, which require residents to use more water than other areas of the state.

**Table 2-2  
Level of Service (Per Irrigated Acre)**

<b>Average Yearly Demand</b> (Source Volume) ac-ft/yr per irrigated acre	<b>3.13</b>
<b>Peak Day Demand</b> (Source Flow) gpm/irrigated-acre	<b>7.50</b>
<b>Peak Instantaneous Demand</b> (Transmission) gpm/irrigated-acre	<b>15.00</b>
<b>Storage</b> gal/irrigated-acre	<b>9,216</b>

**Table 2-3  
Level of Service (Per Typical Residential Connection)**

<b>Irrigated Acres</b>	<b>0.24</b>
<b>Average Yearly Demand</b> (Source Volume) ac-ft/yr per connection	<b>0.75</b>
<b>Peak Day Demand</b> (Source Flow) gpm/connection	<b>1.8</b>
<b>Peak Instantaneous Demand</b> (Transmission) gpm/connection	<b>3.6</b>
<b>Storage</b> gal/connection	<b>2,213</b>

## 2.6 Methodology Used to Determine Existing System Capacity

The method for determining the remaining capacity in the system was based on the proposed level of service in terms of irrigated acres. Each component of the secondary water system was assessed a capacity in terms of irrigated acres. The components include the following: Source (wells, pump stations and transmission lines), Storage (reservoirs and associated transmission lines), Transmission (main transmission lines not directly associated with source or storage), and Water Rights. Each component was also assigned a number of existing irrigated acres

currently using each component. The difference between the capacity and existing demand for each component is the remaining capacity. For example, to calculate the remaining capacity for source in irrigated acres, the required source for existing users in irrigated acres is subtracted from the capacity of the wells in irrigated acres. For storage, the required storage for existing users in is subtracted from the capacity of the reservoirs in to calculate the remaining capacity for storage.

In addition to the level of service presented in the tables below, pipelines are considered at capacity when velocities reach 5 feet per second (fps) at peak instantaneous demand using the extended period hydraulic model representing the system as a whole under typical peak demand conditions. In the engineering industry, it is generally recognized that flows above 5 fps produced unacceptable pressure losses.

HAL developed a hydraulic model for Saratoga Springs to assess its current system operation and capacity. The model calculated a capacity for each pipe line by estimating the flow capacity of each pipe at a velocity of 5 fps divided by the peak instantaneous demand of 15 gpm per irrigated acre.

## 2.7 Water Source & Remaining Capacity

Saratoga Springs is currently adding additional water sources to their system to keep up with increasing demands. The projects contained in this report will reduce the need of the secondary system in borrowing water from the drinking water system. In the coming years the secondary system will become self-sustaining and will not need to borrow capacity from the drinking water system. The canal source capacity is represented by the capacity of pump stations at the canals. Table 2-5 summarizes the information of each secondary source. As seen in Table 2-4 there is excess capacity in the secondary sources.

**Table 2-4  
Existing Secondary Water Sources**

<b>Name</b>	<b>Flow Capacity (gpm)</b>	<b>Capacity (IA)</b>	<b>Notes:</b>
Well No. 1	800	106.7	Currently needs to be replaced
Well No. 2	900	120	Sunrise Meadows Well
Well No. 3	500	66.7	Zone 2 North Source
Well No. 4	800	106.7	Zone 2 North Source
Well No. 5	3,500	466.7	Zone 2 South Source
Church Booster – ULDC	1,100	146.7	Tickville Wash Pump Station
Marina PS	4,000	533.3	Zone 2 South Source
400 N. - ULDC PS	5,000	666.7	Zone 1 North Source
<b>Total</b>	<b>16,600</b>	<b>2,213.5</b>	

## 2.8 Distribution System & Remaining Capacity

Pipe diameters range from 6 inches to 30 inches, with the majority being 6 inches within subdivisions. The larger pipes in the system were provided as transmission lines to deliver water from storage ponds during peak scenarios and to deliver water from sources. All pipes are in good condition as they have been constructed within the last 15 years. The City's current standard allows for Ductile Iron Pipe (DIP) for pipe diameters of 24 inches and larger and Polyvinyl Chloride (PVC) pipe is allowed for pipes up to 24 inches.

## 2.9 Storage Facilities & Remaining Capacity

Saratoga Springs currently operates four water storage ponds serving the City. Storage requirements are determined on a per irrigable acre basis. The total storage capacity is 52.4 acre-feet. All ponds were constructed in the last 15 years and are in good condition.

The capacity of each pond was analyzed in respect to the zone it serves. The storage was analyzed as requiring 9,216 gallons per irrigable acre. Table 2-5 summarizes the storage facility information. Some of the ponds are not used for equalization but for pump operation. These ponds do not have usable equalization capacity. The capacity of each pressure zone is summarized in Table 2-6. Currently there is an overall excess capacity of 2.2 ac-ft of storage.

**Table 2-5  
Existing Storage Pond Summary**

<b>Service Zone</b>	<b>Pond ID</b>	<b>Capacity (Acre-foot)</b>
Zone 1 South	Pond 1 (Grandview Blvd)	2.1
Zone 2 South	Pond 2 (The Villages)	1.5
Zone 2 North	Pond 3 (Harvest Hills)	9.0
Zone 1 South	Pond 4 (Church Pond) *	NA
Zone 2 North	Pond 5 (Sunrise) *	NA
Zone 1 North	Pond LL (Loch Lomond) *	NA
Zone 2 South	Pond 6 (Israel Canyon)	38.0
Zone 3 South	Pond 7 (Fox Canyon)	4.0
<b>Total</b>		<b>54.6</b>

\*Storage/staging pond for pump station.

**Table 2-6  
Existing Storage Summary by Zone**

<b>Service Zone</b>	<b>Irrigated Acreage</b>	<b>Storage Requirement (ac-ft)</b>	<b>Existing Capacity (ac-ft)</b>	<b>Deficiency (-) or Surplus (+), (ac-ft)</b>
1	617	17.5	2.1	-15.4
2	1,146	32.4	48.5	+16.1
2	89	2.5	4.0	+1.5
Total	1,852	52.4	54.6	+2.2

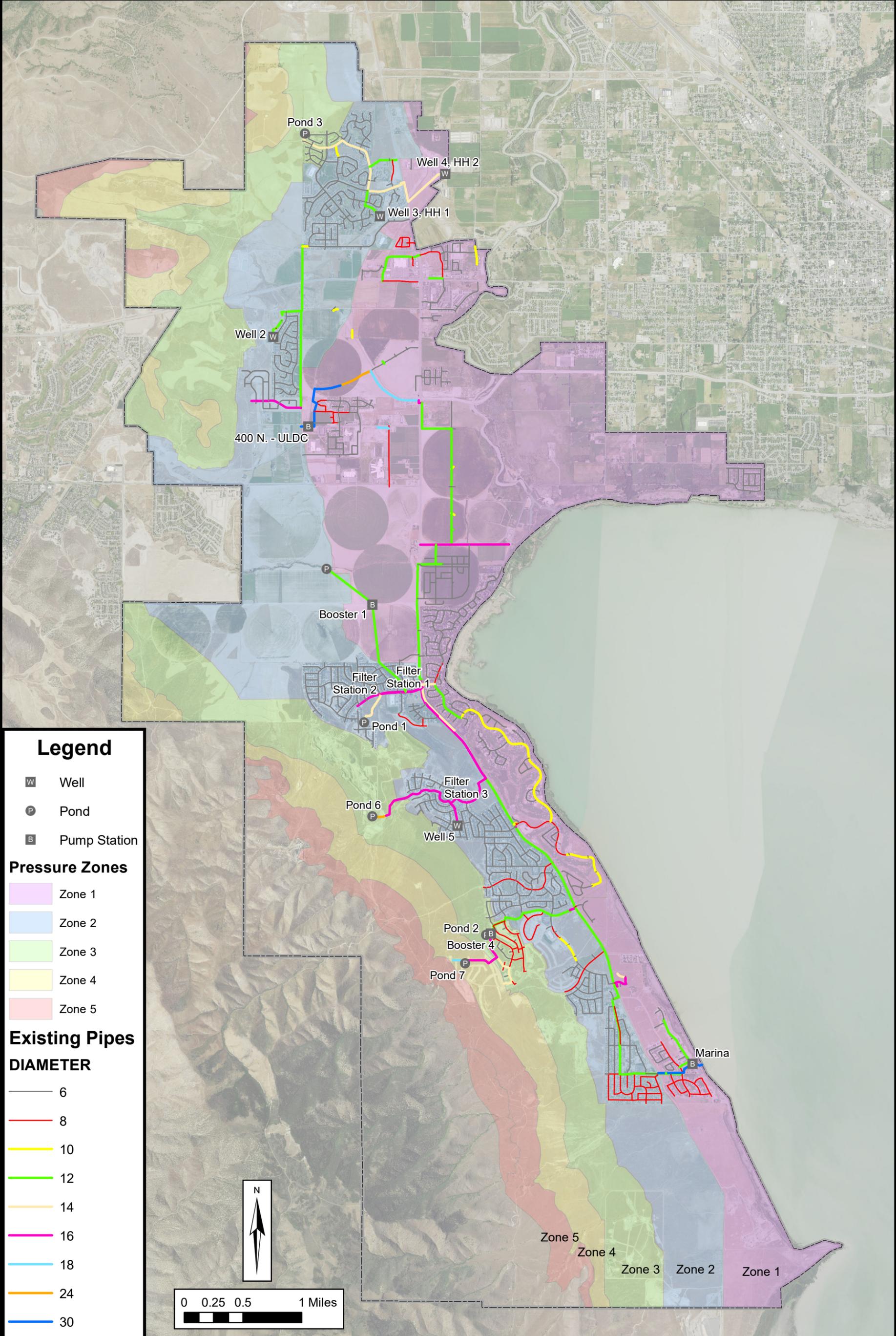
**2.10 Water Rights & Remaining Capacity**

The City owns a total of 10,391 acre-feet of water rights based on diversion that can be used between their drinking and secondary water systems. The existing demand at the proposed level of service of 3.13 acre-feet per irrigated acre is 5,797 acre-feet. The existing supply of water rights attributed to the secondary water system are 5,633 acre-feet. This leaves a deficit in capacity of 164 acre-feet. However, the City is using the excess capacity in the drinking water system water rights. Also, the City has collected water right impact fees over the last few years which the City is working on purchase agreements to buy water rights when change applications have been approved. All water right volumes are annual diversions in acre-feet.

**2.11 Capital Facilities to Meet System Deficiencies**

Combined with the drinking water system, the existing Secondary Water System meets the proposed level of service. The secondary system is master planned to be an independent system, but currently the Secondary Water System can be supplemented by excess capacity in the Drinking Water System. As the excess capacity in the Drinking Water System is needed for future growth, Secondary Water System facilities will be constructed to increase the capacity of the Secondary Water System. A Drinking Water System Master Plan was prepared in conjunction with the Secondary Water System Master Plan. For both the Drinking Water System Master Plan and the Secondary Water System Master Plan each system was analyzed with no sharing of capacity for future projections. It was assumed for all calculations that no secondary water system facilities are being supplemented by Drinking Water System capacity. Additional information regarding the drinking water system may be found in Drinking Water System Master Plan.

The City has several capital projects planned to improve existing system operation and provide capacity for future growth. The capital projects are presented in the Master Plan. Only projects that add capacity for future growth in the next 10 years are eligible to be included in the calculation of the impact fee.



**Legend**

- W Well
- P Pond
- B Pump Station

**Pressure Zones**

- Zone 1
- Zone 2
- Zone 3
- Zone 4
- Zone 5

**Existing Pipes**

**DIAMETER**

- 6
- 8
- 10
- 12
- 14
- 16
- 18
- 24
- 30

**SARATOGA SPRINGS  
SECONDARY WATER SYSTEM**

**EXISTING SYSTEM**

**FIGURE  
2-1**

## **SECTION 3 IMPACT FEE CALCULATION**

### **3.1 General**

This section relies on the data presented in the previous sections 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 secondary water 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.

### **3.2 Growth Projections**

Outdoor water demands are based on irrigated acreage (irr-ac). 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 development of impact fees requires growth projections over the next ten years. Growth projections for Saratoga Springs were made by evaluating the history of building permit issuance over the last decade as summarized in Table 3-1.

Saratoga Springs experienced rapid growth at the beginning of 2000 followed by a cooling period from 2007 to 2010 with growth rebounding to a more moderately strong growth. The City has conservatively projected strong growth occurring in the near future due to projected development of large property owners. Total growth projections for the City through 2026 are summarized in Table 3-2.

The existing system irrigates approximately 1,852 acres. Based on the projections in Table 3-2 at the end of 10 years the irrigated acreage will expand to 2,779 acres. This is an increase of 927 irrigated acres over the 10 year window. The irrigated acreage at the time of the previous impact fee was 1,435 acres. Therefore, 344 irrigated acres have been added since the previous plan.

**TABLE 3-1  
RESIDENTIAL BUILDING PERMIT HISTORY**

<b>Year</b>	<b>Annual Residential Permits</b>	<b>Annual Growth</b>
2000	169	63.1%
2001	483	110.5%
2002	369	40.1%
2003	437	33.9%
2004	383	22.2%
2005	656	31.1%
2006	658	23.8%
2007	489	14.3%
2008	193	4.9%
2009	186	4.5%
2010	232	5.4%
2011	464	10.3%
2012	376	7.8%
2013	438	8.4%
2014	320	5.7%
2015	382	6.4%
2016	812	12.8%

**TABLE 3-2  
GROWTH PROJECTIONS**

<b>Year</b>	<b>Total Projected ERCs</b>	<b>Total Projected Irrigated Acres</b>	<b>Annual Growth</b>
2016	6,494	1,852	6.2%
2017	6,897	1,939	12.2%
2018	7,738	2,025	8.3%
2019	8,380	2,112	8.6%
2020	9,101	2,203	10.0%
2021	10,011	2,296	7.0%
2022	10,712	2,390	6.6%
2023	11,419	2,484	6.8%
2024	12,195	2,582	6.8%
2025	13,025	2,679	6.7%
2026	13,897	2,779	6.7%
2027	14,828	2,865	6.7%
2028	15,822	2,951	6.7%
2029	16,882	3,037	6.7%
2030	18,013	3,123	6.6%
2031	19,202	3,209	3.0%
2032	19,778	3,295	3.0%
2033	20,371	3,381	3.0%
2034	20,982	3,467	3.1%
2035	21,633	3,553	3.1%
2036	22,304	3,652	3.1%

**3.3 Cost of Existing and Future Facilities**

The costs of existing facilities that have come online since the last impact fee analysis are presented in Table 3-3. 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 included in Appendix A. The projects presented in Table 3-4 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.

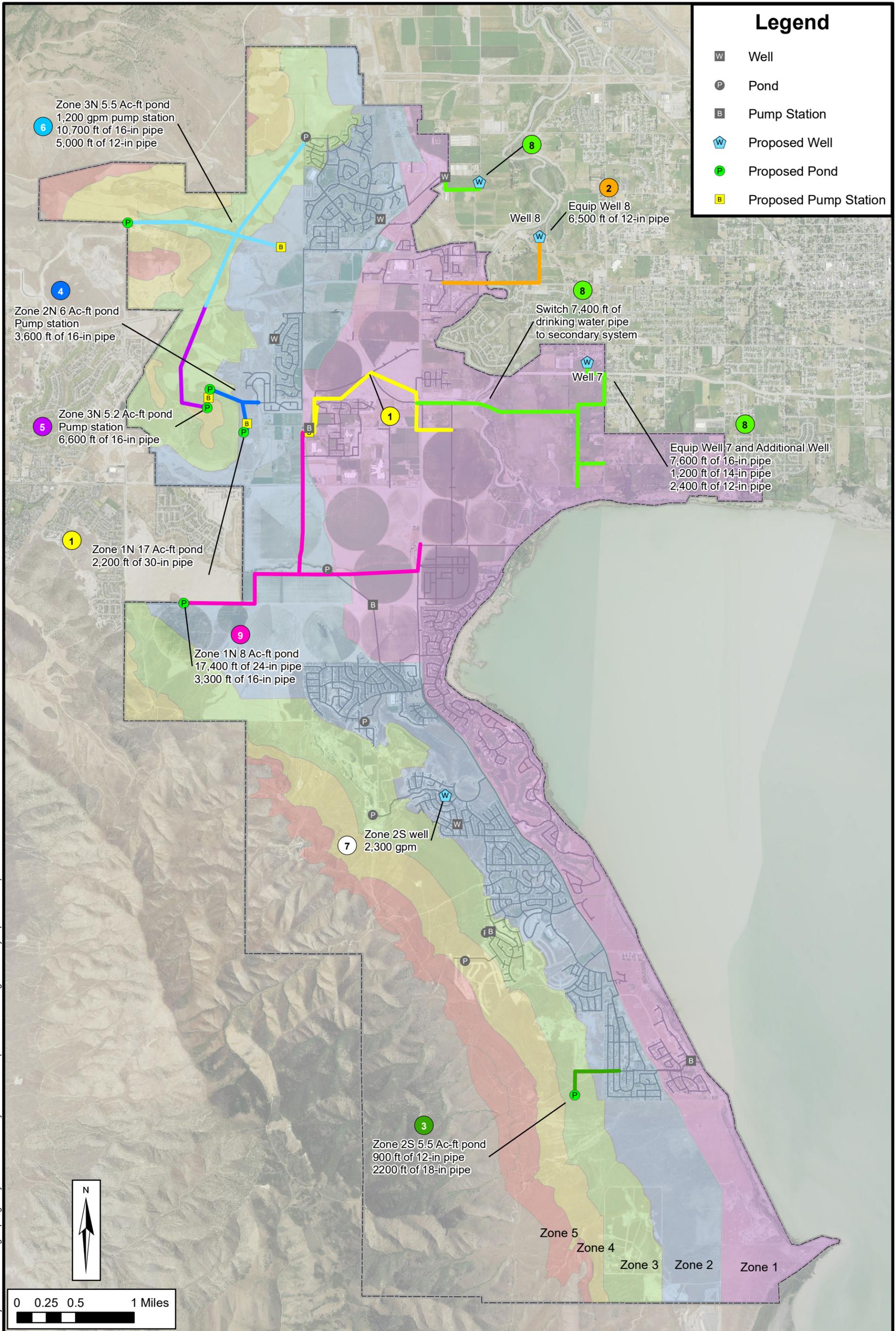
**TABLE 3-3  
COST OF EXISTING FACILITIES**

<b>PROJECT</b>	<b>SOURCE</b>	<b>STORAGE</b>	<b>WATER RIGHTS</b>	<b>PLANNING</b>	<b>TOTAL</b>
<b>Zone 2 Pond Expansion</b>	\$0	\$699,893	\$0	\$0	<b>\$699,893</b>
<b>Secondary Water Purchases</b>	\$0	\$0	\$877,393	\$0	<b>\$877,393</b>
<b>Zone 2 North Expansion</b>	\$119,038	\$119,037	\$0	\$0	<b>\$238,075</b>
<b>South Source</b>	\$80,500	\$0	\$0	\$0	<b>\$80,500</b>
<b>Fox Hollow N6 Pipeline</b>	\$44,002	\$44,002	\$0	\$0	<b>\$88,004</b>
<b>Foothill North Pipeline</b>	\$590,687	\$590,687	\$0	\$0	<b>\$1,181,374</b>
<b>Foothill South Pipeline</b>	\$900,719	\$900,719	\$0	\$0	<b>\$1,801,438</b>
<b>Mallard Bay Pipeline</b>	\$44,002	\$44,002	\$0	\$0	<b>\$88,004</b>
<b>Legacy Farms VP1 Pipeline</b>	\$166,932	\$166,932	\$0	\$0	<b>\$333,864</b>
<b>Legacy Farms VP2 Pipeline</b>	\$115,411	\$115,411	\$0	\$0	<b>\$230,822</b>
<b>Jordan Valley Landing Pipeline</b>	\$5,529	\$5,529	\$0	\$0	<b>\$11,058</b>
<b>Zone 1 North Pipeline</b>	\$1,095,287	\$1,095,287	\$0	\$0	<b>\$2,190,574</b>
<b>Talus Ridge Pipeline</b>	\$46,431	\$46,431	\$0	\$0	<b>\$92,862</b>
<b>Marina Pump Station</b>	\$7,615,370	\$0	\$0	\$0	<b>\$7,615,370</b>
<b>ULDC Pump Station</b>	\$6,136,612	\$0	\$0	\$0	<b>\$6,136,612</b>
<b>Planning</b>	\$0	\$0	\$0	\$140,000	<b>\$140,000</b>
<b>TOTAL</b>	<b>\$16,960,520</b>	<b>\$3,827,930</b>	<b>\$877,393</b>	<b>\$140,000</b>	<b>\$21,805,843</b>

**TABLE 3-4  
IMPACT FEE FACILITY PROJECTS FOR UPCOMING 10 YEARS**

<b>TYPE</b>	<b>MAP ID</b>	<b>RECOMMENDED PROJECT</b>	<b>COST</b>
Source & Storage	1	Construct a 16 Ac-ft pond to serve the north side of Zone 1. 2,200 feet of 30-inch pipe. Including land sufficient for a 30 Ac-ft pond at buildout. (Source - \$762,000), (Storage - \$3,030,000)	\$3,792,000
Source	2	Equip Well 8 and install 6,500 feet of 12-inch pipe to connect to the existing system.	\$986,000
Source & Storage	3	Construct 5.5 Ac-ft pond in Zone 2 South and install 900 feet of 12-inch pipe and 2,200 ft of 20-inch pipe (Zone 2). Initially, this pond will also serve Zone 1 South. Including land sufficient for a 10 Ac-ft pond at buildout. (Source - \$479,500), (Storage - \$1,214,500)	\$1,694,000
Source & Storage	4	Construct a 6 Ac-ft pond to serve Zone 2 North. Install a pump station in the Mt. Saratoga area to serve Zone 2 North. Install 3,600 feet of 16-inch pipe. Include land sufficient for an 11 Ac-ft pond at buildout. (Source - \$660,000), (Storage - \$1,932,000)	\$2,592,000
Source & Storage	5	Construct a 5.2 Ac-ft Pond in the Mt. Saratoga area to serve Zone 3 North (Buildout Size). Install a pump station in the Mt. Saratoga area to serve Zone 3 North. Install 6,600 feet of 16-inch pipe for transmission. (Source - \$600,000), (Storage - \$2,464,000)	\$3,064,000
Source & Storage	6	Construct a 5.5 Ac-ft pond in the Wildflower area to serve Zone 3 North (Buildout Size). Install a pump station with a capacity of 1,200 gpm to pump from the Welby-Jacob Canal including a filter and turnout. Install 10,700 feet of 16-inch pipe and 5,000 feet of 12-inch pipe. (Source - \$2,886,200), (Storage - \$2,134,800)	\$5,021,000
Source	7	Replace Well #1 and provide an additional 800 gpm of source to Zone 2 South by developing a new well with a capacity of 2,300 gpm.	\$1,730,000
Source	8	Equip well 7 and an additional well to provide a source of 2,000 gpm for Zone 1 North. Install 7,400 feet of 18-inch pipe, 7,600 feet of 16-inch pipe, and 1,200 feet of 14-inch pipe to connect it to the existing system.	\$3,134,000
Source & Storage	9	Construct an 8 Ac-ft pond to serve Zone 1 North. Install 17,400 feet of 24-inch pipe and 3,300 feet of 16-inch pipe to connect to existing infrastructure. Including land sufficient for a 20.9 Ac-ft pond at buildout. (Source - \$898,600), (Storage - \$5,077,400)	\$5,976,000
Water Rights	-	The City will need to acquire an additional 3,065 acre-feet of water rights to meet anticipated demand growth in the next ten years.	\$9,808,000
Planning	-	Master Plan, Capital Facilities Plan, IFFP and IFA updates.	\$140,000
<b>TOTAL</b>			<b>\$37,937,0</b>

Note: See Figure 3-1 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 are 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 3-5 is a summary of the existing and future facility costs by secondary water 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 IFFP and IFA. There was 344 irrigated acres of new growth since the last IFFP and 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 growth beyond 10 years. There is a total of \$14,248,778 attributed to source with a capacity of 927 irrigated acres, a total of \$9,232,670 for storage with a capacity of 927 irrigated acres, and a total of \$9,284,832 for water rights with a capacity of 927 irrigated acres anticipated over the next ten years. Anticipated costs for planning are also included for a total cost of \$32,908,134. There are still several developments that can only receive secondary source water through the drinking water system. Costs for making up that deficiency will be recouped in the future when source capacity from the Drinking Water system becomes available permanently.

**TABLE 3-5  
FACILITY COSTS BY TIME PERIOD**

Secondary Water Component	EXISTING		NEXT 10 YEARS		BEYOND 10 YEARS		TOTAL	
	Irrigated Acres	Cost	Irrigated Acres	Cost	Irrigated Acres	Cost	Irrigated Acres	Cost
<b>SOURCE</b>	344	\$3,750,238	927	\$10,106,005	1398*	\$15,240,777	<b>2,669*</b>	<b>\$29,097,020</b>
<b>STORAGE</b>	266	\$2,649,288	927	\$9,232,670	783	\$7,798,472	<b>1,976</b>	<b>\$19,680,430</b>
<b>WATER RIGHTS</b>	157	\$1,398,707	927	\$9,286,686	0	\$0	<b>1,084</b>	<b>\$10,685,393</b>
<b>PLANNING</b>	344	\$140,000	927	\$140,000	0	\$0	<b>1,271</b>	<b>\$280,000</b>
<b>TOTAL COST</b>	<b>\$7,938,233</b>		<b>\$28,765,361</b>		<b>\$23,039,249</b>		<b>\$59,742,843</b>	

\* 776 IA have been included in the "Beyond 10 Years" column since the Marina pump station is designed to add additional capacity for relative little cost. The future capacity is included so development in the next 10 years is not paying for a portion of the future total capacity that will be available for development beyond 10 years.

### **3.4 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 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.

### **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.

### **3.5 Impact Fee Unit Calculation**

Currently, the City assigns irrigated acres to new development based on actual irrigated acres in 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 secondary 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 secondary water 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 Secondary Water System is 7.5 gpm per irrigated acre (see Section 1). The total demand by the year 2026 at the proposed level of service is 2,779 irrigated acres. The existing secondary water source demand for the system is 1,852 irrigated acres. Subtracting the existing demand of 1,852 irrigated acres from the total demand at 2026 of 2,779 irrigated acres leaves an additional demand of **927 irrigated acres needed by 2026** (see Table 3-6).

**TABLE 3-6  
SOURCE NEEDED BY 2026**

	<b>Irrigated Acres</b>	<b>gpm</b>
Predicted Demand in 2026 at the Proposed Level of Service	2,779	20,843
Existing Demand at the Proposed Level of Service	1,852	13,890
<b>Additional Demand Capacity needed by 2026</b>	<b>927</b>	<b>6,953</b>

The Secondary Water system has an existing source capacity of 2,213 irrigated acres. Also, 495 irrigated acres are still being irrigated by the excess source capacity on 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 secondary source water available yet. Adding the 495 irrigated acres of capacity from the drinking water system to the 2,213 irrigated acres of existing capacity in the secondary system is a total capacity of 2,708 irrigated acres. Subtracting the existing demand of 1,852 irrigated acres from the existing capacity of 2,708 irrigated acres leaves an excess capacity of 856 irrigated acres (see Table 3-7).

**TABLE 3-7  
SOURCE EXCESS CAPACITY**

	<b>Irrigated Acres</b>	<b>gpm</b>
Existing Source Capacity	2,708	20,310
Existing Demand at the Proposed Level of Service	1,852	13,890
<b>Excess Capacity</b>	<b>856</b>	<b>6,420</b>

The current source deficiency plus the additional demand through 2026 leaves **566 irrigated acres of source capacity needing to be added to the system by 2026 for new growth** (see Table 3-8).

**TABLE 3-8  
SOURCE CAPACITY TO BE BUILT FOR NEW GROWTH**

	<b>Irrigated Acres</b>	<b>gpm</b>
Additional Demand Capacity needed by 2026	927	6,953
Excess Capacity	856	6,420
<b>Capacity to be built by 2026 for new growth</b>	<b>71</b>	<b>532</b>

The Impact Fee Facilities for Upcoming 10-Years in the Table 3-4 are planned to add 693 irrigated acres of source capacity to the Secondary Water System by 2026. As shown in Table 3-5, this leaves 622 irrigated acres capacity for growth beyond 10 years. Also shown in Table 3-5, the total anticipated cost for source projects over the next ten years is \$10,106,005. Dividing the cost by the increase in irrigated acres of 927 results in a **proposed impact fee per irrigated acre of \$10,902 or \$2,616 per ERC** (see Table 3-9).

**TABLE 3-9  
PROPOSED SOURCE IMPACT FEE**

	<b>Irrigated Acres</b>	<b>Typical Residential Connection</b>
Total Cost of Source Capacity Projects over next ten years	\$10,106,005	\$10,106,005
Anticipated Growth over next ten years	927	3,863
<b>Proposed Source Impact Fee</b>	<b>\$10,902</b>	<b>\$2,616</b>

### Storage Impact Fee Unit

The proposed level of service for storage in the Secondary Water System is 9,216 gallons per irrigated acre (see Section 1). The total demand by the year 2026 at the proposed level of service of 9,216 is 2,779 irrigated acres. The existing secondary water storage demand for the system is 1,852 irrigated acres. Subtracting the existing demand of 1,852 irrigated acres from the total demand at 2026 of 2,779 irrigated acres leaves an additional demand of **927 irrigated acres needed by 2026** (see Table 3-10).

**TABLE 3-10  
STORAGE NEEDED BY 2026**

	<b>Irrigated Acres</b>	<b>Acre-Feet</b>
Predicted Demand in 2026 at the Proposed Level of Service	2,779	78.6
Existing Demand at the Proposed Level of Service	1,852	52.4
<b>Additional Demand Capacity needed by 2022</b>	<b>927</b>	<b>26.2</b>

The secondary water system has an existing storage capacity of 1,929 irrigated acres. Subtracting the existing demand of 1,852 irrigated acres from the existing capacity of 1,929 irrigated acres leaves an excess capacity of **77 irrigated acres available for new development** (see Table 3-11).

**TABLE 3-11  
STORAGE EXCESS CAPACITY**

	<b>Irrigated Acres</b>	<b>Acre-Feet</b>
Existing Storage Capacity	1,929	54.6
Existing Demand at the Proposed Level of Service	1,852	52.4
<b>Excess Capacity</b>	<b>77</b>	<b>2.2</b>

Subtracting the excess storage capacity of 77 irrigated acres from the additional demand needed by 2026 of 927 irrigated acres leaves **850 irrigated acres or 24 acre-feet needing to be purchased by 2026** (see Table 3-12).

**TABLE 3-12  
STORAGE CAPACITY TO BE BUILT FOR NEW GROWTH**

	<b>Irrigated Acres</b>	<b>Acre-Feet</b>
Additional Demand Capacity needed by 2026	927	26.2
Excess Capacity	77	2.2
<b>Capacity to be built by 2026 for new growth</b>	<b>850</b>	<b>24.0</b>

The Impact Fee Facilities for Upcoming 10-Years in the Table 3-4 are planned to add 1,633 irrigated acres of storage capacity to the Secondary Water System by 2026. As shown in Table 3-5, this leaves 783 irrigated acres capacity for growth beyond 10 years. Also shown in Table 3-5, the total anticipated cost for source projects over the next ten years is \$9,232,670. Dividing the cost by the increase in irrigated acres of 927 results in a **proposed impact fee per irrigated acre is \$9,960 or \$2,390 a typical residential connection** (see Table 3-13).

**TABLE 3-13  
PROPOSED STORAGE IMPACT FEE**

	<b>Irrigated Acres</b>	<b>Typical Residential Connection</b>
Total Cost of Storage Capacity Projects over next ten years	\$9,232,670	\$9,232,670
Anticipated Growth over next ten years	927	3,863
<b>Proposed Storage Impact Fee</b>	<b>\$9,960</b>	<b>\$2,390</b>

**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 2026 at the proposed level of service is 8,698 acre-feet. The existing

secondary water right demand for the system is 5,797 acre-feet. Subtracting the existing demand of 5,797 acre-feet from the total demand at 2026 of 8,698 acre-feet leaves an additional demand of **2,901 acre-feet needed by 2026** (see Table 3-14).

**TABLE 3-14  
WATER RIGHTS NEEDED BY 2026**

	<b>Irrigated Acres</b>	<b>Diversion Acre-Feet</b>
Predicted Demand in 2026 at the Proposed Level of Service	2,779	8,698
Existing Demand at the Proposed Level of Service	1,852	5,797
<b>Additional Demand Capacity needed by 2026</b>	<b>927</b>	<b>2,901</b>

The City owns a total of 5,633 acre-feet of water rights attributed to the Secondary Water System. Subtracting the existing demand of 5,797 acre-feet from the 5,633 acre-feet of total water rights owned leaves **deficiency of 164 acre-feet** (see Table 3-15).

**TABLE 3-15  
WATER RIGHTS EXCESS CAPACITY (DEFICIENCY)**

	<b>Irrigated Acres</b>	<b>Acre-Feet</b>
Water Rights Owned	1,800	5,633
Existing Demand at the Proposed Level of Service	1,852	5,797
<b>Excess Capacity (Deficiency)</b>	<b>(52)</b>	<b>(164)</b>

Adding the water rights deficiency of 164 acre-feet to the additional demand needed by 2026 of 2,901 acre-feet leaves **3,065 acre-feet of water rights needing to be purchased by 2026** (see Table 3-16). The average price the City has paid for water rights in the last 5 years has been about \$3,200 per acre-foot of diversion water rights. This would provide a price of **\$10,018 per irrigated acre or \$2,404 per typical residential connection**.

**TABLE 3-16  
WATER RIGHTS TO BE PURCHASED**

	<b>Irrigated Acres</b>	<b>Acre-Feet</b>
Additional Demand Capacity needed by 2026	927	2,901
Excess Capacity	(52)	(164)
<b>Total to be purchased by 2026</b>	<b>979</b>	<b>3,065</b>

It is recommended that the City accept the water right impact fee in one of three ways: Payment of \$10,018 per irrigated acres for water rights the City has available for new development, use of developer credit, or Deed the City a water right approved by the City Attorney.

**3.6 Impact Fee Summary**

Adding the proposed Secondary Water System impact fee units together, the total proposed impact fee would be \$31,030 per irrigated acre. A typical single family residential connection requiring 0.24 irrigated acres would have an impact fee of **\$7,446** (see Table 3-17). This includes \$2,616 for source capacity, \$2,390 for storage capacity, \$36 for planning studies, and \$2,404 for water rights.

**TABLE 3-17  
TOTAL PROPOSED IMPACT FEE PER IRRIGATED ACRE AND TYPICAL SINGLE FAMILY CONNECTION**

	<b>Per Irrigated Acre</b>	<b>Per Typical Residential Connection</b>
Source	\$10,902	\$2,616
Storage	\$9,960	\$2,390
Planning	\$150	\$36
Water Rights	\$10,018	\$2,404
<b>Total</b>	<b>\$31,030</b>	<b>\$7,446</b>

## **Appendix A**

### **Existing Facilities Costs**

## PI WATER SYSTEM COST

### 1 Zone 2 Pond Expansion

Storage	Zone 2 Pond Expansion	\$699,893
<b>TOTAL</b>		<b>\$699,893</b>

Perco Rock	\$523,996
HAL	\$70,397
2011 Bond Interest	\$105,500
<b>Total</b>	<b>\$699,893</b>

### 2 Secondary Water Rights Since 2013

<b>Water Rights</b>	80.38 AF from Zions Bank	<b>\$233,102</b>
<b>Water Rights</b>	42.187 AF from Jim Davis	<b>\$147,655</b>
<b>Water Rights</b>	62.92 AF from Paul Johnson	<b>\$189,515</b>
<b>Water Rights</b>	17.2 AF from Paul Johnson	<b>\$51,806</b>
<b>Water Rights</b>	19.61 AF from CPB	<b>\$75,315</b>
<b>Water Rights</b>	107 AF from Stephen Gibson	<b>\$180,000</b>
<b>TOTAL</b>		<b>\$877,393</b>

### 3 Zone 2 North Expansion

Source	12" Transmission line	\$291,759
Storage	12" Transmission line	\$291,759
<b>TOTAL</b>		<b>\$583,518</b>
		<b>\$238,075</b>
		<b>\$119,037.68</b>

HAL	\$80,379
Permits	\$4,000
Silverspur	\$387,865
Calt	\$5,382
Braker	\$105,892
<b>Total</b>	<b>\$583,518</b>

### 4 South Source

Source	South Source	\$80,500
--------	--------------	----------

South Source	\$80,500
<b>Total</b>	<b>\$80,500</b>

### 5 Fox Hollow N-6 in Village Parkway

Source	8" Transmission Line	\$44,002
Storage	8" Transmission Line	\$44,002
<b>TOTAL</b>		<b>\$88,005</b>

Line Upsize	\$88,005
<b>Total</b>	<b>\$88,005</b>

### 6 Foothill North Pipeline

Source	16" Transmission Line	\$590,687
Storage	16" Transmission Line	\$590,687
<b>TOTAL</b>		<b>\$1,181,373</b>

Transmission Line	\$871,862
2016 Bond Interest	\$309,511
<b>Total</b>	<b>\$1,181,373</b>

### 7 Foothill South Pipeline

Source	16" Transmission Line	\$900,719
Storage	16" Transmission Line	\$900,719
<b>TOTAL</b>		<b>\$1,801,439</b>

Transmission Line	\$1,329,475
2016 Bond Interest	\$471,964
<b>Total</b>	<b>\$1,801,439</b>

### 8 Mallard Bay Pipeline Upsize

Source	8" Transmission Line	\$44,002
Storage	8" Transmission Line	\$44,002
<b>TOTAL</b>		<b>\$88,005</b>

Line Upsize	\$88,005
<b>Total</b>	<b>\$88,005</b>

### 9 Legacy Farms VP1

Source	12" Transmission Line	\$166,932
Storage	12" Transmission Line	\$166,932
<b>TOTAL</b>		<b>\$333,864</b>

Line Upsize	\$333,864
<b>Total</b>	<b>\$333,864</b>

### 10 Legacy Farms VP2

Source	16" Transmission Line	\$115,411
Storage	16" Transmission Line	\$115,411
<b>TOTAL</b>		<b>\$230,822</b>

Line Upsize	\$230,822
<b>Total</b>	<b>\$230,822</b>

### 11 Jordan Valley Landing

Source	10" Transmission Line	\$5,529
Storage	10" Transmission Line	\$5,529
<b>TOTAL</b>		<b>\$11,058</b>

Line Upsize	\$11,058
<b>Total</b>	<b>\$11,058</b>

<b>12</b>	<b>Zone 1 North Pipeline</b>			
	Source	30" Transmission Line	\$1,095,287	Transmission Line
	Storage	30" Transmission Line	\$1,095,287	Total
	<b>TOTAL</b>		<b>\$2,190,574</b>	<b>\$2,190,574</b>
<b>13</b>	<b>Talus Ridge (Edge Homes Credit)</b>			
	Source	16" Transmission Line	\$46,431	Line Upsize
	Storage	16" Transmission Line	\$46,431	Total
	<b>TOTAL</b>		<b>\$92,861</b>	<b>\$92,861</b>
<b>14</b>	<b>Marina Pumpstation</b>			
	Source	Marina Pumpstation	\$7,615,370	Marina Pumpstation
	<b>TOTAL</b>		<b>\$7,615,370</b>	2014 Bond Interest
				2016 Bond Interest
				<b>Total</b>
				\$5,679,102
				\$435,343
				\$1,500,925
				\$7,615,370
<b>16</b>	<b>ULDC Pumpstation and Pond</b>			
	Source	16" Transmission Line	\$6,136,612	ULDC Pumpstation and 10" line
	<b>TOTAL</b>		<b>\$6,136,612</b>	30" and 20" Zone 1 Piping
				2014 Bond Interest
				2016 Bond Interest
				<b>Total</b>
				\$2,101,012
				\$2,444,089
				\$120,000
				\$1,471,511
				\$6,136,612

**CITY OF SARATOGA**  
**Notes to the Financial Statements**  
**June 30, 2016**

**Note 12 – Long-term Debt - Continued**

**A. Special Assessment Bonds - Continued**

<u>Year Ending June 30</u>	<u>Principal</u>	<u>Interest</u>	<u>Total Debt Service</u>
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
	<u>\$1,837,000</u>	<u>\$ 676,794</u>	<u>\$ 3,135,551</u>

**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.

<u>Year Ending June 30</u>	<u>Principal</u>	<u>Interest</u>	<u>Total Debt Service</u>
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
	<u>\$ 9,575,000</u>	<u>\$ 2,888,115</u>	<u>\$ 12,463,115</u>

**CITY OF SARATOGA**  
**Notes to the Financial Statements**  
**June 30, 2016**

**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 pledged all of its sales tax revenues. Revenue bond debt service requirements to maturity are as follows:

<u>Year Ending June 30</u>	<u>Principal</u>	<u>Interest</u>	<u>Total Debt Service</u>
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	<u>\$3,250,000</u>	<u>\$ 1,110,663</u>	<u>\$ 4,360,663</u>

**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	<u>581,450.35</u>
Total Sources	<u>\$10,291,450.35</u>

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	<u>2,529.09</u>
Total Uses	<u>\$10,291,450.35</u>

**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	694,700.00	-
12/01/2020	385,000.00	2.000%	150,450.00	535,450.00	-	-
06/01/2021	-	-	146,600.00	146,600.00	842,050.00	-
12/01/2021	395,000.00	3.000%	146,600.00	541,600.00	-	-
06/01/2022	-	-	140,675.00	140,675.00	982,725.00	-
12/01/2022	410,000.00	3.000%	140,675.00	550,675.00	-	-
06/01/2023	-	-	134,525.00	134,525.00	1,117,250.00	-
12/01/2023	425,000.00	5.000%	134,525.00	559,525.00	-	-
06/01/2024	-	-	123,900.00	123,900.00	1,241,150.00	-
12/01/2024	445,000.00	5.000%	123,900.00	568,900.00	-	-
06/01/2025	-	-	112,775.00	112,775.00	1,353,925.00	-
12/01/2025	470,000.00	5.000%	112,775.00	582,775.00	-	-
06/01/2026	-	-	101,025.00	101,025.00	1,454,950.00	-
12/01/2026	495,000.00	5.000%	101,025.00	596,025.00	-	-
06/01/2027	-	-	88,650.00	88,650.00	1,543,600.00	-
12/01/2027	515,000.00	3.000%	88,650.00	603,650.00	-	-
06/01/2028	-	-	80,925.00	80,925.00	1,624,525.00	-
12/01/2028	530,000.00	3.000%	80,925.00	610,925.00	-	-
06/01/2029	-	-	72,975.00	72,975.00	1,697,500.00	-
12/01/2029	545,000.00	3.000%	72,975.00	617,975.00	-	-
06/01/2030	-	-	64,800.00	64,800.00	1,762,300.00	-
12/01/2030	565,000.00	3.000%	64,800.00	629,800.00	-	-
06/01/2031	-	-	56,325.00	56,325.00	1,818,625.00	-
12/01/2031	580,000.00	3.000%	56,325.00	636,325.00	-	-
06/01/2032	-	-	47,625.00	47,625.00	1,866,250.00	-
12/01/2032	595,000.00	3.000%	47,625.00	642,625.00	-	-
06/01/2033	-	-	38,700.00	38,700.00	1,904,950.00	-
12/01/2033	615,000.00	3.000%	38,700.00	653,700.00	-	-
06/01/2034	-	-	29,475.00	29,475.00	1,934,425.00	-
12/01/2034	635,000.00	3.000%	29,475.00	664,475.00	-	-
06/01/2035	-	-	19,950.00	19,950.00	1,954,375.00	-
12/01/2035	655,000.00	3.000%	19,950.00	674,950.00	-	-
06/01/2036	-	-	10,125.00	10,125.00	1,964,500.00	-
12/01/2036	675,000.00	3.000%	10,125.00	685,125.00	-	-
06/01/2037	-	-	-	-	1,964,500.00	-
<b>Total</b>	<b>39,710,000.00</b>		<b>\$3,785,110.00</b>	<b>\$13,495,110.00</b>		

Yield Statistics	
Bond Year Dollars	\$116,777.75
Average Life	12.027 Years
Average Coupon	3.24129328%
Net Interest Cost (NIC)	2.8696769%
True Interest Cost (TIC)	2.8636045%
Bond Yield for Arbitrage Purposes	2.8771734%
All Inclusive Cost (AIC)	2.9492157%
IRS Form 8038	
Net Interest Cost	2.6419092%
Weighted Average Maturity	11.783 Years

2016 Rev | SINGLE PURPOSE | 11/7/2016 | 10:16 AM

ZIONS  PUBLIC FINANCE, INC.

Page 1

## **Appendix B**

### **Cost Estimates**

**City of Saratoga Springs Capital Facility Plan  
Secondary Water Recommended Improvements  
Preliminary Engineers Cost Estimates**

Item	Unit	Unit Price	Quantity	Total Price
<b>SW 1. Zone 1 North Storage and Pipeline</b>				
Construct New Pond 16 AC*FT	AC*FT	\$ 120,000	16	\$ 1,920,000
Land Acquisition	LS	\$ 635,000	1	\$ 635,000
30" DIP Transmission Water Line	LF	\$ 275	2200	\$ 605,000
			Engineering & Admin. (10%)	\$ 316,000
			Contingency (10%)	\$ 316,000
<b>Total for Zone 1 North Storage and Pipeline</b>				<b>\$ 3,792,000</b>
<b>SW 2. Equip Well 8 with Transmission</b>				
Equip Well 8	LS	\$ 100,000	1	\$ 100,000
12" DIP Transmission Line to Connect to System	LF	\$ 111	6500	\$ 721,500
			Engineering & Admin. (10%)	\$ 82,150
			Contingency (10%)	\$ 82,150
<b>Total for Equip Well 8 with Transmission</b>				<b>\$ 986,000</b>
<b>SW 3. Zone 2 South Pond</b>				
Construct New Pond - 5.5 AC*FT	AC*FT	\$ 120,000	5.5	\$ 660,000
Land Acquisition	Acre	\$ 100,000	3	\$ 300,000
20 " Tranmission Line	LF	\$ 160	2200	\$ 352,000
12" DIP Transmission Line	LF	\$ 111	900	\$ 99,900
			Engineering & Admin. (10%)	\$ 141,190
			Contingency (10%)	\$ 141,190
<b>Total for Zone 2 South Pond</b>				<b>\$ 1,694,000</b>
<b>SW 4. Zone 2 North Pond</b>				
16" DIP Transmission to Storage	LF	\$ 136	3600	\$ 489,600
Pumpstation to Zone 2 Pond (150 HP & 3000 gpm)	LS	\$ 550,000	1	\$ 550,000
Land Acquisition	Acre	\$ 100,000	4	\$ 400,000
Zone 2 North Storage (6 Ac*ft)	AC*FT	\$ 120,000	6	\$ 720,000
			Engineering & Admin. (10%)	\$ 215,960
			Contingency (10%)	\$ 215,960
<b>Total for Zone 2 North Pond</b>				<b>\$ 2,592,000</b>
<b>SW 5. Zone 3 North Pond 20"/16" Pipeline(Mt. Saratoga)</b>				
16" DIP Transmission Line to Storage	LF	\$ 136	6600	\$ 897,600
Rock Excavation	LF	\$ 20	6600	\$ 132,000
Pumpstation to Zone 3 Pond (100 HP & 1350 gpm)	LS	\$ 500,000	1	\$ 500,000
Land Acquisition	Acre	\$ 100,000	4	\$ 400,000
Zone 3 North Storage (5.2 Ac*ft)	AC*FT	\$ 120,000	5.2	\$ 624,000
			Engineering & Admin. (10%)	\$ 255,360
			Contingency (10%)	\$ 255,360
<b>Total to Zone 3 North Pond 20"/16" Pipeline(Mt. Saratoga)</b>				<b>\$ 3,064,000</b>
<b>SW 6. Zone 3 North Pond with Pump Station and 16" Pipeline(Wildflower)</b>				
16" DIP Transmission Line to Storage	LF	\$ 136	10700	\$ 1,455,200
12" DIP Transmission Line to Storage	LF	\$ 111	5000	\$ 555,000
Rock Excavation	LF	\$ 20	15700	\$ 314,000
Filter Station	LS	\$ 400,000	1	\$ 400,000
Turnout at Welby Jacob Canal	LS	\$ 200,000	1	\$ 200,000
Pump Station @ Welby Jacob Canal (1,200 gpm)	LS	\$ 350,000	1	\$ 350,000
Zone 3 Storage (5.5 Ac*ft)	AC*FT	\$ 120,000	5.5	\$ 660,000
Land Acquisition	Acre	\$ 100,000	2.5	\$ 250,000
			Engineering & Admin. (10%)	\$ 418,420
			Contingency (10%)	\$ 418,420
<b>Total to Zone 3 North Pond with Pump Station and 16" Pipeline(Wildflower)</b>				<b>\$ 5,021,000</b>
<b>SW 7. New Well in Zone 2 South Area</b>				
New Well	LS	\$ 1,000,000	1	\$ 2,000,000
New Connection to Transmission	LS	\$ 83,000	1	\$ 83,000
			Engineering & Admin. (10%)	\$ 208,300
			Contingency (10%)	\$ 208,300
<b>Total to New Well in Zone 2 South Area</b>				<b>\$ 2,500,000</b>
<b>SW 8. Equip Wells 7 and Other Well Near Well 4</b>				

**City of Saratoga Springs Capital Facility Plan  
Secondary Water Recommended Improvements  
Preliminary Engineers Cost Estimates**

Item	Unit	Unit Price	Quantity	Total Price
Equip Well 7	LS	\$ 100,000	1	\$ 100,000
Equip Well near Well 4	LS	\$ 100,000	1	\$ 100,000
18" DIP Transmission Line	LF	\$ 152	7400	\$ 1,124,800
16" DIP Transmission Line	LF	\$ 136	7600	\$ 1,033,600
14" DIP Transmission Line	LF	\$ 128	1200	\$ 153,600
New Connection to Transmission	LS	\$ 100,000	1	\$ 100,000
			Engineering & Admin. (10%)	\$ 261,200
			Contingency (10%)	\$ 261,200
			<b>Total to Equip Wells 7 and Other Well Near Well 4</b>	<b>\$ 3,134,000</b>

**SW 9. Zone 1 North Pond (Church Property)**

16" DIP Transmission Line to Storage	LF	\$ 136	3300	\$ 448,800
24" DIP Transmission Line to Storage	LF	\$ 188	17400	\$ 3,271,200
Land Acquisition	Acre	\$ 100,000	3	\$ 300,000
Zone 1 Storage (8 Ac*ft)	AC*FT	\$ 120,000	8	\$ 960,000
			Engineering & Admin. (10%)	\$ 498,000
			Contingency (10%)	\$ 498,000
			<b>Total to Zone 1 North Pond (Church Property)</b>	<b>\$ 5,976,000</b>