



SARATOGA
SPRINGS

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PRESSURIZED IRRIGATION IMPACT FEE FACILITY PLAN

(HAL Project No.: 360.63.200)

February 2025

CITY OF SARATOGA SPRINGS

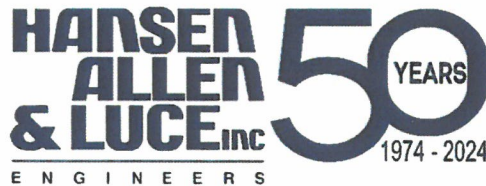
PRESSURIZED IRRIGATION IMPACT FEE FACILITY PLAN

(HAL Project No.: 360.63.200)



Kai Krieger, P.E.

Project Manager



February 2025

IMPACT FEE CERTIFICATION

The Utah Impact Fee Act (Chapter 11-36a of the Utah Code) requires certifications for the Impact Fee Facilities Plan (IFFP). Hansen, Allen & Luce provides these certifications with the understanding that the recommendations in the IFFP are followed by City Staff and elected officials. If all or a portion of the IFFP is modified or amended, or if assumptions presented in this analysis change substantially, this certification is no longer valid.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 is assumed to be correct, complete, and accurate.

IFFP Certification

Hansen, Allen & Luce, Inc. certifies that the IFFP 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; and
3. Complies in each and every relevant respect with the Impact Fees Act.

HANSEN, ALLEN & LUCE, INC.

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SUMMARY OF PRESSURIZED IRRIGATION IFFP

Per Utah Code Section 11-36a-502, this is a summary of the impact fee facilities plan designed to be understood by a lay person.

The proposed pressurized irrigation system impact fee for a typical single-family residential connection is \$12,646, which is an increase of \$130 from the previous fee of \$12,516.

The **purpose** of the IFFP 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 identifying the means by which the City of Saratoga Springs (City) will meet these new demands. This analysis is an update to the Pressurized Irrigation IFFP prepared in 2022 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 the growth projections. The City has experienced periods of rapid growth since 2000. Zion Public Finance, Inc. prepared growth projections through 2034 for the City, included in Appendix A. When compared to the growth projections included in the 2022 Pressurized Irrigation IFFP, the updated growth projections anticipate more rapid growth over the coming 10 years. A number of large capital facility projects are required to meet this anticipated growth.

The PI system impact fee **service area** is the current City boundary. The existing system irrigated about 2,546 acres at the beginning of 2023. Projected **growth** adds 1,196 irrigated acres in the next 10 years for a total of 3,742 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 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 comes first. Irrigated acres are the recommended **fee unit** for calculating the impact fee. The typical single-family residential PI water use includes irrigated area in park strips and neighborhood parks in the development. For this study the typical single-family residential irrigated area is assumed to be 0.24 acres.

It is proposed that the **level of service** for the PI system does not change from the previous IFFP. 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 existing capacity** and new projects required entirely to provide capacity for the new development. Refer to the Impact Fee Analysis for additional details regarding the proposed impact fee for the pressurized irrigation system.

CHAPTER 1 - INTRODUCTION

1.1 BACKGROUND

The City has experienced significant 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 undeveloped land available for future growth. As this growth continues, additional facilities will be required to maintain an adequate water system that meets the City's level of service for outdoor water use.

The City has recognized the importance of planning for increased demands from new development as a result of rapid growth. A PI IFFP update was required to address changes in conditions and assumptions that result in an increase in the proposed PI impact fee.

1.2 PURPOSE

The purpose of the IFFP is to comply with the requirements of the Utah Impact Fees Act by identifying demands placed on the existing PI system by new development and identifying the means by which the City will meet these new demands. This analysis is an update to the Pressurized Irrigation IFFP prepared in 2022.

This report identifies those items that the Utah Impact Fees Act specifically requires including demands placed upon existing facilities by new development and the proposed means by which the municipality will meet those demands. In preparing this report a systematic approach was utilized to evaluate the existing and planned PI facilities identified in the City's master planning efforts. Each facility's capacity was evaluated in accordance with the new level of service to determine the appropriate share between existing demand and future demands. This approach was used 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. The following analyses were performed to meet the study's objectives:

- 1) Identify the existing and proposed City PI facilities;
- 2) Identify the existing level of service for the system;
- 3) Identify the 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) Identify public facilities for which an impact fee may be charged or required for a school district or charter school if the local political subdivision is aware of the planned location of the school district facility or charter school;
- 8) Project growth in water demands attributable to new development within the existing system;

- 9) Determine projects required to provide the proposed level of service to future development without compromising the existing system;
- 10) Establish construction phasing of proposed capital facilities;
- 11) Prepare detailed cost estimates for each proposed project;
- 12) Determine if proposed projects will provide capacity for growth beyond the IFFP planning period;
- 13) 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

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. Impact fees enable local governments to finance public facility improvements necessary to service new developments without burdening existing development with capital facilities construction costs that are exclusively attributable to growth.

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

This analysis is an update to the PI System IFFP prepared in 2022 to address changes in conditions and assumptions that result in an increase in the proposed PI impact fee. The IFFP identifies all capital facilities required of the PI system for the 10-year planning window including maintenance, repair, replacement, as well as growth related project recommendations. The recommendations made within the IFFP report comply with current City policies and standard engineering practices.

A hydraulic model of the PI system was prepared to aid in the analyses performed to complete the IFFP and Impact Fee Analysis (IFA). The model was used to assess existing performance and 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.

CHAPTER 2 - EXISTING PRESSURIZED IRRIGATION SYSTEM

2.1 GENERAL

The purpose of this chapter is to provide information regarding the existing PI 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. Public facilities including existing and future school districts and charter school developments were also identified. Specific impact fees for these public facilities have been included in the IFA.

The City's existing PI system is comprised of a pipe network, storage ponds, and water sources. The system is master planned to be an independent system; however, it 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, PI system facilities will be constructed to increase the capacity of the PI system, thus freeing up capacity for future drinking water demands. For both the Drinking Water Master Plan and the Pressurized Irrigation Master Plan, each system was analyzed with no sharing of capacity for future projections. Figure 2-1 shows a map of the existing PI system.

2.2 PRESSURE ZONES

Currently, the PI system has four pressure zones, however Pressure Zones 2 and 3 are split into north and south sections as they are not interconnected. Only Pressure Zone 1 is currently interconnected. Pressure zones are identified on Figure 2-1.

2.3 PI METERS

The PI system 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 the City's adopted level of service. By installing meters and implementing a fee schedule that promotes water conservation, the City has encouraged residents to use water in a matter that resembles the selected level of service.

2.4 IRRIGATED ACRES

Outdoor water demands are based on irrigated acreage. An irrigated acre is the unit used for the PI system impact fee and represents the area which is being irrigated per connection. For typical single-family residential developments, irrigable acreage is 64% of the land being developed. The number of irrigated acres for multi-family and non-residential developments is based on actual landscaped areas. The percentage of irrigated area is 90% of the total area for open space and neighborhood parks. For new development, Title 19 of the 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 typical single-family residential connection for reference. A typical single-family residential connection 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 2,546 acres, which requires an annual irrigation volume of 7,969 acre-feet. This includes all development that has been platted,

assumes 64% of land developed is irrigated 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 PI system. Therefore, the existing system provides capacity for these recorded developments whether building permits have been issued or not.

2.5 SCHOOL RELATED INFRASTRUCTURE

As part of the noticing and data collection process for this plan, information was gathered regarding existing and future school district and charter school development. Where the City is aware of the planned location of a school, required public facilities to serve the school have been included in the impact fee analysis. Table 2-1 shows the existing schools and the irrigated acreage of each school.

TABLE 2-1: EXISTING SCHOOLS

School Name	Location / Address	Irrigated Acreage	Type of School
Harvest Elementary	2105 N Providence Dr	6.09	Elementary School
Riverview Elementary	273 Aspen Hills Blvd	7.46	Elementary School
Thunder Ridge Elementary	264 N 750 W	¹ N/A	Elementary School
Sage Hills Elementary	3033 W Swainson Ave	2.44	Elementary School
Saratoga Shores Elementary	1415 S Parkside Dr	² N/A	Elementary School
Springside Elementary	694 S Highpoint Dr	4.83	Elementary School
Lake Mountain Middle School	1058 S Old Farm Rd	19.85	Junior High School
Vista Heights Middle School	484 Pony Express Pkwy	¹ N/A	Junior High School
West Lake High School	99 N 200 W	12.31	High School
Lakeview Academy of Science Arts and Technology	527 W 400 N	2.30	Charter
Horizon Special Needs School	682 W 210 N, Marie Way	¹ N/A	Special Purpose
Mountain Sunrise Academy	1802 E 145 N	1.89	Charter
Harbor Point Elementary	4189 S Schooner Dr.	5.78	Elementary School
Ascent Academies of Utah	992 W Chianti St.	2.82	Charter
	1692 N Chianti St.	2.15	

¹Irrigated acreage is not applicable because Alpine School District provides all PI water to schools.

²Saratoga Shores Elementary does not have a connection to the PI system and uses drinking water for irrigation.

Table 2-2 shows the best available information regarding planned schools. Each table will be updated as additional schools are planned and constructed.

TABLE 2-2: PLANNED SCHOOLS

School Name	Location / Address
Planned Junior High	Parcel 58:023:0274
Planned Charter School	Wildflower Development; Parcel 58:033:0544
Planned Elementary School	Mt Saratoga Development; Parcel 58:034:0737
Planned Elementary School	Wander Development; Parcel 58:035:0138
Planned High School	Parcels 58:041:0187 and 58:041:0279
Lakeview Academy of Science Arts and Technology Expansion	Parcel 45:511:0001

Currently, the City provides PI water to 11 schools within City limits. Each existing and new school connected to the PI system directly results in the need for additional improvements to public facilities. Therefore, impact fees for new schools will be calculated based on the irrigated acreage served by the PI system.

2.6 LEVEL OF SERVICE

The level of service for the PI system is an annual volume of 3.13 acre-feet per irrigated acre while maintaining a pressure of at least 30 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 2-3 provides the level of service for the PI system per irrigated acre and Table 2-4 provides the level of service per typical residential connection. The level of service represents the historic level of service the system has been designed to serve and is consistent with recent measured use. The level of service also represents the capacity needed to irrigate turf in the City and accounts for factors such as the quality of water available to the City and unavoidable system losses. PI water sources within the City are high in dissolved salts, which require residents to use more water than other areas of the state.

**TABLE 2-3: LEVEL OF SERVICE
(PER IRRIGATED ACRE)**

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

**TABLE 2-4: LEVEL OF SERVICE
(PER TYPICAL RESIDENTIAL CONNECTION)**

Criteria	Typical Value
Irrigated Acres	0.24
Average Yearly Demand (Source Volume) ac-ft/yr per connection	0.75
Peak Day Demand (Source Flow) gpm/connection	1.80
Peak Instantaneous Demand (Transmission) gpm/connection	3.60
Storage gal/connection	2,212

2.7 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 PI system was assessed a capacity in terms of irrigated acres. The components include the following: Source (wells, pump stations and transmission lines), Storage (ponds), and Water Rights. Each component was also assigned a number of existing irrigated acres. The difference between the capacity and existing demand for each component is the remaining capacity. For example, to calculate the remaining capacity for source, the required source for existing users in irrigated acres is subtracted from the capacity of the wells and surface water sources in irrigated acres. For storage, the required storage for existing users is subtracted from the capacity of the storage ponds to calculate the remaining capacity for storage.

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

2.8 WATER SOURCES

The City 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 PI system to borrow water from the drinking water system in areas where the PI system is not yet connected. In the coming years, the PI system will become self-sustaining and will not need to borrow capacity from the drinking water system. Canal source capacities are represented by the capacity of pump stations at the canals. Table 2-5 summarizes the capacity of each PI source.

TABLE 2-5: EXISTING WATER SOURCES

Name	Flow Capacity (gpm)	Capacity (Irr. Acre)
Well 1 - Parkway Trail	800	106.7
Well 2 - Bike Park	900	120.0
Well 3 - 145 North Well	500	66.7

Well 4 - HH 2	800	106.7
Well 5 - Jacobs Ranch (Western Dr.)	3,500	466.7
Booster 1 - ULDC Source	1,100	146.7
Booster 36 - Marina	4,000	533.3
Booster 32 - 400 North	5,000	666.7
Booster 31 - Jacob Canal	2,230	297.3
Total	18,830	2,510.8

2.9 DISTRIBUTION SYSTEM

Pipe diameters range from 6 inches to 30 inches, with the majority being 6 inches within subdivisions. The larger pipes in the system serve as transmission lines to deliver water from storage ponds during peak day scenarios and to deliver water from sources. All pipes have been constructed in the last 25 years and are in good condition. The City's current standard allows for Ductile Iron Pipe (DIP) for pipe diameters larger than 18 inches and Polyvinyl Chloride (PVC) pipe for pipes up to and including 18 inches.

2.10 STORAGE FACILITIES

The City currently operates 11 water storage ponds for the PI system. Storage requirements are determined on a per irrigable acre basis. The total storage capacity is 113.4 acre-feet. All ponds were constructed in the last 20 years and are in good condition.

The capacity of each pond was analyzed in respect to the pressure zone it serves. The storage ponds were analyzed as requiring 9,216 gallons per irrigable acre. Table 2-6 summarizes the storage facility information. Some of the ponds in the system are not used for equalization but for pump operation. These ponds do not have usable equalization capacity and were not included in Table 2-6.

TABLE 2-6: EXISTING STORAGE POND SUMMARY

Pressure Zone	Pond Name	Capacity (Acre-feet)	Capacity (Irr. Acre)
1	Pond 1 - Overlook	2.7	95.5
1	Pond 8 - Evans Lane	17	601.1
2 North	Pond 3 - Harvest Moon	9	318.2
2 North	Pond 9 - Mt. Saratoga Zn. 2	13	459.6
2 South	Pond 2 - Deer Canyon	1.5	53.0
2 South	Pond 6 - Israel Canyon Zn. 2	38	1,343.6
2 South	Pond 20 - Harbor Parkway	11	388.9
3 North	Pond 10 - Mt. Saratoga Zn. 3	5.6	198.0
3 North	Pond 4 - Wildflower Zn. 3	5	176.8
3 South	Pond 7 - Fox Hollow Zn. 3	6	212.1
4 North	Pond 11 - Wildflower Zn. 4	4.6	162.6
Total		113.4	4,009.4

The capacity of the system is summarized in Table 2-7. Currently, there is an overall excess capacity of 41.4 ac-ft of storage.

TABLE 2-7: EXISTING STORAGE SUMMARY

Service Zone	Irrigated Acreage	Storage Requirement (ac-ft)	Existing Capacity (ac-ft)	Surplus (+) Deficiency (-) (ac-ft)
1	1,026	29.0	19.7	- 9.3*
2 North	495	14.0	22.0	+ 8.0
2 South	729	20.6	50.5	+ 29.9
3 North	222	6.3	10.6	+ 4.3
3 South	75	2.1	6.0	+ 3.9
4 North	0	0.0	4.6	+ 4.6
Total	2,547	72.0	113.4	+ 41.4

* Zone 2 South currently supplies excess storage capacity for Zone 1

2.11 WATER RIGHTS AND REMAINING CAPACITY

The City owns a total of 15,007 acre-feet of water rights based on diversion that can be used between the drinking water and PI systems. The existing demand at the proposed level of service of 3.13 acre-feet per irrigated acre is 7,969 acre-feet. The existing supply of water rights attributed to the PI system exclusively is 6,655 acre-feet. The remaining capacity is supplemented from the excess capacity from drinking water rights which may be used for either system.

Table 2-8 summarizes the water rights owned by the City.

TABLE 2-8: EXISTING WATER RIGHT CAPACITY

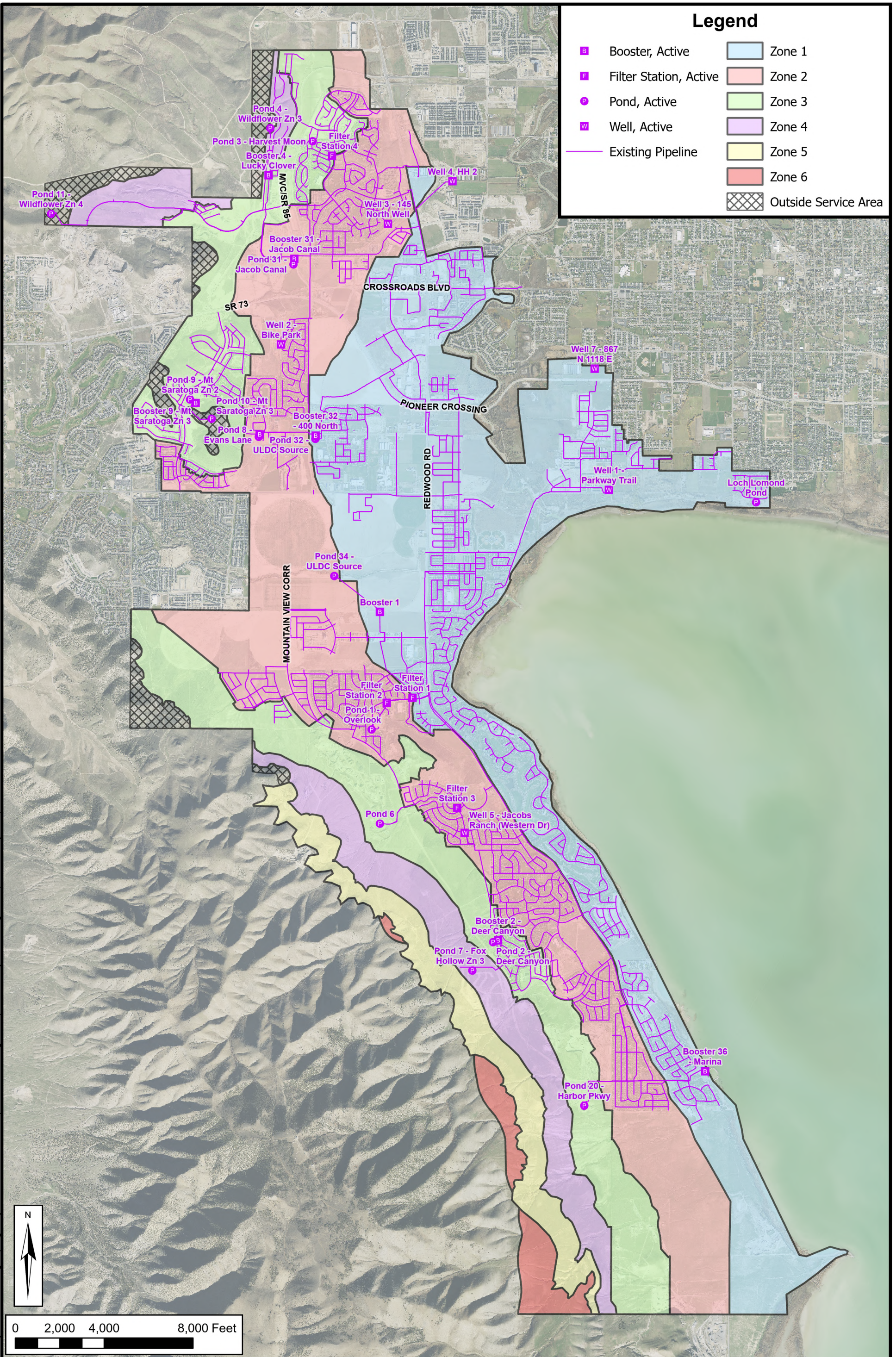
DW Well Water Rights (acre-feet)	PI Water Rights (acre-feet)	Total City Water Rights (acre-feet)
8,352	6,655	15,007

2.12 CAPITAL FACILITIES TO MEET SYSTEM DEFICIENCIES

Combined with the drinking water system, the existing PI system meets the proposed level of service. The PI system is master planned to be an independent system, but currently the PI system is supplemented by excess capacity in the drinking water system to serve isolated areas of the system. PI system facilities will be constructed to connect all the isolated areas. A Drinking Water Master Plan was prepared in conjunction with the PI Master Plan. For both the Drinking Water Master Plan and the PI Master Plan, each system was analyzed with no sharing of capacity for future projections. Additional information regarding the drinking water system may be found in the Drinking Water 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 PI 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.

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CHAPTER 3 - FACILITIES TO MEET FUTURE GROWTH

3.1 GROWTH PROJECTIONS

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

The existing system irrigates approximately 2,546 acres. Growth projections for the next 10 years were provided by Zions Public Finance Inc. and have been included in Appendix A and Table 3-1. Locations likely to develop within the next 10 years were identified by City staff. Based on the current zoning and population estimates from Zions Public Finance Inc., it was estimated that the future irrigated acres in 2034 would be 3,742. The annual growth rate from the “Base Case” was applied to the years between 2023 and 2034 to project the irrigated acres each year.

TABLE 3-1: GROWTH PROJECTIONS

Year	Total Projected Irrigated Acres
2023	2,546
2034	3,742

3.2 COST OF FUTURE FACILITIES

The projects presented in Table 3-2 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 3-2: COST OF FUTURE FACILITIES

Project Title	Map ID	Source Conveyance	Storage	Total
Well 7 Pipeline	PI01	\$162,000	\$0	\$162,000
New Jacobs Ranch Well	PI02	\$4,800,000	\$0	\$4,800,000
Grandview 15 ac-ft Storage Pond	PI03	\$5,980,000	\$7,072,500	\$13,053,000
Tickville Wash Pump Station	PI04	\$8,165,000	\$4,715,000	\$12,880,000
MVC/Tickville Wash Pipeline	PI05	\$3,180,000	\$0	\$3,180,000
New Well Drilling Equipping	PI06	\$5,738,500	\$0	\$5,739,000
Total		\$28,025,500	\$11,787,500	\$39,814,000

Note: See Figure 3-1 for a map of projects

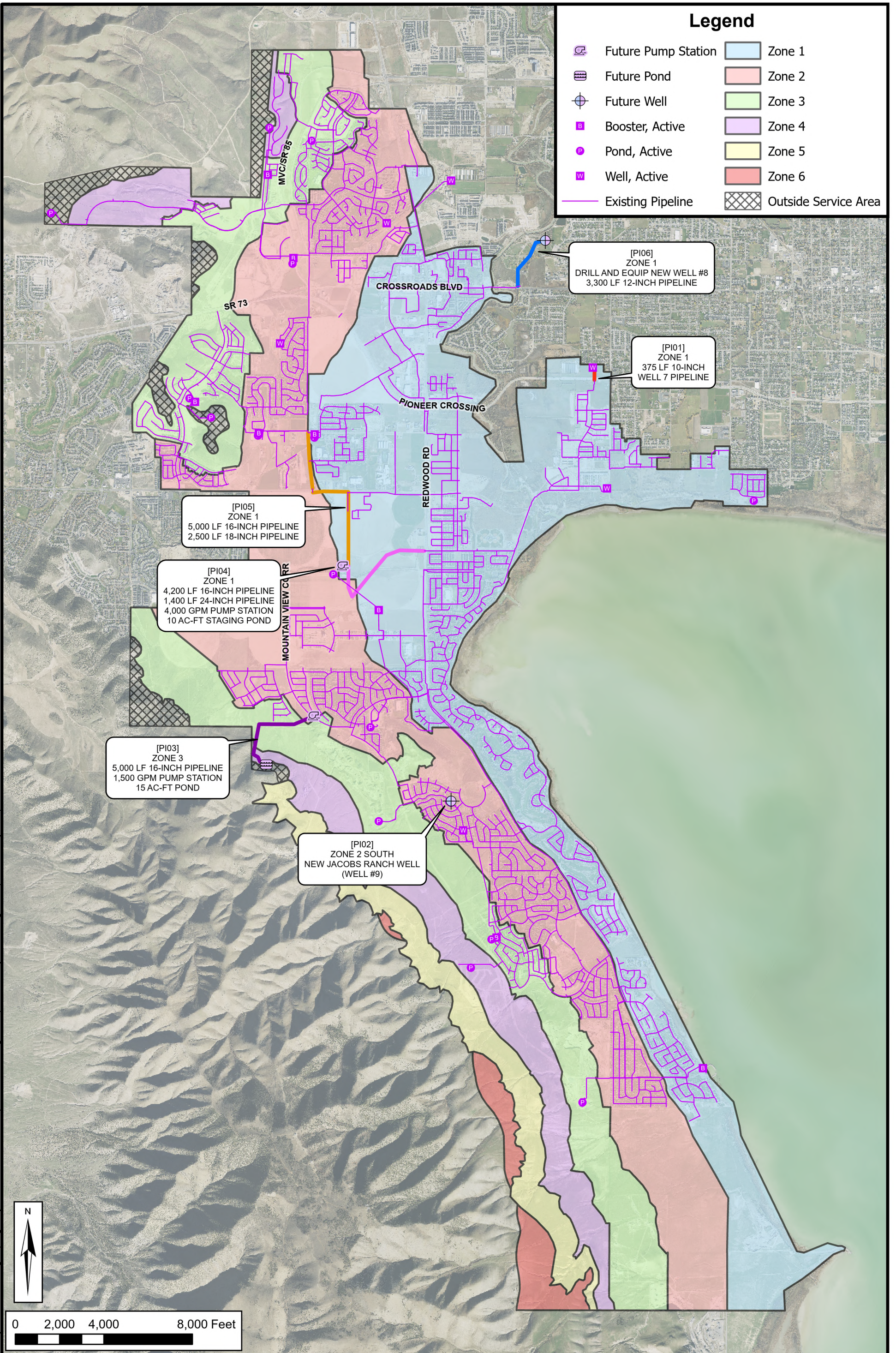
Only those costs attributed to the new growth in the next 10 years can be included in the impact fee. Interest for bonds used to pay for existing facilities is included in the impact fee eligible project costs. The City only uses impact fees to pay bond payments for bonds used to pay for impact fee eligible projects. Financing costs are not included in the projected cost of future projects.

Table 3-3 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 growth beyond 10 years. There is a total of \$28,025,500 attributed to source with a capacity of 1,005 irrigated acres, a total of \$16,514,138 for storage with a capacity of 1,196 irrigated acres, and a total of \$13,154,589 for water rights with a capacity of 1,196 irrigated acres anticipated over the next 10 years. The total anticipated cost for the next 10 years is \$57,694,227. 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 3-3: FACILITY COST BY TIME PERIOD

	Existing	Next 10 Years	Beyond 10 Years	TOTAL
Source Conveyance	\$0	\$28,025,500	\$0	\$28,025,500
Storage	\$3,700,493	\$16,514,138	\$7,320,075	\$27,534,706
Water Rights	\$0	\$13,154,589	\$0	\$13,154,589
TOTAL COST	\$3,700,493	\$57,694,227	\$7,320,075	\$66,714,795

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APPENDIX A

Growth Memorandum

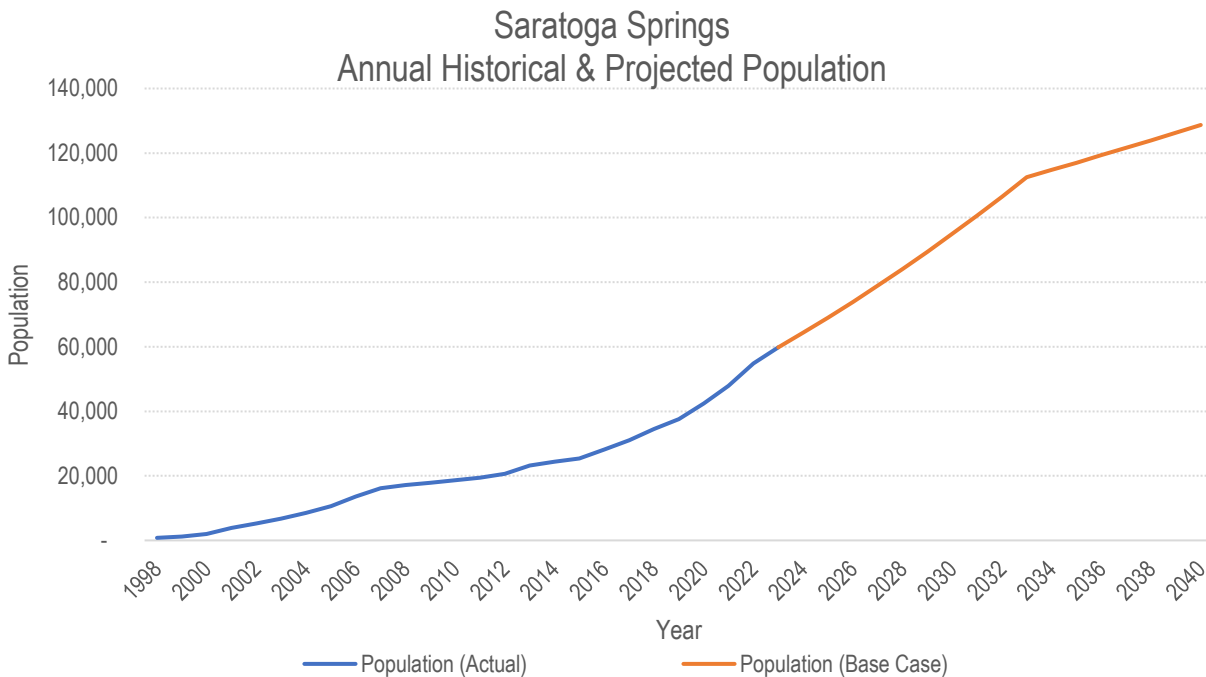
GROWTH PROJECTIONS MEMORANDUM

Historic and Projected Growth

Saratoga Springs continues its historically robust pace of growth as of March 2024. Indeed, over the trailing five-year period from 2018-2023, the City's population has increased at an average annual growth rate of 11.6 percent, reaching a new record population of 59,812 as of 2023. This comprises an absolute increase of 25,288 people since the close of 2018.

Zions projects Saratoga Springs to grow at an average annual growth rate of 6.1 percent, or 4,996 people, per-year over the period 2024-2034. Over the longer period of 2035-2040, Zions projects an average annual growth rate of 4.8 percent, at 4,157 people per year. In the year 2040 this would place Saratoga Springs total population at approximately 130,000 people.

CHART 1: SARATOGA SPRINGS ANNUAL HISTORICAL AND PROJECTED POPULATION



In generating these projections, Zions implemented a linear model coupled with upper and lower prediction intervals calculated at the 95% probability level to provide a base case long-term population growth scenario.

- **Base Case** – this scenario projects forward population levels assuming the mean growth of the City throughout its history. This is Zions recommended scenario.

The total population scenario is provided in the table below.

TABLE 1: HISTORIC ACTUAL AND PROJECTED POPULATION SCENARIO

Year	Population (Actual)	Projected Population (Base Case)
1998	795	-
1999	1,240	-
2000	1,984	-
2001	3,898	-
2002	5,267	-
2003	6,714	-
2004	8,520	-
2005	10,645	-
2006	13,574	-
2007	16,162	-
2008	17,135	-
2009	17,817	-
2010	18,624	-
2011	19,452	-
2012	20,663	-
2013	23,180	-
2014	24,403	-
2015	25,401	-
2016	28,138	-
2017	31,059	-
2018	34,524	-
2019	37,581	-
2020	42,449	-
2021	47,840	-
2022	54,875	-
2023	59,812	-
2024	-	64,334
2025	-	69,022
2026	-	73,877
2027	-	78,898
2028	-	84,085
2029	-	89,438
2030	-	94,958
2031	-	100,644
2032	-	106,496
2033	-	112,514
2034	-	114,764
2035	-	117,035
2036	-	119,328
2037	-	121,641
2038	-	123,974
2039	-	126,327
2040	-	128,698

Next, considering the recommended population scenario, we highlight annual percentage changes in the table below.

TABLE 2: ANNUAL PERCENT CHANGE IN PROJECTED POPULATION GROWTH

Year	Projected Population (Base Case)	YoY% Growth
2024	64,334	7.6%
2025	69,022	7.3%
2026	73,877	7.0%
2027	78,898	6.8%
2028	84,085	6.6%
2029	89,438	6.4%
2030	94,958	6.2%
2031	100,644	6.0%
2032	106,496	5.8%
2033	112,514	5.7%
2034	114,764	2.0%
2035	117,035	2.0%
2036	119,328	2.0%
2037	121,641	1.9%
2038	123,974	1.9%
2039	126,327	1.9%
2040	128,698	1.9%

Additionally, we provide year-over-year growth figures in count of people below in table 3.

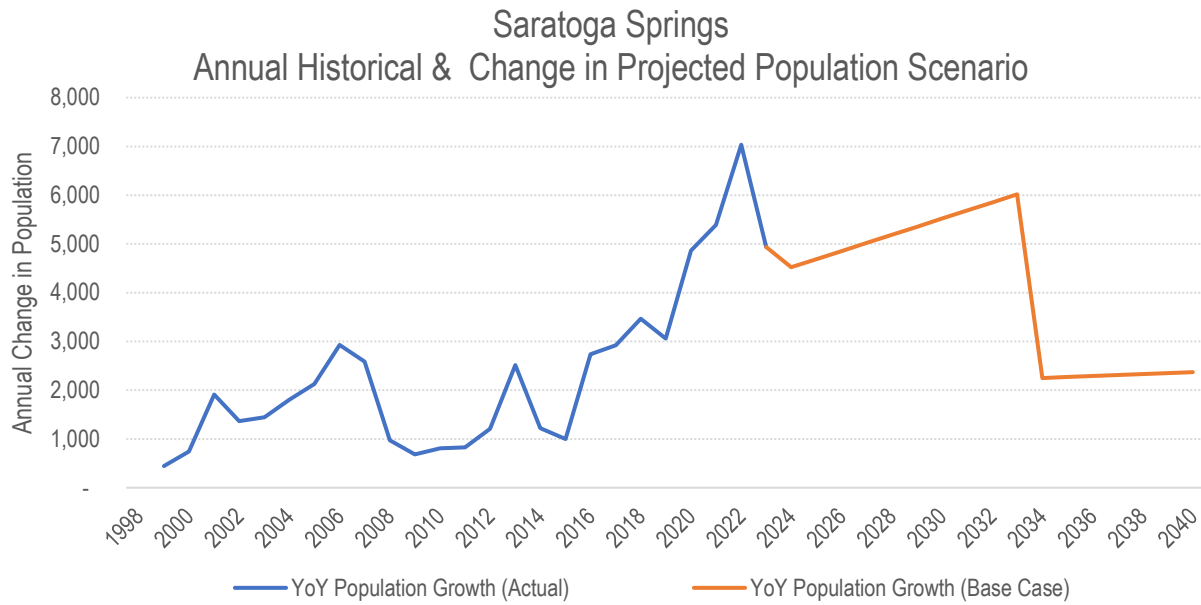
TABLE 3: ANNUAL CHANGE IN HISTORIC AND PROJECTED POPULATION GROWTH

Year	YoY Population Growth (Actual)	YoY Population Growth (Base Case)
1998	-	-
1999	445	-
2000	744	-
2001	1,914	-
2002	1,369	-
2003	1,447	-
2004	1,806	-
2005	2,125	-
2006	2,929	-
2007	2,588	-
2008	973	-
2009	682	-
2010	807	-
2011	828	-
2012	1,211	-
2013	2,517	-
2014	1,223	-
2015	998	-
2016	2,737	-
2017	2,921	-

Year	YoY Population Growth (Actual)	YoY Population Growth (Base Case)
2018	3,465	-
2019	3,057	-
2020	4,868	-
2021	5,391	-
2022	7,035	-
2023	4,937	-
2024	-	4,522
2025	-	4,688
2026	-	4,855
2027	-	5,021
2028	-	5,187
2029	-	5,353
2030	-	5,520
2031	-	5,686
2032	-	5,852
2033	-	6,018
2034	-	2,249
2035	-	2,271
2036	-	2,292
2037	-	2,313
2038	-	2,333
2039	-	2,353
2040	-	2,372
Avg. Forward Growth/Year		4,052

Next, utilizing historical data regarding residential units added annually, we can understand the relationship between population growth and the growth of residential units in the community. This historical record of residential units added annually with forward projections is provided below.

CHART 2: SARATOGA SPRINGS HISTORICAL & PROJECTED RESIDENTIAL UNITS ADDED ANNUALLY



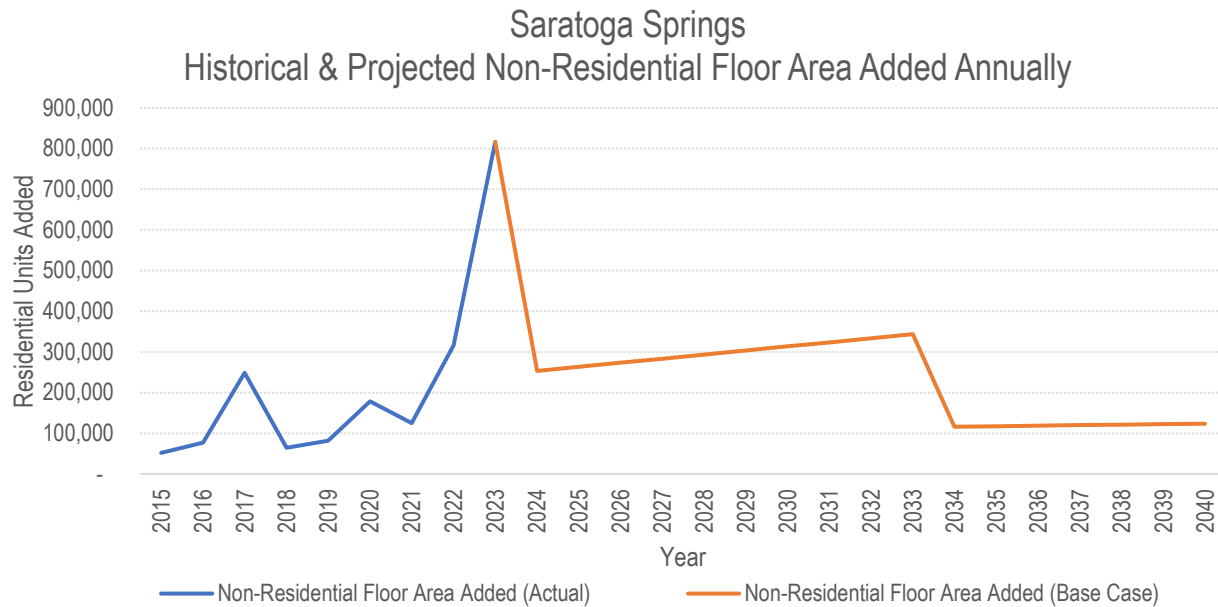
When analyzing the forward growth of residential units within Saratoga Springs, we again note the recommended base case scenario. This data is provided in table 4 below.

TABLE 4: HISTORICAL AND PROJECTED RESIDENTIAL UNITS ADDED ANNUALLY

Year	Residential Units Added (Actual)	Residential Units Added (Base Case)
2013	438	-
2014	315	-
2015	382	-
2016	812	-
2017	620	-
2018	666	-
2019	730	-
2020	1,536	-
2021	1,763	-
2022	1,091	-
2023	1,161	-
2024	-	1,065
2025	-	1,100
2026	-	1,135
2027	-	1,169
2028	-	1,204
2029	-	1,238
2030	-	1,273
2031	-	1,307
2032	-	1,342
2033	-	1,377
2034	-	592
2035	-	597
2036	-	601
2037	-	606
2038	-	610
2039	-	614
2040	-	618
Avg. Forward Growth/Year		968

Finally, we also provide a forecast of non-residential floor area added annually. We note that 2023 added non-residential floor area in an amount of 816,317 square feet, which stands 5.7x the historical average from 2015-2022. This is above trend, and while certainly possible to continue in the future, 2024 floor area constructed thus far is 151,770 square feet. Our statistical calculations predict 2024 to end with 322,719 square feet constructed in total. However, we acknowledge that the City has additional tangible, on-the-ground, knowledge regarding permitted construction that may diverge from this figure. Please see the historical chart and projections below.

CHART 3: SARATOGA SPRINGS HISTORICAL & PROJECTED NON-RESIDENTIAL FLOOR AREA ADDED ANNUALLY



Regarding non-residential floor area added, the Mid-Upper Range growth scenario is again selected. Over the future period from 2024-2040 we project an annual average of 224,844 square feet of non-residential floor area added annually. This data is provided directly in table 5 below.

TABLE 5: HISTORICAL AND PROJECTED NON-RESIDENTIAL FLOOR AREA ADDED ANNUALLY

Year	Non-Residential Floor Area Added (Actual)	Non-Residential Floor Area Added (Base Case)
2015	51,777	-
2016	76,676	-
2017	248,586	-
2018	64,614	-
2019	81,699	-
2020	178,188	-
2021	125,249	-
2022	316,469	-
2023	816,317	-
2024	-	253,217
2025	-	263,255
2026	-	273,293
2027	-	283,332

Year	Non-Residential Floor Area Added (Actual)	Non-Residential Floor Area Added (Base Case)
2028	-	293,370
2029	-	303,409
2030	-	313,447
2031	-	323,485
2032	-	333,524
2033	-	343,562
2034	-	116,002
2035	-	117,318
2036	-	118,598
2037	-	119,843
2038	-	121,056
2039	-	122,239
2040	-	123,392
Avg. Forward Growth/Year		224,844

Additional Considerations

As part of this analysis, Zions implemented a linear regression model coupled with prediction intervals calculated using Saratoga Springs historical data, including a prediction for year 2024 which is yet to close. As mentioned above, we acknowledge that the City may have additional tangible, on-the-ground, knowledge regarding growth in 2024 that is yet to be reflected in data.

APPENDIX B

Cost Estimates

**Saratoga Springs Impact Fee Facility Plan
Pressurized Irrigation System
Preliminary Engineers Cost Estimates**

	Item	Unit	Pipe Diameter	2024 Unit Price	Quantity	Total Price	Category
PI01	Well 7 Pipeline						
	Install 10-inch Pipeline	LF	10	\$ 270	500	\$ 135,000	Source Conveyance
					Total	\$ 135,000	
					Engineering & Admin. (10%)	\$ 13,500	
					Contingency (10%)	\$ 13,500	
					Total to Well 7 Pipeline	\$ 162,000	
PI02	New 3,000 GPM Jacobs Ranch Well						
	Well Drilling	LS	NA	\$ 1,500,000	1	\$ 1,500,000	Source Conveyance
	Well Equipping	LS	NA	\$ 2,500,000	1	\$ 2,500,000	Source Conveyance
					Total	\$ 4,000,000	
					Engineering & Admin. (10%)	\$ 400,000	
					Contingency (10%)	\$ 400,000	
					Total to New 3,000 GPM Jacobs Ranch Well	\$ 4,800,000	
PI03	Grandview 15 ac-ft Storage Pond						
	Construct 15 AC-FT Pond	AC-FT	NA	\$ 410,000	15	\$ 6,150,000	Storage
	Construct 1500 GPM Pump Station	LS	NA	\$ 3,500,000	1	\$ 3,500,000	Source Conveyance
	Install 16-inch Pipeline	LF	16	\$ 340	5,000	\$ 1,700,000	Source Conveyance
					Total	\$ 11,350,000	
					Engineering & Admin. (10%)	\$ 1,135,000	
					Contingency (5%)	\$ 567,500	
					Total to Grandview 15 ac-ft Storage Pond	\$ 13,053,000	
PI04	Tickville Wash Pump Station						
	Construct 4,000 GPM Pump Station	LS	NA	\$ 5,000,000	1	\$ 5,000,000	Source Conveyance
	Install 16-inch Pipeline	LF	16	\$ 340	4,200	\$ 1,428,000	Source Conveyance
	Install 24-inch Pipeline	LF	24	\$ 480	1,400	\$ 672,000	Source Conveyance
	10 AC-FT Pond	LS	NA	\$ 410,000	10	\$ 4,100,000	Storage
					Total	\$ 11,200,000	
					Engineering & Admin. (10%)	\$ 1,120,000	
					Contingency (5%)	\$ 560,000	
					Total to Tickville Wash Pump Station	\$ 12,880,000	
PI05	MVC/Tickville Wash Pipeline						
	Install 16-inch Pipeline	LF	16	\$ 340	5,000	\$ 1,700,000	Source Conveyance
	Install 18-inch Pipeline	LF	18	\$ 380	2,500	\$ 950,000	Source Conveyance
					Total	\$ 2,650,000	
					Engineering & Admin. (10%)	\$ 265,000	
					Contingency (10%)	\$ 265,000	
					Total to MVC/Tickville Wash Pipeline	\$ 3,180,000	
PI06	New Well Drilling and Equipping						
	Well Drilling	LS	NA	\$ 1,500,000	1	\$ 1,500,000	Source Conveyance
	Well Equipping	LS	NA	\$ 2,500,000	1	\$ 2,500,000	Source Conveyance
	Install 12-inch Pipeline	LF	12	\$ 300	3,300	\$ 990,000	Source Conveyance
					Total	\$ 4,990,000	
					Engineering & Admin. (10%)	\$ 499,000	
					Contingency (5%)	\$ 249,500	
					Total to New Well Drilling and Equipping	\$ 5,739,000	
					Total By Category		
					Water Rights	\$ -	
					Source Conveyance	\$ 28,025,500	
					Storage	\$ 11,787,500	
					Total	\$ 39,813,000	