



NO FORMAL ACTIONS ARE TAKEN IN A WORK MEETING

5:30 P.M. - WORK MEETING - MULTI-PURPOSE ROOM

CALL TO ORDER

COUNCIL BUSINESS

1. Calendar
 - Mar 08 - Daylight Savings
 - Mar 17 - Work Study Meeting 5:30 p.m., Regular Meeting 7:00 p.m.
 - Apr 07 - Works Study Meeting 5:30 p.m., Regular Meeting 7:00 p.m.
2. **REVIEW OF THE 7:00 P.M. REGULAR COUNCIL MEETING AGENDA ITEMS**
 - a) Invocation - Councilmember Ellingson
 - b) Pledge of Allegiance - Councilmember Wright
 - c) Consent Agenda
 1. Approval of the minutes for February 17, 2026, work meeting and regular meeting.
3. **WORK MEETING DISCUSSIONS/PRESENTATIONS**
 - a) Camp Jeremiah Johnson - Stacey Child, Parks and Recreation Director
 - b) Investment Report - Heather Penni, City Treasurer
 - c) UAMPS Operating Update - Jason Miller, Power Director
 - d) Station Area Plan - Josh Yost, Community Development Director

MAYOR, COUNCIL, AND ADMINISTRATIVE REPORTS

ADJOURNMENT

CLOSED SESSION, IF NEEDED - TO BE ANNOUNCED IN MOTION

The Springville City Council may temporarily recess the meeting and convene in a closed session as provided by UCA 52-4-205.

7:00 P.M. COUNCIL MEETING - CITY COUNCIL ROOM

CALL TO ORDER

INVOCATION

PLEDGE

APPROVAL OF THE MEETING'S AGENDA

MAYOR'S COMMENTS

PUBLIC COMMENT - Audience members may bring any item, not on the agenda, to the Mayor and Council's attention. Please complete and submit a "Request to Speak" form. Comments will be limited to two or three minutes, at the mayor's discretion. State Law prohibits the Council from acting on items that do not appear on the agenda.

CONSENT AGENDA - The Consent Agenda consists of items previously discussed or that are administrative actions where no additional discussion is needed. When approved, the recommendations in the staff reports become the action of the Council. The agenda provides an opportunity for public comment. If, after the public comment, the Council removes an item from the consent agenda for discussion, the item will keep its agenda number. It will be added to the regular agenda for discussion unless otherwise specified by the Council.

1. Approval of the minutes for February 17, 2026, work meeting and regular meeting.

REGULAR AGENDA

2. Consideration of an Ordinance amending Springville City Code, Section 3-7-801, Hen Chickens for Egg Production Allowed - Laura Thompson, Community Development Planner

PUBLIC HEARING

3. Public Hearing for consideration of approval of an Ordinance and adoption of the **Wastewater Collections** Master Plan IFFP/IFA - Jake Nostrom, Assistant Public Works Director
4. Public Hearing for consideration of approval of an Ordinance and adoption of the **Pressurized Irrigation** Master Plan IFFP/IFA - Jake Nostrom, Assistant Public Works Director
5. Public Hearing for consideration of approval of an Ordinance and adoption of the **Culinary Water** Master Plan IFFP/IFA - Jake Nostrom, Assistant Public Works Director

MAYOR, COUNCIL, AND ADMINISTRATIVE REPORTS

ADJOURNMENT - CLOSED SESSION, IF NEEDED - TO BE ANNOUNCED IN MOTION

The Springville City Council may temporarily recess the meeting and convene in a closed session as provided by UCA 52-4-205.



MINUTES OF THE WORK/STUDY MEETING OF THE SPRINGVILLE CITY COUNCIL HELD ON TUESDAY, FEBRUARY 17, 2026, AT 5:30 P.M. AT THE CIVIC CENTER, 110 SOUTH MAIN STREET, SPRINGVILLE, UTAH.

Presiding and Conducting: Mayor Matt Packard

Elected Officials in Attendance: Karen Ellingson
Logan Millsap
Jake Smith
Mike Snelson
Mindi Wright

City Staff in Attendance: City Administrator Troy Fitzgerald, Assistant City Administrator/City Attorney, John Penrod, Assistant City Administrator/Finance Director Bruce Riddle, City Recorder Kim Crane, Community Development Director Josh Yost, Director of Administration Patrick Monney, Library Director Dan Mickelson, Parks and Recreation Director Stacey Child, Power Director Jason Miller, Public Safety Director Lance Haight, and Public Works Director Brad Stapley.

CALL TO ORDER - Mayor Packard welcomed everyone and called the Work/Study meeting to order at 5:32 p.m.

COUNCIL BUSINESS

1. Calendar

- Mar 03 - Work Study Meeting 5:30 p.m., Regular Meeting 7:00 p.m.
- Mar 08 - Daylight Savings
- Mar 17 - Work Study Meeting 5:30 p.m., Regular Meeting 7:00 p.m.

Mayor Packard asked if there was any discussion regarding the upcoming calendar.

Carla Wiese reported on a grant application that needed to be reviewed by the Planning Commission and the City Council before the end of the month. She stated that a special meeting of the council would need to be called to meet the deadline.

Councilmember Wright reported that the Community Board would like to engage with Clyde Companies regarding the 4th and Main development. The council agreed to the engagement and directed the board to provide a recommendation to the council.

2. **DISCUSSION ON THIS EVENING'S REGULAR MEETING AGENDA ITEMS**

- a) Invocation - Councilmember Smith
- b) Pledge of Allegiance - Councilmember Snelson
- c) Consent Agenda

2. Approval of the minutes for the work meeting and regular meeting held on February 03, 2026.

42 Mayor Packard asked if there was any discussion on the consent agenda. There was none.

44 **3. WORK MEETING DISCUSSIONS/PRESENTATIONS**

46 a) **Wastewater Pretreatment - Brad Stapley, Public Works Director**

46 Public Works Director Brad Stapley reported on the Wastewater Pretreatment Program. He explained that the program is required under the EPA Clean Water Act and is federally mandated. He described the City's regular pretreatment audit process, stating that staff contact businesses based on the type of business and conduct baseline monitoring, on-site inspections, sample collection, and review of sample results with the business. He noted that staff also discuss any recommended pretreatment measures or billing adjustments.

52 Councilmember Wright asked how businesses were selected for the audits. Brad explained that selection is based on specific criteria, including businesses that produce pharmaceuticals, meat packing plants, and other significant industrial users. Councilmember Wright asked how many companies would be audited and whether participation was voluntary. Brad responded that the City planned to begin with approximately half a dozen businesses and reiterated that the program is federally mandated.

58 b) **History of Springville City Code, Section 3-7-801, Hen Chickens for Egg Production- Troy Fitzgerald, City Administrator**

60 City Administrator Troy Fitzgerald reported on the history of the chicken ordinance over the past 40-50 years. He stated that in 1979 animal units were allowed in the RA1-20000 zone and that a comprehensive rewrite of the ordinance was completed in 2003. He noted that previous councils declined to pass proposed ordinances in 2010, 2011, and 2013.

64 Troy recounted that an ordinance was passed in 2014 and immediately revised to remove the permit requirement, which had been intended to allow the City to follow up with chicken owners and ensure compliance. He explained that the Council chose to eliminate the permit and rely on self-policing and neighborhood complaints. He then reviewed the current code language and land use matrix, including lot-size requirements, setbacks, and zoning regulations.

70 Mayor Packard asked what it would take to return to the original intent in 2014. Troy stated that the original intent was to allow six hens for egg production on any lot in town, noting that agricultural areas also allow for animal units and chickens for egg production.

72 Councilmember Wright stated that the ordinance needs to be rewritten and clarified. Attorney Penrod reviewed the different zones and rules for animal keeping. Councilmember Wright asked about clarifying the code for chickens on lots of duplexes and townhomes.

76 Councilmember Snelson confirmed that the amendment was not intended to reduce the number of chickens, which has remained six. Troy emphasized that newer zones established since 2014 were not included in the prior language.

78 Councilmember Wright noted that if more chickens were allowed, enforcement would need to increase. Councilmember Snelson expressed interest in reviewing the permit process. Troy explained the distance requirements for coops and that chickens must remain in the coop.

82 Mayor Packard asked each councilmember for their opinion. Councilmember Wright suggested clarifying rules for townhomes and duplexes, addressing enforcement, and using a graduated lot size. Councilmember Ellingson preferred a simplified approach without over-regulation. Councilmember Millsap proposed keeping six chickens as a minimum with a graduated table for additional chickens. Councilmember Snelson supported a graduated lot size and quantity, along with a permit process to educate the public on the ordinance. Councilmember Smith requested a recommendation and

88 comparative review. Mayor Packard commented that there should be both a minimum of zero and a maximum cap.

90 c) **General Discussion regarding Impact Fees - John Penrod, Assistant City Administrator/City Attorney**

92 Attorney John Penrod provided information on the process from a general plan to a master plan and then to ordinances. He explained that the Impact Fee Facilities Plans (IFFP) establish service levels and detail the infrastructure needs of new developments. He stated that an Impact Fee Analysis (IFA) determines the dollar amount each new development must pay based on its impact. He noted that impact fee revenue must be spent within six years of collection and emphasized the importance of understanding service levels, particularly if they are increasing. He also stated that projects must be listed in the IFFP to be eligible for funding through impact fees.

98 Mayor Packard encouraged reviewing impact fees and rates on an annual basis.

100

MAYOR, COUNCIL, AND ADMINISTRATIVE REPORTS

102

Mayor Packard asked if there was any further discussion. There was none.

104

ADJOURNMENT CLOSED SESSION IF NEEDED - TO BE ANNOUNCED IN MOTION

106

The Springville City Council may temporarily recess the meeting and convene in a closed session as provided by UCA 52-4-205.

108

Motion: Councilmember Millsap moved to adjourn the work meeting at 6:52 p.m. **Councilmember Snelson seconded** the motion. **Vote Yes:** Councilmember Ellingson, Councilmember Millsap, Councilmember Smith, Councilmember Snelson, and Councilmember Wright. The motion **Passed Unanimously, 5-0**

112

114

This document constitutes the official minutes for the Springville City Council Work/Study Meeting held on Tuesday, February 17, 2026.

116

I, Kim Crane, do hereby certify that I am the duly appointed, qualified, and acting City Recorder for Springville City, Utah County, State of Utah. I do hereby certify that the foregoing minutes represent a true, accurate, and complete record of this meeting held on Tuesday, February 17, 2026.

118

120

DATE APPROVED: _____

122

Kim Crane
City Recorder



MINUTES OF THE REGULAR MEETING OF THE SPRINGVILLE CITY COUNCIL HELD ON TUESDAY, FEBRUARY 17, 2026, AT 7:00 P.M. AT THE CIVIC CENTER, 110 SOUTH MAIN STREET, SPRINGVILLE, UTAH.

Presiding and Conducting: Mayor Matt Packard Excused

Elected Officials in Attendance: Karen Ellingson
Logan Millsap
Jake Smith
Mike Snelson
Mindi Wright

City Staff in Attendance: City Administrator Troy Fitzgerald, Assistant City Administrator/City Attorney John Penrod, Assistant City Administrator/Finance Director Bruce Riddle, City Recorder Kim Crane, Community Development Director Josh Yost, Director of Administration Patrick Monney, Library Director Dan Mickelson, Parks and Recreation Director Stacey Child, Power Director Jason Miller, Public Safety Director Lance Haight, and Public Works Director Brad Stapley.

CALL TO ORDER

Mayor Packard called the meeting to order at 7:00 p.m.

INVOCATION AND PLEDGE

Councilmember Smith offered the invocation, and Councilmember Snelson led the Pledge of Allegiance.

APPROVAL OF THE MEETING'S AGENDA

Motion: Councilmember Snelson moved to approve the agenda as written. **Councilmember Smith seconded** the motion. **Voting Yes:** Councilmember Ellingson, Councilmember Millsap, Councilmember Smith, Councilmember Snelson, and Councilmember Wright. The motion **Passed Unanimously, 5-0**

MAYORS COMMENTS

Mayor Packard welcomed the Council, staff, and those in attendance.

Mayor Packard commented he recently traveled to Tansania and expressed how very blessed we are to live in the United States.

CEREMONIAL

1. Swearing in of the Springville City Youth Council

Councilmember Ellingson reported on the activities of the Youth City Council. She stated that members visit various city boards, provide service throughout the year, and assist during Art City Days. She also reported that the Youth City Council recently traveled to the state capitol, where they met with state legislators.

44 Mayor Packard conducted the swearing-in ceremony for more than thirty Youth City Council members.

46 PUBLIC COMMENT

48 Mayor Packard introduced the Public Comment section of the agenda and inquired if there were any written requests to speak.

50 Brandon Ashby spoke regarding clarification of the chicken ordinance. He stated that ten years earlier his household had included nine children and they had relied heavily on eggs. He said he had reviewed the current laws and requested that existing rights be maintained without negatively affecting neighbors. He expressed that he was not supportive of a permit process and stated that he appreciated the work of the council.

54 Emily Anderson commented on the expected egg production from six chickens and referenced how the law is currently written. She stated that her family participates in community service by raising chicks and sharing eggs. She said that allowing more chickens on larger lots could benefit the community.

58 Quinn Adamson stated that he chose to live in Springville because of land availability. He reported that his family keeps chickens and uses horses in parades. He described receiving assistance from the community and public safety personnel during a severe wind storm and said he later provided eggs in return. He expressed support for allowing more chickens on larger lots.

60 Mayor Packard read into the record a comment submitted by Jamie Duncan.

62

CONSENT AGENDA

64 2. Approval of the minutes for the work meeting and regular meeting held on February 03, 2026.

66 Mayor Packard asked for a discussion or a motion on the consent agenda. There was none.

68 **Motion: Councilmember Millsap moved to approve the consent agenda as written. Councilmember Ellingson seconded the motion. Voting Yes:** Councilmember Ellingson, Councilmember Millsap, Councilmember Smith, Councilmember Snelson, and Councilmember Wright. The motion **Passed Unanimously, 5-0.**

72

REGULAR AGENDA

74

MAYOR, COUNCIL, AND ADMINISTRATIVE REPORTS

76 Mayor Packard asked for any further discussion. There was none.

78 CLOSED SESSION, AND ADJOURNMENT IF NEEDED - TO BE ANNOUNCED IN MOTION

80 *The Springville City Council may adjourn the regular meeting and convene into a closed session as provided by UCA 52-4-205.*

82 ADJOURNMENT

84 **Motion: Councilmember Ellingson moved to adjourn the regular meeting at 7:26 p.m. and go into a closed meeting regarding property. Councilmember Smith seconded the motion. Voting Yes:** Councilmember Ellingson, Councilmember Millsap, Councilmember Smith, Councilmember Snelson, and Councilmember Wright. **The motion Passed Unanimously, 5-0.**

88

90
92
94
96
98

This document constitutes the official minutes for the Springville City Council Regular Meeting held on Tuesday, February 17, 2026.

I, Kim Crane, do hereby certify that I am the duly appointed, qualified, and acting City Recorder for Springville City, Utah County, State of Utah. I do hereby certify that the foregoing minutes represent a true, accurate, and complete record of this meeting held on Tuesday, February 17, 2026.

DATE APPROVED: _____

Kim Crane
City Recorder

DRAFT



STAFF REPORT

DATE: February 20, 2026
TO: Honorable Mayor and City Council
FROM: Laura Thompson, Planner II

SUBJECT: CONSIDERATION OF AN ORDINANCE AMENDING SPRINGVILLE CITY CODE, TITLE 3, CHAPTER 7, ARTICLE 8, CONCERNING THE KEEPING OF HEN CHICKENS FOR EGG PRODUCTION.

RECOMMENDED MOTION

Motion to adopt Ordinance No. ____-2026, amending Springville City Code, Section 3-7-801, *Hen Chickens for Egg Production Allowed*, to clarify the number of hens that may be kept on any residential lot.

SUMMARY OF ISSUES/FOCUS OF ACTION

Questions have arisen regarding whether the current ordinance governing hen chickens for egg production is clearly written and whether it was the original intent of the ordinance to allow additional hens on residential lots larger than 20,000 square feet.

The proposed amendment clarifies that residential properties may keep a specified number of hens for egg production, depending on lot size.



BACKGROUND

On March 19, 2014, the City Council adopted Title 3, Chapter 7, Article 8, permitting the keeping of up to six (6) chickens for egg production on any single-family, duplex, or twin-home lot in any residential zone.

On November 4, 2025, during public comment at a City Council meeting, a resident expressed concern that the current ordinance could be interpreted as more restrictive than intended, particularly for properties larger than 20,000 square feet. The resident

suggested that lots of this size should not be subject to the specific hen-chicken limitations in Section 3-7-801 and should be allowed additional hens.

Council directed planning staff to review the ordinance to determine the original legislative intent and recommend any needed clarifications.

DISCUSSION

Historical Context

Prior to the adoption of the 2014 ordinance, chickens were permitted only in the A-1 and R1-15 Residential/Agricultural Zones.

These zones require:

- A minimum lot size of 20,000 square feet, and
- Limitations based on “animal units” tied to the overall lot area.

This regulatory framework was designed for agricultural and livestock activities, not for small-scale backyard egg production typical of residential neighborhoods.

Purpose of the 2014 Ordinance

When the City considered allowing backyard chickens in residential areas, the Council intentionally moved away from the agricultural “animal unit” model and instead adopted a straightforward residential standard:

- A maximum of six (6) hens
- No roosters
- Allowed in all residential zones
- Intended to be independent of lot size

The goal was to allow residents to produce eggs for household use while ensuring the activity remained residential in character and did not resemble small-scale farming.

What determines an appropriate number of chickens allowed on a lot?

Across Utah County, ordinances converge on a similar practical range because that’s what works in real life. The practical sweet spot is 4–6 hens.

This is the number that:

- Produces plenty of eggs for a family (4-5 eggs per day/30+ per week)
- Does not create noticeable odor when managed well
- Stays quiet (hens are much quieter than people think)
- It is easy to keep clean weekly (6 hens can produce 50-60 lbs. of manure/month)
- Fits comfortably in a normal backyard without looking like a farm
- Rarely generates neighbor complaints
- Matches what most city codes allow on 7,000–12,000 sq ft lots

This is why you’ll see many cities cap the number of hens at 6.



City	Number Allowed	Roosters Allowed	Lot Size Minimum
Spanish Fork	6	No	6,000
Provo	6	No	10,000
Orem	2 12	No	5,000 30,000
Lehi	Up to 8	No	One-half acre
Mapleton	4 8 12	No	6,000 10,000 20,000
Pleasant Grove	4 6 8 12	No	7,000 10,000 15,000 21,000+

Clarification Regarding “Animal Keeping”

Title 11, Chapter 3 defines **Animal Keeping** as the raising, care, and keeping of animals and fowl in the A-1 and R1-15 Zones. Importantly:

“Animal keeping” does **not** include keeping hen chickens for egg production.

This distinction was intentional. Backyard hens for egg production in all residential zones were meant to be regulated separately from the agricultural livestock provisions. In the R1-15 Zone, no animals may be kept on lots smaller than 20,000 square feet. However, this requirement applies only to agricultural “animal keeping” and was never intended to apply to backyard hens regulated under Section 3-7-801. Properties within the A-1 and R1-15 Zones are also permitted to keep chickens for egg production under the terms of the ordinance, based on overall lot size, in addition to any other animal keeping permitted.

Source of Confusion

Because both provisions reference chickens and appear in different sections of the code, one tied to zoning and the other to animal keeping, the ordinance can be misread as suggesting that larger lots in agricultural/residential zones could keep more than six hens under the animal keeping provisions. This was not the intent of the 2014 ordinance.

ZONING TABLE REFERENCE

PERMITTED USE	ZONING DISTRICTS																					
AGRICULTURE & RELATED USES																						
	A-1	A-S	R1-15	R1-10	R1-8	R1-5	R2	R-MHP	R-MF1	R-MF2	PO	BP	MSSG	VC	TC	NC	CC	RC	RRC	HC	LIM	HIM
Animal Keeping	P	P	P																			
Apiary or Beekeeping	See Section 3-7-901 et seq.																					



Chickens for Egg Production	See Section 3-7-801 et seq.																
Crop Production for Sale	P	P															
Dairy	P	P															
Farm Building	P	P	P														
Farm Industry or Ranch	P	P															
Orchard – Commercial	P	P															

The zoning table correctly separates:

- **Animal Keeping** (agricultural/livestock use)
- **Chickens for Egg Production** (regulated by Section 3-7-801)

Permitting

The 2014 ordinance originally required a permit from the Police Department for any person desiring to keep hens. The permitting requirement was repealed after receiving public comment and discussions with City staff, due to the increased burden on Animal Control. *Springville* does not directly license dogs and cats, and the Chief of Police did not see the need to license chickens, as a fee would negate the benefit of having them.

Staff would propose educating the public through the City newsletter and social media, often to keep citizens informed about the opportunity to keep chickens and the regulations that apply.

Proposed Amendments Summary

The proposed amendments add the ordinance's purpose and define terms to clarify intent and establish a permitted number of hens based on the overall lot size.

<u>Property Size (Square Feet)</u>	<u>Maximum Number of Hen Chickens</u>
<u>Less than 8,000</u>	<u>4</u>
<u>8,000 – 11,999</u>	<u>6</u>
<u>12,000 – 15,999</u>	<u>8</u>
<u>16,000 or greater</u>	<u>12</u>



ALTERNATIVES

- Move to continue the discussion of the proposed amendments;
- Make amendments to the proposed ordinance; or
- Move to deny the adoption of the proposed amendments.

STAFF RECOMMENDATION

Staff recommends the adoption of the ordinance amendment. The proposal does not change policy, increases allowances slightly, clarifies the original intent of the 2014 ordinance, removes ambiguity, and improves the enforceability and public understanding of the code.

Respectfully,

Laura Thompson



ORDINANCE NO. ____-2026

AN ORDINANCE AMENDING SPRINGVILLE CITY CODE, SECTION 3-7-801, CONCERNING THE KEEPING OF HEN CHICKENS FOR EGG PRODUCTION.

WHEREAS, the Springville City Public Safety Department provides animal control services within the City of Springville; and

WHEREAS, the City Council desires to allow the keeping of a limited number of hen chickens for egg production as a residential accessory use; and

WHEREAS, the City Council has reviewed Section 3-7-801 and finds that clarification is necessary to reflect the original legislative intent of the ordinance and remove ambiguity related to lot size and agricultural animal keeping provisions; and

NOW, THEREFORE, BE IT ORDAINED by the City Council of Springville, Utah, that:

SECTION 1: Section 3-7-801, Hen Chickens for Egg Production Allowed, of Springville City Code is hereby amended to read as follows:

~~Subject to the requirements of this Chapter and any other applicable provisions of Title 11, hen chickens, in the numbers set forth below, may be kept on a lot or parcel of land in any residential zone. For lots twenty thousand (20,000) square feet in size or larger, the provisions set forth in Title 11, Chapters 3 and 4 for fowl apply. For all smaller lots, the following applies:~~

~~(1) Purpose.~~

~~The purpose of this section is to support reasonable household self-reliance through limited personal egg production by permitting the keeping of hen chickens in residential zones in a manner compatible with surrounding properties and to protect public health, safety, and neighborhood character through enforceable sanitation, containment, and nuisance standards.~~

~~(2) Definitions.~~

~~The following definitions shall apply to this Article:~~

~~**Hen** means a female chicken~~

~~**Rooster** means a male chicken~~

~~**Personal Egg Production** means the keeping of hens for non-commercial egg production for household use.~~

~~**Coop** means a covered structure providing shelter for hens.~~

~~**Containment Area** means a fenced backyard or enclosed area sufficient to prevent hens from leaving the property.~~

~~(13) The number of hen chickens which may be kept shall ~~be up to six (6).~~ not exceed the maximum shown in the table below based on the overall property size.~~

<u>Property Size (Square Feet)</u>	<u>Maximum Number of Hen Chickens</u>
<u>Less than 8,000</u>	<u>4</u>

<u>8,000 - 11,999</u>	<u>6</u>
<u>12,000 - 15,999</u>	<u>8</u>
<u>16,000 or greater</u>	<u>12</u>

(24) No roosters of any age are allowed.

(35) The principal use on the lot or parcel shall be a single-family dwelling, ~~duplex, or twin home.~~

(46) Chickens may be kept on a no-nuisance basis strictly for familial gain from the production and consumption of eggs only, and there shall be no sale or income resulting from the keeping of chickens.

(57) All enclosures, pens, and coops shall be located in the rear yard of the main dwelling or in an interior side yard, provided all of the requirements of this Chapter are met.

(68) Enclosures, pens, and coops shall not be located in a corner side yard unless the side yard ~~shall be~~ is completely fenced using sight-obscuring fencing or vegetative screening, so as to prevent sight of such areas from the street or neighboring properties.

(79) Dead birds and unused eggs shall be removed within twenty-four (24) hours or less and shall be properly discarded in accordance with this Chapter.

SECTION 2: This ordinance will become effective one day after publication hereof, in the manner required by law.

SECTION 3: This ordinance shall become effective upon adoption by the Springville City Council and publication as required by law.

ADOPTED by the City Council of Springville, Utah, this ___ day of _____, 2026.

Matt Packard, Mayor

ATTEST:

Kim Crane, City Recorder



STAFF REPORT

DATE: February 25, 2026

TO: Honorable Mayor and City Council

FROM: Terrance Harris, Wastewater Collections-Stormwater Superintendent, Public Works

SUBJECT: **ADOPTION OF THE WASTEWATER COLLECTION SYSTEM MASTER PLAN, IMPACT FEE FACILITY PLAN AND WASTEWATER IMPACT FEE ANALYSIS ORDINANCE #XX-2026**

RECOMMENDED MOTION:

Motion to approve the 2025 Springville City Wastewater Collection System Master Plan Impact Fee Facilities Plan and Impact Fee Analysis prepared by Hansen, Allen & Luce, INC. and adopt Ordinance No. [Ordinance No.], adopting the 2025 Springville City Wastewater Collection System Master Plan, IFFP and IFA; and enacting the updated Wastewater Collections Impact Fees.

EXECUTIVE SUMMARY

Springville City (City) retained Hansen, Allen & Luce, INC. (HAL) to update the City's Wastewater Collection System Master Plan (Master Plan), Impact Fee Facility Plan (IFFP), and Impact Fee Analysis (IFA). Springville City updates the Master Plan every 5 to 7 years, IFFP and IFA are updated annually. Annual updates allow Springville City to keep up with costs for system impacts, and doing the Master Plan every five years allows Springville City to align projects needed for future growth and development that consistently change.

HAL and City staff have worked closely together and recently completed a draft final Master Plan, IFFP, and IFA. The Master Plan, IFFP and IFA were presented to the Utility Board on November 19, 2025, to the Planning Commission on December 9, 2025, and the City Council during the work session on February 17, 2026.

The Utility Board and Planning Commission have recommended that the City charge the maximum allowable Impact Fee.

The Master Plan, IFFP and IFA were updated to ensure that the City's impact fees are correct as project costs continue to change. The Master Plan was updated this year, allowing Springville City to align new projects and their costs as the development area expands. The Master Plan project cost estimates were updated in the IFFP.



Staff recommends adopting the Master Plan, IFFP, IFA, and associated Ordinance, charging the maximum allowable impact fee of \$1,423 per Equivalent Residential Unit (ERU).

FOCUS OF ACTION:

The adoption of the Master Plan, IFFP, and IFA is critical to establishing projects, development, and a legally defensible Wastewater Impact Fee. The impact fee adopted by the City Council determines how much funding will become available through development for wastewater projects as growth occurs.

Adoption of the Wastewater Collection Impact Fee Ordinance as the basis for wastewater impact fees.

BACKGROUND:

The City has recognized the need to plan for increased demands on its wastewater collection system as growth continues to occur. To do so, a Wastewater Collection Master Plan (Master Plan) Impact Fee Facility Plan (IFFP) and Impact Fee Analysis (IFA) were completed to allow the City to charge an impact fee to pay for projects necessary to support future growth.

The Master Plan was last updated in 2020. Since that time, development that was in the 15-year horizon has moved into the 10-year horizon, making additional projects eligible for impact fee collection. Costs have been analyzed, enabling better project forecasts for the 10-year window and allowing Springville City to update new projects and developments in this time frame.

This Master Plan, IFFP, and IFA identify items that the Utah Impact Fees Law specifically requires, including demands placed upon existing facilities by new development and the proposed means by which the municipality will meet those demands.

The 2020 Master Plan was also used. Actual growth since 2020 has been incorporated into this analysis, and the existing condition characterization has been updated.

The Master Plan identified several growth-related projects needed within the 10-year planning window. Therefore, the calculated impact fee is based on existing capacity at documented historic costs and on future capital projects.





DISCUSSION:

The Wastewater Collection Master Plan's purpose is to determine existing wastewater system flows and the ability to convey flows through the current system, evaluate the existing system's ability to convey existing flows, prepare growth projections, predict growth areas, prepare future loading estimates based on growth, evaluate future infrastructure needs, and recommend projects that will create the additional needed wastewater conveyance capacity.

- The existing system model shows 1 existing deficiency.
- There is very little service area change from the previous master plan
- We anticipate growing by 4,452 ERU's in the next 10 years
- We anticipate 11 future projects needed in the next 10 years

The Impact Fee Facility Plan (IFFP) determines the Level of Service, the service area, and the projects eligible for the impact fee for both existing capacity and future projects. The IFFP projects growth, estimated growth area, and estimates future loading. The Level of service remains the same as the previous IFFP.

- The level of service is 250 gallons per day per ERU.
- The pipe must not exceed a depth/diameter of 0.75
- The impact eligible total for the existing facility is \$1,923,108
- The impact eligible total for future projects in 10 years is \$5,546,276

The Impact Fee Analysis report establishes an impact fee in accordance with the Impact Fee Facilities Plan. This impact fee specifically is based on costs allocable to growth within the IFFP service area. The impact fee is intended to protect existing customers from the cost burden and impact of expanding a system.

- 10-year project growth is 4,452 ERU's
- 10-year wastewater collection growth costs \$6,125,608
- 10-year wastewater planning costs \$209,310

Once the existing, future, and planning costs for additional capacity to serve new users in the IFFP service area are determined, they are divided by the projected equivalent residential units (ERUs) in the same time frame to arrive at the impact fee amount.

Proposed Wastewater Collection Impact Fee Per ERU

Component	Impact Fee-Eligible Cost	ERUs Served	Cost per ERU
Collection	\$6,125,608	4,452	\$1,376
Planning	\$209,010	4,452	\$47
Total			\$1,423



ALTERNATIVES:

Staff recommends the Council carefully consider the methodology involved in completing the Wastewater Collection Impact Fee Facility Plan and Impact Fee Analysis. The maximum defensible impact fee amount presented in this report represents the highest amount that can be legally charged per equivalent residential connection (ERU) for new development.

Other factors may influence the final amount of the Wastewater Impact Fee set by the City Council. These may include current or projected economic trends, long-term growth projections, or present trends of other area cities. The Council can set the actual Wastewater Impact Fee at any amount less than the maximum defensible amount.

City Staff recommends that the maximum allowable impact fee of \$1,423 per ERU be adopted. Establishing an impact fee amount below \$1,423 would leave a shortfall in the funding needed to complete the capital improvement projects outlined in the Wastewater IFFP, contained in the Wastewater Collection System Master Plan.

FISCAL IMPACT:

The Wastewater Collection System IFFP estimates \$23,040,105 in existing and future improvement costs for wastewater collection system projects projected to build-out of the city.

Proportionate Existing costs of \$2,705,997 and 10-year costs of \$6,125,608 will be required over the next ten years, with an additional \$14,208,499 beyond the 10 years within the IFFP area.

Adding collection system buy-in (including debt-related expenses) and professional expenses, a legally defensible Impact Fee of up to \$1,423 per ERU will fund the future growth in the IFFP area as can be seen in the following table from the IFA:



Collections Facility Costs by Time Period

Time Period	Total ERUs Served	ERUs Towards Total Growth Capacity	Cost per ERU	Historical and Future Costs ⁴
Existing ¹	20,794	0	-	\$2,705,997
10-year	25,246	4,452 ²	\$1,376	\$6,125,608
Beyond 10-year	35,572	10,326 ³	-	\$14,208,499 ⁵
Total	-	14,778	-	\$23,040,105

- Existing cost was calculated as the cost that has already served growth and is not eligible for impact fee reimbursement. See Table 3-3.
- Based on master plan growth projections. See Table 3-1.
- A capacity of 10,326 ERUs beyond 10 years was calculated as the projected ERU count at the planning horizon (35,572) minus ERUs existing at the beginning of year 2035 (25,246). See Table 3-1.
- Calculated costs may be slightly different due to rounding.
- A future cost of \$14,208,449 was calculated for the ERUs beyond 10 years by assigning a proportionate share of the impact fee eligible costs, totaling \$20,334,108 (see Table 3-5) to the ERUs beyond 10 years. $(10,326 / 14,778) \times \$20,334,108 = \$14,208,499$. These costs are not included within the 10-year planning horizon.

Wastewater Impact Fee Costs

Component	Per Typical Residential Connection
Collection	\$1,376
Planning	\$47
Total	\$1,423



STAFF RECOMMENDATIONS:

Staff recommends the approval of the proposed 2025 Wastewater Collections, MP, IFFP and IFA and charging the maximum allowable impact fee as detailed in the IFA of \$1,423 per ERU.

Respectfully,

Terrance Harris, Wastewater Collections-Stormwater Superintendent, Public Works





Exhibit A - MP





Exhibit B - IFFP, IFA



ORDINANCE #__-2026

AN ORDINANCE ADOPTING THE SPRINGVILLE WASTEWATER COLLECTION SYSTEM MASTER PLAN, IMPACT FEE FACILITY PLAN, AND IMPACT FEE ANALYSIS UPDATE AND ENACTING WASTEWATER COLLECTION SYSTEM IMPACT FEES.

WHEREAS, Springville City (City) has legal authority pursuant to Title 11, Chapter 36a of the Utah Code known as the “Impact Fee Act” (hereinafter the “Act”) to impose development impact fees as a condition of development approval, which impact fees are used to defray capital infrastructure costs attributable to new development activity; and

WHEREAS, the City has historically assessed impact fees as a condition of development approval to appropriately assign capital infrastructure costs to development in an equitable and proportionate manner; and

WHEREAS, on September 22nd, 2025, pursuant to the Act, Springville City properly noticed its intent to update and amend its Wastewater Collection System Master Plan, Impact Fee Facilities Plan (the “IFFP”), and Wastewater Collection System Impact Fee (the “Impact Fee”) based on an updated Wastewater Collection System Impact Fee Analysis (the “IFA”); and

WHEREAS, Springville City has reviewed and evaluated the service area for the wastewater collection system, which consists of the entire area within the Springville City municipal boundary. The Master Plan, determined that it is in the City’s best interest to establish the said service area for the purpose of imposing the Impact Fees; and

WHEREAS, pursuant to the requirements of Sections 11-36a-301 through 304 of the Act, Hansen Allen & Luce, Inc. has prepared (1) the “Wastewater Collection System Master Plan, dated February 2026, and (2) the “Wastewater Collection System Impact Fee Facility Plan and Impact Fee Analysis,” dated February 2026, which has been properly certified pursuant to the requirements of Section 11-36a-306 of the Act; and

WHEREAS, Hansen, Allen, & Luce, Inc. has also calculated for enactment the Impact Fees as set forth in the IFA and pursuant to the requirements of Sections 11-36a-305 of the Act; and

WHEREAS, on December 9th, 2025, the Springville Planning Commission held a properly noticed public hearing regarding the Master Plan, IFFP, the IFA, and this Ordinance and recommended approving the documents to the City Council; and

WHEREAS, on February 20, 2026, pursuant to Section 11-36a-502 of the Act, a full copy of the Master Plan, IFFP, the IFA, and this Ordinance, along with an executive summary of the IFFP and

the IFA that was designed to be understood by a lay person, were made available to the public at the Springville City Public Library, posted on the City's Website, and the Public Notice Website; and

WHEREAS, on March 3, 2026, the Springville City Council held a public hearing regarding the Master Plan, IFFP, the IFA, and this Impact Fee Enactment Ordinance; and

WHEREAS, the Springville City Council does now desire to hereby approve and adopt the Master Plan, IFFP and IFA and to formally enact Wastewater Collection System Impact Fees pursuant thereto and pursuant to the requirements of Sections 11-36a-401 through 403 of the Act.

NOW, THEREFORE, BE IT ORDAINED BY THE City Council of Springville, Utah:

SECTION 1: Adoption.

The Master Plan, IFFP, and IFA are attached hereto and approved, adopted, and incorporated as part of this Ordinance. The Impact Fees for the wastewater system as forth in the IFA are hereby approved and adopted, and at the time the Impact Fees become effective pursuant to this Ordinance, the Impact Fees will replace all previously adopted wastewater impact fees.

SECTION 2: Service Area.

The service area established in the Master Plan, IFFP and IFA and for which the Impact Fees are established and imposed is the entirety of the area within Springville City's municipal boundaries (the "Service Area"). The Service Area is established based upon sound planning and engineering principles for the City's wastewater system services.

SECTION 3: Level of Service.

The proposed level of service provided by the City's wastewater system shall be 250 gallons per day based on indoor drinking water supply per ERU (Equivalent residential unit). The peak daily flow in sewer pipes must not exceed a depth/diameter ratio of 0.75. The remaining capacity is reserved for unexpected flows, peaking, or flow restrictions. Per State of Utah standards, no newly installed collection pipe may be less than 8 inches in diameter. The service level is more particularly defined in the Master Plan, IFFP and IFA.

SECTION 4: Impact Fee Analysis and Impact Fee Calculations.

As found in the IFA, the Wastewater Collection System Impact Fee calculation is based on the following:

1. Elements. In calculating the Wastewater Collection System Impact Fee, Springville City has included those costs allowed, including, without limitation, debt service, if any, that are found under Section 11-36a-305 of the Act.

2. Proportionate Share Analysis. Included within the IFA is a proportionate share analysis as required by Section 11-36a-304 of the Act.
3. Formula. The Wastewater Collection System Impact Fee is based upon the Act's required proportionate share analysis in determining the total project costs to maintain the City's current Wastewater Collection System level of service for new development activities that will occur during the next ten (10) years and an appropriate buy-in cost of available existing excess capacity previously purchased by Springville City. The following schedule of Wastewater Collection System Impact Fees specifies the amount of impact fee to be imposed for each type of development activity and for each type of system improvement and/or the formula the City will use to calculate each impact fee. A more detailed analysis is found in the attached IFA.

Wastewater Impact Fee Costs

Component	Per Typical Residential Connection
Collection	\$1,376
Planning	\$47
Total	\$1,423

One ERU shall be equivalent to a ¾-inch or a one-inch water meter size. As water meter sizes increase, the impact fee amount shall also increase. The chart below shows how this increase in impact fee's increase with increased meter sizes.

<u>Drinking Water Meter Size</u>	<u>ERUs</u>	<u>Impact Fee</u>
<u>¾" or 1"</u>	<u>1.0</u>	<u>\$1,423</u>
<u>1 ½"</u>	<u>3.33</u>	<u>\$4,738</u>
<u>2"</u>	<u>5.33</u>	<u>\$7,584</u>

For a drinking water meter size larger than two inches, the impact fee "scales proportionately according to the ERU capacity of the meter. The ERU count for each meter size is calculated

based on American Water Works Association (AWWA) rated capacity for each meter size. This represents an equitable distribution of potential to use the City's sewer system."

Chapter 3, "Impact Fee Calculation," pages 3-1 to 3-9 of the IFA provides a more detailed analysis of the Impact Fees formula and schedule.

4. Non-standard Impact Fees. The City reserves the right under the Act to assess an adjusted impact fee that more closely matches the true impact that the land use will have upon the Wastewater Collection system. This adjustment could result in a different impact fee if evidence suggests a particular user will create a different impact than what is standard for its category.
5. Impact Fee Adjustments.
 - a. The City Council is authorized to adjust the standard fee at the time the fee is charged to:
 - i. respond to:
 1. unusual circumstances in specific cases; or
 2. a request for a prompt and individualized impact fee review for the development activity of the state, a school district, or a charter school and an offset or credit for a public facility for which an impact fee has or will be collected, and
 - ii. ensure that the impact fees are imposed fairly.
 - b. The impact fee may be adjusted for a particular development based on studies or data provided by a developer after review by the City's Impact Fee Administrator and approval by the City Council.
6. Credits and Reimbursements.
 - a. A developer, including a school district or a charter school, shall receive credit against or proportionate reimbursement of an impact fee from the City if the developer:
 - i. dedicates land for a system improvement,
 - ii. builds and dedicates some or all of a system improvement, or
 - iii. dedicating a public facility that the City and the developer agree will reduce the need for a system improvement.
 - b. The City shall require a credit against the impact fee for any dedication of land for, improvement to, or new construction of, any system improvements provided by the developer if the facilities:
 - i. are system improvements, or

- ii. A. are dedicated to the public, and
- B. offset the need for an identified system improvement.

SECTION 5: Assessment.

The Wastewater Collection System Impact Fee shall be charged for all new service connections where no existing water service has been provided by the City or whenever a customer desires to increase the size of an existing water service. In the latter instance, the impact fee shall be based on the difference in service capacity between the new and existing service. The impact fee shall be charged throughout the Service Area for all classes of service.

SECTION 6: Expenditure of Impact Fees.

The City may extend impact fees only for a system improvement identified in the IFFP and for the specific public facility type for which the fee was collected. Impact fees will be expended on a first-in-first-out basis. Impact fees collected pursuant to this Ordinance shall be expended or encumbered for a permissible use within six (6) years of their receipt. The City may hold the fees for longer than six (6) years if it identifies, in writing, an extraordinary and compelling reason why the fees should be held longer than six (6) years and an absolute date by which the fees will be expended.

SECTION 7: Refunds.

The City shall refund any impact fee paid by a developer, plus interest earned, when:

1. the developer does not proceed with the development activity and has filed a written request for a refund;
2. the fee has not been spent or encumbered; and
3. no impact has resulted.

An impact that would preclude a developer from a refund from the City may include any impact reasonably identified by the City, including but not limited to, the City having sized facilities and/or paid for, installed and/or caused the installation of facilities based, in whole or in part, upon the developer's planned development activity even though that capacity may, at some future time, be utilized by another development.

SECTION 8: Impact Fee Challenges.

A person or entity that has standing to challenge an impact fee may appeal the impact fee pursuant to Title 14, Chapter 5 of the Springville City Code. The procedures and time limitations for challenging an impact fee, including procedures for mediation and/or arbitration, shall be as set forth in Sections

11-36a-702 through 705 of the Act. The applicable remedies for an impact fee challenge shall be limited to those set forth in Section 11-36a-701 of the Act.

SECTION 9: Accounting of Impact Fees.

The City shall follow all of the accounting and reporting requirements found in Section 11-36a-601 of the Act.

SECTION 10: Severability.

If any portion or provision of this Ordinance shall be declared invalid for any reason, such decision shall not affect the remaining portions of this Ordinance that shall remain in full force and effect. For this purpose, the provisions of this Enactment are declared to be severable.

SECTION 11: Effective Date.

This Ordinance will become effective 90 days after its approval.

ADOPTED by the City Council of Springville, Utah, this 3rd day of March 2026.

SPRINGVILLE CITY

Matt Packard, Mayor

ATTEST:

Kim Crane, City Recorder

Exhibit A - MP

Exhibit B - IFFP, IFA



SPRINGVILLE CITY

**WASTEWATER COLLECTION SYSTEM
MASTER PLAN**

February 2026

SPRINGVILLE CITY
WASTEWATER COLLECTION SYSTEM MASTER PLAN
(HAL Project No.: 260.63.100)



Jason C. Biesinger, P.E.
Project Engineer

Recommended by: 
Katie Gibson Jacobsen, P.E., Project Manager



February 2026

TABLE OF CONTENTS

TITLE	PAGE
TABLE OF CONTENTS	i
LIST OF TABLES	iii
LIST OF FIGURES	iii
CHAPTER 1 INTRODUCTION	1-1
BACKGROUND AND PURPOSE	1-1
AUTHORIZATION	1-1
SCOPE OF WORK	1-1
PREVIOUS STUDIES	1-2
CHAPTER 2 EXISTING WASTEWATER SYSTEM	2-1
SERVICE AREA	2-1
EXISTING WASTEWATER SYSTEM	2-1
Source of Data	2-1
Collection Network	2-1
Wastewater Treatment Plant	2-1
Lift Stations	2-2
Potential for Lift Station Removal or Flow Reduction	2-2
CHAPTER 3 FLOW MONITORING	3-1
FLOW MONITORING	3-1
Local Flow Monitoring	3-1
Springville City - Wastewater Treatment Plant Flow Monitoring	3-1
CHAPTER 4 FLOW CHARACTERIZATION	4-1
METHODOLOGY	4-1
UNIT FLOWS	4-1
DAILY FLOW VARIATION	4-2
Peaking Factors	4-2
HYDROGRAPHS	4-4
SPRINGVILLE WASTEWATER TREATMENT PLANT METER DATA	4-4
Nestle Flowmeter Data	4-5
Wastewater Treatment Plant Loading without Pre-Treatment Flows	4-6
ANNUAL FLOW VARIATION	4-7
Infiltration	4-7
Inflow	4-8
Existing Flow Summary and Modeling Application	4-9
LONG TERM FLOW VARIATION	4-9
EXTRAORDINARY FLOWS	4-10
CHAPTER 5 WASTEWATER FLOW PROJECTIONS	5-1
PLANNING PERIOD	5-1
COLLECTION AREAS	5-1
GROWTH PROJECTIONS	5-1
FLOW PROJECTIONS	5-2
Lift Station Flow Projections	5-3
CHAPTER 6 WASTEWATER COLLECTION SYSTEM EVALUATION	6-1

MODEL SELECTION	6-1
SYSTEM LAYOUT	6-1
MODELING CRITERIA.....	6-1
MODEL CALIBRATION.....	6-2
MODEL SCENARIOS.....	6-2
EXISTING DEFICIENCIES.....	6-2
FUTURE IMPROVEMENTS	6-3
LIFT STATION PHASING.....	6-5
Westfields Lift Station.....	6-5
1500 West Lift Station.....	6-6
Lakeside Landing Lift Station	6-7
CHAPTER 7 OPERATIONS AND MAINTENANCE ALTERNATIVES	7-7
SYSTEM AGING	7-2
Replacement.....	7-2
PIPELINE IMPROVEMENTS.....	7-3
Cleaning.....	7-3
Replacement Sewers	7-3
Bypass Sewers/Re-routing Flows.....	7-4
New Sewers.....	7-4
Alternative Construction Technologies	7-4
COMPARISON OF IMPROVEMENT ALTERNATIVES	7-4
Sewers.....	7-4
Lift Stations.....	7-4
Future Considerations.....	7-5
CHAPTER 8 CAPITAL IMPROVEMENTS PLAN	8-1
PROJECT COST ESTIMATES.....	8-1
ACCURACY OF COST ESTIMATES.....	8-1
RECOMMENDED IMPROVEMENT PROJECTS.....	8-2
WASTEWATER COLLECTION SYSTEM CLEANING.....	8-4
UTAH SEWER MANAGEMENT PROGRAM.....	8-4
ELIMINATE UNNECESSARY WASTEWATER	8-5
Direct Sewage.....	8-5
FUNDING OPTIONS	8-5
Sewer Service Fees	8-5
General Obligation Bonds	8-5
Revenue Bonds	8-6
State/Federal Grants and Loans	8-6
Rocky Mountain Power Energy Incentive.....	8-6
Impact Fees	8-6
REFERENCES	R-1

APPENDICES

Appendix A	Lift Station Technical Memorandum
Appendix B	Flow Study Results
Appendix C	Growth Projections and Projected ERUs
Appendix D	Cost Estimates
Appendix E	Lakeside Landing Master Plan

LIST OF TABLES

TABLE	TITLE	PAGE
TABLE 2-1	LIFT STATION INVENTORY	2-2
TABLE 4-1	EXISTING PEAK HOUR FLOW SUMMARY	4-9
TABLE 5-1	SYSTEM ERU PROJECTIONS	5-1
TABLE 5-2	ERU DENSITIES	5-2
TABLE 5-3	PROJECT PEAK HOUR HYDRAULIC LOADINGS	5-2
TABLE 5-4	LIFT STATION FLOW RATE PROJECTIONS	5-3
TABLE 6-1	MODELING CRITERIA	6-1
TABLE 6-2	MODEL SCENARIOS	6-2
TABLE 6-3	EXISTING LIFT STATION CAPACITY DEFICIENCIES AND SOLUTIONS	6-3
TABLE 6-4	FUTURE IMPROVEMENTS	6-3
TABLE 6-5	WESTFIELDS LIFT STATION PHASING	6-5
TABLE 6-6	1500 WEST LIFT STATION PHASING	6-6
TABLE 6-7	LAKESIDE LANDING LIFT STATION PHASING	6-7
TABLE 7-1:	REPLACEMENT PROGRAM FOR ALL GRAVITY PIPES	7-2
TABLE 7-2:	REPLACEMENT PROGRAM FOR ALL FORCE MAINS	7-3
TABLE 8-1	EXISTING IMPROVEMENT PROJECT COST ESTIMATES	8-2
TABLE 8-2	FUTURE IMPROVEMENT PROJECT COST ESTIMATES.....	8-3
TABLE 8-3	IMPROVEMENT PROJECT COST ESTIMATES SUMMARY	8-4

LIST OF FIGURES

FIGURE	TITLE	PAGE
FIGURE 2-1	EXISTING SYSTEM AND SERVICE AREA BOUNDARY	AFTER 2-1
FIGURE 3-1	FLOW STUDY LOCATIONS	AFTER 3-1
FIGURE 4-1	FLOW MONITORING SITE PEAKING FACTORS	4-3
FIGURE 4-2	DIURNAL CURVES	4-4
FIGURE 4-3	WRF HEADWORKS FLOW INCLUDING PRE-TREATMENT	4-5
FIGURE 4-4	NESTLE PRE-TREATMENT FLOWS	4-6
FIGURE 4-5	WRF HEADWORKS FLOW (NO PRE-TREATMENT)	4-7
FIGURE 4-6	WRF FLOW VS. PRECIPITATION	4-8
FIGURE 5-1	WASTEWATER COLLECTION AREAS.....	AFTER 5-1
FIGURE 5-2	FUTURE LAND USE	AFTER 5-2
FIGURE 6-1	MODEL SYSTEM LAYOUT	AFTER 6-1
FIGURE 6-2	EXISTING PROJECTS	AFTER 6-2
FIGURE 6-3	10-YEAR CAPACITY IMPROVEMENT PROJECTS	AFTER 6-3
FIGURE 6-4	20-YEAR CAPACITY IMPROVEMENT PROJECTS	AFTER 6-3
FIGURE 6-5	2070 CAPACITY IMPROVEMENT PROJECTS	AFTER 6-3

CHAPTER 1

INTRODUCTION

BACKGROUND AND PURPOSE

Springville is a rapidly growing city in Utah County, Utah. Located in central Utah Valley, between the southeastern edge of Utah Lake and the base of the Wasatch Mountains, Springville is a community that supports a wide range of residential, commercial, industrial, and recreational development, creating strong economic vitality. Springville is a community that has become a center for the arts, with strong local support. This positive environment continues to attract many new residents and businesses, leading to rapid growth.

This rapid growth has caused increased loads on City resources, including the wastewater collection system. These loads consume available capacity of sewers, lift stations and force mains. Monitoring, planning, financing, and constructing new facilities is necessary to serve new development.

Recognizing the need for wastewater collection system planning, Springville City retained Hansen, Allen & Luce, Inc. (HAL) to prepare a wastewater collection system master plan. The purpose of the master plan is to 1) estimate wastewater loading values for the existing system, 2) evaluate the existing system's ability to convey existing wastewater flows, 3) prepare growth projections, 4) predict growth areas with City input, 5) prepare future loading estimates based on growth, 6) evaluate future infrastructure needs and 7) recommended projects that will create the additional needed wastewater conveyance capacity.

The results of this study are limited by the accuracy of the development projections and other assumptions used in preparing the master plan. It is expected that the City will continue to review and update this master plan every 5 years, or more frequently if the assumptions included in this effort change significantly.

AUTHORIZATION

The Springville City Council and Administration authorized Hansen, Allen & Luce, Inc. to proceed with the wastewater collection system master plan in 2025.

SCOPE OF WORK

A summary of the scope of work is as follows:

1. Communicate and coordinate with City personnel.
2. Attend a start-up meeting with the City personnel to discuss data and key issues.
3. Prepare population growth projections.
4. Compare GIS data to the existing system model.
5. Evaluate winter water use billing records to estimate water volumes due to indoor water demand. Use data to estimate infiltration values.
6. Evaluate wastewater treatment plant meter data.

7. Attend a planning meeting to discuss current and future land use.
8. Prepare an existing system model.
9. Prepare a future conditions model.
10. Use the models to identify deficiencies.
11. Develop a capital facilities list.
12. Attend a workshop with City personnel to present results and select preferred alternatives.
13. Prepare estimated construction costs and estimated schedules for project construction.
14. Prepare a draft report.
15. Review draft report with City.
16. Prepare a final master plan document.

PREVIOUS STUDIES

This master plan is part of a long-term ongoing planning effort by Springville City. The City has prepared master plans, as needed, in the past, to ensure that the wastewater collection system facilities are adequate to meet the community needs. Prior master plans include the following:

1. *Springville City - Wastewater Collection System Master Plan*. Hansen, Allen & Luce, Inc. August 2020.
2. *Springville City - Wastewater Collection System Master Plan and Capital Facilities Plan*. Springville City Staff. May 2014.
3. *Springville City - Wastewater Collection System Master Plan*. Hansen, Allen & Luce, Inc. May 2006.

CHAPTER 2

EXISTING WASTEWATER SYSTEM

SERVICE AREA

The service area of Springville City's wastewater collection system includes the area within the municipal boundary. This boundary is provided on Figure 2-1. The City may expand the incorporated boundary at a future date, but the expansion schedule has not been identified.

EXISTING WASTEWATER SYSTEM

The existing wastewater system consists of gravity pipes including laterals, collectors, interceptors and outfalls. The system also includes lift stations, force mains and the Wastewater Reclamation Facility (WRF). This master plan evaluates the above items, except that the WRF has been evaluated by Aqua Engineering in a separate master plan document. The existing wastewater system is shown on Figure 2-1.

Source of Data

Data for the existing wastewater collection system was provided by the City. This data includes the following:

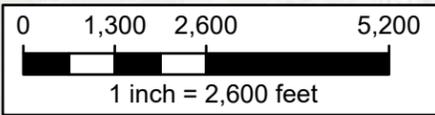
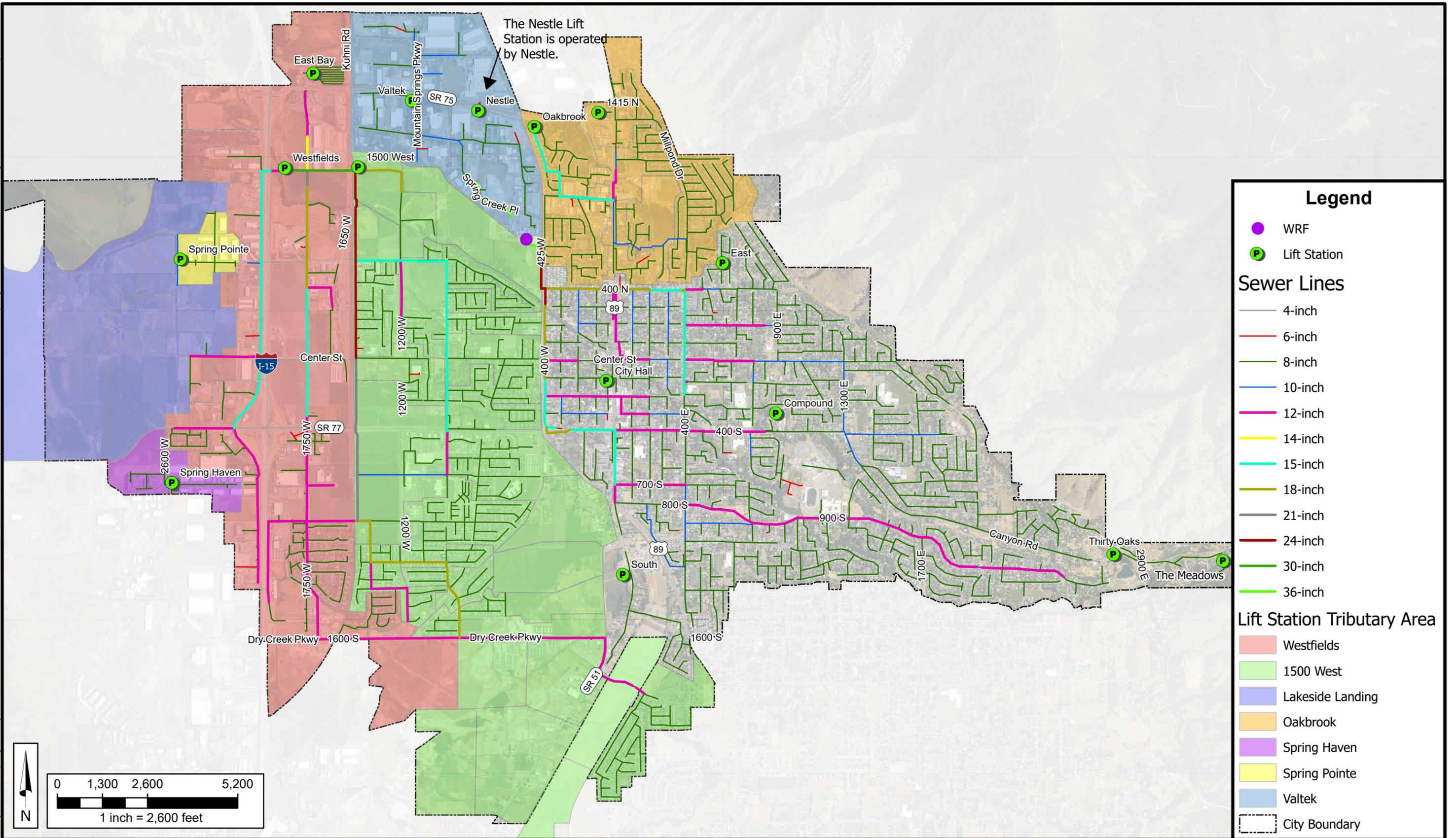
- *Wastewater Collection System Master Plan*. HAL. 2020.
- *Water Reclamation Facility Master Plan*. Aqua Engineering. 2024.
- Existing and future computer hydraulic models from the 2020 master plan in the Autodesk Storm and Sanitary Analysis modeling software format.
- GIS files describing manholes, gravity pipes, lift stations, and force mains.
- The online Springville City GIS databased located at <https://maps.springville.org/emap/>.
- Record drawings and technical data describing lift stations and completed projects.

Collection Network

The existing Springville City wastewater collection system consists of nearly 150 miles of gravity pipeline and about 2,900 manholes. Gravity pipe sizes range from 4-inch diameter to 36-inch diameter pipe. The system also has force main piping ranging from 2-inch diameter to 12-inch diameter pipe.

Wastewater Treatment Plant

The wastewater in the collection system flows to the Springville City Wastewater Reclamation Facility (WRF). Flows arrive at the WRF via two outfalls. One is a 36-inch diameter gravity sewer that conveys flows from throughout the City. The second is a pressurized force main from the Nestle facility. This wastewater is pre-treated primarily to remove suspended solids, fats, oils, and greases. The WRF has a permitted capacity of 6.6 MGD average daily flow and peak day flow up to 9.3 MGD.



**SPRINGVILLE CITY
 WASTEWATER COLLECTION SYSTEM MASTER PLAN**

EXISTING SYSTEM

Lift Stations

As a result of the relatively flat topography in portions of the City and as a result of the patterns of development growth, it has been necessary to use lift stations in some locations to provide wastewater service. Springville City uses 14 lift stations to convey wastewater to the WRF. The locations of the lift stations are provided on Figure 2-1. Table 2-1 provides a list of the lift stations with key characteristics.

TABLE 2-1 LIFT STATION INVENTORY

NAME	ADDRESS	VFD	RATED PUMP CAPACITY (GPM)¹	NO. OF PUMPS	BACKUP POWER
1500 West	1500 W 1000 N	Y	1,375	2	Yes
Westfields	1780 W 1000 N	Y	650	2	Yes
Valtek	1375 N Industrial Cir.	Y	540	2	Yes
Oakbrook	1275 N Meadowbrook Ln.	Y	350	2	Yes
East	520 N 600 E	N	80	2	Yes
South	1270 So. Main	N	200	2	Yes
Spring Haven	2480 W. 700 So.	N	257	2	Yes
Spring Pointe	500 N 2400 W	N	260	2	Yes
30 Oaks	2800 E. Canyon Rd	N	57	2	No
1415 North	1425 No. Main	N	57	2	No
City Hall	110 So. Main	N	50	2	Yes
East Bay (KOA)	1604 N 1750 W	N		2	No
Meadows	1078 S Oak Leaf Ln	N		2	No
4 th South Compound	909 E. 400 So.	N	55	1	No

1. Rated capacity is based on the capacity of one pump with the larger of the two pumps being out of service.

Potential for Lift Station Removal or Flow Reduction

The City indicated a desire to eliminate lift stations, when possible, since this would reduce power and other operations and maintenance costs. As part of the previous master plan, the City commissioned a separate study to consider how key lift stations could be eliminated and to consider the costs and savings resulting from lift station removal. A copy of that study has been included in Appendix A.

CHAPTER 3

FLOW MONITORING

FLOW MONITORING

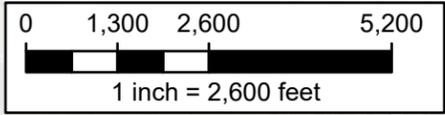
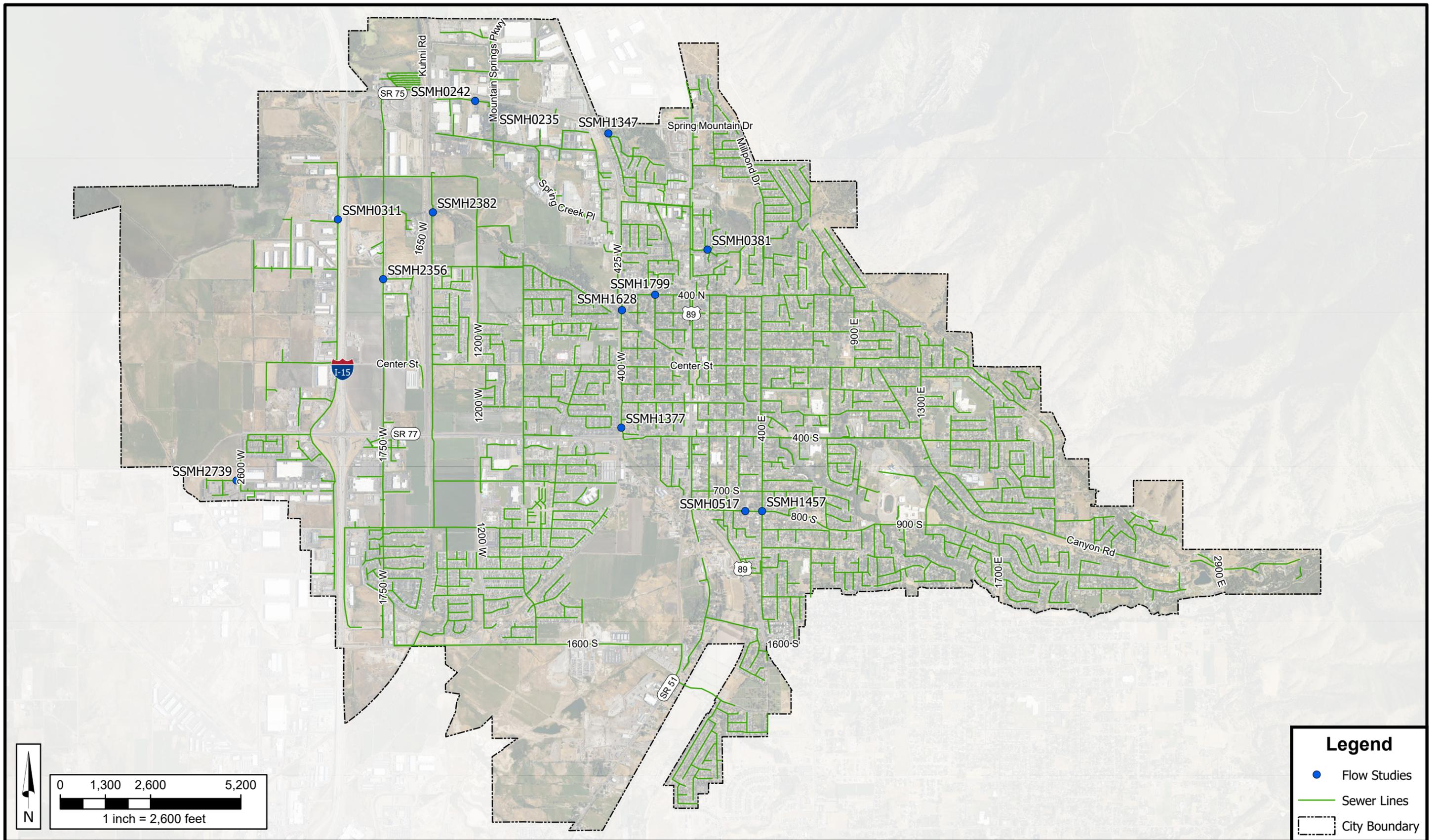
The purpose of flow monitoring is to obtain flow data at several locations throughout the City to provide the basis for flow characterization, including flow peaking factors, construction of a model, and calibration of the model to real values.

Local Flow Monitoring

Flow monitoring was previously completed at various sites throughout the city by City personnel. The data was then provided to HAL for analysis. Additional flow monitoring was performed for Lakeside Landing near Westfields Lift Station for a recent flow study. Each flow study provided about one to two weeks of time-series flow data.

Springville City - Wastewater Treatment Plant Flow Monitoring

In addition to the flow studies, the City provided HAL with three years of metered influent flow data at the wastewater treatment plant headworks. The flows arriving at the treatment plant were analyzed in conjunction with precipitation data and the Nestle pre-treatment flows to determine possible inflow and infiltration values. The model was calibrated to match the assumed peak flow at the treatment plant, including inflow and infiltration. Graphs showing the recorded flow data are located in Appendix B. Flow study locations are shown on Figure 3-1.



Legend

- Flow Studies
- Sewer Lines
- City Boundary

Date: 9/26/2025



**SPRINGVILLE CITY
WASTEWATER COLLECTION SYSTEM MASTER PLAN**

2016 FLOW STUDY LOCATIONS

**FIGURE
3-1**

CHAPTER 4

FLOW CHARACTERIZATION

METHODOLOGY

The purpose of flow characterization is to determine the flow patterns and variations that may be experienced by a wastewater system so that sewers, lift stations, and the treatment facility can be evaluated and sized appropriately. The flow characterization included evaluation of the following wastewater flow characteristics:

- Unit Flows
- Daily Flow Variation
- Annual Flow Variation
- Long Term Flow Variation
- Extraordinary Flows

UNIT FLOWS

Unit flows were estimated for Springville City and are expressed as Equivalent Residential Units (ERUs). An ERU is the average wastewater loading of an average residential unit. The ERU is used to express all loadings by the same unit. Commercial, industrial and other types of development loading can be expressed by the same unit as residences. For example, a commercial development that produces a loading of 5 times the average residence will be designated with a 5 ERU loading.

In order to estimate the loading for an ERU, the amount of drinking water used during the winter was examined. Winter drinking water is mostly consumed indoors and can be identified by use type (i.e. residential) from the billing record codes. The amount of indoor water used is essentially the same as the amount of wastewater produced. It is therefore possible to estimate residential indoor wastewater use from the billing records.

Several years of City billing records were obtained and analyzed to determine current average indoor water usage for each equivalent residential unit (ERU) in the City. This resulted in an average indoor water usage of about 170 gpd per ERU for 15,952 existing ERUs (with Nestle excluded). Monthly production records and usage patterns were analyzed to determine the peak day indoor demand, which was determined to be 260 gpd per ERU. To account for possible future variability above the current usage and incorporate a portion of inflow and infiltration for both existing and future development into the level of service, 250 gpd/ERU was selected as the level of service. It is assumed that all indoor water usage will be converted to wastewater flow, resulting in a system design wastewater flow of the following:

Hydraulic Loading / ERU = 250 gallons/day

DAILY FLOW VARIATION

Flow in a wastewater collection system varies continuously throughout the day. Data were provided for the WRF headworks on a 15-minute interval from January 2022 through May 2025. From the data, it may be observed that the minimum flow generally occurs during the early morning between 3:00 AM and 5:00 AM. Maximum or peak flows typically occur during the morning between around 8:00 AM and 9:00 AM and in the evening between 8:00 PM and 9:00 PM. Another peak occurs in the early morning between midnight and 3:00 AM. This peak is due to operations at the Nestle facility which discharges wastewater during the night, avoiding a coincident peak with the City-wide collections system.

Peaking Factors

Peaking factors were developed for the Springville wastewater collection system. The peaking factor is the ratio between the peak instantaneous flow and the average daily flow. These peaking factors were calculated based on the WRF loading data and on the local flow studies that were conducted by Springville City personnel.

Flow monitoring data was previously collected by Springville City at locations downstream of residential, industrial, and mixed-use areas. These local flow studies provided data at key locations for a one-to-two-week period. The peaking factors and flow patterns revealed in the flow studies were examined as part of the effort to establish peaking factors and patterns for the hydraulic model. The data from the flow studies were used to create a pattern of 15-minute increments. Based on this information, peaking factors were determined for the different land use types. The flow study data, peaking factors and patterns are provided in Figure 4-1.

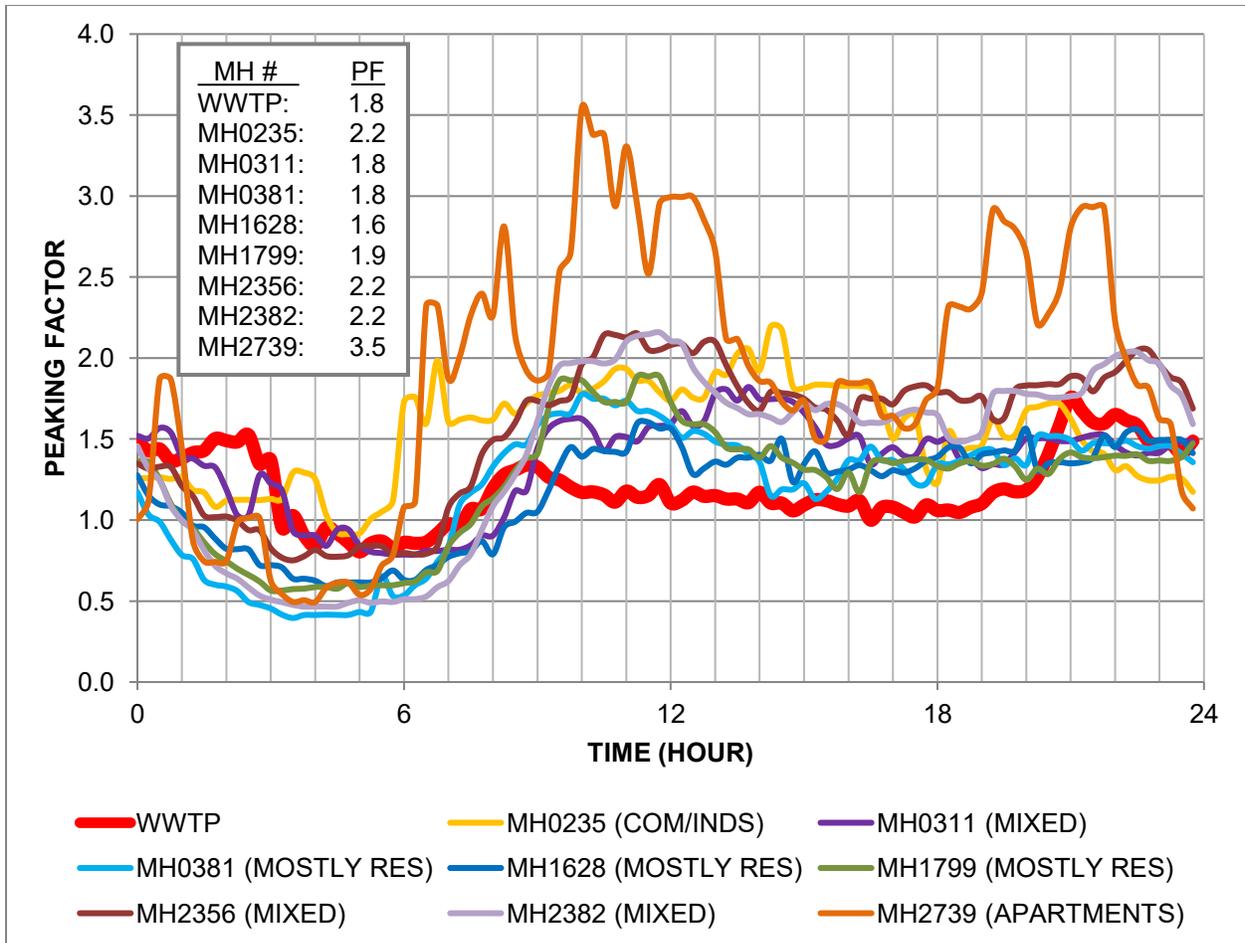


FIGURE 4-1 FLOW MONITORING SITE PEAKING FACTORS

In Figure 4-1, it may be observed that the flow meter data provides information with regard to peaking factor values. The residential, industrial, and mixed-use peaking factors of 2.0, 1.8, and 2.2 were derived from the previous master plan flow studies. It was decided that the shape of the curve used in the previous master plan has been effective and is consistent with flow data. The diurnal curves which were used in the model are provided in Figure 4-2. Note that the shape the WRF inflow curve shows less peaking than the other metered areas due to attenuation in the system.

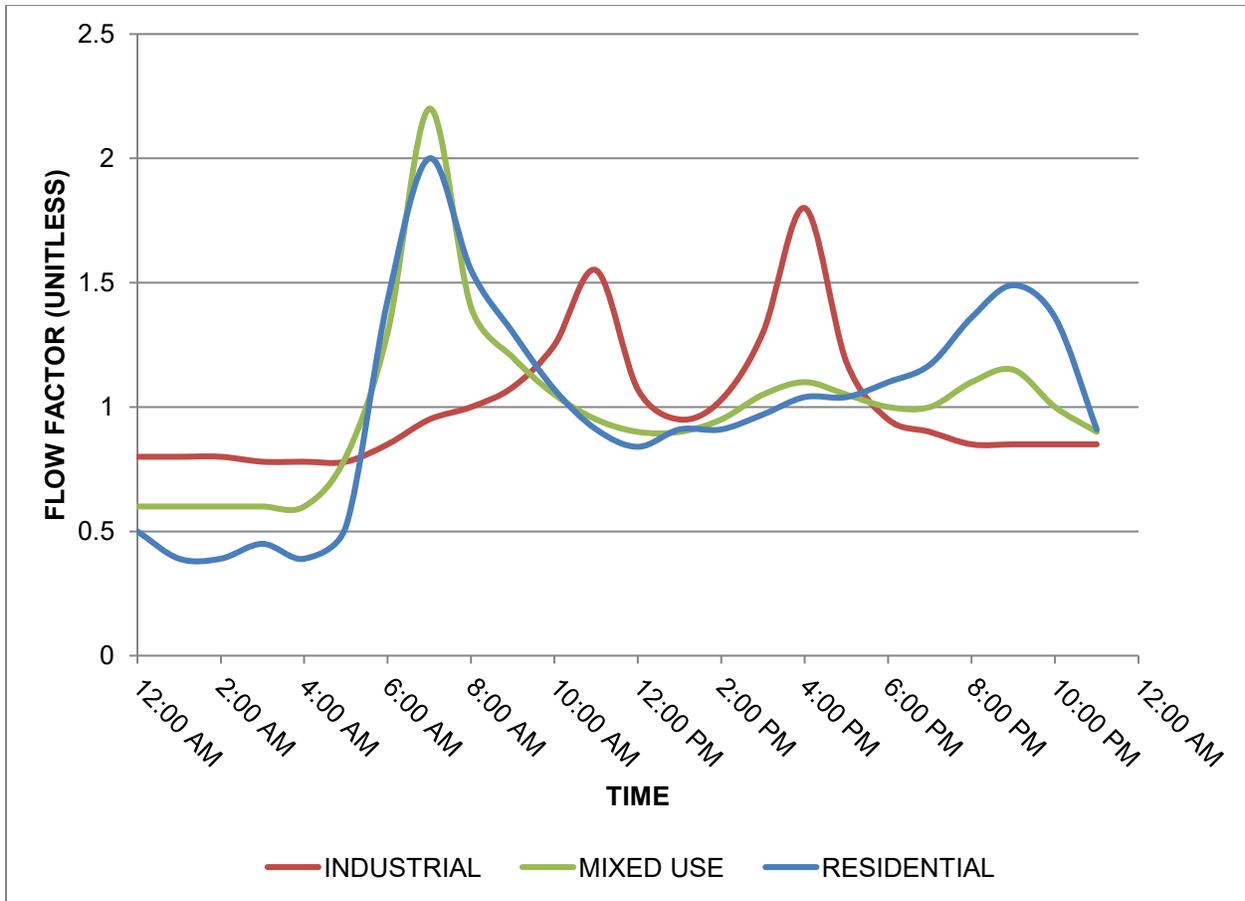


FIGURE 4-2 DIURNAL CURVES

HYDROGRAPHS

Hydrographs were developed for existing and future conditions. In each case, the wastewater hydrograph was developed using the hydraulic model. A diurnal curve pattern was assigned to hydraulic loadings in each collection area. Each collection area is designated as residential, industrial or mixed use. The model applies the loading to each collection area based on the pattern. An outflow hydrograph results for each collection area. The model also performs routing calculations to determine how the wastewater flows are routed to the WRF.

SPRINGVILLE WASTEWATER TREATMENT PLANT METER DATA

The Springville wastewater collection system discharges to the WRF. A flow meter is located at the WRF headworks. 15-minute flowrate data at the treatment plant were obtained from January 2022 through May 2025. The treatment plant flowrate is provided on Figure 4-3. Also, provided on the figure is the daily moving average wastewater flowrate. This line on the figure shows the average flowrate for each day and helps with a comparison between peak, minimum and average flowrates.

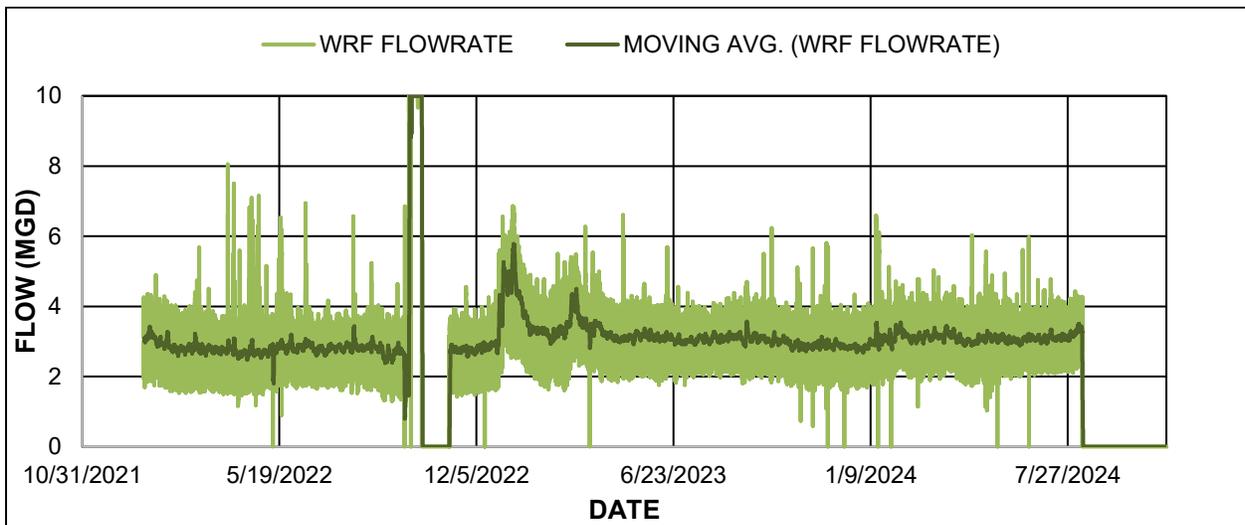


FIGURE 4-3 WRF HEADWORKS FLOW INCLUDING PRE-TREATMENT

Figure 4-3 provides the total inflow to the Springville WRF, including the pre-treatment flows from Nestle. There is a period of bad data from September 2022 to November 2022, and some outliers are present. It may be observed that flows have generally been in the same range and that a slight growth trend is occurring. However, as the population continues to grow, the wastewater production will inevitably increase.

Nestle Flowmeter Data

The Nestle food processing plant is a major contributor of wastewater to the WRF. Since the Nestle wastewater is conveyed via a force main from the Nestle facility to the WRF, it is not conveyed in the City's gravity sewer system. Therefore, while the Nestle flows are significant to the WRF, they are independent of the collection system. It is also important to point out that the Nestle flows are not related to population growth and therefore are not expected to change as the City grows, unless significant production changes are made by Nestle.

During development of the flow projections and hydrographs, the Nestle flows have been removed from the analysis. Nestle flows are provided in Figure 4-4. It may be observed in Figure 4-4 that the Nestle peak flows have been consistent within the timeframe of available data, except for a brief spike in August 2024. In any case, a look at the data reveals that the peak flowrates typically occur between midnight and 3 am, which is an off-peak time for the rest of the City. These flows have not contributed to the maximum peak flow rate due to this timing.

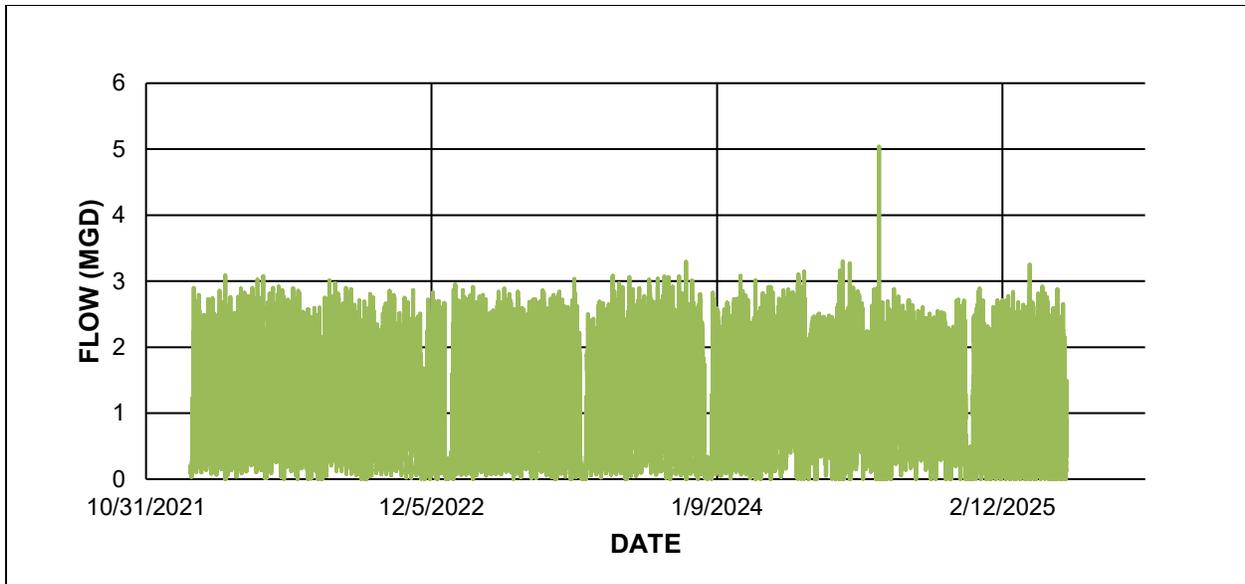


FIGURE 4-4 NESTLE PRE-TREATMENT FLOWS

Wastewater Treatment Plant Loading without Pre-Treatment Flows

The wastewater treatment plant’s loading was examined after the Nestle flow data was removed. This data is included as Figure 4-5. The average flowrate without the pre-treatment portion over the three years of flow data was 3.4 million gallon/day (MGD). Peak flows were typically less than 5 MGD, although a few peaks, possibly outliers, were as high as 10 MGD.

An evaluation of indoor winter water use estimated an average daily flowrate of 3.4 MGD over the past three years. This shows that the indoor winter water use data and the wastewater treatment plant’s data are comparable and correlate well with each other.

After reviewing the data with the City, it was decided that an existing flow of 6.7 MGD would be assumed as the current peak loading value. This includes a portion of inflow and infiltration which is discussed below.

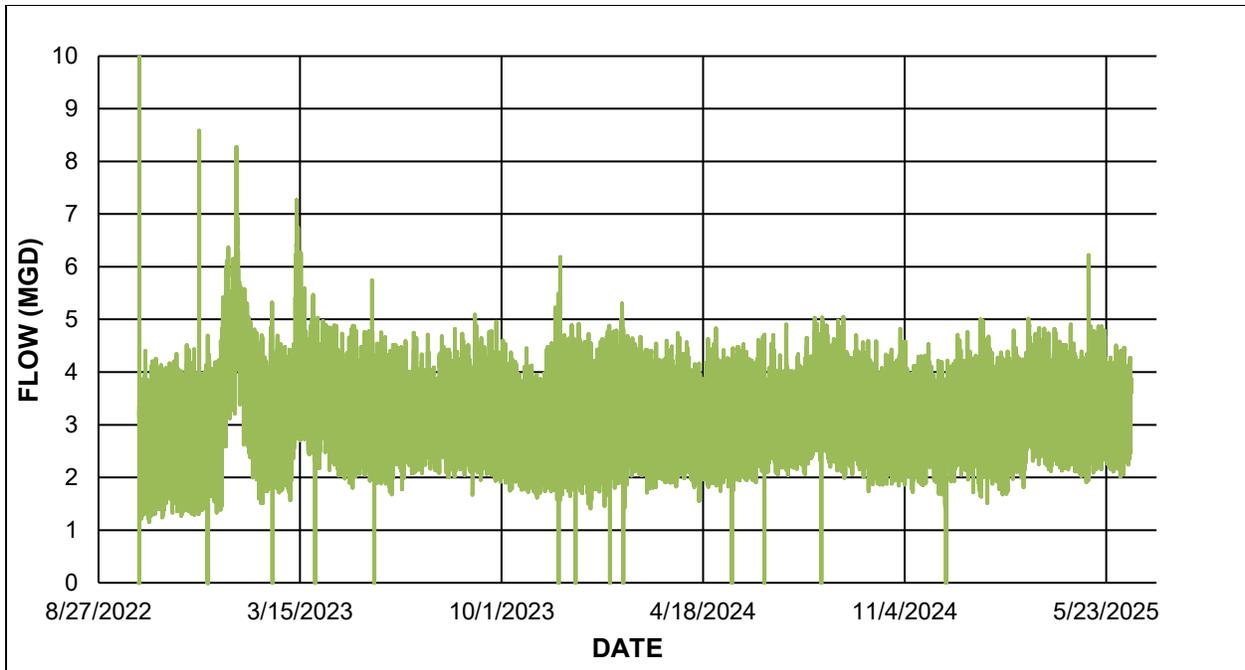


FIGURE 4-5 WRF HEADWORKS FLOW (NO PRE-TREATMENT)

ANNUAL FLOW VARIATION

Wastewater systems can experience annual flow variation due to infiltration and other seasonal inflows such as irrigation or precipitation events.

Infiltration

Infiltration is defined as groundwater which enters a wastewater collection system through pipe joints, cracks in the pipe, and leaks in manholes or building connections. Infiltration may occur due to seasonal increases in groundwater level or may occur as the groundwater level increases due to a storm.

One indicator of seasonal infiltration is changes in the wastewater baseflow (minimum flow). In examining base flow of the study data set, it appears that base flow changes of about 0.4 MGD occurred in the flow record. These changes were discussed with Springville City, and it was decided that a flow of 0.4 MGD would be assumed for seasonal infiltration, also known as wet weather infiltration. Dry weather infiltration is accounted for in the level of service.

Inflow

Inflow is defined as surface water that enters a wastewater collection system (including building connections) through roof leaders, cellars, foundations, yards, area drains, cooling water discharges, manhole covers, cross connections from storm drains, culinary water main flushing, etc.

In order to estimate the amount of inflow, the WRF data was compared to precipitation data. It was observed that during medium to large storm events, the WRF flows would increase during or shortly after a rainfall event. A series of events occurred during a week in March 2023. The rainfall data and the WRF flows were plotted together to observe the correlations. This comparison is found on Figure 4-6. A series of spikes in flows arriving at the treatment plant can be seen following the rainfall events. Based on a comparison of peaks before and during the storm, it appears that each peak increased in loading by about 1.0 MGD higher than the previous peak at the WRF due to the series of storms.

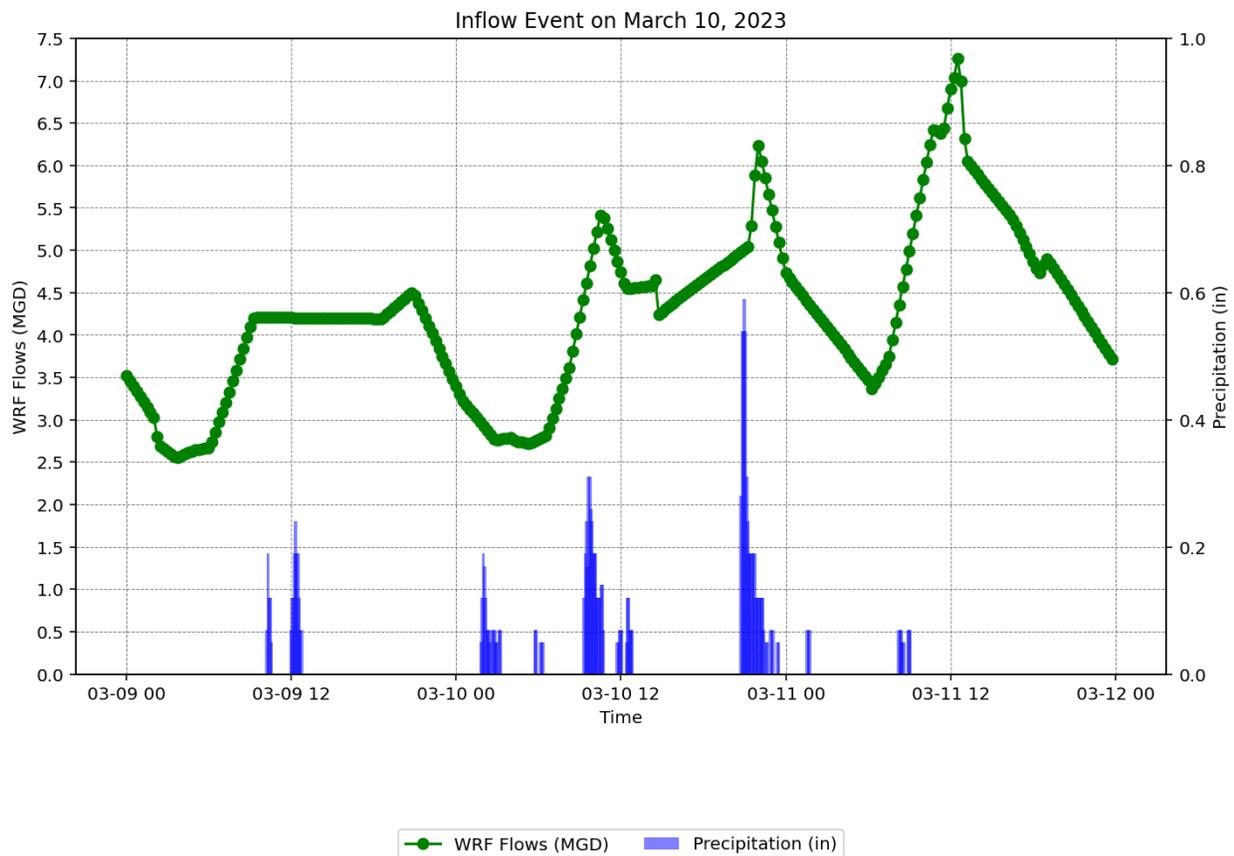


FIGURE 4-6 WRF FLOW VS. PRECIPITATION

This information was discussed with Springville City. It was decided that an inflow value of 1.0 MGD would be assumed for modeling purposes. The level of service also incorporates a portion of inflow for existing and future development.

The City continues to identify and mitigate inflow and infiltration as an ongoing process. This effort includes the completing of sewer lining projects as i&i problem areas are found.

Existing Flow Summary and Modeling Application

Based on the above discussion, a prediction of existing conditions peak hour flows has been prepared. This summary is provided in Table 4-1.

TABLE 4-1 EXISTING PEAK HOUR FLOW SUMMARY

Flow Type	Flowrate (MGD)
Existing Development	6.7
Infiltration	0.4
Inflow	1.0
TOTAL	8.1

The existing flowrates provided in Table 4-1 were included in the hydraulic models. The portion for existing development was distributed in the model throughout the collection areas based on water meter demand data weighting. The infiltration and inflow data were distributed across the collection system in 20 different locations. The infiltration and inflow loading locations were selected based on groundwater levels and the results of the local flow studies.

LONG TERM FLOW VARIATION

Average annual wastewater flows usually vary from year to year, although the variation between years is typically not extreme. The most predictable changes in average annual flows are typically associated with changes in population. Long-term variations may also be caused by changes in weather patterns which may last several years.

Changes in weather patterns can result in changes in infiltration and water use patterns. Decreased precipitation results in lower groundwater levels and less infiltration. Water conservation measures implemented during droughts result in reduction in both indoor and outdoor water use. A reduction in indoor use results in less domestic wastewater. A reduction in outside use for watering lawns and gardens may lead to lowering of the groundwater table and less infiltration. Weather pattern changes are not expected to significantly impact the long-term flow rates of the Springville wastewater collection system.

Long term flow variations are difficult to predict, except those related to population growth. As noted previously, the WRF flow data shows a slight growth trend. However, as the City grows, increases in hydraulic loading values will occur. Otherwise, projected flowrates have not been increased in this study for long term flow variations.

EXTRAORDINARY FLOWS

Extraordinary flows may include flow anomalies such as holidays. Typically, Thanksgiving and Christmas are days with higher flowrates. No predictable extraordinary flow sources were identified during this study. Therefore, no special adjustments were made in the model. The sewer has been sized with some extra capacity to handle higher than expected flows.

CHAPTER 5
WASTEWATER FLOW PROJECTIONS

PLANNING PERIOD

The wastewater collection system master plan planning periods were established in consultation with Springville City. The periods that were modeled were the existing conditions, and projected demands through 2035 (10-year), 2045 (20-year), and through 2070. Growth areas and growth projections were developed in cooperation with Springville City Community Development, Engineering, and Public Works Departments. Additionally, growth areas within the next ten years were also identified and modeled in isolated areas. This enabled the identification of projects that are needed within the 0-10 year timeframe. Cost estimations were assembled for all projects needed within 20 years. However, only projects needed within the next 10 years are eligible to include in the assessment of impact fees.

COLLECTION AREAS

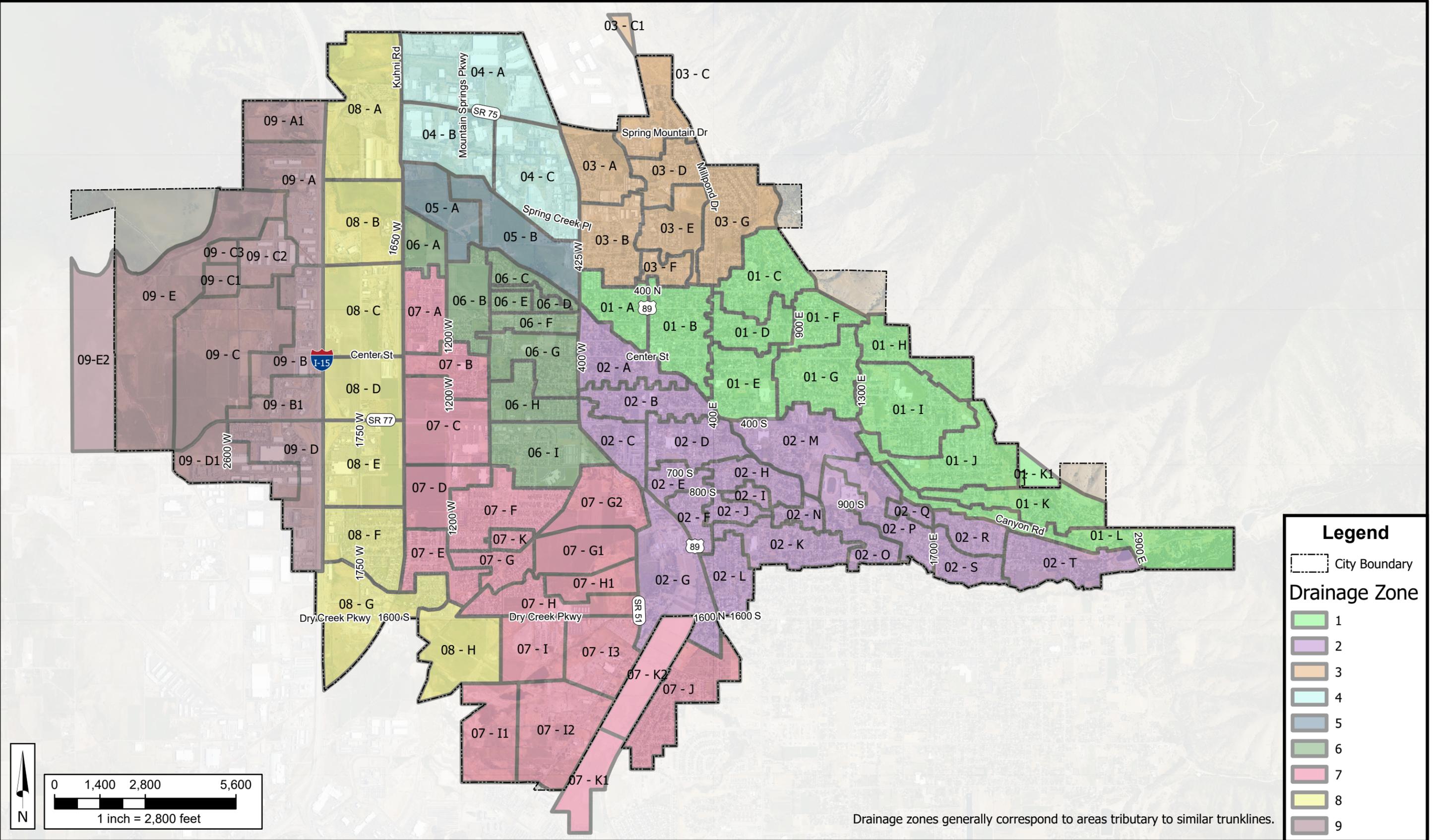
A collection area is defined as a geographic area that contributes flow to a common point in the collection system. Collection areas were delineated in the 2013 master plan with some updates made in the 2020 master plan. Existing collection areas were based on the location of existing sewers and services. Future collection areas were based on the location of the existing system and based on likely areas of expansion. For this master plan, collection areas are mostly the same as the previous master plan, but have been updated to match current growth projections, sewer manholes, and topography. The collection areas were updated to reflect improvements to the collection system. The collection areas were also discussed and reviewed by the wastewater collection system operators. Collection areas generally have an existing contribution of less than 400 units. The delineated collection areas are shown on Figure 5-1.

GROWTH PROJECTIONS

ERU estimates for the existing wastewater collection system and growth projections have been prepared for the planning periods. These estimates and projections are summarized in Table 5-1. A detailed list is provided in Appendix C.

TABLE 5-1 SYSTEM ERU PROJECTIONS

Approximate Year	Additional ERUs	Total ERUs	Description
2025	0	20,794	Existing System
2035	4,452	25,246	10-Year Development
2045	8,804	29,598	20-Year Development
2070	14,778	35,572	45-Year Development



FLOW PROJECTIONS

For the 2035, 2045, and 2070 planning periods, the new ERUs provided in Table 5-1 were distributed to collection areas throughout the City. The specific distribution of ERUs was based on workshops and discussions with Springville City personnel. The property locations for development applications as well as existing available water and wastewater infrastructure and transportation routes were considered in assigning the growth to areas within the City. Generally, most of the growth is expected to occur in the western portions of the City, with some growth occurring at other locations throughout the City. The City's General Plan land use classifications were used to determine densities and allocate demands across the City. As these classifications were prepared in 2011, updates to these classifications were made by HAL based on community plans for large developments, city zoning, and nearby development. Figure 5-2 shows the planned future land use. Table 5-2 provides a list of the land use types and assumed densities.

TABLE 5-2 ERU DENSITIES

Land Use Type	Land Use Density ERUs/Acre
Agriculture	10
Commercial	5
Industrial / Manufacturing	3
Low Density Residential	3
Medium Density Residential	10
Medium High Density Residential	15
Medium Low Density Residential	5
Mixed Use	5

For future loading projections, the loading per ERU (250 gpd) was multiplied by the land use density (ERUs/acre) and the area (acres). These average demands were loaded into the hydraulic models at key manholes. The models were used to apply peaking factors and predict future loading. The future models included 0.4 MGD for infiltration and 1.0 MGD for inflow, the same as the existing model. The existing and future peak hour loadings are provided in Table 5-3. This is based on modeled LOS and is slightly higher than actual peak flows in the past.

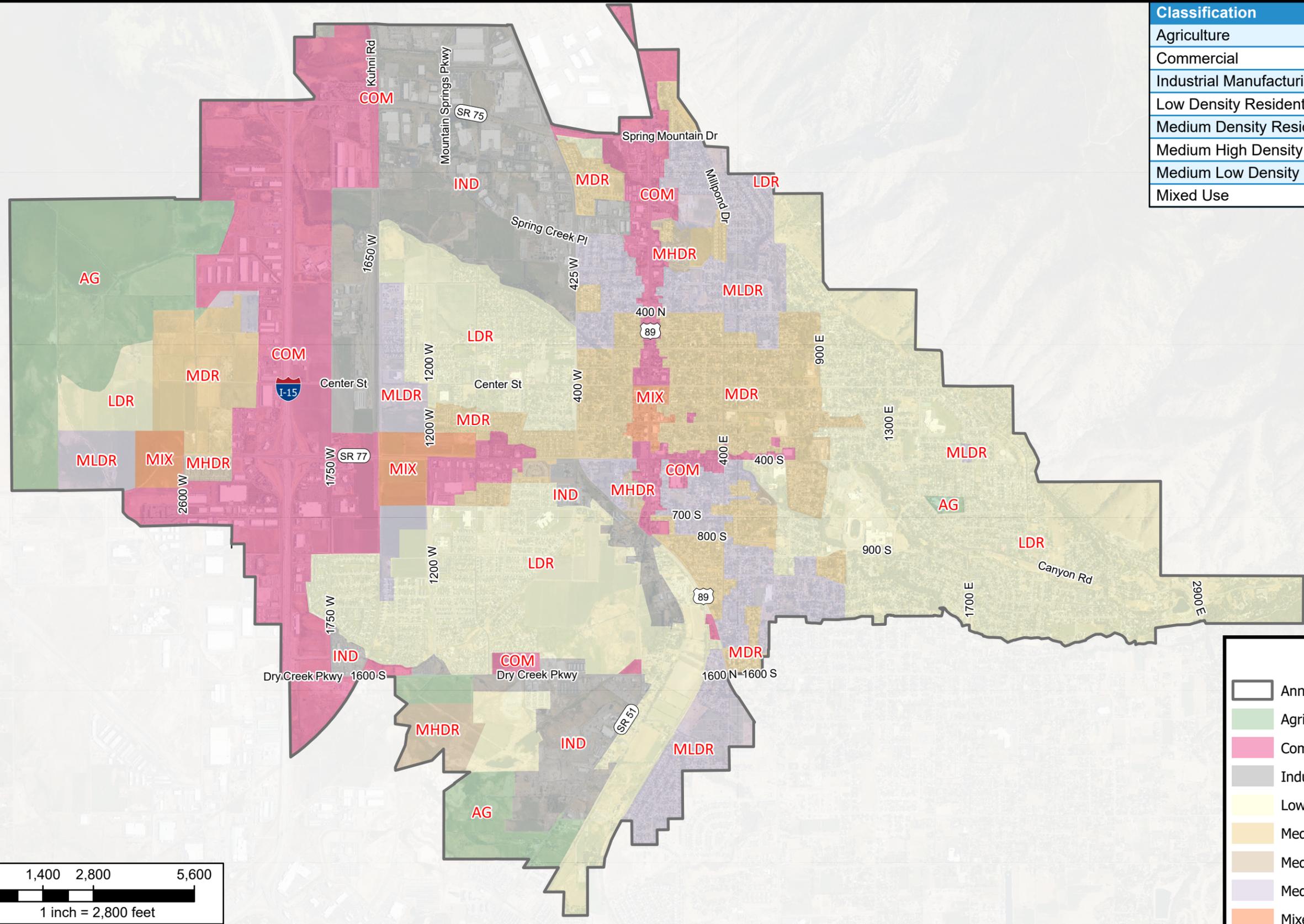
TABLE 5-3 PROJECT PEAK HOUR HYDRAULIC LOADINGS

Planning Period	Peak Hydraulic Loading* (MGD)
Existing Conditions	8.1
2035	9.8
2045	11.0
2070	13.4

*Including infiltration (0.4 MGD) and inflow (1.0 MGD).

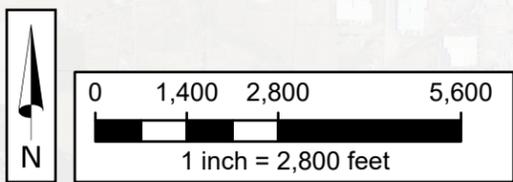
It may be observed in Table 5-3 that the projected peak hydraulic loading for 2035 is 9.8 MGD. This exceeds the current wastewater treatment plant design capacity of about 9.3 MGD.

Classification	Density (ERU/Acre)
Agriculture	10
Commercial	5
Industrial Manufacturing	3
Low Density Residential	3
Medium Density Residential	10
Medium High Density Residential	15
Medium Low Density Residential	5
Mixed Use	5



Legend

- Annexation Boundary
- Agricultural (AG)
- Commercial (COM)
- Industrial Manufacturing (IND)
- Low Density Residential (LDR)
- Medium Density Residential (MDR)
- Medium High Density Residential (MHDR)
- Medium Low Density Residential (MLDR)
- Mixed Use (MIX)



**SPRINGVILLE CITY
 WASTEWATER COLLECTION SYSTEM MASTER PLAN**

FUTURE LAND USE

**FIGURE
 5-2**

Lift Station Flow Projections

The loading projections were compared with the lift station rated capacities. Table 5-4 shows the capacities of the lift stations compared to the future projected flow rates to the lift stations.

TABLE 5-4 LIFT STATION FLOW RATE PROJECTIONS

Lift Station	Rated Capacity (gpm)	Existing Modeled Peak Flow (gpm)	2035 Modeled Peak Flow (gpm)	2045 Modeled Peak Flow (gpm)	2070 Modeled Peak Flow (gpm)
Valtek	540	370	370	370	370
Westfields	650	850	1,200	1,950	2,450
1500 West	1,375	1,230	1,650	2,000	2,350
Oakbrook	350	800	800	800	900
Spring Haven	257	245	245	245	245
Spring Pointe	260	To be decommissioned within 10 years.			

It may be observed in Table 5-4 that the Spring Haven and Valtek lift stations are predicted to have adequate capacity to meet existing and future needs. However, the Westfields, 1500 West, and Oakbrook lift stations are not predicted to have adequate capacity and will need additional capacity and improvements or less tributary flows to mitigate capacity needs. The 1500 West lift station was designed to be expanded and has space for additional pumps and other equipment.

The Spring Pointe lift station is planned to be decommissioned within 10 years.

CHAPTER 6
WASTEWATER COLLECTION SYSTEM EVALUATION

MODEL SELECTION

It was decided by HAL and Springville personnel to use the Autodesk Storm and Sanitary Analysis (SSA) Model Software for the master plan. The software was selected because it had performed adequately in the past, the City already had an SSA license, and data from the previous master plan was in the SSA format. SSA was also used because of the model's ability to import GIS data, export models to EPA SWMM (free distribution), and because the model runs on an Autodesk platform.

SYSTEM LAYOUT

The wastewater collection system layout was provided by Springville in a GIS data format. Copies of the SSA models from the previous master plan were also provided. A map of the Springville wastewater collection system, wastewater and I&I loading, as included in the model, is shown on Figure 6-1. Wastewater loading allocation within the model was performed using GIS and model data. Inflow and infiltration loads were determined using flow data from the wastewater treatment plant and precipitation data. As questions came during model creation, HAL and Springville City personnel coordinated to correct identified errors or to add newly available data to the model.

MODELING CRITERIA

A range of potential modeling criteria and values were suggested by HAL and reviewed by Springville. The criteria and values adopted for this modeling effort are included in Table 6-1.

TABLE 6-1 MODELING CRITERIA

CRITERIA	VALUE OR ASSUMPTION
System Loading	Existing system loading was developed using winter water use data for each water meter and inflow/infiltration based on the tributary area of each manhole with flow data for collection areas. Future loading was developed based on growth projections.
Daily Flow Variation	Diurnal curves were developed from flow monitoring.
Peak Flow	Peaking factors were developed with diurnal curves and peak flows were developed from the AutoCAD SSA model.
Inflow and Infiltration	Inflow and infiltration values were determined by reviewing WRF data and precipitation values. Infiltration and inflow values were distributed throughout the City.
Planning Periods	Years 2035, 2045, and 2070.
Land Use & Population Projections	Provided by Springville in 2025.
Pipe Capacity	Roughness Coefficient = 0.013 Manning's n City Selected Maximum d/D = 0.75 for all pipes
Lift Stations	Pump capacities were provided by Springville City. One pump was assumed to be redundant.

MODEL CALIBRATION

Model calibration included comparing hydrographs generated by the model with actual flows measured in the collection system. As discussed in Chapter 3, flow data observations at the wastewater treatment plant were used to calibrate the model. Winter water use billing data was used for the calibration model and as such, was compared to SCADA data during the winter months. Flow studies were also included in the calibration process. In January 2025, the WRF peak hour flow with infiltration was found to be about 4.8 MGD. The SSA calibration model peak hour flow plus infiltration was about 5.0 MGD. Flow monitoring locations can be seen on Figure 3-1.

MODEL SCENARIOS

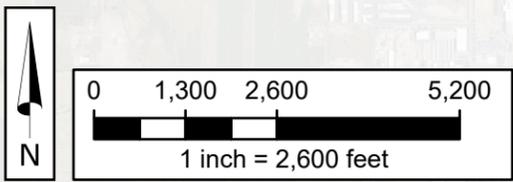
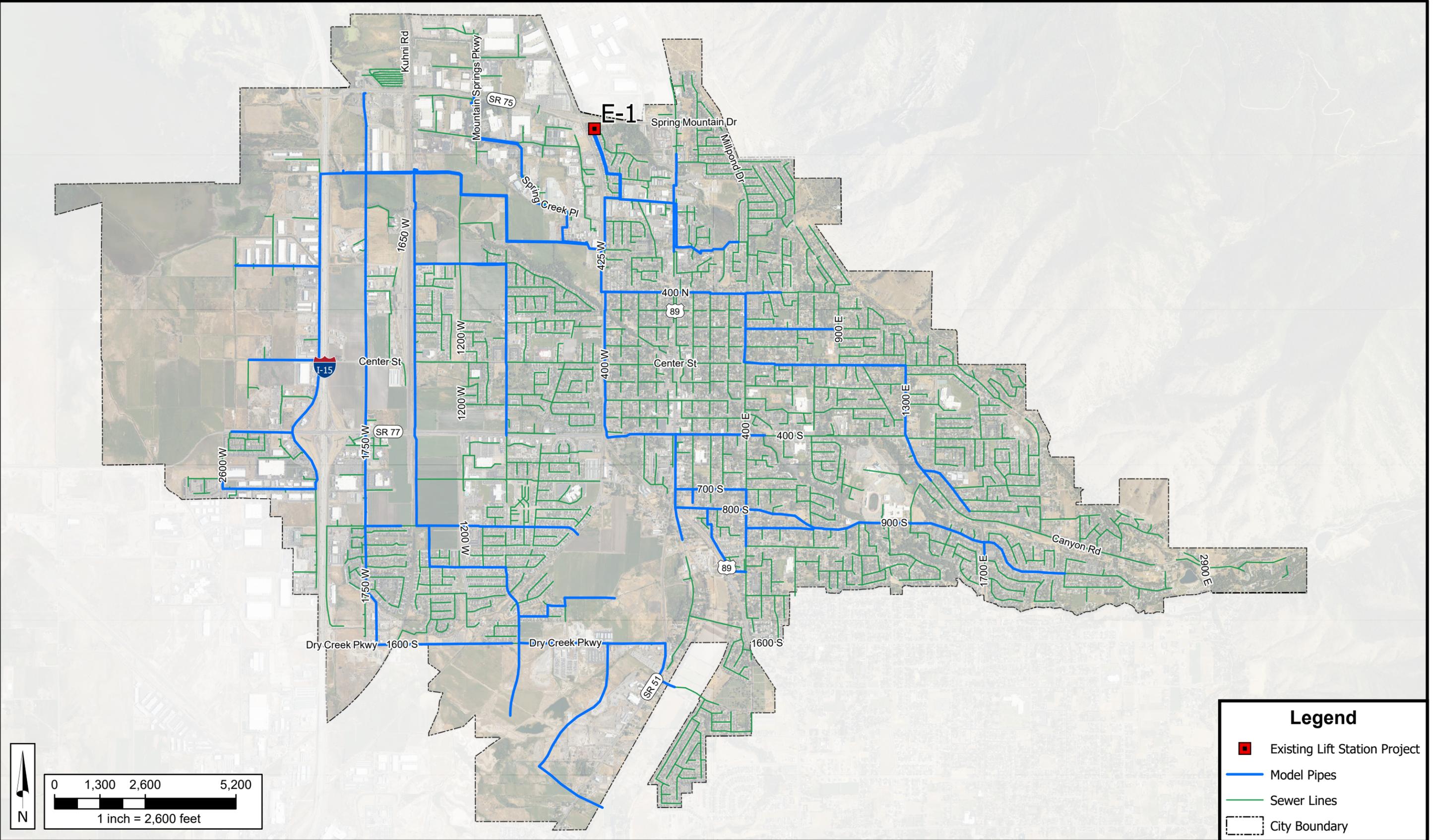
Five modeling scenarios were developed and evaluated for the Springville wastewater collection system as shown in Table 6-2.

TABLE 6-2 MODEL SCENARIOS

SCENARIO	DESCRIPTION
Calibration	The calibration scenario was used to calibrate the model to SCADA data. Winter water use data was used in the model to calibrate to SCADA flows during winter months.
Existing LOS	The Existing scenario was used to identify deficiencies in the wastewater collection system, and to establish a baseline for evaluation of future conditions.
2035	The 2035 (10-Year) scenario was used to identify deficiencies in the wastewater collection system under 2035 development conditions.
2045	The 2045 (20-Year) scenario was used to identify deficiencies in the wastewater collection system under 2045 development conditions.
2070	The 2070 (45-Year) scenario was used to identify deficiencies in the wastewater collection system under 2070 development conditions.
2070 Corrected	The Corrected scenario reflects system improvements that resolve all 2070 deficiencies.

EXISTING DEFICIENCIES

The maximum depth ratio is the ratio of the maximum depth in the pipe and the diameter of the pipe (d/D). Deficiencies were identified as pipes in the model that exceeded a d/D of 0.75 during peak flow conditions. Pipe capacity deficiencies identified in the Existing Scenario model are summarized in Table 6-3. Additional operation and maintenance projects, as defined by the City, have also been included with existing deficiencies. Existing deficiencies are shown on Figure 6-2.



Legend

- Existing Lift Station Project
- Model Pipes
- Sewer Lines
- City Boundary



**SPRINGVILLE CITY
WASTEWATER COLLECTION SYSTEM MASTER PLAN**

EXISTING PROJECTS

TABLE 6-3 EXISTING LIFT STATION CAPACITY DEFICIENCIES AND SOLUTIONS

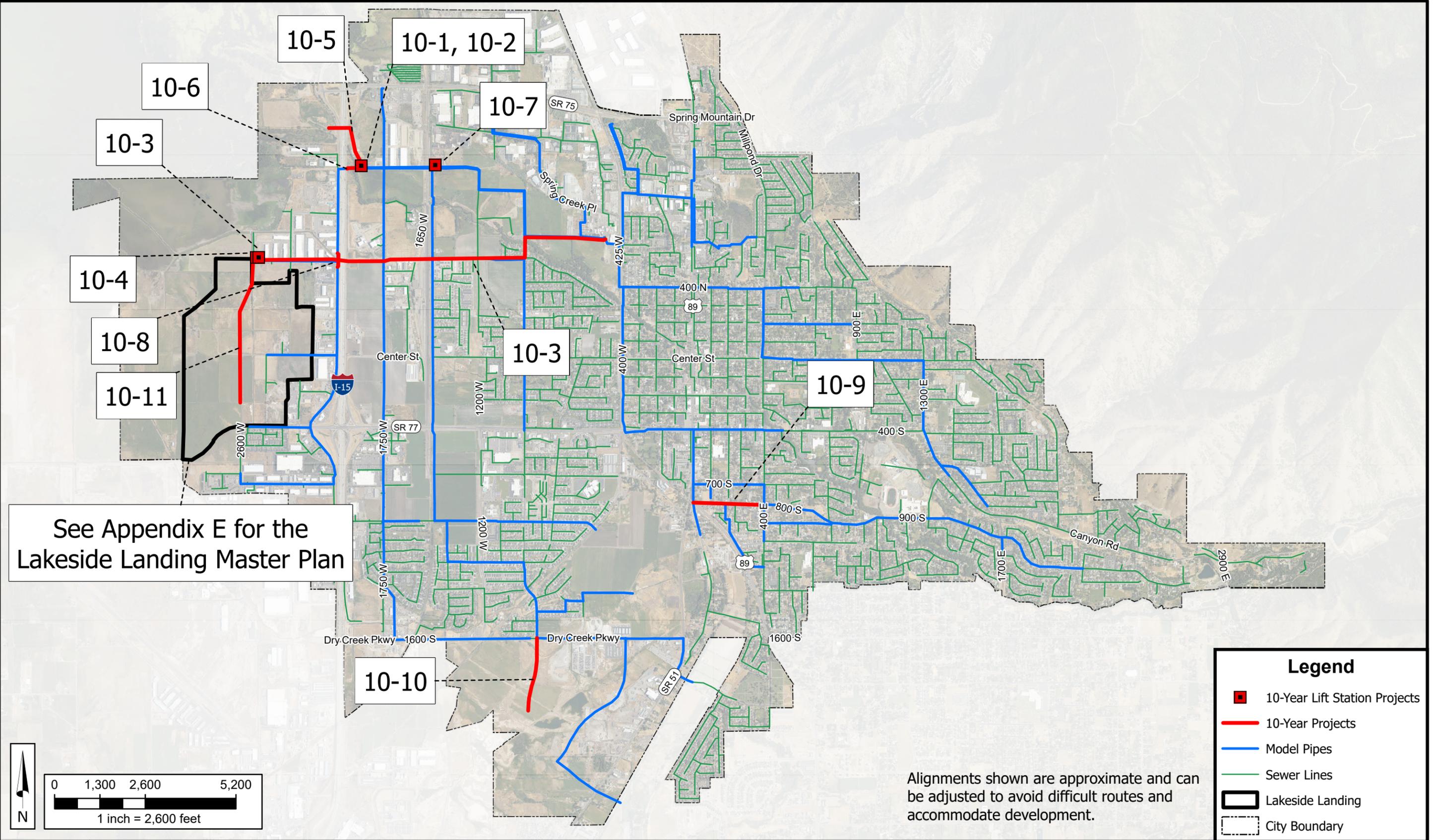
ID	LOCATION	ISSUE	SOLUTION
E-1	Oakbrook/North Lift Station	City identified capital facility project	Upgrade Oakbrook/North Lift Station with the Overwatch system.

FUTURE IMPROVEMENTS

The improvements identified in the future scenarios are predicted problems that will occur if development occurs as projected by the City without system improvements. Future improvements were determined from the 2035 (10-Year), 2045 (20-Year), and 2070 modeling scenarios. Pipe capacity improvements identified in the future scenarios are shown on Figures 6-3, 6-4, and 6-5 and are summarized in Table 6-4. Alignments shown are approximate and can be adjusted to avoid difficult routes and accommodate development. All the previously identified existing deficiencies would remain problems in the future scenarios if improvements are not implemented. The maximum depth ratios of future improvements are sometimes larger than existing deficiencies due to increased flow from future redevelopment.

TABLE 6-4 FUTURE IMPROVEMENTS

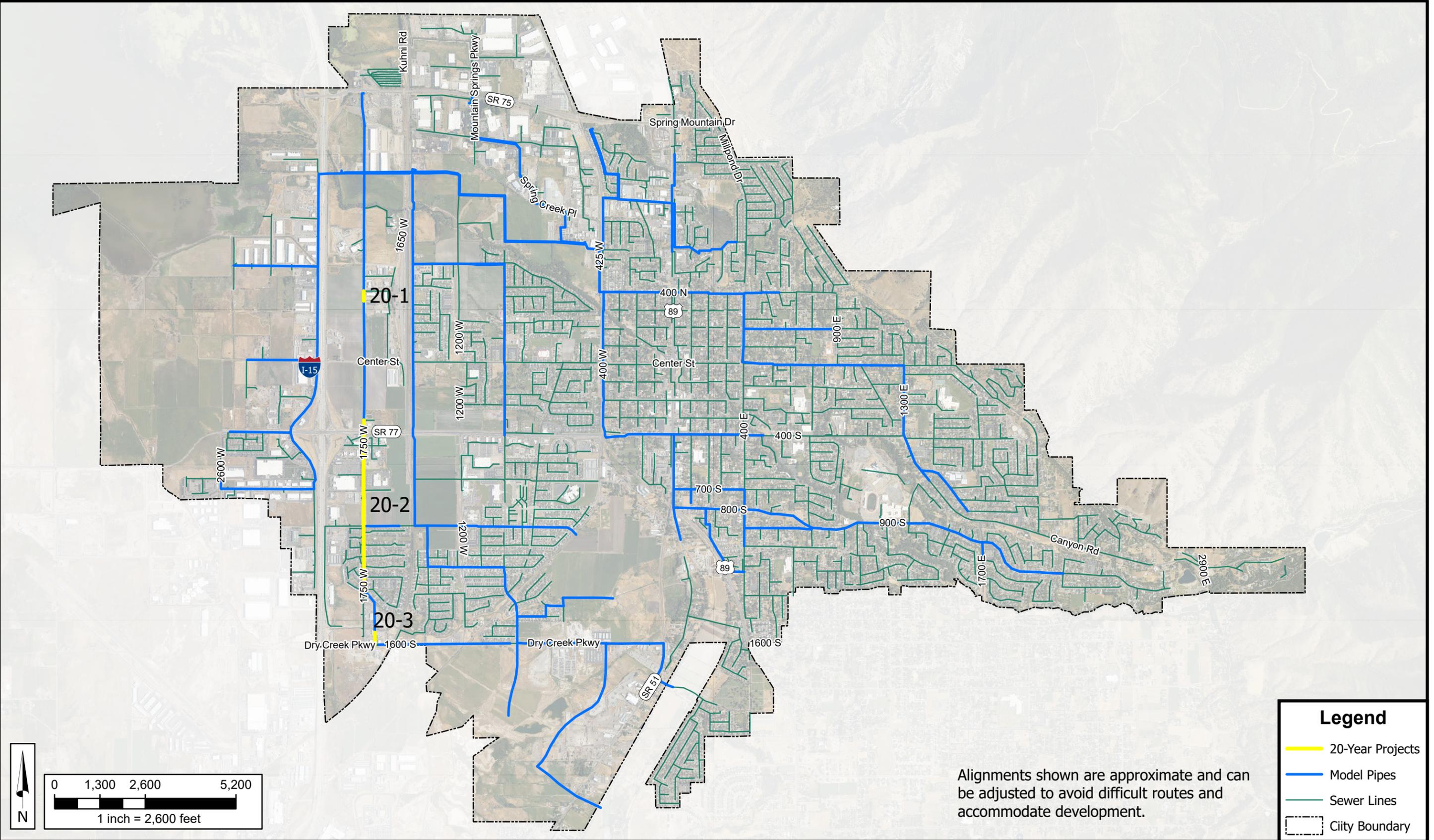
ID	LOCATION	ISSUE	SOLUTION
10-Year Improvements			
10-1	Westfields Lift Station	Peak flows exceed capacity	Increase lift station capacity by replacing one pump.
10-2	Westfields Lift Station	Peak flows exceed capacity	Increase lift station capacity by adding new pumps and upgrading electrical. Existing 10" force main needs to be cleaned / evaluated for future development beyond lift station capacity after Project 10-1 is implemented.
10-3	Next to Spring Pointe Lift Station	Growth west of I-15 requires a regional lift station	Construct new regional lift station with at least two (2) 1,000 gpm pumps. Install 10,600 feet of dual force mains (8" and 10"). Exact layout finalized at design.
10-4	Spring Pointe Lift Station	Growth west of I-15 requires a regional lift station	Decommission Spring Pointe Lift Station.
10-5	1400 N, west of I-15	Future growth	Install 1,700 ft of 10" gravity line with a bore under I-15.
10-6	From east side of I-15 to ~1900 W along 1000 N	Pipe exceeds capacity because $d/D > 0.75$ (0.81)	Install 450 ft of parallel 15" gravity line next to existing 12" gravity line from SSMH0346 to SSMH00308. A bore crossing is required at the canal. Both pipes are to remain in service.

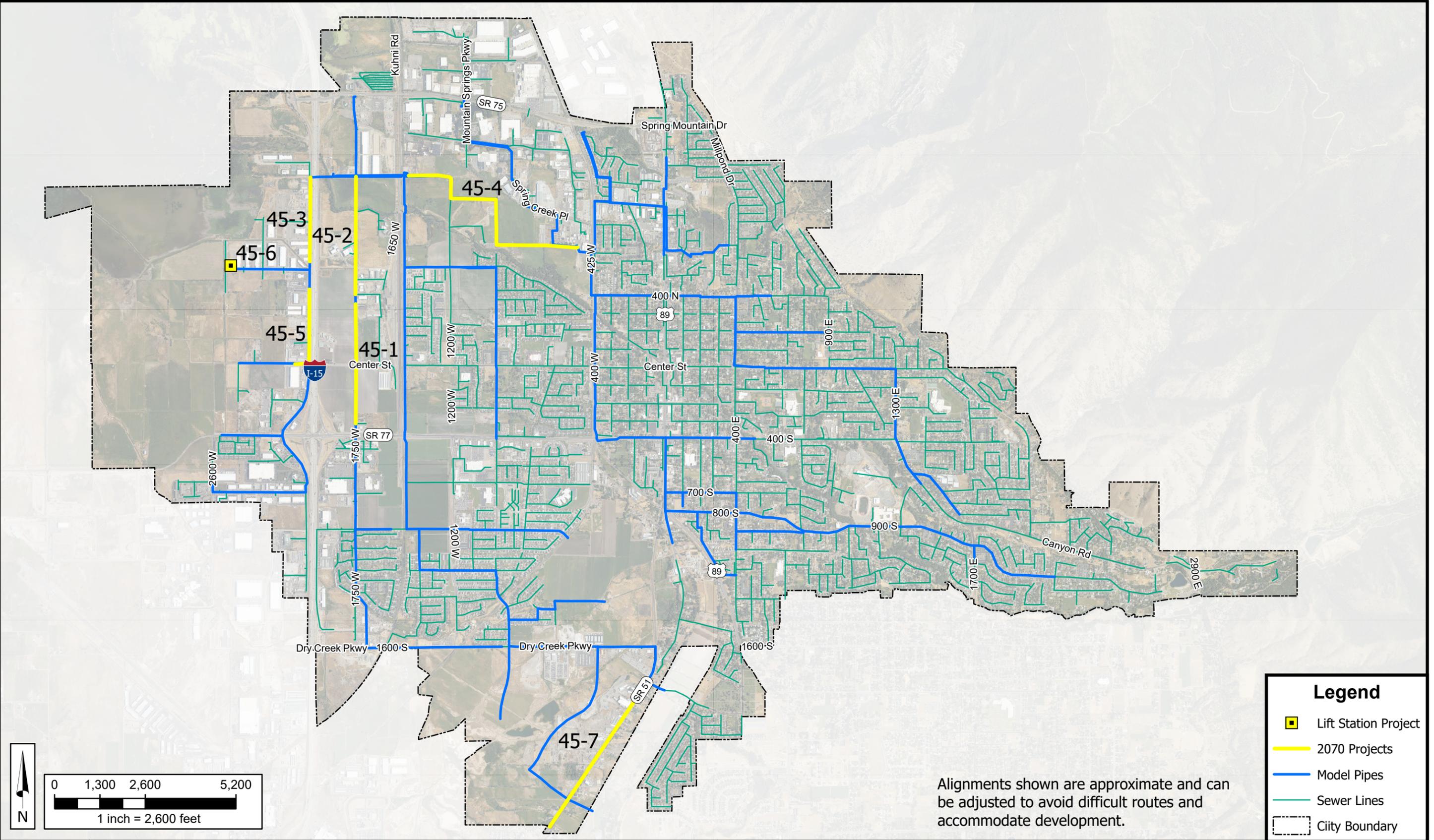


**SPRINGVILLE CITY
WASTEWATER COLLECTION SYSTEM MASTER PLAN**

10-YEAR CAPACITY IMPROVEMENTS

**FIGURE
6-3**





ID	LOCATION	ISSUE	SOLUTION
10-7	1500 W Lift Station	Modeled flow exceeds existing pumping capacity of 1,400 gpm by 245 gpm.	Install a new 1,500 gpm pump to increase pump capacity to 3,000 gpm and maintain one redundant pump. Exact layout to be finalized at design.
10-8	Along 2000 W near 500 N	Adverse pipe exceeds capacity because $d/D > 0.75$ (0.84)	Install 450 ft of parallel 15" gravity line next to the existing 15" gravity line from SSMH0315 to SSMH0314. Both pipes are to remain in service.
10-9	From 400 E to Main Street along 800 S	Pipe exceeds capacity because $d/D > 0.75$ (0.92)	Remove and upgrade existing 8" gravity line to 1,900 ft of 12" gravity line. MH1636 to MH0516.
10-10	950 W, south of 1600 S	Future growth	Install 2,100 ft of 10" gravity line.
10-11	2600 W, 500 N to 200 S	Future growth	Install 1,400 ft of 12" gravity line and 2,800 ft of 15" gravity line.
20-Year Improvements			
20-1	Along 1750 W ~400 N.	Pipe exceeds capacity because $d/D > 0.75$ (0.82)	Remove and upgrade existing 15" gravity line to 300 ft of 21" gravity line from SSMH1921 to SSMH1920.
20-2	Along 1750 W from 1300 S to ~400 S.	Pipe exceeds capacity because $d/D > 0.75$ (1.0)	Remove and upgrade existing 12" gravity line to 1,200 ft of 15" gravity line and 3,700 ft of 18" gravity line from SSMH1851 to SSMH1950.
20-3	1600 S and 1700 W	Pipe exceeds capacity because $d/D > 0.75$ (0.96)	Remove and upgrade existing 12" gravity line to 350 ft of 15" gravity line from SSMH0693 to SSMH1941.
2070 Improvements			
45-1	From 400 S to 400 N along 1750 W	Pipe exceeds capacity because $d/D > 0.75$ (0.98)	Remove and upgrade existing 15" gravity line to 3,500 ft of 18" gravity line from SSMH1921 to SSMH1920.
45-2	From 400 N to 1000 N along 1750 W	Pipe exceeds capacity because $d/D > 0.75$ (0.78)	Remove and upgrade existing 18" gravity line to 3,400 ft of 21" gravity line from SSMH1920 to SSMH0304.
45-3	From ~600 N to 1000 N along 2000 W	Pipe exceeds capacity because $d/D > 0.75$ (0.85)	Remove and upgrade existing 15" gravity line to 2,450 ft of 18" gravity line from SSMH0314 to SSMH0309.
45-4	1500 W Lift Station and Westfields Lift Station	Force mains reaching high velocities	Install 6,800 ft of 16" force main pipe from 1500 W lift station to WRF. Reconstruct headworks inlet manhole to accommodate 16" force main pipe. Reconfigure force mains: Westfields to use 10" and 12" force mains, and 1500 W to use new 16" force main.

ID	LOCATION	ISSUE	SOLUTION
45-5	From ~600 N to 1000 N along 2000 W	Pipe exceeds capacity because $d/D > 0.75$ (0.88)	Remove and upgrade existing 12" gravity line to 400 ft of 15" and 2,125 ft of 18" gravity line from SSMH00361 to SSMH00361.
45-6	Next to Spring Pointe Lift Station	Growth west of I-15 requires increased pumping capacity at new lift station	Install two new 1,000 gpm pumps to increase pump capacity to 3,000 gpm and maintain one redundant pump.
45-7	State St	Future growth	Upsize 8" to 3,300 ft of 10" and 1,700 ft of 12" gravity line.

LIFT STATION PHASING

Westfields Lift Station

Future growth will require some existing lift stations to increase their current capacity. As Westfields Lift Station is currently running at its capacity, it will need improvements soon. Table 6-5 shows recommendations for the Westfields Lift Station.

TABLE 6-5 WESTFIELDS LIFT STATION PHASING

Phase	Westfields Lift Station Recommendations	Timing
1	Replace one existing pump to increase pumping capacity.	Near future, when peak flows reach 850 gpm.
2	Evaluate and/or pig the 10-inch force main.	Near future.
3	Upgrade the VFD, breakers, and wires for all four bays.	Within 10 years, as required for new pumps.
4	Install 3 new pumps capable of pumping 1,200 gpm in positions 1, 2, and 3 of the lift station. Pumps are available for rent to test performance before purchasing. Upgrade the pump bases for all four bays to support the larger pumps. If required after the new pumps are placed, replace the vertical piping, valves, and flow meter for the new pumps with larger diameter components.	Within 10 years, when peak flows reach 1,200 gpm.

Phase	Westfields Lift Station Recommendations	Timing
5	Evaluate replacing Westfields Lift Station and force mains at end of life.	70 years from construction (constructed in 1984) at about year 2054.
6	Reconfigure the force mains for Westfields to use the 10-inch and 12-inch (the 1500 West Lift Station currently uses the 12-inch). 1500 West will need a new 16-inch force main before the force mains are reconfigured.	Within 45 years, when peak flows reach 2,000 gpm.
7	Install one new pump capable of pumping 1,200 gpm in position 4 of the lift station.	Within 45 years, when peak flows reach 2,000 gpm.

* Spring Pointe Lift Station is assumed to be decommissioned by 10 years and its tributary area not contributing flows to Westfields Lift Station.

* Pumps selected for earlier phases should be evaluated for suitability to be used for future phases. As flow rates increase, total head increases, and new pumps may be required.

The existing 10-inch force main in Westfields Lift Station is projected to reach maximum velocities of 7.8 feet/second by 20 years, with peak flows nearing 2,000 gpm. This is when a new 16-inch force main should be constructed for 1500 W Lift Station and the existing 10-inch and 12-inch force mains be reconfigured for use by the Westfields Lift Station.

1500 West Lift Station

The 1500 West Lift Station was designed for future growth and currently has two empty bays. Table 6-6 shows recommendations for the 1500 West Lift Station.

TABLE 6-6 1500 WEST LIFT STATION PHASING

Phase	1500 West Lift Station Recommendations	Timing
1	Install one new pump capable of pumping 1,500 gpm in position 3 of the lift station.	Within 10 years, when peak flows reach 1,375 gpm.
2	Install a new 16-inch force main. Westfields will use the 12-inch force main that 1500 West is currently using.	Within 45 years when Westfields Lift Station peak flows reach 2,000 gpm.

* Pumps selected for earlier phases should be evaluated for suitability to be used for future phases. As flow rates increase, total head increases, and new pumps may be required.

As mentioned above, a new 16-inch force main should be constructed for the 1500 W Lift Station when peak flows reach about 2,000 gpm in the Westfields Lift Station, and the existing 10-inch and 12-inch force mains should be reconfigured for use by the Westfields Lift Station.

The 1500 West Lift Station was originally designed for an ultimate capacity of 4,500 gpm and to use two force mains in the future (an 8-inch and 16-inch). Since then, plans have changed and much of that future flow is planned to be conveyed through the Lakeside Landing lift station. As such, current flow projections show that one 16-inch force main will be sufficient to convey future flows. As the Westfields Lift Station reaches its end of life, opportunities to utilize the 1500 West Lift Station should be considered.

Lakeside Landing Lift Station

The Lakeside Landing Lift Station has not been constructed yet. It will serve the Lakeside Landing area and provide wastewater conveyance for additional growth in the area. Table 6-7 shows recommendations for the Lakeside Landing Lift Station.

TABLE 6-7 LAKESIDE LANDING LIFT STATION PHASING

Phase	1500 South Lift Station Recommendations	Timing
1	Construct a new lift station with two new pumps capable of pumping 1,000 gpm each. Install one 8-inch and one 10-inch force main to help with phasing, redundancy, and growth.	Near future.
2	Install 2 new pumps capable of pumping 1,000 gpm each in positions 3 and 4 of the lift station.	Within 45 years, when peak flows reach 1,000 gpm.

While keeping the 10-inch force main as backup for redundancy and for future growth, the 8-inch force main is anticipated to reach maximum velocities of 4.6 feet/second by 20 years. By the year 2070, the maximum velocities in the 8-inch and 10-inch force mains are anticipated to reach 3.2 and 3.7 feet/second, respectively.

When the time comes to design and construct new wastewater infrastructure, such as gravity mains, force mains, or lift stations, it is recommended to follow State code or perform a hydraulic modeling engineering analysis to calculate wastewater loading and verify the sizing of the infrastructure. Refer to Utah State Code R317-3-2 for calculating wastewater design flowrates, minimum pipe sizing, and other design requirements. Refer to Utah State Code R317-3-3 for sewer lift station design requirements. However, a hydraulic modeling engineering analysis provides more detailed information about the modeled system and can be used in the design process.

CHAPTER 7 OPERATIONS AND MAINTENANCE ALTERNATIVES

Recommendations for key operations and maintenance procedures have been developed. Many of these recommendations are a continuation of procedures already in effect. A discussion is included below, along with a recommendation for continued practice. These items are as follows:

SYSTEM AGING

Pipe age can be used to identify areas that might require more repairs. The typical design life for a sanitary sewer is between 50 and 100 years. Factors affecting design life may include pipe material, soil conditions and quality of construction. Because of the variability of these factors, it is difficult to determine the condition of the wastewater collection system based on age alone. Springville uses sewer video inspection technology to evaluate the structural integrity of the pipes in the sewer network. Sewer video inspection is very useful at identifying cracks, holes, offset joints, erosion, low points in pipes, and significant inflow/infiltration. It is recommended that the City continue the system video schedule and use the inspection to plan for future repair projects.

Replacement

In addition to completing projects to resolve deficiencies, the City should continue replacing aging pipes throughout the city on a regular basis. Table 7-1 and Table 7-2 show the cost of all pipes in the city and the cost to replace all of them over its service life. These costs include manholes associated with the pipelines.

TABLE 7-1: REPLACEMENT PROGRAM FOR ALL GRAVITY PIPES

Pipe Diameter (inches)	Length of Pipe (feet)	Cost
4	300	\$110,000
6	6,300	\$2,460,000
8	526,900	\$205,510,000
10	42,100	\$16,850,000
12	73,700	\$32,410,000
14	1,000	\$460,000
15	31,800	\$15,260,000
18	17,100	\$9,070,000
21	5,100	\$2,970,000
24	7,400	\$4,730,000
30	1,900	\$1,540,000
36	2,300	\$2,250,000
Subtotal		\$293,630,000
Contingency (20%) & Engineering (10%)		\$88,090,000

Pipe Diameter (inches)	Length of Pipe (feet)	Cost
Total Cost for Replacement of All Gravity Pipes		\$381,720,000
Annual Cost for Replacement of All Gravity Pipes Over Service Life		\$3,820,000

TABLE 7-2: REPLACEMENT PROGRAM FOR ALL FORCE MAINS

Pipe Diameter (inches)	Length of Pipe (feet)	Cost
4	2,900	\$670,000
6	5,600	\$1,410,000
8	11,300	\$3,040,000
10	12,500	\$3,620,000
12	8,900	\$2,850,000
Subtotal		\$11,590,000
Contingency (20%) & Engineering (10%)		\$3,480,000
Total Cost for Replacement of All Force Mains		\$15,070,000
Annual Cost for Replacement of All Force Mains Over Service Life		\$151,000

PIPELINE IMPROVEMENTS

The following improvement alternatives are typically considered when addressing pipeline deficiencies.

Cleaning

If the slope of the pipe is insufficient to provide adequate flow velocity, deposition of solids will occur. Solids deposition lessens pipe capacity. Many locations in Springville are relatively flat where sewers have slopes less than desired. It is recommended that Springville continue cleaning pipes in the system on a regular schedule. Problem areas should be cleaned more frequently.

Clean outs are sometimes installed to clean sewer pipes. However, cleanouts are easily buried or often become unusable. Access manholes are preferred for cleaning and maintenance purposes. It is recommended that access manholes be considered for clean out locations on the wastewater collections system for cleaning and maintenance purposes (not including small private cleanouts).

Replacement Sewers

Historically, where pipe capacity has been identified as being insufficient, the typical solution has been to provide additional capacity by replacing the existing sewer with a larger sewer. Portions of the recommended projects are replacement projects.

Bypass Sewers/Re-routing Flows

While replacement of an existing sewer may be appropriate when the existing sewer is structurally inadequate, construction of a bypass or parallel sewer to supplement the capacity of the existing sewer is generally a less expensive alternative.

New Sewers

New sewers are often the only option to collect flows from future development or previously inaccessible areas. Because future growth in Springville is expected to occur in areas of the City without existing sewer networks, new sewer networks are expected to be constructed in the foreseeable future.

Alternative Construction Technologies

Within the last few years, several alternative technologies have become popular when sewers need to be replaced, when pipeline capacity needs to be increased, or when there are significant constraints to more conventional construction methods. Typical alternative technologies include:

New Construction

- Steered Auger Boring (Directional Drilling)
- Micro-tunneling

Sewer Pipe Rehabilitation

- Cured-in-Place Pipe
- Slip Lining
- Pipe Bursting
- Pipe Eating (drilling away old pipe as new pipe is installed)
- Thermoforming (Fold and Form)

COMPARISON OF IMPROVEMENT ALTERNATIVES

Sewers

For the purposes of this report, most of the sewer replacements were assumed to be open-cut to provide conservative cost estimates for budgeting purposes. Locations where alternative construction methods were assumed are specified.

Lift Stations

Some of the City's lift stations do not have sufficient capacity to meet the modeled flows determined from the future scenarios. These lift stations were included in the list of future improvements.

Future Considerations

During design of the recommended improvements, the City will review all assumptions, compare improvement alternatives, and will decide on the most cost-effective and appropriate improvement method at that time.

CHAPTER 8
CAPITAL IMPROVEMENTS PLAN

Recommendations have been prepared based on the findings described in the previous chapters. These recommendations include the correction of existing deficiencies as soon as practical and the implementation of future improvements corresponding with population growth. Cost estimates have been prepared for recommended improvements for existing deficiencies and for future improvements through 2045.

PROJECT COST ESTIMATES

Typical representative unit costs were used to develop the project construction cost estimates. Sources of typical unit costs included HAL's bid tabulation records for similar recent projects in Utah, and the RS Means Heavy Construction Cost Index. Project cost estimates and related material are included in Appendix D.

ACCURACY OF COST ESTIMATES

When considering cost estimates, there are several levels or degrees of accuracy, depending on the purpose of the estimate and the percentage of detailed design that has been completed. The following levels of accuracy are typical:

<u>Type of Estimate</u>	<u>Accuracy</u>
Master Plan	-50% to +100%
Preliminary Design	-30% to +50%
Final Design or Bid	-10% to +10%

For example, at the master plan level (or conceptual or feasibility design level), if a project is estimated to cost \$1,000,000, then the accuracy or reliability of the cost estimate would typically be expected to range between approximately \$500,000 and \$2,000,000. While this may not seem very accurate, the purpose of master planning is to develop general sizing, location, cost and scheduling information on a number of individual projects that may be designed and constructed over a period of many years. Master planning also typically includes the selection of common design criteria to help ensure uniformity and compatibility among future individual projects. Details such as the exact capacity of individual projects, the level of redundancy, the location of facilities, the alignment and depth of pipelines, the extent of utility conflicts, the cost of land and easements, the construction methodology, the types of equipment and material to be used, the time of construction, interest and inflation rates, permitting requirements, etc., are typically developed during the more detailed levels of design.

At the preliminary design level, some of the aforementioned information will have been developed. Major design decisions such as the size of facilities, selection of facility sites, pipeline alignments and depths, and the selection of the types of equipment and material to be used during construction, will typically have been made. At this level of design, the accuracy of the cost estimate for the same \$1,000,000 project would typically be expected to range between approximately \$700,000 and \$1,500,000.

After the project has been completely designed, and is ready to bid, all design plans and technical specifications will have been completed and nearly all the significant details about the project should be known. At this level of design, the accuracy of the cost estimate for the same \$1,000,000 project would typically be expected to range between approximately \$900,000 and \$1,100,000.

RECOMMENDED IMPROVEMENT PROJECTS

Development of the recommended improvement projects includes consideration of a number of factors including the following:

- Input by City sewer system operation personnel regarding their experience with, and opinions regarding, the deficiency and potential solutions.
- Input from City management regarding a wide range of issues including development schedules, budgeting issues, coordination with other public works projects, etc.
- Priority indicated by the modeling efforts and by the operational personnel's experience with the repair projects
- Project cost estimates

Table 8-1 identifies the recommended improvement projects to correct deficiencies and Table 8-2 identifies the recommended improvement projects to prevent pipe deficiencies in the wastewater system and the estimated cost associated with each project.

TABLE 8-1 EXISTING IMPROVEMENT PROJECT COST ESTIMATES

PROJECT ID	DESCRIPTION	TOTAL COST¹
E-1	Upgrade Oakbrook/North Lift Station with the Overwatch system.	\$520,000
TOTAL		\$520,000

¹ All costs include 30% for engineering, administrative costs, and contingencies. Costs are shown in 2025 dollars.

TABLE 8-2 FUTURE IMPROVEMENT PROJECT COST ESTIMATES

PROJECT ID	DESCRIPTION	TOTAL COST¹	% IMPACT FEE ELIGIBLE	IMPACT FEE ELIGIBLE COST¹
10-1	Increase lift station capacity by replacing one pump.	\$98,000	100%	\$98,000
10-2	Increase lift station capacity by adding new pumps and upgrading electrical. Existing 10" force main needs to be cleaned / evaluated for future development beyond lift station capacity after Project 10-1 is implemented.	\$2,841,000	100%	\$2,841,000
10-3	Construct new regional lift station with at least two (2) 1,000 gpm pumps. Install 10,600 feet of dual force mains (8" and 10"). Bore under I-15, the railroad, and Hobble Creek. Exact layout finalized at design.	\$11,167,000	100%	\$11,167,000
10-4	Decommission Spring Pointe Lift Station.	\$46,000	100%	\$46,000
10-5	Install 1,700 ft of 10" gravity line with a bore under I-15.	\$1,742,000	100%	\$1,742,000
10-6	Install 450 ft of parallel 15" gravity line next to existing 12" gravity line from SSMH0346 to SSMH00308. A bore crossing is required at the canal.	\$573,000	100%	\$573,000
10-7	Install a new 1,500 gpm pump to increase pump capacity to 3,000 gpm and maintain one redundant pump.	\$130,000	100%	\$130,000
10-8	Install 450 ft of parallel 15" gravity line next to the existing 15" gravity line from SSMH0315 to SSMH0314.	\$281,000	100%	\$281,000
10-9	Remove and upgrade existing 8" gravity line to 1,900 ft of 12" gravity line. MH1636 to MH0516.	\$1,087,000	100%	\$1,087,000
10-10	Install 2,100 ft of 10" gravity line. Impact fee eligible cost is to upsize from an 8" to 10" pipe.	\$1,092,000	2.5%	\$27,000
10-11	Install 1,400 ft of 12" gravity line and 2,800 ft of 15" gravity line. Impact fee eligible cost is to upsize from an 8" to 12" or 8" to 15".	\$2,548,000	16.5%	\$419,000
20-1	Remove and upgrade existing 15" gravity line to 300 ft of 21" gravity line from SSMH1921 to SSMH1920.	\$226,000	100%	\$226,000

PROJECT ID	DESCRIPTION	TOTAL COST¹	% IMPACT FEE ELIGIBLE	IMPACT FEE ELIGIBLE COST¹
20-2	Remove and upgrade existing 12" gravity line to 1,200 ft of 15" gravity line and 3,700 ft of 18" gravity line from SSMH1851 to SSMH1950.	\$3,298,000	100%	\$3,298,000
20-3	Remove and upgrade existing 12" gravity line to 350 ft of 15" gravity line from SSMH0693 to SSMH1941.	\$218,000	100%	\$218,000
TOTAL		\$25,347,000	-	\$22,153,000

¹ All costs include 30% for engineering, administrative costs, and contingencies. Costs are shown in 2025 dollars.

TABLE 8-3 IMPROVEMENT PROJECT COST ESTIMATES SUMMARY

PROJECT IDs	PROJECTS	TOTAL COST¹	IMPACT FEE ELIGIBLE COST¹
E-1	Existing Recommended Improvement Projects	\$520,000	\$0
10-1 to 20-3	Future Recommended Improvement Projects	\$25,347,000	\$22,153,000
TOTAL		\$25,867,000	\$22,153,000

WASTEWATER COLLECTION SYSTEM CLEANING

Wastewater collection system maintenance problems can occur in sewers with flatter slopes, sewers with root problems, and sewers with grease problems. Costs for maintenance and replacement of these sewers should be included in the sewer budget.

UTAH SEWER MANAGEMENT PROGRAM

The State of Utah Water Quality Board has developed a Utah Sewer Management Program (USMP) to reduce sanitary sewer overflows (SSO) by giving added emphasis to collection system maintenance, collection system analysis and program documentation. The USMP is intended to meet forthcoming Capacity, Management, Operation, and Maintenance requirements (CMOM) of the Environmental Protection Agency (EPA). The USMP prohibits SSOs, outlines enforcement, and guidelines for reporting SSOs when they occur. It requires all public agencies that own or operate sanitary sewer collection systems in Utah to enroll for coverage with the Utah State Division of Water Quality (DWQ) under the USMP. The enrollees are required to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system to help reduce and prevent SSOs as well as mitigate any SSOs that do occur. Enrollees must prepare, submit, and certify this Sewer System Management Plan (SSMP) to the DWQ within the time period specified in the USMP after its adoption. Enrollees must then take all feasible steps to comply with the conditions of the USMP and follow their own SSMP including: report SSOs, submit an annual report as part of the Utah Municipal Wastewater Planning Program, and

resubmit an updated SSMP at least every five years (R317-801). It is recommended that Springville City enroll in and comply with the USMP.

ELIMINATE UNNECESSARY WASTEWATER

One way to increase capacity in the wastewater collection system is to identify and eliminate the unnecessary generation of wastewater. Wastewater is made up of inflow, infiltration, and direct sewage. An effort should be made to reduce inflow and infiltration because the sewer system experiences a significant amount of inflow and infiltration. Eliminating unnecessary wastewater will not only increase the capacity of the system, but it will also lower the expected treatment costs.

Direct Sewage

Another example of eliminating unnecessary wastewater is to offer incentives to homeowners for replacing older water wasting fixtures and appliances with new water efficient models. Not only do efficient fixtures and appliances save drinking water, they also reduce wastewater flow. It is recommended that Springville offer incentives for installing water-wise fixtures and appliances.

FUNDING OPTIONS

Funding options for the recommended projects, in addition to sewer use fees, could include the following options: general obligation bonds, revenue bonds, State/Federal grants and loans, and impact fees. In reality, the City may need to consider a combination of these funding options. The following discussion describes each of these options.

Sewer Service Fees

The sewer service fee is used to pay for the operation and maintenance of the sewer system. As part of the maintenance of the sewer system, it is recommended that sewer systems set aside a part of the budget (including depreciation) into a capital facilities replacement account.

General Obligation Bonds

This form of debt enables the City to issue general obligation bonds for capital improvements and replacement. General Obligation (GO) Bonds would be used for items not typically financed through the Revenue Bonds. GO 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. GO 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 sewer system is limited to a fixed percentage of the real market value for taxable property within the City.

Revenue Bonds

This form of debt financing is also available to the City for utility-related capital improvements. Unlike GO bonds, revenue bonds are not backed by the City as a whole, but constitute a lien against the sewer service charge revenues of a Sewer Utility. Revenue bonds present a greater risk to the investor than do GO 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 GO bonds, although current interest rates are historically very low. 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.

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 sewer 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.

Rocky Mountain Power Energy Incentive

Rocky Mountain Power will provide financial incentives for utilities to reduce energy use.

Impact Fees

Impact fees can be applied to wastewater related facilities under the Utah Impact Fees Act. The Utah Impacts Fees Act is designed to provide a logical and clear framework for establishing new development assessments. It is also designed to establish the basis for the fee calculation which the City must follow to comply with the statute. However, the fundamental objective for the fee structure is the imposition on new development of only those costs associated with providing or expanding water infrastructure to meet the capacity needs created by that specific new development.

REFERENCES

Hansen, Allen & Luce, Inc., August 2020. *Springville City - Wastewater Collection System Master Plan*. Hansen, Allen & Luce, Inc.

Hansen, Allen & Luce, Inc., May 2006. *Springville City - Wastewater Collection System Master Plan*. Hansen, Allen & Luce, Inc.

RSMMeans, 2025. *RSMMeans Heavy Construction Cost Data*. Norwell, MA: Construction Publishers & Consultants.

Springville, Utah. 2011. *Springville City General Plan: Chapter 2 – Land Use and Population*. Springville City.

Springville, Utah. May 2014. *Springville City - Wastewater Collection System Master Plan and Capital Facilities Plan*. Springville City Staff.

Utah Division of Administrative Rules. 2025. *Utah Administrative Code, R317-3*. The Department of Administrative Services.

APPENDIX A

Lift Station Technical Memorandum



TECHNICAL MEMORANDUM

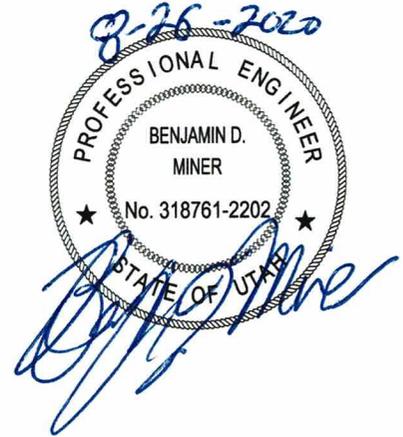
DATE: August 26, 2020

TO: Mr. Jeff Anderson, P.E.
Springville City Engineer
110 S Main St. #5741
Springville, Utah 84663

FROM: Benjamin D. Miner, P.E.
Jacob Nielsen, Engineer
Hansen, Allen & Luce, Inc. (HAL)
859 W. South Jordan Parkway, Ste. 200
South Jordan, Utah 84095

SUBJECT: Sanitary Sewer Lift Station Analysis

PROJECT NO.: 260.50.100



INTRODUCTION

Springville City (the City) operates 12 sewer lift stations throughout the City. Generally, the City prefers to avoid the use of lift stations because of maintenance and power requirements. City crews dedicate large amounts of labor to cleaning and maintaining the lift stations.

At times, lift stations are the only way to service low lying areas of the City in that they allow development of areas that are lower in elevation than existing gravity operated sewers. However, with new development and the related sewer construction, and as funding becomes available, lift stations can sometimes be taken out of service.

The City has identified three lift stations that are candidates to be taken out of service. These are the East Lift Station, the Thirty Oaks Lift Station and the South Lift Station. Additionally, the City desires to reduce the amount of flow that is being pumped at the Oakbrook Lift Station.

ELEVATION DATA

The evaluation of the lift stations has relied on elevation data provided in the Springville City GIS database, including rim and flowline elevations and including the 2012 Lidar Data. Prior to the design and construction of a project, it will be necessary to confirm the elevations with a land survey.

BACKGROUND, METHODOLOGY, AND COST ESTIMATING

Sewer flow demands assumed for each lift station analyzed either came from the SSA model used to develop the 2019 Sewer Master Plan, or were calculated by estimating the average daily sewer demand. This was done by counting the number of Equivalent Residential Units (ERU) and multiplying by the level of service estimated to be 250 gallons per day per ERU. Inflow and infiltration (I&I) were also added to represent the peak day demand. From the master plan, I&I was estimated to account for 35% of the peak day flow at the treatment plant. The sewer demands arriving at the lift stations were also scaled up by 35%.

Operation and maintenance costs were provided by the City. Materials and equipment used to repair or maintain all of the City's lift stations was \$42,027 in the fiscal year 2019. The annual labor, excluding weekly cleanings and inspections, was 300 hours billed at \$38/hour. This equates \$11,400. These annual costs (\$53,427) were proportionally allocated to each lift station based on the pumping capacity of each facility. Each lift station was also assumed to have a weekly cleaning or inspection requiring 2 city personnel for 2 hours, again billed at \$38/hour. The annual cost of cleanings and inspections assumed for each lift station is \$7,904.

Power costs were also provided by the City. The City pays \$0.0865/kWh with an assumed \$25.63/month as a service charge for each lift station. The annual energy used by each lift station was provided by the City in order to calculate the annual cost to operate each lift station.

The feasibility of taking these sewers out of service has been evaluated and is described below.

East

The East Lift Station is located at 520 North 600 East. This lift station serves about 61 lots. The lift station is currently necessary since the surrounding neighborhood is located in a low-lying area. The potential pipe alignment that could facilitate the removal of the lift station is shown in Figure 1. This alternative is to connect a new 8-inch diameter sewer to SSMH01139 and route the sewer through residential lots to 450 East. The sewer would then be connected to SSMH01117 at the intersection of 450 East and 550 North. The economic feasibility of removing this lift station is shown in Table 1.

Table 1: East Lift Station Cost Estimates

Item	Description	Cost	Savings
Annual Power	<i>11,087 kWh @ \$0.0865/kWh</i>		\$959.03
	<i>12 months @ \$25.63</i>		\$307.56
	Total Annual Power		\$1,266.59
Annual O&M	<i>Weekly Cleaning/Inspections</i>		\$7,904.00
	<i>Materials and Equipment</i>		\$828.17
	Total Annual O&M		\$8,732.17
Annual Total	Annual Power and O&M		\$9,998.75
20-Year Total	\$9,998.75 x 20		\$199,975.01
Summary			
	Capital Project Cost (910 ft of 8" pipe @ \$308.11/LF)	\$380,000.00*	
	20-Year Savings		\$199,975.01
	Project Net Cost	\$180,024.99	

*Cost reflects 35% for engineering and contingency.

It is important to note that one of the City goals has been to reduce the amount of wastewater reaching the Oakbrook Lift Station. While the re-routing scenario described above eliminates the East Lift Station, it increases the flow to the Oakbrook Lift Station.

Thirty Oaks

The Thirty Oaks lift station is located at 2800 East Canyon Road. It currently serves about 20 lots. It is feasible to eliminate this lift station and re-route wastewater along the side or back of lots along Canyon Road and provide sewer service to properties that are currently on septic systems. The alignment, shown in Figure 2, would tie into SSMH02366 on 1100 S. The economic feasibility of removing this lift station is shown in Table 2.

Table 2: Thirty Oaks Lift Station Cost Estimates

Item	Description	Cost	Savings
Annual Power	3,740 kWh @ \$0.0865/kWh		\$323.51
	12 months @ \$25.63		\$307.56
	Total Annual Power		\$631.07
Annual O&M	Weekly Cleaning/Inspections		\$7,904.00
	Materials and Equipment		\$590.07
	Total Annual O&M		\$8,494.07
Annual Total	Annual Power and O&M		\$9,125.14
20-Year Total	\$9,125.14 x 20		\$182,502.75
Summary			
	Capital Project Cost (950 ft of 8" pipe @ \$308.11/LF)	\$400,000.00*	
	20-Year Savings		\$182,502.75
	Project Net Cost	\$217,497.25	

*Cost reflects 35% for engineering and contingency.

South

The South Lift Station is located at 1270 South Main. It currently serves about 115 lots. A solution to remove the lift station and allow the wastewater to gravity flow all the way to the WWTP was evaluated and found to not be feasible. The feasible solution discussed here provides a gravity line through the fields on the west side of State Road 51 and tying in at SSMH00205 on 1375 S. However, this solution routes flows to the 1500 W Lift Station, which pumps to the WWTP at a higher head than the South Lift Station. The proposed capital project is shown in Figure 3 and the economic feasibility of removing this lift station is shown in Table 3.

Table 3: South Lift Station Cost Estimates

Item	Description	Cost	Savings
Annual Power			
	18,883 kWh @ \$0.0865/kWh		\$1,633.38
	12 months @ \$25.63		\$307.56
	South Lift Station Annual Power		\$1,940.94
	Transfer Energy to 1500 W		
Before	128,920 kWh @ \$0.0865/kWh	\$11,151.58	
***After	175,318 kWh @ \$0.0865/kWh	\$15,165.03	
	Net Additional Cost at 1500 W	\$4,013.45	
	Total Annual Power	\$2,072.51	
Annual O&M			
	Weekly Cleaning/Inspections		\$7,904.00
	Materials and Equipment		\$1,552.81
	Total Annual O&M		\$9,456.81
Annual Total	Annual Power and O&M**		\$7,384.30
20-Year Total	\$7,384.30 x 20		\$147,686.05
Summary			
Capital Project Cost (3,550 ft of 8" pipe @ \$308.11/LF)		\$1,480,000.00*	
		20-Year Savings	\$147,686.05
		Project Net Cost	\$1,332,313.95

*Cost reflects 35% for engineering and contingency.

**In comparing annuals costs, the Total Annual Power is a net loss to the project. Therefore, it is subtracted from the Annual Total.

***Energy used is proportional to head being pumped. The energy used at the South Lift Station would be transferred to the 1500 W Lift Station. The head at the 1500 W Lift Station is about 2.45 times higher than the head at the South Lift Station. The 18,883 kWh was multiplied by 2.45 and added to the 1500 W usage (128,920 kWh).

Oakbrook

The Oakbrook Lift Station is located at 1275 North Meadowbrook Lane. Most of the sewer north of 400 N and east of 400 W flows to the Oakbrook Lift Station. A capital project was explored to identify the feasibility of diverting some of the flow directly to the WWTP and reduce the amount of wastewater reaching the Oakbrook Lift Station. The solution identified reduces the flow being received at Oakbrook by approximately 60%. The alignment starts on the east side of Main Street at SSMH02204 and runs through private property and along 650 North until it reaches the headworks of the WWTP. The proposed capital project is shown in Figure 4 and the economic feasibility of removing this lift station is shown in Table 4.

Table 4: Oakbrook Lift Station Cost Estimates

Item	Description	Cost	Savings
Annual Power			
	Energy Reduction at Oakbrook		
Before	64,960 kWh @ \$0.0865/kWh	\$5,619.04	
***After	39,639 kWh @ \$0.0865/kWh	\$3,428.75	
	Net Annual Energy		\$2,190.29
	12 months @ \$25.63	No Change	
	Total Annual Power		\$2,190.29
Annual O&M			
	Weekly Cleaning/Inspections	No Change	
	Materials and Equipment	No Change	
	Total Annual O&M	No Change	
Annual Total	Annual Power and O&M		\$2,190.29
20-Year Total	\$2,190.29 x 20		\$43,805.75
Summary			
Capital Project Cost (2,650 ft of 12" pipe @ \$343.37/LF)		\$1,230,000.00*	
20-Year Savings			\$43,805.75
Project Net Cost		\$1,186,194.25	

*Cost reflects 35% for engineering and contingency.

***Energy used is proportional to flow being pumped. The flow pumped at the Oakbrook Lift Station would be reduced because of the capital project to divert flow directly to the WWTP. The projected flow at the Oakbrook Lift Station is about 61% less than the current estimated flow at the Oakbrook Lift Station. The 64,960 kWh was multiplied by 0.61 to estimate the future annual energy usage (39,639, kWh).

ADDITIONAL FLOW STUDIES

The alternatives presented herein appear to be feasible based on the available flowrate and elevation data. However, prior to design and construction it is recommended that flow monitoring be performed at the list stations and at key sewers so that final design data can be obtained.



Date: 9/27/2019
Document Path: H:\Projects\260 - Springville City\50.100 - 2018 Wastewater Collection System Master Plan\GIS\Lift Station Analysis\Sewer_LiftStationAnalysis_Thirty Oaks.mxd



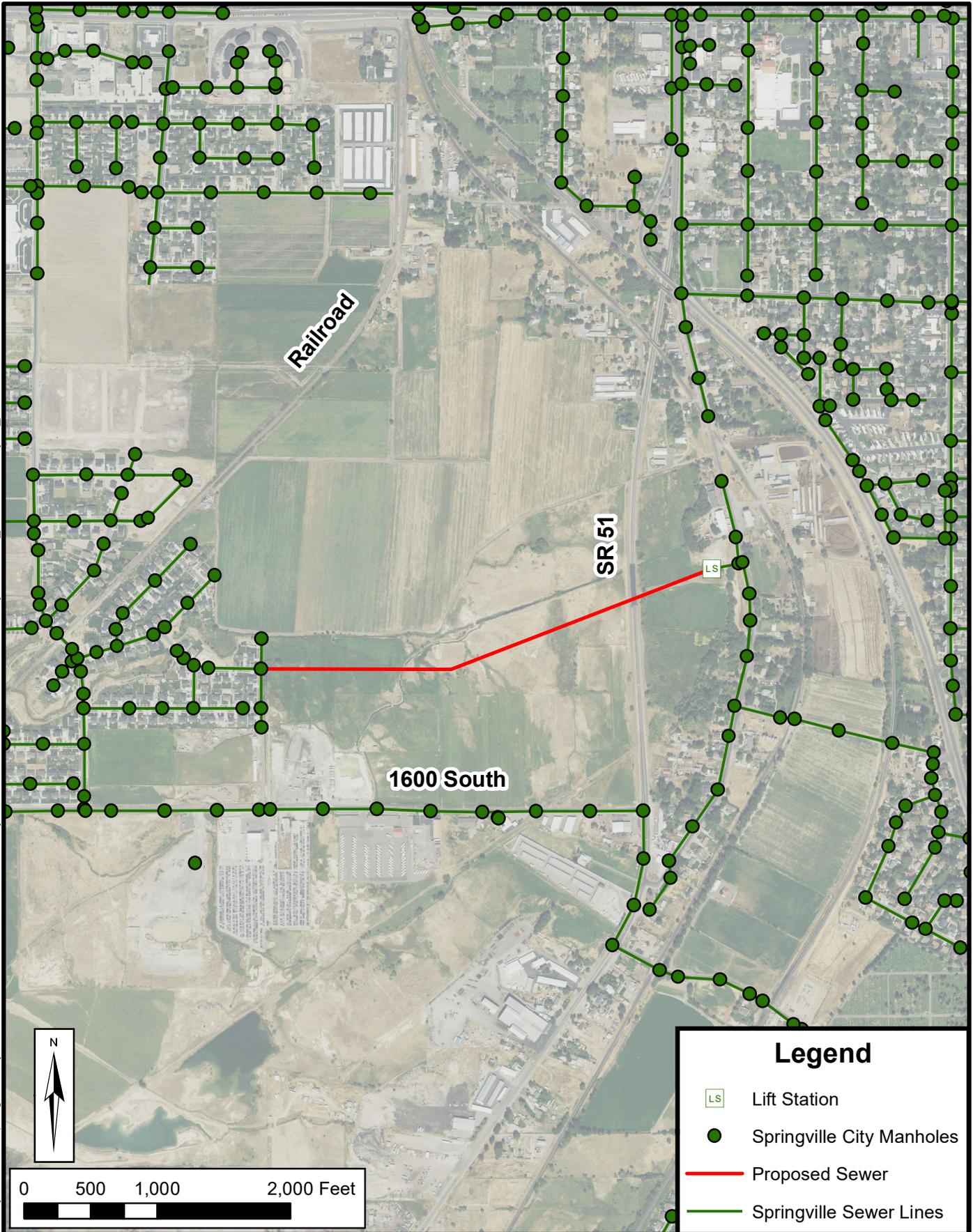
Legend	
	Lift Station
	Springville City Manholes
	Proposed Sewer
	Springville Sewer Lines



**Springville City
Thirty Oaks Lift Station Project (Conceptual)**

**FIGURE
2**

Date: 9/27/2019
Document Path: H:\Projects\260 - Springville City\50.100 - 2018 Wastewater Collection System Master Plan\GIS\Lift Station Analysis\Sewer_LiftStationAnalysis_South.mxd



Legend

- LS Lift Station
- Springville City Manholes
- Proposed Sewer
- Springville Sewer Lines



**Springville City
South Lift Station Project (Conceptual)**

**FIGURE
3**



APPENDIX B

Flow Study Results

SSMH0235

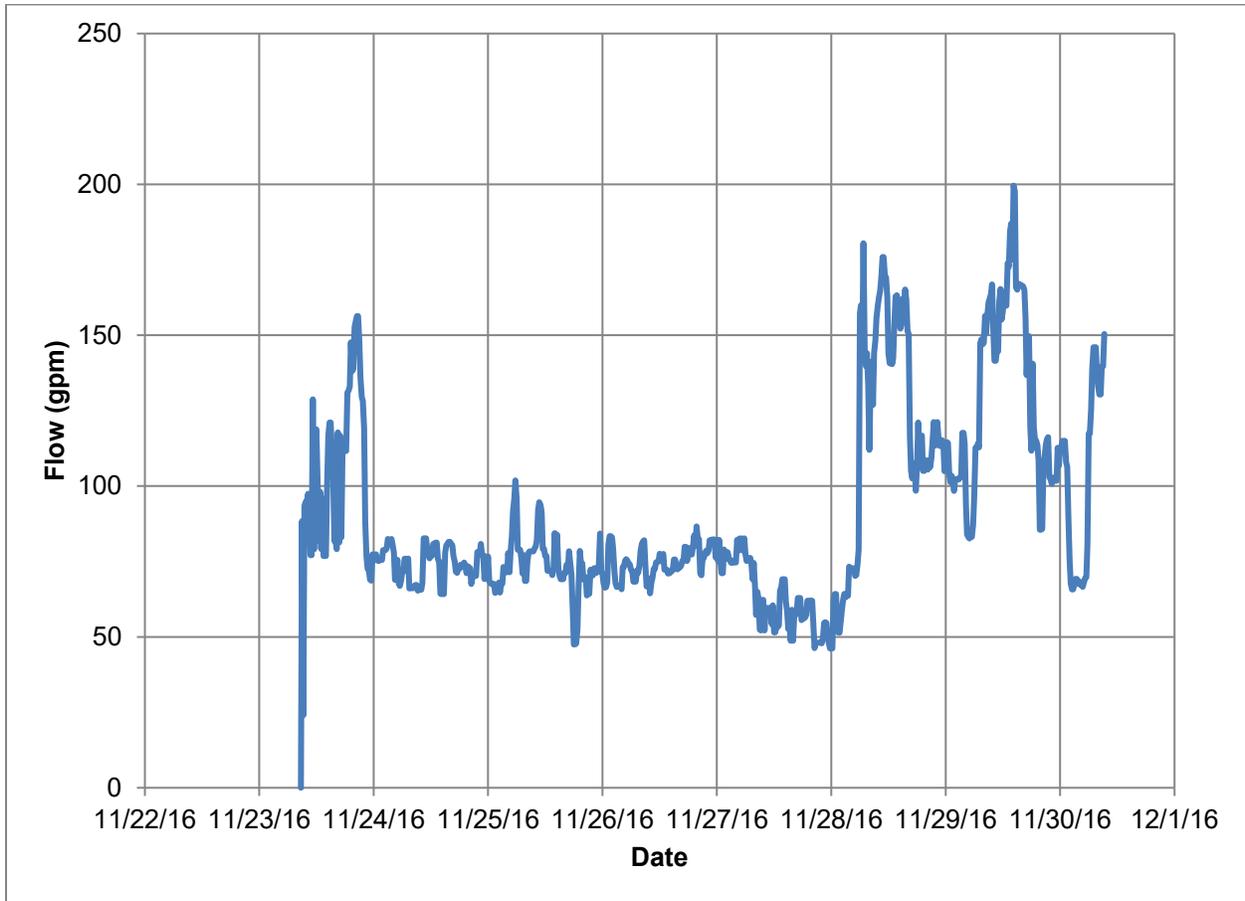
Site Location: W Industrial Circle and 1100 W

Maximum Flow: 200 gpm

Minimum Flow: 24 gpm

Average Flow: 91 gpm

Peaking Factor: 2.2



SSMH0311

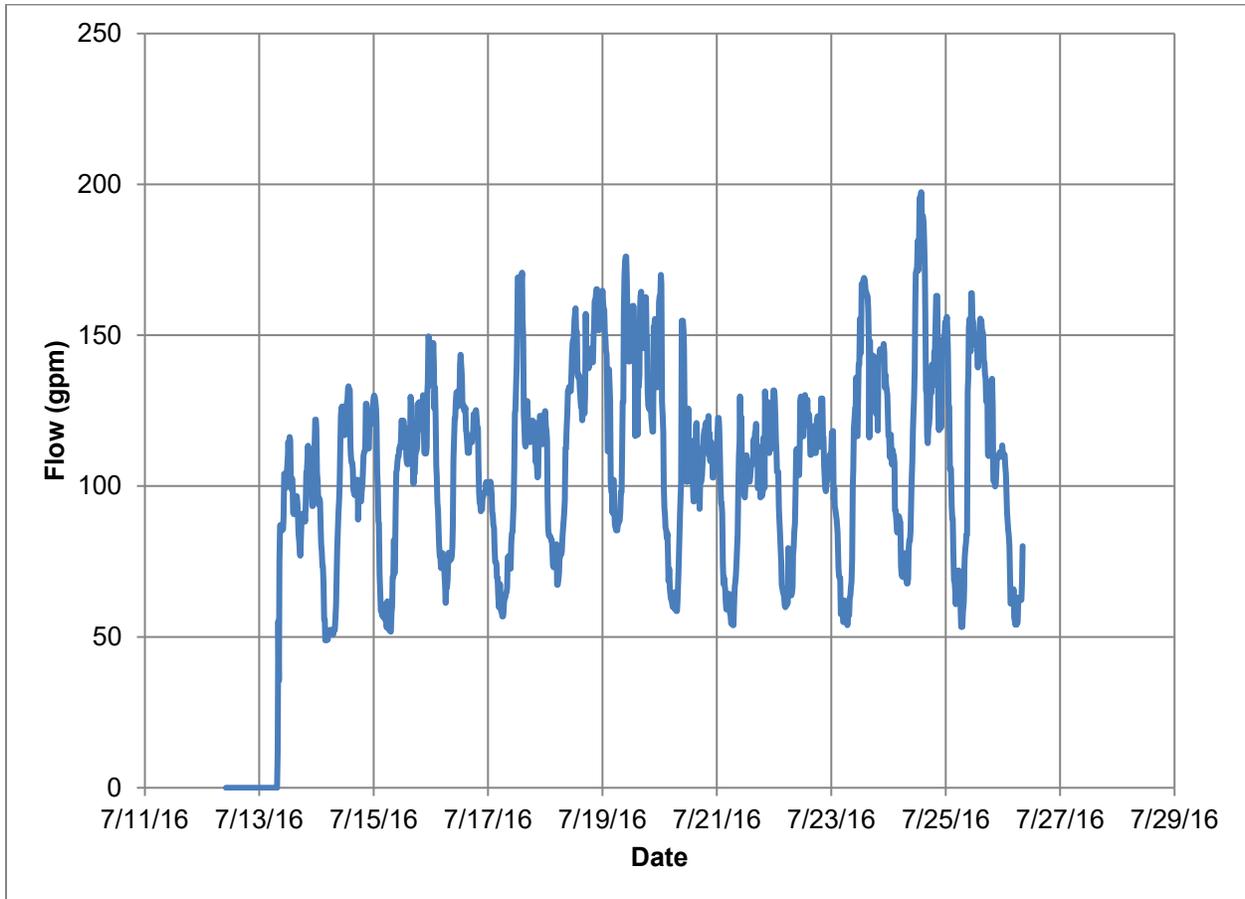
Site Location: 800 N and 200 W

Maximum Flow: 197 gpm

Minimum Flow: 12 gpm

Average Flow: 108 gpm

Peaking Factor: 1.8



SSMH0381

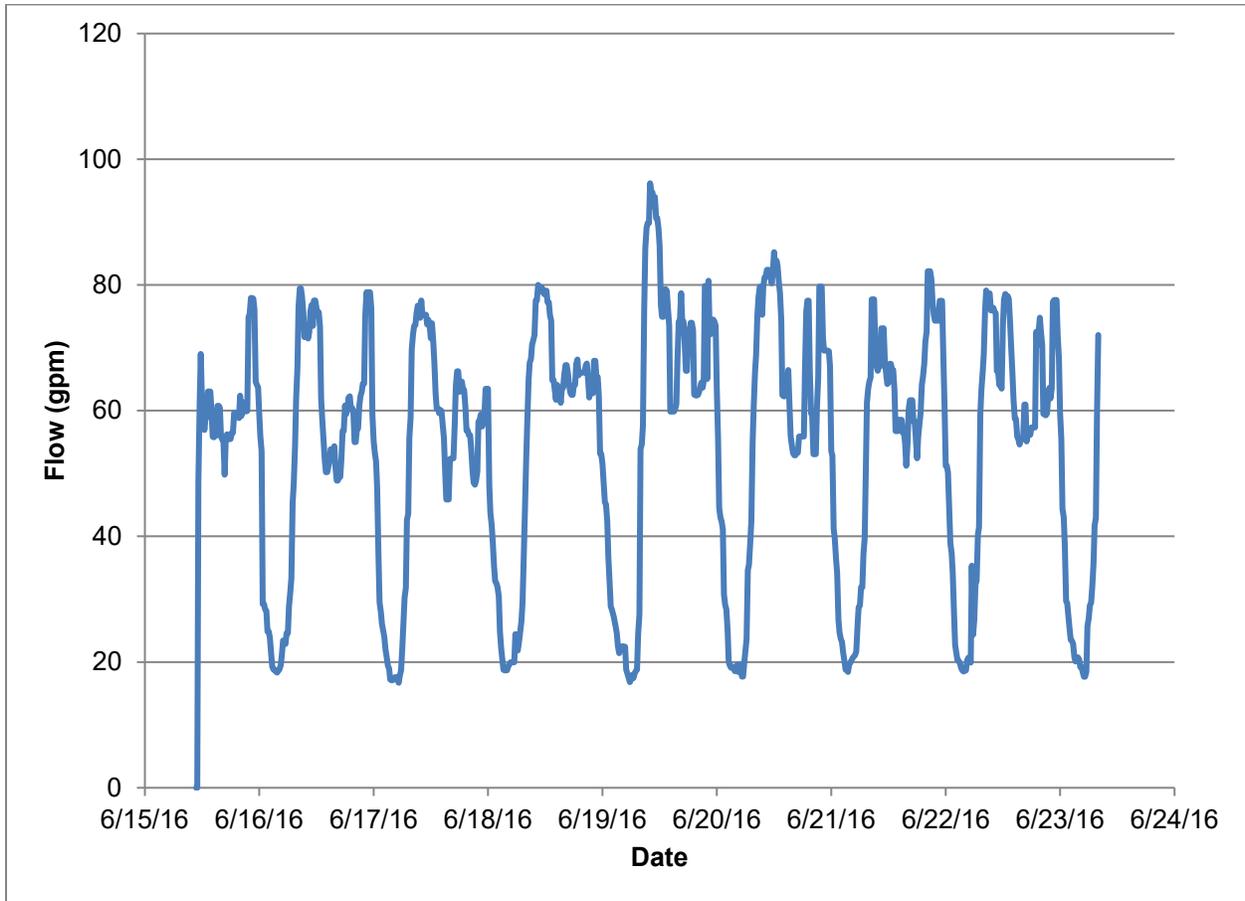
Site Location: 700 N Main Street

Maximum Flow: 96 gpm

Minimum Flow: 17 gpm

Average Flow: 54 gpm

Peaking Factor: 1.8



SSMH1628

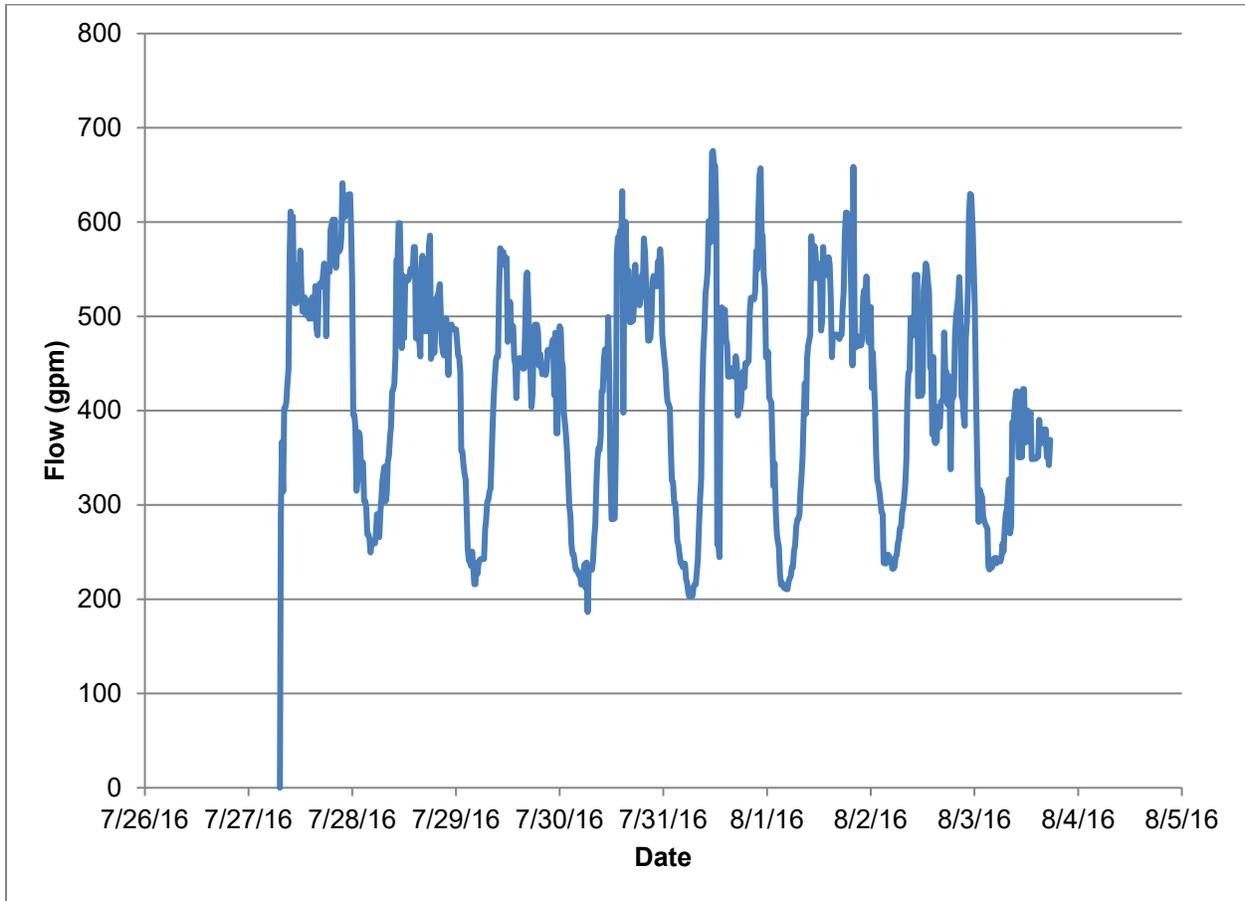
Site Location: 300 N and 400 W

Maximum Flow: 676 gpm

Minimum Flow: 187 gpm

Average Flow: 421 gpm

Peaking Factor: 1.6



SSMH1799

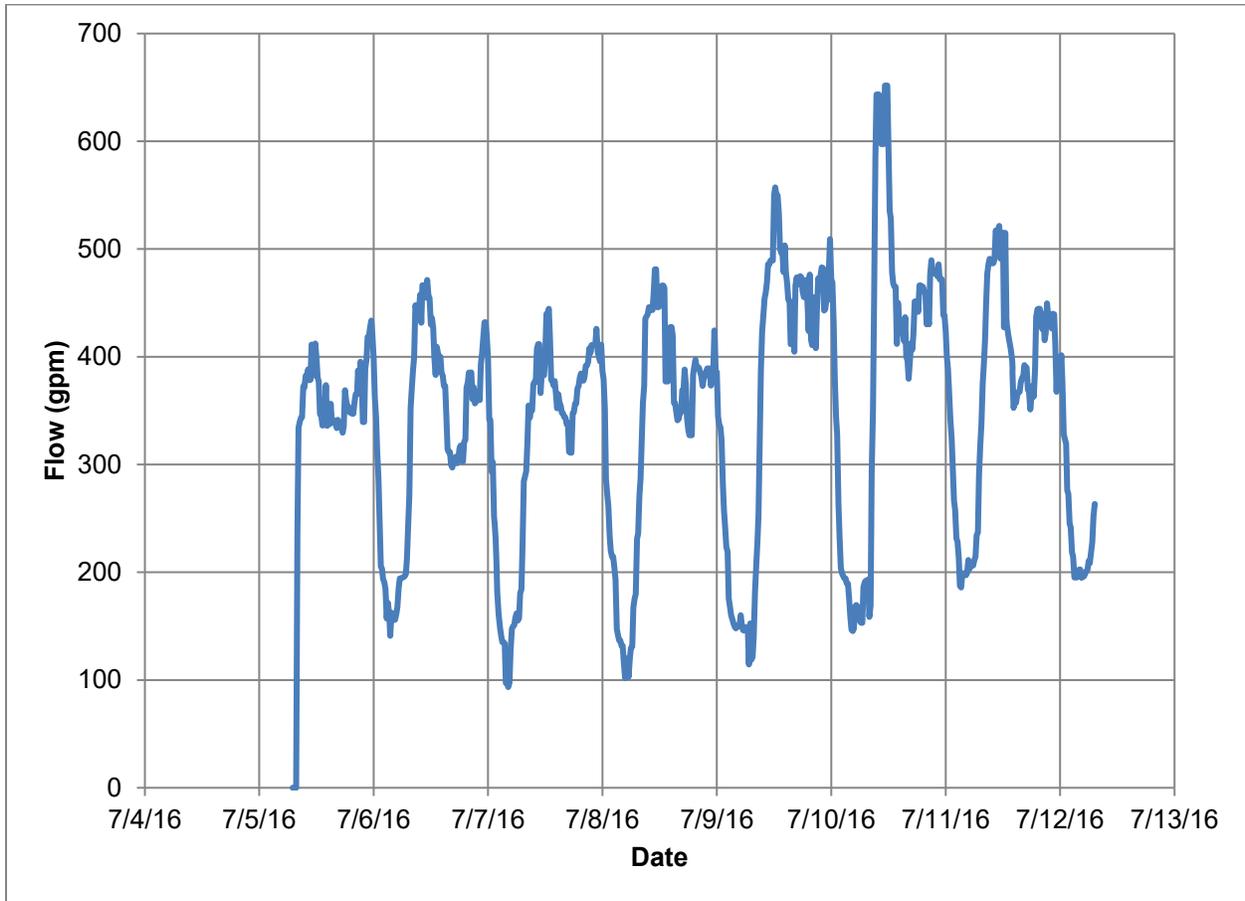
Site Location: 400 N and 200 W

Maximum Flow: 652 gpm

Minimum Flow: 93 gpm

Average Flow: 345 gpm

Peaking Factor: 1.9



SSMH2356

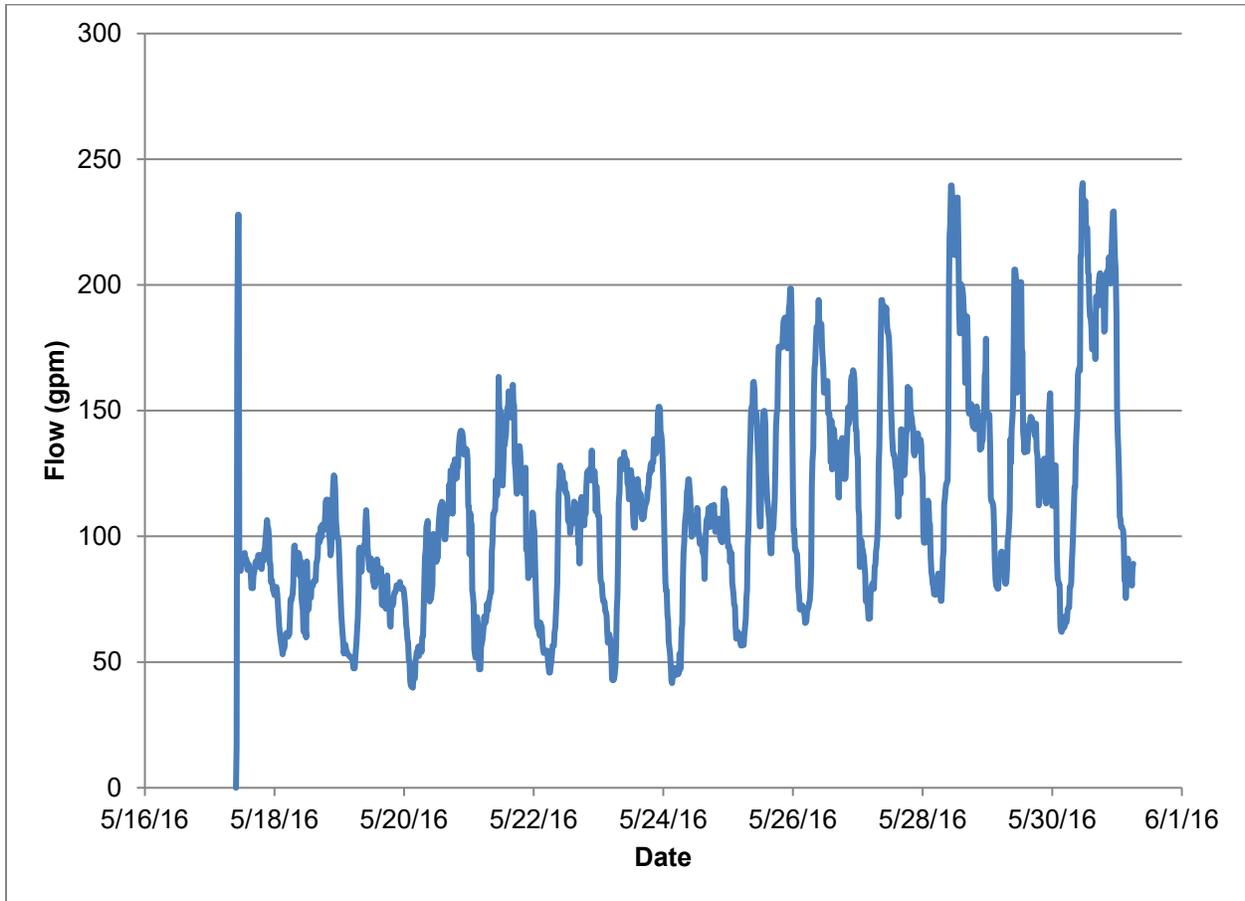
Site Location: 500 N and 1750 W

Maximum Flow: 241 gpm

Minimum Flow: 16 gpm

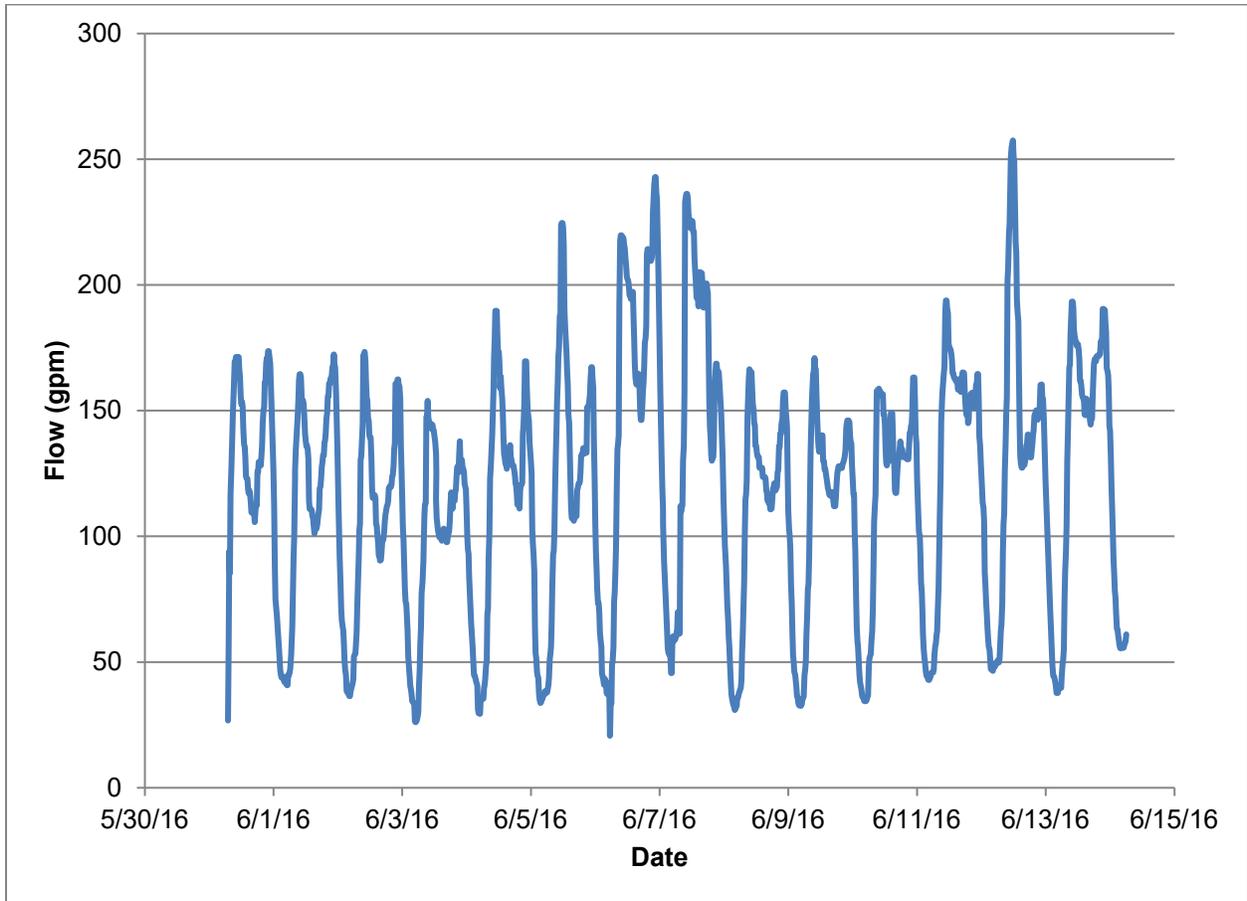
Average Flow: 112 gpm

Peaking Factor: 2.2



SSMH2382

Site Location: 850 N 1500 W
Maximum Flow: 257 gpm
Minimum Flow: 21 gpm
Average Flow: 119 gpm
Peaking Factor: 2.2



SSMH2739

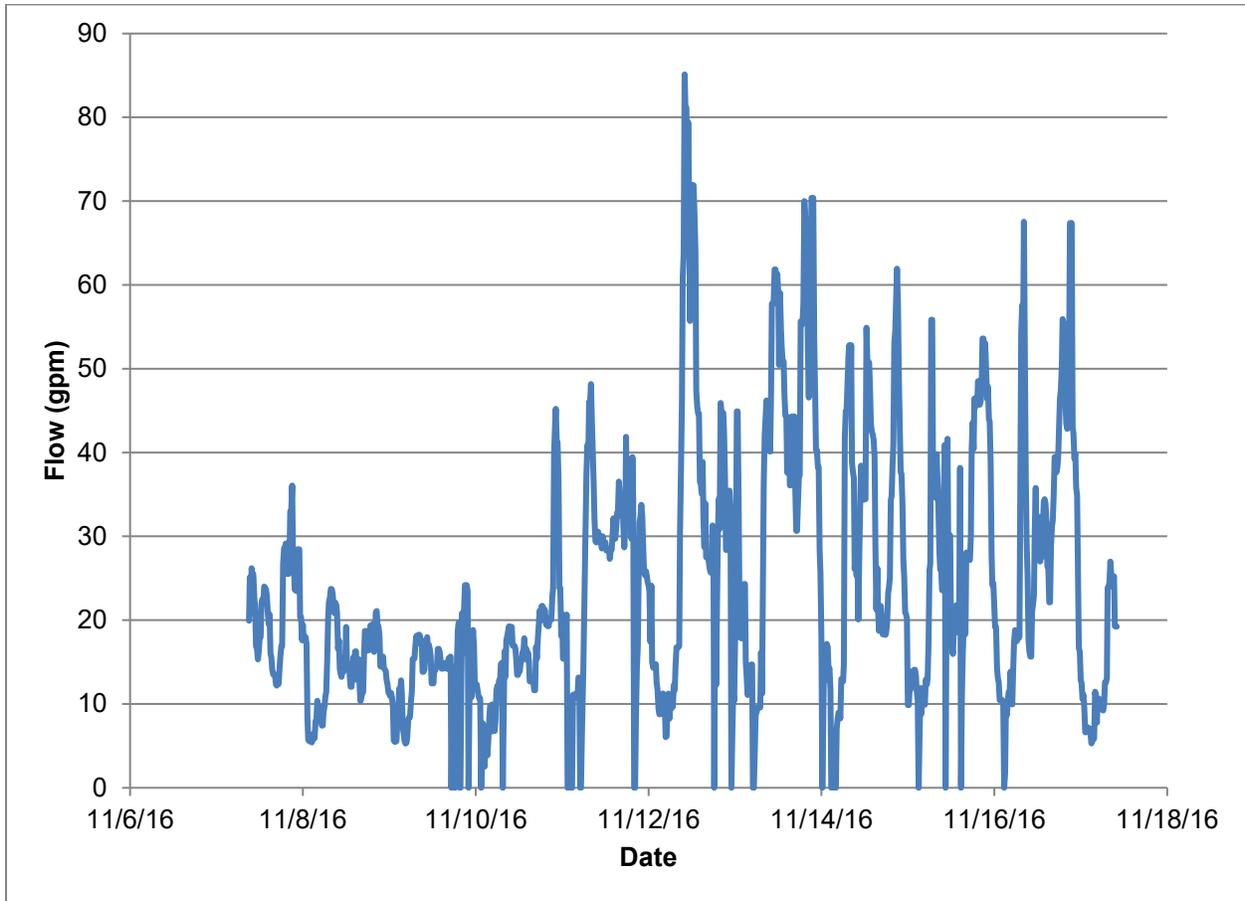
Site Location: 650 S 2600 W

Maximum Flow: 85 gpm

Minimum Flow: 2 gpm

Average Flow: 24 gpm

Peaking Factor: 3.5



APPENDIX C

Growth Projections and Projected ERUs



Growth Projections and Projected ERUs

Year	Projected ERUs				Annual ERU Growth
	Residential	Non Residential	Nestle	Total	
2025	11,397	4,555	4,842	20,794	-
2026	11,699	4,676	4,842	21,216	2.6%
2027	12,008	4,799	4,842	21,650	2.6%
2028	12,326	4,926	4,842	22,095	2.6%
2029	12,652	5,057	4,842	22,551	2.6%
2030	12,987	5,191	4,842	23,020	2.6%
2031	13,291	5,312	4,842	23,445	2.3%
2032	13,601	5,436	4,842	23,880	2.3%
2033	13,919	5,563	4,842	24,324	2.3%
2034	14,245	5,693	4,842	24,780	2.3%
2035	14,578	5,826	4,842	25,246	2.3%
2036	14,883	5,948	4,842	25,673	2.1%
2037	15,194	6,073	4,842	26,109	2.1%
2038	15,512	6,200	4,842	26,554	2.1%
2039	15,837	6,329	4,842	27,008	2.1%
2040	16,168	6,462	4,842	27,472	2.1%
2041	16,461	6,579	4,842	27,882	1.8%
2042	16,759	6,698	4,842	28,299	1.8%
2043	17,063	6,819	4,842	28,724	1.8%
2044	17,372	6,943	4,842	29,157	1.8%
2045	17,687	7,069	4,842	29,598	1.8%
2046	18,007	7,197	4,842	30,046	1.8%
2047	18,334	7,327	4,842	30,503	1.8%
2048	18,666	7,460	4,842	30,968	1.8%
2049	19,004	7,595	4,842	31,442	1.8%
2050	19,349	7,733	4,842	31,924	1.8%
2051	19,471	7,782	4,842	32,095	0.6%
2052	19,595	7,831	4,842	32,268	0.6%
2053	19,719	7,881	4,842	32,442	0.6%
2054	19,844	7,931	4,842	32,617	0.6%
2055	19,970	7,981	4,842	32,793	0.6%
2056	20,096	8,032	4,842	32,970	0.6%
2057	20,224	8,083	4,842	33,148	0.6%
2058	20,352	8,134	4,842	33,328	0.6%
2059	20,481	8,186	4,842	33,508	0.6%
2060	20,611	8,237	4,842	33,690	0.6%
2061	20,741	8,290	4,842	33,873	0.6%
2062	20,873	8,342	4,842	34,057	0.6%
2063	21,005	8,395	4,842	34,242	0.6%
2064	21,138	8,448	4,842	34,429	0.6%
2065	21,272	8,502	4,842	34,616	0.6%
2066	21,407	8,556	4,842	34,805	0.6%
2067	21,543	8,610	4,842	34,995	0.6%
2068	21,679	8,665	4,842	35,186	0.6%
2069	21,817	8,719	4,842	35,378	0.6%
2070	21,955	8,775	4,842	35,572	0.6%

APPENDIX D

Cost Estimates



**Springville City Capital Facility Plan
Wastewater Existing Recommended Improvements
Preliminary Engineers Cost Estimates**

Item	Unit	Unit Price	Quantity	Total Price	City Price	City %	Developer Price	Developer %
------	------	------------	----------	-------------	------------	--------	-----------------	-------------

E-1. Oakbrook/North Lift Station Upgrades

Upgrade lift station with Overwatch system	LS	\$ 400,000	1	\$ 400,000	\$ 400,000	100%	\$ -	0%
Total				\$ 400,000	\$ 400,000	100%	\$ -	0%
Engineering & Admin. (10%)				\$ 40,000	\$ 40,000	100%	\$ -	0%
Contingency (20%)				\$ 80,000	\$ 80,000	100%	\$ -	0%
Total to Oakbrook/North Lift Station Upgrades				\$ 520,000	\$ 520,000	100%	\$ -	0%

Total Costs \$ 520,000 \$ 520,000 \$ -

**Springville City Capital Facility Plan
Wastewater 10-Year Recommended Improvements
Preliminary Engineers Cost Estimates**

	Item	Unit	Unit Price	Quantity	Total Price	City Price	City %	Developer Price	Developer %
10-1.	Westfields Lift Station								
	Replace one lift station pump	LS	\$ 75,000	1	\$ 75,000	\$ 75,000	100%	\$ -	0%
	Total				\$ 75,000	\$ 75,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 7,500	\$ 7,500	100%	\$ -	0%
	Contingency (20%)				\$ 15,000	\$ 15,000	100%	\$ -	0%
	Total to Westfields Lift Station				\$ 98,000	\$ 98,000	100%	\$ -	0%
10-2.	Westfields Lift Station								
	Install New Pumps	EA	\$ 200,000	3	\$ 600,000	\$ 600,000	100%	\$ -	0%
	Upgrade pump bases	EA	\$ 10,000	4	\$ 40,000	\$ 40,000	100%	\$ -	0%
	Upgrade lift station electrical components	LS	\$ 400,000	1	\$ 400,000	\$ 400,000	100%	\$ -	0%
	Install new VFD	EA	\$ 100,000	4	\$ 400,000	\$ 400,000	100%	\$ -	0%
	Upgrade discharge pipes and valves	LS	\$ 500,000	1	\$ 500,000	\$ 500,000	100%	\$ -	0%
	Evaluate/clean the existing 10" force main	LS	\$ 245,000	1	\$ 245,000	\$ 245,000	100%	\$ -	0%
	Total				\$ 2,185,000	\$ 2,185,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 218,500	\$ 218,500	100%	\$ -	0%
	Contingency (20%)				\$ 437,000	\$ 437,000	100%	\$ -	0%
	Total to Westfields Lift Station				\$ 2,841,000	\$ 2,841,000	100%	\$ -	0%
10-3.	New Lift Station Near Spring Pointe								
	Construct new lift station	LS	\$ 3,000,000	1	\$ 3,000,000	\$ 3,000,000	100%	\$ -	0%
	Install 8" force main pipe in same trench as 10"	LF	\$ 35	10600	\$ 371,000	\$ 371,000	100%	\$ -	0%
	Install 10" force main pipe	LF	\$ 290	10600	\$ 3,074,000	\$ 3,074,000	100%	\$ -	0%
	Bore under I-15 with 30" casing	LF	\$ 3,000	240	\$ 720,000	\$ 720,000	100%	\$ -	0%
	Bore under Railroad with 30" casing	LF	\$ 3,000	400	\$ 1,200,000	\$ 1,200,000	100%	\$ -	0%
	Bore under Hobbie Creek with 30" casing	LF	\$ 3,000	75	\$ 225,000	\$ 225,000	100%	\$ -	0%
	Total				\$ 8,590,000	\$ 8,590,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 859,000	\$ 859,000	100%	\$ -	0%
	Contingency (20%)				\$ 1,718,000	\$ 1,718,000	100%	\$ -	0%
	Total to New Lift Station Near Spring Pointe				\$ 11,167,000	\$ 11,167,000	100%	\$ -	0%
10-4.	Decommission Spring Pointe Lift Station								
	Decommission Spring Pointe Lift Station	LS	\$ 35,000	1	\$ 35,000	\$ 35,000	100%	\$ -	0%
	Total				\$ 35,000	\$ 35,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 3,500	\$ 3,500	100%	\$ -	0%
	Contingency (20%)				\$ 7,000	\$ 7,000	100%	\$ -	0%
	Total to Decommission Spring Pointe Lift Station				\$ 46,000	\$ 46,000	100%	\$ -	0%

**Springville City Capital Facility Plan
Wastewater 10-Year Recommended Improvements
Preliminary Engineers Cost Estimates**

	Item	Unit	Unit Price	Quantity	Total Price	City Price	City %	Developer Price	Developer %
10-5.	Bore under I-15								
	Install 10" gravity line	LF	\$ 400	1700	\$ 680,000	\$ 680,000	100%	\$ -	0%
	Install 24" casing with bore under I-15	LF	\$ 2,400	275	\$ 660,000	\$ 660,000	100%	\$ -	0%
	Total				\$ 1,340,000	\$ 1,340,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 134,000	\$ 134,000	100%	\$ -	0%
	Contingency (20%)				\$ 268,000	\$ 268,000	100%	\$ -	0%
	Total to Bore under I-15				\$ 1,742,000	\$ 1,742,000	100%	\$ -	0%
10-6.	1000 N Bore Underneath Hobble Creek								
	Install 15" gravity line	LF	\$ 480	450	\$ 216,000	\$ 216,000	100%	\$ -	0%
	Bore 30" casing for 15" parallel pipe	LF	\$ 3,000	75	\$ 225,000	\$ 225,000	100%	\$ -	0%
	Total				\$ 441,000	\$ 441,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 44,100	\$ 44,100	100%	\$ -	0%
	Contingency (20%)				\$ 88,200	\$ 88,200	100%	\$ -	0%
	Total to 1000 N Bore Underneath Hobble Creek				\$ 573,000	\$ 573,000	100%	\$ -	0%
10-7.	1500 W Lift Station								
	Install new 1,500 gpm pump	LS	\$ 100,000	1	\$ 100,000	\$ 100,000	100%	\$ -	0%
	Total				\$ 100,000	\$ 100,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 10,000	\$ 10,000	100%	\$ -	0%
	Contingency (20%)				\$ 20,000	\$ 20,000	100%	\$ -	0%
	Total to 1500 W Lift Station				\$ 130,000	\$ 130,000	100%	\$ -	0%
10-8.	2000 W and 500 N								
	Install 15" parallel gravity line	LF	\$ 480	450	\$ 216,000	\$ 216,000	100%	\$ -	0%
	Total				\$ 216,000	\$ 216,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 21,600	\$ 21,600	100%	\$ -	0%
	Contingency (20%)				\$ 43,200	\$ 43,200	100%	\$ -	0%
	Total to 2000 W and 500 N				\$ 281,000	\$ 281,000	100%	\$ -	0%
10-9.	800 S Sewer Line								
	Remove and upgrade sewer to 12" gravity line	LF	\$ 440	1900	\$ 836,000	\$ 836,000	100%	\$ -	0%
	Total				\$ 836,000	\$ 836,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 83,600	\$ 83,600	100%	\$ -	0%
	Contingency (20%)				\$ 167,200	\$ 167,200	100%	\$ -	0%
	Total to 800 S Sewer Line				\$ 1,087,000	\$ 1,087,000	100%	\$ -	0%

**Springville City Capital Facility Plan
Wastewater 10-Year Recommended Improvements
Preliminary Engineers Cost Estimates**

	Item	Unit	Unit Price	Quantity	Total Price	City Price	City %	Developer Price	Developer %
10-10.	950 W Sewer Line								
	Install 10" gravity line	LF	\$ 400	2100	\$ 840,000	\$ 21,000	2%	\$ 819,000	98%
				Total	\$ 840,000	\$ 21,000	2%	\$ 819,000	98%
				Engineering & Admin. (10%)	\$ 84,000	\$ 2,100	2%	\$ 81,900	98%
				Contingency (20%)	\$ 168,000	\$ 4,200	2%	\$ 163,800	98%
				Total to 950 W Sewer Line	\$ 1,092,000	\$ 27,000	2%	\$ 1,065,000	98%
10-11.	2600 W Sewer Line								
	Install 12" gravity line	LF	\$ 440	1400	\$ 616,000	\$ 70,000	11%	\$ 546,000	89%
	Install 15" gravity line	LF	\$ 480	2800	\$ 1,344,000	\$ 252,000	19%	\$ 1,092,000	81%
				Total	\$ 1,960,000	\$ 322,000	16%	\$ 1,638,000	84%
				Engineering & Admin. (10%)	\$ 196,000	\$ 32,200	16%	\$ 163,800	84%
				Contingency (20%)	\$ 392,000	\$ 64,400	16%	\$ 327,600	84%
				Total to 2600 W Sewer Line	\$ 2,548,000	\$ 419,000	16%	\$ 2,129,000	84%
				Total Costs	\$ 21,605,000	\$ 18,411,000		\$ 3,194,000	

**Springville City Capital Facility Plan
Wastewater 20-Year Recommended Improvements
Preliminary Engineers Cost Estimates**

	Item	Unit	Unit Price	Quantity	Total Price	City Price	City %	Developer Price	Developer %
20-1.	1750 W and ~400 N								
	Replace existing 15" gravity line with 21" gravity line	LF	\$ 580	300	\$ 174,000	\$ 174,000	100%	\$ -	0%
	Total				\$ 174,000	\$ 174,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 17,400	\$ 17,400	100%	\$ -	0%
	Contingency (20%)				\$ 34,800	\$ 34,800	100%	\$ -	0%
	Total to 1750 W and ~400 N				\$ 226,000	\$ 226,000	100%	\$ -	0%
20-2.	1750 W from 1300 S to ~400 S								
	Replace existing 12" gravity line with 15" gravity line	LF	\$ 480	1200	\$ 576,000	\$ 576,000	100%	\$ -	0%
	Replace existing 12" gravity line with 18" gravity line	LF	\$ 530	3700	\$ 1,961,000	\$ 1,961,000	100%	\$ -	0%
	Total				\$ 2,537,000	\$ 2,537,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 253,700	\$ 253,700	100%	\$ -	0%
	Contingency (20%)				\$ 507,400	\$ 507,400	100%	\$ -	0%
	Total to 1750 W from 1300 S to ~400 S				\$ 3,298,000	\$ 3,298,000	100%	\$ -	0%
20-3.	1600 S and 1700 W								
	Replace existing 12" gravity line with 15" gravity line	LF	\$ 480	350	\$ 168,000	\$ 168,000	100%	\$ -	0%
	Total				\$ 168,000	\$ 168,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 16,800	\$ 16,800	100%	\$ -	0%
	Contingency (20%)				\$ 33,600	\$ 33,600	100%	\$ -	0%
	Total to 1600 S and 1700 W				\$ 218,000	\$ 218,000	100%	\$ -	0%
Total Costs					\$ 3,742,000	\$ 3,742,000		\$ -	

Pipe Unit Costs

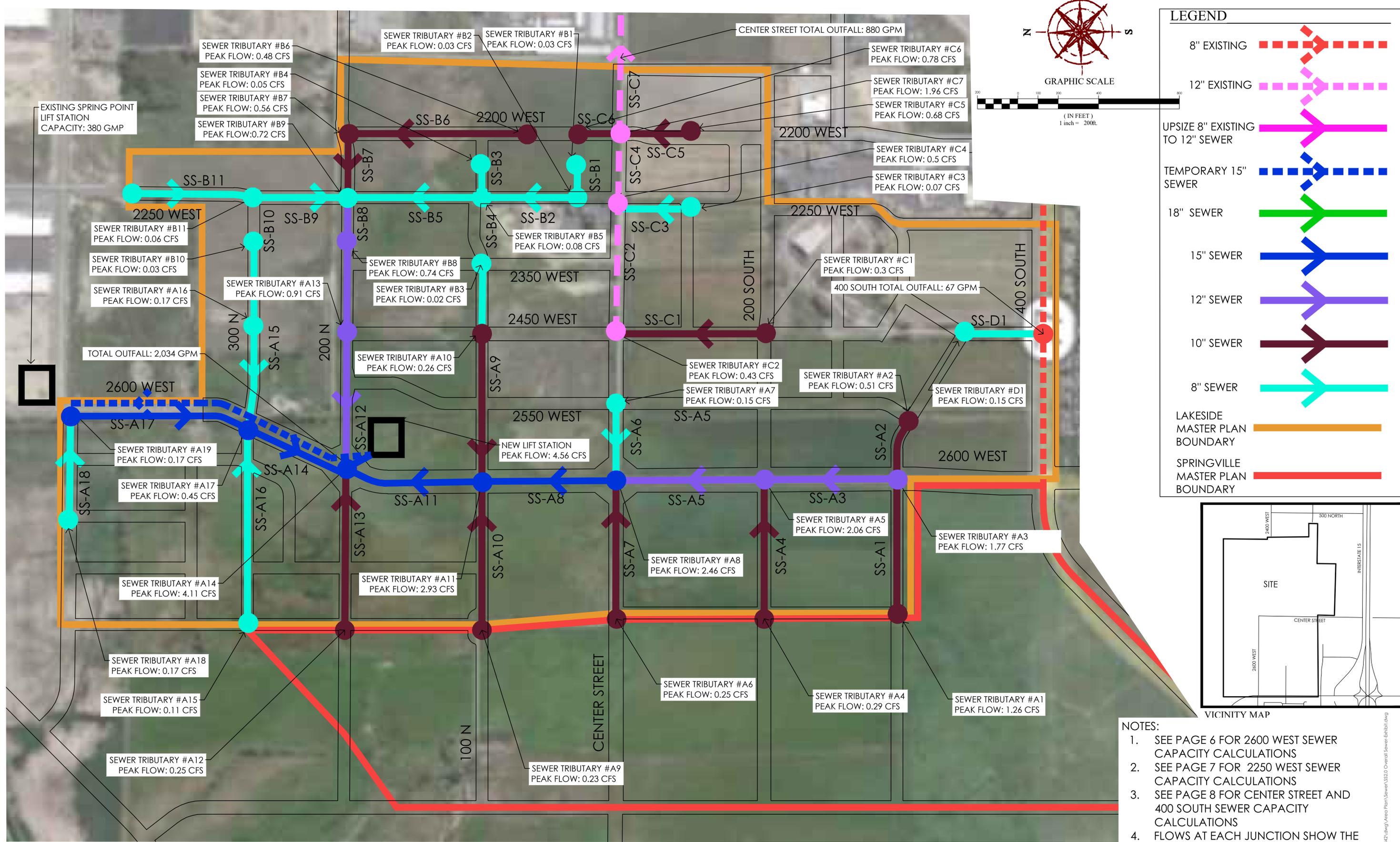
Gravity Pipe Diameter (in)	Unit Cost/LF
6	\$ 370.00
8	\$ 390.00
10	\$ 400.00
12	\$ 440.00
15	\$ 480.00
18	\$ 530.00
21	\$ 580.00

Pressurized Force Main (in)	Unit Cost/LF
4	\$ 230.00
6	\$ 250.00
8	\$ 270.00
10	\$ 290.00
16	\$ 370.00
18	\$ 400.00



APPENDIX E
Lakeside Landing Master Plan





LEGEND

- 8" EXISTING
- 12" EXISTING
- UPSIZE 8" EXISTING TO 12" SEWER
- TEMPORARY 15" SEWER
- 18" SEWER
- 15" SEWER
- 12" SEWER
- 10" SEWER
- 8" SEWER
- LAKESIDE MASTER PLAN BOUNDARY
- SPRINGVILLE MASTER PLAN BOUNDARY

- NOTES:**
1. SEE PAGE 6 FOR 2600 WEST SEWER CAPACITY CALCULATIONS
 2. SEE PAGE 7 FOR 2250 WEST SEWER CAPACITY CALCULATIONS
 3. SEE PAGE 8 FOR CENTER STREET AND 400 SOUTH SEWER CAPACITY CALCULATIONS
 4. FLOWS AT EACH JUNCTION SHOW THE TOTAL COMBINED FLOWS OF ALL UPSTREAM PIPES AND FLOWS FROM TRIBUTARY AREAS AS SEEN ON EXHIBIT 1

LAKESIDE LANDING SEWER MASTER SCHEMATIC PLAN

SPRINGVILLE, UTAH
 10/4/2024
 20-0442
 EXHIBIT 2

Note: This plan is for illustrative purposes only. Boundaries may be based on parcels obtained through public GIS data. It is recommended that a survey be performed to determine actual boundary size and dimensions as well as other potential boundary conflicts.

Z:_2020\20-0442\Drawings\Springville\Design\20-0442.dwg\Sheet\SS20 Overall Sewer Exhibit.dwg



WASTEWATER COLLECTION SYSTEM IMPACT FEE FACILITY PLAN AND IMPACT FEE ANALYSIS

(HAL Project No.: 260.63.100)

February 2026

CITY OF SPRINGVILLE
WASTEWATER COLLECTION IMPACT FEE FACILITY
PLAN AND IMPACT FEE ANALYSIS

(HAL Project No.: 260.63.100)



Jason C. Biesinger, P.E.

Project Engineer



February 2026

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 wastewater collection 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 wastewater collection 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 SUMMARY.....iii

SECTION 1 – INTRODUCTION

1.1 Background.....1-1
1.2 Purpose.....1-1
1.3 Impact Fee Collection.....1-1
1.4 Master Planning1-2

SECTION 2 – EXISTING WASTEWATER COLLECTION SYSTEM

2.1 General2-1
2.2 Existing Equivalent Residential Units.....2-1
2.3 Level of Service.....2-1
2.4 Methodology Used to Determine Existing System Capacity2-2
2.5 Collections.....2-2
2.6 Capital Facilities to Meet System Deficiencies2-2

SECTION 3 – IMPACT FEE CALCULATION

3.1 General 3-1
3.2 Growth Projections 3-1
3.3 Cost of Existing and Future Facilities.....3-2
3.4 Impact Fee Unit Calculation3-5
3.5 Revenue Options3-8

Appendix A: Information from the Wastewater Collection System Master Plan

Appendix B: Cost of Existing Infrastructure

Appendix C: Estimated Future Project Costs

LIST OF FIGURES

Figure 3-1: Areas of Projected Growth After 3-1

LIST OF TABLES

Table S-1: Wastewater Impact Fee Costs iv
Table 3-1: Growth Projections 3-1
Table 3-2: Cost of Existing Facilities 3-2
Table 3-3: Impact Fee Eligible Cost of Existing Collection Facilities 3-3
Table 3-4: Estimated Cost of Growth-Related Facilities 3-4
Table 3-5: Collections Facility Costs per ERU 3-5
Table 3-6: Collections Facility Costs by Time Period 3-6
Table 3-7: Planning Component of Impact Fee 3-6
Table 3-8: Facility Cost by Time Period 3-7
Table 3-9: Proposed Wastewater Collection Impact Fee per ERU 3-7
Table 3-10: Proposed Wastewater Collection Impact Fee based on Meter Size 3-8

IMPACT FEE SUMMARY

The impact fees for the Springville wastewater collection system were last updated in 2024. The Wastewater Collection System Master Plan has recently been updated in 2025. Construction costs continue to rise due to a number of factors, including material shortages, labor shortages, and supply chain constraints. To incorporate the master plan update and account for rising construction costs, Springville City commissioned this impact fee update.

This impact fee addresses the **collection system only**. Treatment has been addressed in a different study and is not incorporated into this document.

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

The impact fee **service area** is the current Springville City municipal boundary, and future areas anticipated to be annexed into the City.

The level of service for wastewater collection is 250 gpd per ERU.

The impact fee unit for wastewater collection is based on the Equivalent Residential Unit (ERU). An ERU is equal to the average quantity of wastewater generated by one residential connection. The method of using ERUs for analysis is a way to allocate existing and future loading of non-residential land uses.

The existing system served about 20,794 ERUs at the beginning of 2025. Projected **growth** adds 4,452 equivalent residential connections in the next 10 years for a total of 25,246 connections or equivalent by 2035.

The costs calculated for the capacity required for growth in the next 10 years come from the proportional historical buy-in costs of **excess capacity** in existing facilities and **new projects** required entirely to provide capacity for new development. The cost of providing capacity to resolve existing deficiencies is not included in the impact fee. However, excess capacity can be built into projects intended to solve existing deficiencies, and this excess capacity can be included in the impact fee. Likewise, available capacity in existing facilities and capacity that is created through new projects is included in the impact fee. In addition to the proportionate share of costs of existing facilities, the impact fee is based on infrastructure that will be constructed within the next 10 years.

Components of the impact fee are presented in Table S-1.

**Table S-1
Wastewater Impact Fee Costs**

Component	Per Typical Residential Connection
Collection	\$1,376
Planning	\$47
Total	\$1,423

SECTION 1 INTRODUCTION

1.1 Background

Springville is located in central Utah County, alongside I-15 and on the southern end of the Provo-Orem metropolitan area. According to Springville City staff, the City had an estimated population of 36,500 in 2024.

1.2 Purpose

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

The impact fees for the Springville wastewater collection system were last updated in 2024. Since that time, the Wastewater Collection System Master Plan has been updated and construction costs have risen due to a number of factors, including material shortages, labor shortages, and supply chain constraints. To incorporate the master plan update and account for rising construction costs, Springville City commissioned this impact fee update.

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. The Wastewater Collection Master Plan that was prepared in 2025 was also used to support this analysis. Information from the master plan was updated to characterize existing conditions. The master plan identified several growth-related projects needed within the 10-year planning window. Therefore, the calculated impact fee is based on excess capacity and documented historic costs, as well as future capital projects.

1.3 Impact Fee Collection

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

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

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

1.4 Master Planning

A Wastewater Collection System Master Plan was prepared in 2025 and is incorporated by reference into this analysis. The master plan for the City's wastewater collection system is more comprehensive than the IFFP and IFA. It provides the basis for the IFFP and IFA and identifies all capital facilities required for the drinking water system inside the 20-year planning range, including maintenance, repair, replacement, and growth-related projects. This updated IFFP and IFA is also based on updated information on actual growth that has occurred since the last report was completed.

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

A hydraulic model of the wastewater collection system was used to complete the Wastewater Collection System Master Plan. The model was used to assess existing performance, 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 WASTEWATER COLLECTION SYSTEM

2.1 General

The purpose of this chapter is to provide information regarding the existing wastewater collection system, identify the current and proposed levels of service, and analyze the remaining capacity of the existing system's facilities.

Springville's existing wastewater collection system is comprised of gravity pipes including laterals, collectors, interceptors and an outfall. The system also includes lift stations, force mains and a wastewater reclamation facility (WRF). Figure 2-1 of the wastewater collection system master plan illustrates the existing wastewater system and is included for reference in Appendix A.

2.2 Existing Equivalent Residential Units

To compare the relative quantities of wastewater generation between different types of land use, it is helpful to use a common unit of measure. The unit of measure that is used with this analysis is the Equivalent Residential Unit (ERU). The use of ERUs is a typical approach to describe the flow requirement of a wastewater collection system. An ERU is equal to the average quantity of wastewater generation of residential connections. Once the ERU is established, non-residential uses can be quantified in terms of ERU fractions or multiples. ERUs for nonresidential uses are computed as the ratio of the non-residential wastewater generation in comparison to an equivalent residential level of service. For this analysis, all residential connections, including townhouses and apartments were equated to one ERU for indoor water demands.

For drinking water, Springville City has selected a 1-inch diameter water meter as the standard connection for a residential service. Non-residential developments are assigned a number of ERUs based on their meter size or peak wastewater discharge. Given that wastewater collection is not metered, and given that wastewater is generated from water passing through the drinking water meter, the wastewater impact fee is also based on drinking water meter size. The number of wastewater ERUs designated for each property is the same the number of ERCs designated for the water according to the meter size.

2.3 Level of Service

The level of service designated for the wastewater collection system has been established by the City to provide adequate wastewater collection capacity.

Wastewater Generation

- The existing level of service is 250 gpd per ERU.

Wastewater Collection System Capacity

- Peak daily flow in the pipe must not exceed a depth/diameter ratio of 0.75. The remaining capacity is reserved for unexpected flows, peaking, or flow restrictions. Per State of Utah standards, no newly installed collection pipe may be less than 8 inches in diameter.

2.4 Methodology Used to Determine Existing System Capacity

The method for determining the remaining capacity in the wastewater collection system was based on the defined level of service in terms of ERUs. The difference between the ERU capacity and ERU existing demand for the system is the remaining capacity.

A hydraulic model was developed for the purpose of assessing system operation and capacity. For pipelines, the model was used to develop a plan for the future system. The size of each pipeline was determined based on projected future flow rates and a maximum depth over pipe diameter (d/D) ratio of 0.75.

2.5 Collections

The existing Springville City wastewater collection system consists of nearly 150 miles of gravity pipeline and about 2,900 manholes. The gravity pipes range in size from 4-inch diameter to 36-inch diameter. The system also has force main piping ranging from 2-inch diameter to 12-inch diameter. Lift stations are used to pump wastewater where gravity flow sewers cannot convey flow to the wastewater treatment facility.

2.6 Capital Facilities to Meet System Deficiencies

The existing wastewater collection system is generally adequate to convey the anticipated wastewater to the wastewater treatment plant. However, there are a few areas with inadequate capacity. These are described in Table 6-3 in the Wastewater Collection System Master Plan. Projects intended to correct existing deficiencies are not eligible for impact fees and are not discussed further in this report.

CHAPTER 3 IMPACT FEE CALCULATION

3.1 General

This chapter relies on the data presented in the previous chapters to calculate 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 wastewater collection 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 chapter are the possible revenue sources that the City may consider to fund the recommended projects.

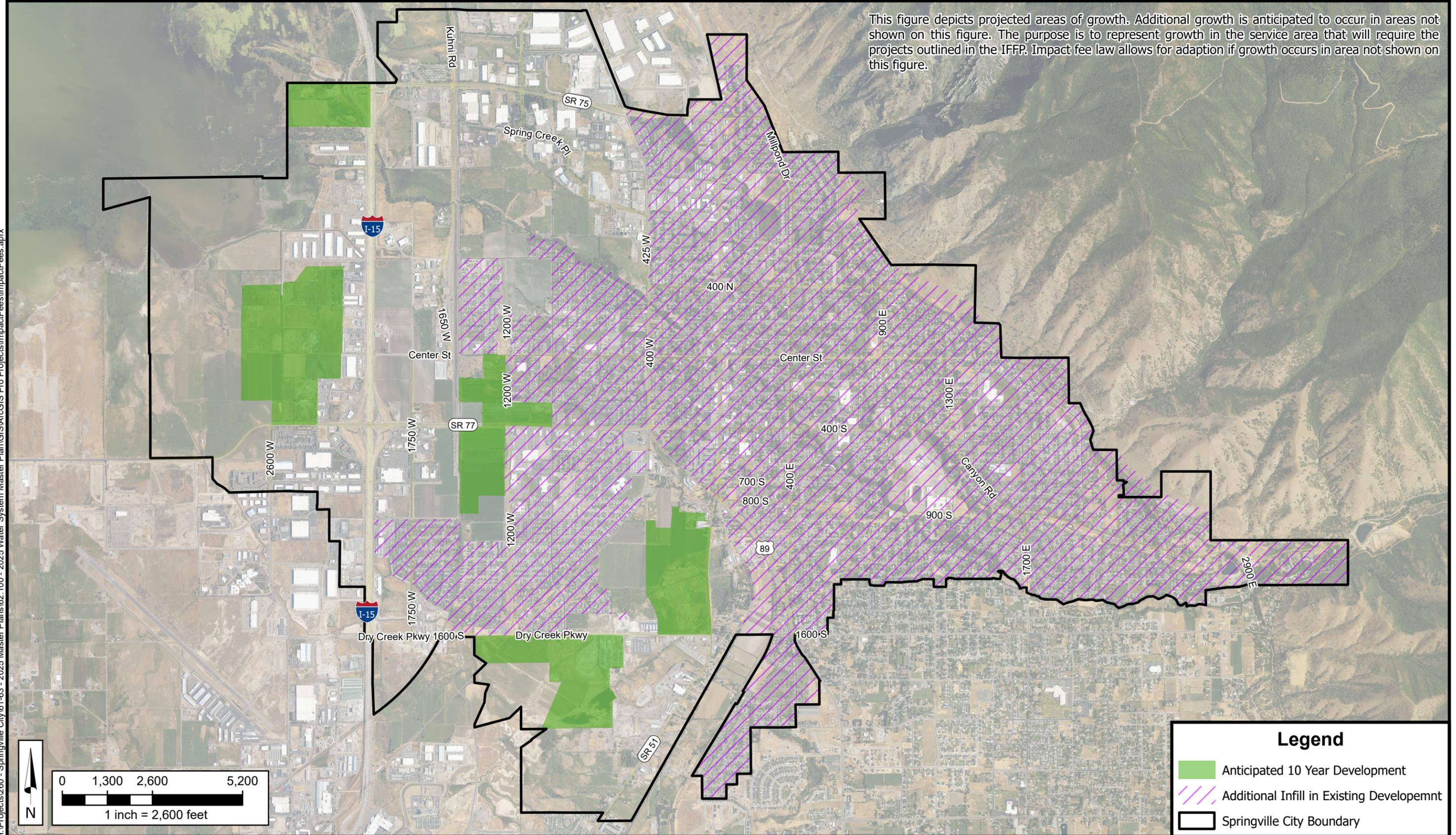
3.2 Growth Projections

The development of impact fees requires growth projections over the next ten years. Growth projections for Springville were made using the rates provided in the Springville Wastewater Master Plan. The existing system serves about 20,794 ERUs. Projected growth adds 4,452 ERUs in the next 10 years for a total of 25,246 ERUs. Growth projections are summarized in Table 3-1. Further information on growth projections can be found in the Wastewater Collection System Master Plan. The projected 10-year growth is shown in Figure 3-1.

**Table 3-1
Growth Projections**

Year	Total ERUs
2025	20,794
2026	21,216
2027	21,650
2028	22,095
2029	22,551
2030	23,020
2031	23,445
2032	23,880
2033	24,324
2034	24,780
2035	25,246
Change	+4,452

This figure depicts projected areas of growth. Additional growth is anticipated to occur in areas not shown on this figure. The purpose is to represent growth in the service area that will require the projects outlined in the IFFP. Impact fee law allows for adaption if growth occurs in area not shown on this figure.



Date: 10/30/2025
 Document Path: H:\Projects\260 - Springville City\61-63 - 2025 Master Plans\62.100 - 2025 Water System Master Plan\GIS\ArcGIS Pro Projects\ImpactFees\ImpactFees.aprx



**SPRINGVILLE CITY
 WASTEWATER COLLECTION SYSTEM IFFP AND IFA**

PROJECTED 10-YEAR GROWTH AREAS

**FIGURE
 3-1**

3.3 Cost of Existing and Future Facilities

The facilities and costs presented in Table 3-2 are existing facilities with remaining buy-in capacity. The historical costs for the existing facilities come from Springville City records.

**Table 3-2
Cost of Existing Facilities**

Project	Total
Main St. (400 South to 500 South)	\$271,775
1500 West (1000 North to Center)	\$1,599,340
1500 West (Center to 900 South)	\$615,885
550 North (950 West to 1500 West)	\$299,915
Spring Haven Lift Station	\$220,000
1500 West Lift Station	\$1,622,190
Total	\$4,629,105

1. Records of costs for existing infrastructure can be found in Appendix B.

The impact fee eligible costs of the existing collection facilities are shown in Table 3-3. These values are based on the remaining capacity of each facility. The cost of each facility associated with its remaining capacity is attributable to growth and can be counted towards the impact fee.

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

Project	Cost	% To Growth	Eligible Total Cost	Ineligible Total Cost
Main St. (400 South to 500 South)	\$271,775	41.5% ¹	\$112,906	\$158,869
1500 West (1000 North to Center)	\$1,599,340	41.5% ¹	\$664,427	\$934,913
1500 West (Center to 900 South)	\$615,885	41.5% ¹	\$255,862	\$360,023
550 North (950 West to 1500 West)	\$299,915	41.5% ¹	\$124,596	\$175,319
Spring Haven Lift Station	\$220,000	41.5% ¹	\$91,396	\$128,604
1500 West Lift Station	\$1,622,190	41.5% ¹	\$673,920	\$948,270
Total	\$4,629,105		\$1,923,108	\$2,705,997

1. Capacity remaining in existing system collection facilities was estimated as the difference between the existing ERU count (20,794) and the projected ERU count at the planning horizon (35,572).

The facilities and costs presented in Table 3-4 are proposed projects that are essential to maintain the current level of service while accommodating future growth within the next 10 years. The facility sizing for the future proposed projects was based on the level of service, the City's land use plan, and hydraulic modeling. All future projects have a design life greater than 10 years, as required by the Impact Fee Act. Detailed cost estimates are included in Appendix C. Depictions of these projects are shown in Figure 6-3 of the Wastewater Collection System Master Plan, which has been included in Appendix A for reference. Further details are included in the wastewater collection system master plan.

Unit costs for the construction cost estimates are based on conceptual level engineering. Sources used to estimate construction costs include:

1. "Means Heavy Construction Cost Data, 2025"
2. Price quotes from equipment suppliers
3. Recent construction bids for similar work

All costs are presented in 2025 dollars.

Master plan projects are a high-level representation of the infrastructure the City will need to construct to address existing deficiencies or meet future growth needs. However, due to the many unknown factors at this stage of design (such as alignment and depth of pipes, utility conflicts, the cost of land and easements, construction methodology, types of equipment and material to be used, interest and inflation rates, permitting requirements, etc.), there is a significant level of uncertainty in estimated costs. Master plan-level cost estimates can typically be expected to be accurate within +/- 50% of their actual cost. Prices have been exceptionally volatile from 2020 to 2024 due to supply chain and labor market issues, further complicating attempts to estimate future construction costs.

While detailed cost estimates for all projects are beyond the scope of this study, the intent of planning-level cost estimates is to present reasonable projections of expected project costs. This results in a computed impact fee that is reasonable and fair to both the City and the developer. This is consistent with impact fee law, which requires that the fee must be "roughly proportionate and reasonably related" to the impact caused by new development.

**Table 3-4
Estimated Cost of Growth-Related Facilities**

Project	Map ID¹	Total Cost²	Cost for Development Within 10 Years³
Westfields Lift Station Pump Replacement	10-1	\$98,000	\$29,522
Westfields Lift Station Upgrades	10-2	\$2,841,000	\$855,845
New Lift Station near Spring Pointe	10-3	\$11,167,000	\$3,364,036
Decommission Spring Pointe Lift Station	10-4	\$46,000	\$13,857
Bore under I-15 (1400 N)	10-5	\$1,742,000	\$524,774
1000 N Sewer Under Hobble Creek	10-6	\$573,000	\$172,615
1500 W Lift Station Upgrades	10-7	\$130,000	\$39,162
2000 W and 500 N Sewer Line	10-8	\$281,000	\$84,651
800 S Sewer Line	10-9	\$1,087,000	\$327,457
950 W Sewer Line	10-10	\$27,000	\$8,134
2600 W Sewer Line	10-11	\$419,000	\$126,223
Total		\$18,411,000	\$5,546,276

1. Refer to Figure 6-3 of the wastewater collection system master plan for the project and its corresponding ID number. This figure has been included in Appendix A for reference.
2. Only the impact fee eligible costs are shown in this table.
3. Future costs for development within 10 years were calculated for the ERUs within 10 years by assigning a proportionate share of the impact fee eligible costs to the ERUs within 10 years. $(4,452 / 14,778) \times \text{Total Cost}$. Refer to Table 3-6.

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

3.4 Impact Fee Unit Calculation

Wastewater Impact Fee Unit

The impact fee unit of measure for the wastewater collection system is the ERU.

Impact Fee Calculation

The wastewater impact fee per unit has been calculated based on the value of the excess capacity in the system and the cost of planned future projects over the next 10 years.

Collections

Because pipes are all sized in direct relation to the ultimate capacity of the system, the fee was calculated by dividing the impact fee-eligible cost of existing and planned 10-year projects by the capacity of the future system.

**Table 3-5
Collections Facility Costs per ERU**

Time Period	Impact Fee Eligible Costs	ERUs Towards Total Growth Capacity	Cost per ERU
Existing	\$1,923,108	-	-
Future ¹	\$18,411,000	-	-
Total	\$20,334,108	14,778²	\$1,376

1. See Table 3-4.

2. A total future capacity of 14,778 ERUs was calculated as the projected ERU count at the planning horizon (35,572) minus ERUs existing at the beginning of year 2025 (20,794). See Table 3-1.

The collections cost by time period is calculated as shown in Table 3-6. Only those costs contributing to the new growth in the next 10 years are included in the impact fee.

**Table 3-6
Collections Facility Costs by Time Period**

Time Period	Total ERUs Served	ERUs Towards Total Growth Capacity	Cost per ERU	Historical and Future Costs⁴
Existing ¹	20,794	0	-	\$2,705,997
10-year	25,246	4,452 ²	\$1,376	\$6,125,608
Beyond 10-year	35,572	10,326 ³	-	\$14,208,499 ⁵
Total	-	14,778	-	\$23,040,105

- Existing cost was calculated as the cost that has already served growth and is not eligible for impact fee reimbursement. See Table 3-3.
- Based on master plan growth projections. See Table 3-1.
- A capacity of 10,326 ERUs beyond 10 years was calculated as the projected ERU count at the planning horizon (35,572) minus ERUs existing at the beginning of year 2035 (25,246). See Table 3-1.
- Calculated costs may be slightly different due to rounding.
- A future cost of \$14,208,449 was calculated for the ERUs beyond 10 years by assigning a proportionate share of the impact fee eligible costs, totaling \$20,334,108 (see Table 3-5) to the ERUs beyond 10 years. $(10,326 / 14,778) \times \$20,334,108 = \$14,208,499$. These costs are not included within the 10-year planning horizon.

Planning

Planning services are also needed to support growth. The City updates their master plans approximately every 5 years and their impact fee studies are anticipated to be updated every year. The yearly cost to update the impact fee studies is anticipated to be half the cost of the 2025 IFFP and IFA. Considering this schedule, and the cost of the most recent impact fee updates, a planning impact fee was calculated as shown in Table 3-7.

**Table 3-7
Planning Component of Impact Fee**

Planning Document	Cost	% of Plan Associated with Growth¹	Cost Associated with Growth	ERUs Served²	Cost per ERU
2025 Wastewater Collection System Master Plan	\$113,682	60%	\$68,209	2,226	\$31
2025 IFFP and IFA	\$13,952	100%	\$13,952	856	\$16
Total	\$127,634	-	\$82,161	-	\$47

- Percentages to growth for the master plan was based on a review of the scope of the plan and associated fees for tasks associated with the existing system and future growth. The IFFP and IFA are 100% associated with growth.
- ERUs served was defined as the amount of ERUs expected to develop during the 5-year life of the master plan and the IFFP and IFA being updated every 2 years at the actual cost, respectively.

Facility Cost by Time Period

Costs attributed to growth over the next 10 years are included in the impact fee. Table 3-8 is a summary of the existing and future facility costs by time period. Existing costs are those costs attributed to capacity currently being used by existing connections. Costs attributed to the next 10 years are costs for the existing capacity or new capacity for the assumed growth. These costs are included in the impact fee.

**Table 3-8
Facility Cost by Time Period**

Component	Existing	Next 10 Years	Beyond 10 Years	Total
Collection	\$2,705,997	\$6,125,608	\$14,208,499	\$23,040,105
Planning	\$45,473	\$209,010	\$0.00	\$254,482
Total	\$2,751,470	\$6,334,618	\$14,208,499	\$23,294,587

Table 3-9 is a summary of the cost included in the impact fee calculation by component. It shows the unit cost per ERU, which was calculated by dividing the cost of the collection system by the total ERUs served. This method allows for development to pay their proportionate share of the wastewater collection system costs.

**Table 3-9
Proposed Wastewater Collection Impact Fee Per ERU**

Component	Impact Fee-Eligible Cost	ERUs Served	Cost per ERU
Collection	\$6,125,608	4,452	\$1,376
Planning	\$209,010	4,452	\$47
Total			\$1,423

Total Impact Fee Calculation for Various Meter Sizes

Table 3-10 shows the recommended impact fee by drinking water meter size. The total proposed impact fee for a typical single-family residential connection requiring a ¾-inch or 1-inch drinking water connection would have an impact fee of **\$1,423** (see Table 3-9). For meter sizes shown in the table, the fee scales proportionately according to the ERU capacity of the meter. The ERU count for each meter size is calculated based on American Water Works Association (AWWA)

rated capacity for each meter size (AWWA M22). This represents an equitable distribution of potential to use the City's wastewater collection system.

**Table 3-10
Proposed Wastewater Collection Impact Fee Based on Meter Size**

Drinking Water Meter Size	ERUs	Impact Fee
¾" or 1"	1.0	\$1,423
1 ½"	3.33	\$4,738
2"	5.33	\$7,584
3"	10.00	\$14,230
4"	16.67	\$23,721

Users requiring larger meters will individually be assessed an ERU capacity and impact fee based on anticipated peak wastewater discharge in gallons per day as shown in the following calculation method. This method may also be used when the values listed in Table 3-10 may not lead to an equitable result:

$$\text{Impact fee} = (\text{wastewater discharge, gpd}) / (250 \text{ gpd/ERU}) * (\$1,423 \text{ per ERU})$$

For example, a non-residential customer anticipated to discharge 2,000 gpd would have an impact fee calculated as follows:

$$\text{Impact fee} = (2,000 \text{ gpd}) / (250 \text{ gpd/ERU}) * (\$1,423 \text{ per ERU}) = \$11,384$$

3.5 Revenue Options

Funding options for the recommended projects could include the following: Existing City funds, general obligation bonds, revenue bonds, State/Federal grants and loans, inter-fund loans and impact fees. The City may need to consider a combination of these funding options. The following discussion describes each of these options.

Existing City Funds

Existing City funds, such as a wastewater fund or the general fund, at times may be funding options for existing deficiency projects or infrastructure growth projects. The wastewater fund is often used to resolve existing deficiencies and to provide funding for operations and maintenance.

General Obligation Bonds

This form of debt enables the City to issue general obligation bonds for capital improvements and replacement. General Obligation (GO) 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. GO bonds are often the lowest-cost form of debt financing available to local governments and can be combined with other revenue sources 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.

Revenue Bonds

This form of debt financing is also available to the City for utility-related capital improvements. 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 GO 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 GO bonds. 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.

State/Federal Grants and Loans

Historically, local 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. State and federal grants and loans may be investigated as possible funding sources for needed water system improvements.

Impact Fees

Impact fees can be applied to wastewater-related facilities according to the Utah Impact Fees Act (Act). The Act is intended to provide a framework for establishing new development assessments. The fundamental objective for the impact fee structure is the imposition on new development of costs associated with providing or expanding water infrastructure to meet the capacity needs created by new development. Impact fees cannot be applied retroactively.

Interfund Loans

Loans between City funds can be considered as a method of financing capital improvement projects.

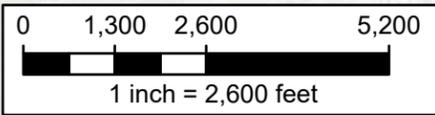
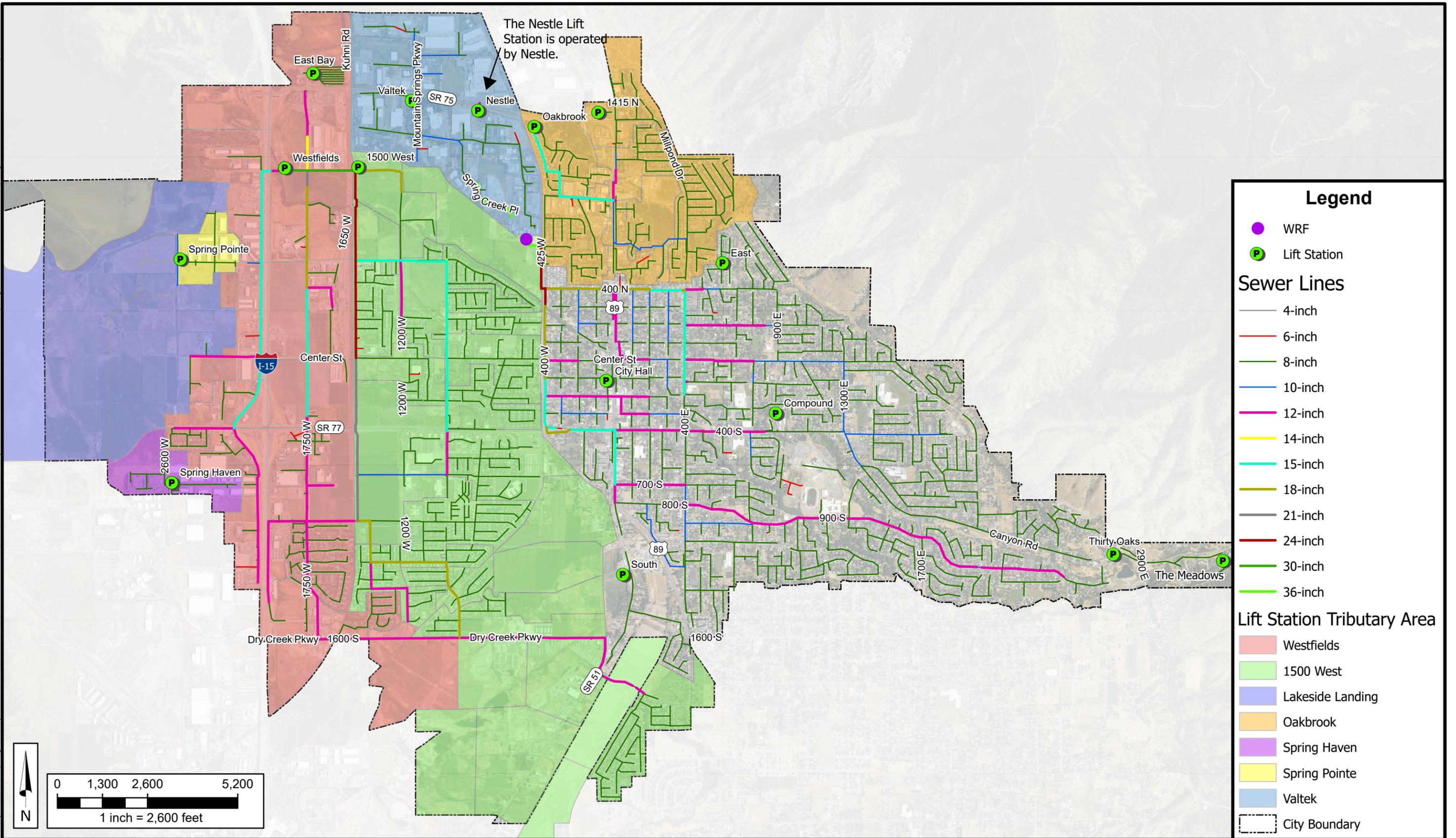
Summary of Available Funding Options

Each of the above options has been considered for funding infrastructure projects. Of the above options, impact fees appropriately assign growth-related expenses to new growth and are the preferred funding mechanism for growth-related projects.

APPENDIX A

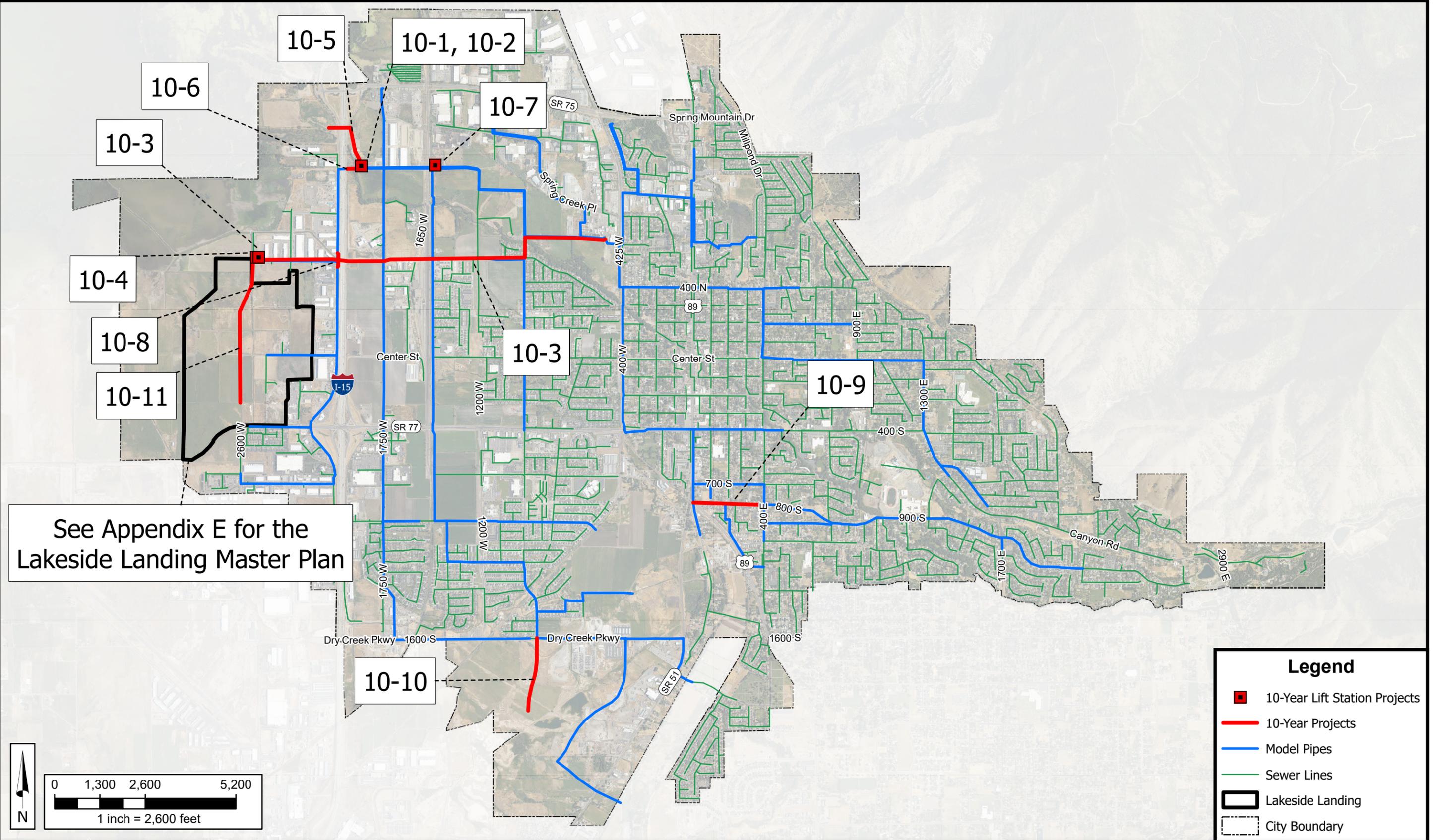
Information from the Wastewater Collection System Master Plan





**SPRINGVILLE CITY
 WASTEWATER COLLECTION SYSTEM MASTER PLAN**

EXISTING SYSTEM



APPENDIX B

Cost of Existing Infrastructure

Sources:

City Records

2014 Wastewater Impact Fee Analysis. Lewis,
Young, Robertson and Burningham, Inc.

SECTION 4: EXISTING CAPACITY ANALYSIS

EXISTING SYSTEM VALUE

Based on information provided by the City, the existing system is valued as shown below. These values represent amounts that can be included in any excess capacity calculations.

TABLE 4.1: EXISTING SYSTEM VALUE

SUMMARY OF EXISTING ASSETS	
Original Treatment Plant	\$9,546,786
Treatment Plant Expansion	\$10,704,310
Collection	\$11,151,524
Interest Related to Treatment	\$1,859,822
Interest Related to Collection	\$698,328
Developer Improvements	\$2,468,739
Total	\$36,429,509

MANNER OF FINANCING EXISTING PUBLIC FACILITIES

The City has funded its existing capital infrastructure through a combination of different revenue sources, including general utility fund revenues and the issuance of debt. This analysis has removed all known funding related to project improvements that cannot be included in the calculation of the impact fee.

The analysis includes one piece of outstanding debt related to the system's capacity: the 2008 Amended Water and Sewer Revenue Bonds. This outstanding debt was issued for the purpose of constructing the treatment facility expansion and other sewer system improvements.

2008 AMENDED SEWER REVENUE BONDS

In 2008, the City issued \$15,135,000 in Water and Sewer Revenue Bonds. These bonds were amended in 2013 to capitalize on interest savings. Approximately 61.8 percent of the proceeds were used to fund the expansion to the sewer treatment facility, with 23.2 percent used to fund collection improvements. The remaining 15 percent of the bond proceeds were used for water projects. The principal and interest payments for the Amended 2008 bonds are shown in the table below. The total interest cost for the 2008 bonds is \$3,008,034. The interest costs are an eligible cost that can be paid for with impact fees, as included below.

TABLE 4.4: OUTSTANDING DEBT INCLUDED IN ANALYSIS

\$12,440,000 WATER & SEWER REVENUE BONDS SERIES 2008 (AMENDED) (RE-DATED: MAY 23, 2013)					
	PRINCIPAL	COUPON	INTEREST	TOTAL P+I	FISCAL TOTAL
Total	\$12,440,000.00	2.80%	\$3,008,033.78	\$15,448,033.78	\$15,448,033.78

IMPACT ON OR CONSUMPTION OF EXCESS CAPACITY

The total original construction cost for all wastewater collection facilities totals approximately \$11.85 million, including debt related expense and excluding developer improvements. Approximately 35 percent of the collection system was included within the IFFP analyzed area as serving new development, or \$4,147,448. Of this portion, modeling data suggests 14.8 percent is attributed to development in the next ten years, or \$611,935 (as shown in Table 4.2).

TABLE 4.2: COLLECTION EXCESS CAPACITY CALCULATION

COLLECTION	
Original Value of Existing Distribution Impr.	11,151,524
Debt Related Expense (2008 Bonds)	698,328
Total Value of Existing Collection	\$11,849,852
System Analyzed to Serve New Development	35%
Cost to Serve IFFP Area	\$4,147,448
% Attributed to Excess Capacity	14.8%
Value Attributed to Excess Capacity	\$611,935

Source: Wastewater Collection System Master Plan Appendix, p.51

Treatment facilities also have excess capacity to serve new development. Based on the proposed LOS, the total existing demand equals 4.2 MGD (3.53 MGD for Springville City and 0.67 MGD for the Nestles Plant), leaving 1.3 MGD for new development activity (see table 4.3).

TABLE 4.3: TREATMENT EXCESS CAPACITY CALCULATION

	MGD	% OF TOTAL	PROPORTIONATE VALUE
Original Treatment Capacity	5.50	100.0%	9,546,786
Less Existing Demand (including infiltration)	3.53	64.3%	6,135,028
Less Existing Nestles Demand	0.67	12.2%	1,162,972
Buy-in Capacity of Original Treatment Plant	1.30	23.6%	\$2,248,785
Treatment Expansion	1.96		10,704,310
Total Buy-in Capacity	3.26		\$12,953,095
Debt Related Expense (2008 Bonds)			\$1,859,822
Total Buy-in Value			\$14,812,918
	MGD	% OF BUY-IN CAPACITY	PROPORTIONATE VALUE
Capacity Needed in IFFP	1.42	43.5%	\$6,447,367
Less Infiltration	(0.35)	(10.8%)	(\$1,599,721)
Needed Capacity in IFFP (Excluding Infiltration)	1.07	32.7%	\$4,847,645

The City completed an expansion to the treatment facility in 2008 and 2009, which added 1.96 MGD of capacity, for a total buy-in capacity of 3.26 MGD. The demand in the next ten years will require 1.42 MGD, including infiltration. The 1.42 MGD of capacity reserved for the next ten years represent 43.5 percent of the latent capacity. The City has chosen to exclude the infiltration component in the IFA, thus reducing the allocation to new development by 10.8 percent. Thus, a total of 1.07 MGD, or 32.7 percent of the proportional value is applied in this analysis. This equals \$4,847,645 in value of the original system, including debt related expense.

Project	Year of Const.	Wastewater Cost
Main Street Sewer Replacement - 400 S to 500 S and PI Phase 2A - Main Street Crossing	2014	\$271,775
1500 W (1000 N to Center)	2008	\$1,599,340
1500 W (Center to 900 S)	2013	\$615,885
1500 W Lift Station	2008	\$1,622,190
Spring Haven Lift Station	2005	\$220,000
550 N (950W to 1500 W)	2009	\$299,915

APPENDIX C

Estimated Future Project Costs

**Springville City Capital Facility Plan
Wastewater 10-Year Recommended Improvements
Preliminary Engineers Cost Estimates**

	Item	Unit	Unit Price	Quantity	Total Price	City Price	City %	Developer Price	Developer %
10-1.	Westfields Lift Station								
	Replace one lift station pump	LS	\$ 75,000	1	\$ 75,000	\$ 75,000	100%	\$ -	0%
	Total				\$ 75,000	\$ 75,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 7,500	\$ 7,500	100%	\$ -	0%
	Contingency (20%)				\$ 15,000	\$ 15,000	100%	\$ -	0%
	Total to Westfields Lift Station				\$ 98,000	\$ 98,000	100%	\$ -	0%
10-2.	Westfields Lift Station								
	Install New Pumps	EA	\$ 200,000	3	\$ 600,000	\$ 600,000	100%	\$ -	0%
	Upgrade pump bases	EA	\$ 10,000	4	\$ 40,000	\$ 40,000	100%	\$ -	0%
	Upgrade lift station electrical components	LS	\$ 400,000	1	\$ 400,000	\$ 400,000	100%	\$ -	0%
	Install new VFD	EA	\$ 100,000	4	\$ 400,000	\$ 400,000	100%	\$ -	0%
	Upgrade discharge pipes and valves	LS	\$ 500,000	1	\$ 500,000	\$ 500,000	100%	\$ -	0%
	Evaluate/clean the existing 10" force main	LS	\$ 245,000	1	\$ 245,000	\$ 245,000	100%	\$ -	0%
	Total				\$ 2,185,000	\$ 2,185,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 218,500	\$ 218,500	100%	\$ -	0%
	Contingency (20%)				\$ 437,000	\$ 437,000	100%	\$ -	0%
	Total to Westfields Lift Station				\$ 2,841,000	\$ 2,841,000	100%	\$ -	0%
10-3.	New Lift Station Near Spring Pointe								
	Construct new lift station	LS	\$ 3,000,000	1	\$ 3,000,000	\$ 3,000,000	100%	\$ -	0%
	Install 8" force main pipe in same trench as 10"	LF	\$ 35	10600	\$ 371,000	\$ 371,000	100%	\$ -	0%
	Install 10" force main pipe	LF	\$ 290	10600	\$ 3,074,000	\$ 3,074,000	100%	\$ -	0%
	Bore under I-15 with 30" casing	LF	\$ 3,000	240	\$ 720,000	\$ 720,000	100%	\$ -	0%
	Bore under Railroad with 30" casing	LF	\$ 3,000	400	\$ 1,200,000	\$ 1,200,000	100%	\$ -	0%
	Bore under Hobbie Creek with 30" casing	LF	\$ 3,000	75	\$ 225,000	\$ 225,000	100%	\$ -	0%
	Total				\$ 8,590,000	\$ 8,590,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 859,000	\$ 859,000	100%	\$ -	0%
	Contingency (20%)				\$ 1,718,000	\$ 1,718,000	100%	\$ -	0%
	Total to New Lift Station Near Spring Pointe				\$ 11,167,000	\$ 11,167,000	100%	\$ -	0%
10-4.	Decommission Spring Pointe Lift Station								
	Decommission Spring Pointe Lift Station	LS	\$ 35,000	1	\$ 35,000	\$ 35,000	100%	\$ -	0%
	Total				\$ 35,000	\$ 35,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 3,500	\$ 3,500	100%	\$ -	0%
	Contingency (20%)				\$ 7,000	\$ 7,000	100%	\$ -	0%
	Total to Decommission Spring Pointe Lift Station				\$ 46,000	\$ 46,000	100%	\$ -	0%

**Springville City Capital Facility Plan
Wastewater 10-Year Recommended Improvements
Preliminary Engineers Cost Estimates**

	Item	Unit	Unit Price	Quantity	Total Price	City Price	City %	Developer Price	Developer %
10-5.	Bore under I-15								
	Install 10" gravity line	LF	\$ 400	1700	\$ 680,000	\$ 680,000	100%	\$ -	0%
	Install 24" casing with bore under I-15	LF	\$ 2,400	275	\$ 660,000	\$ 660,000	100%	\$ -	0%
	Total				\$ 1,340,000	\$ 1,340,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 134,000	\$ 134,000	100%	\$ -	0%
	Contingency (20%)				\$ 268,000	\$ 268,000	100%	\$ -	0%
	Total to Bore under I-15				\$ 1,742,000	\$ 1,742,000	100%	\$ -	0%
10-6.	1000 N Bore Underneath Hobble Creek								
	Install 15" gravity line	LF	\$ 480	450	\$ 216,000	\$ 216,000	100%	\$ -	0%
	Bore 30" casing for 15" parallel pipe	LF	\$ 3,000	75	\$ 225,000	\$ 225,000	100%	\$ -	0%
	Total				\$ 441,000	\$ 441,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 44,100	\$ 44,100	100%	\$ -	0%
	Contingency (20%)				\$ 88,200	\$ 88,200	100%	\$ -	0%
	Total to 1000 N Bore Underneath Hobble Creek				\$ 573,000	\$ 573,000	100%	\$ -	0%
10-7.	1500 W Lift Station								
	Install new 1,500 gpm pump	LS	\$ 100,000	1	\$ 100,000	\$ 100,000	100%	\$ -	0%
	Total				\$ 100,000	\$ 100,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 10,000	\$ 10,000	100%	\$ -	0%
	Contingency (20%)				\$ 20,000	\$ 20,000	100%	\$ -	0%
	Total to 1500 W Lift Station				\$ 130,000	\$ 130,000	100%	\$ -	0%
10-8.	2000 W and 500 N								
	Install 15" parallel gravity line	LF	\$ 480	450	\$ 216,000	\$ 216,000	100%	\$ -	0%
	Total				\$ 216,000	\$ 216,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 21,600	\$ 21,600	100%	\$ -	0%
	Contingency (20%)				\$ 43,200	\$ 43,200	100%	\$ -	0%
	Total to 2000 W and 500 N				\$ 281,000	\$ 281,000	100%	\$ -	0%
10-9.	800 S Sewer Line								
	Remove and upgrade sewer to 12" gravity line	LF	\$ 440	1900	\$ 836,000	\$ 836,000	100%	\$ -	0%
	Total				\$ 836,000	\$ 836,000	100%	\$ -	0%
	Engineering & Admin. (10%)				\$ 83,600	\$ 83,600	100%	\$ -	0%
	Contingency (20%)				\$ 167,200	\$ 167,200	100%	\$ -	0%
	Total to 800 S Sewer Line				\$ 1,087,000	\$ 1,087,000	100%	\$ -	0%

**Springville City Capital Facility Plan
Wastewater 10-Year Recommended Improvements
Preliminary Engineers Cost Estimates**

	Item	Unit	Unit Price	Quantity	Total Price	City Price	City %	Developer Price	Developer %
10-10.	950 W Sewer Line								
	Install 10" gravity line	LF	\$ 400	2100	\$ 840,000	\$ 21,000	2%	\$ 819,000	98%
				Total	\$ 840,000	\$ 21,000	2%	\$ 819,000	98%
				Engineering & Admin. (10%)	\$ 84,000	\$ 2,100	2%	\$ 81,900	98%
				Contingency (20%)	\$ 168,000	\$ 4,200	2%	\$ 163,800	98%
				Total to 950 W Sewer Line	\$ 1,092,000	\$ 27,000	2%	\$ 1,065,000	98%
10-11.	2600 W Sewer Line								
	Install 12" gravity line	LF	\$ 440	1400	\$ 616,000	\$ 70,000	11%	\$ 546,000	89%
	Install 15" gravity line	LF	\$ 480	2800	\$ 1,344,000	\$ 252,000	19%	\$ 1,092,000	81%
				Total	\$ 1,960,000	\$ 322,000	16%	\$ 1,638,000	84%
				Engineering & Admin. (10%)	\$ 196,000	\$ 32,200	16%	\$ 163,800	84%
				Contingency (20%)	\$ 392,000	\$ 64,400	16%	\$ 327,600	84%
				Total to 2600 W Sewer Line	\$ 2,548,000	\$ 419,000	16%	\$ 2,129,000	84%
				Total Costs	\$ 21,605,000	\$ 18,411,000		\$ 3,194,000	



STAFF REPORT

DATE: February 25, 2026

TO: Honorable Mayor and City Council

FROM: Tyson Bartlett, Water Superintendent, Public Works

SUBJECT: **ADOPTION OF THE PRESSURIZED IRRIGATION MASTER PLAN AND CAPITAL FACILITY PLAN, IMPACT FEE FACILITY PLAN, IMPACT FEE ANALYSIS AND PRESSURIZED IRRIGATION IMPACT FEE ORDINANCE #XX-2026**

RECOMMENDED MOTION:

Motion to approve and adopt the 2026 Springville City Pressurized Irrigation Master Plan and Capital Facility Plan, Impact Fee Facilities Plan (IFFP), and Impact Fee Analysis (IFA) prepared by Hansen, Allen & Luce, Inc.; and adopt Ordinance No. XX-2026 enacting the updated Pressurized Irrigation Impact Fees.

EXECUTIVE SUMMARY

Springville City retained Hansen, Allen & Luce, Inc. (HAL) to complete the 2026 update to the City's Pressurized Irrigation Master Plan (Master Plan), Impact Fee Facilities Plan (IFFP), and Impact Fee Analysis (IFA). The Master Plan is updated every five to seven years, while the IFFP and IFA are updated annually to ensure compliance with Utah's Impact Fees Act and to reflect current construction costs and growth projections.

The 2026 update incorporates revised population and land use forecasts, updated infrastructure modeling, refined capital improvement phasing, and updated construction cost estimates. Additionally, the update confirms the system's level of service standards and ensures they are being achieved. Capital project costs identified in the Master Plan were incorporated into the IFFP, and the IFA recalculates the proportionate share impact fees attributable to new growth.

The Master Plan, IFFP, and IFA were presented to the Utility Board on December 10, 2025; the Planning Commission on January 13, 2026; and the City Council during a work session on February 3, 2026. Both the Utility Board and Planning Commission recommended approval of the proposed plans and adoption of the maximum allowable impact fee supported by the IFA.



Staff recommends adoption of the 2026 Master Plan, IFFP, IFA, and Ordinance No. XX-2026 establishing the updated impact fees as follows:

- **Outdoor Pressurized Irrigation Impact Fee:** \$20,953 per irrigated acre (\$0.4810 per irrigated square foot) based on the typical irrigated area of various lot sizes shown in the chart below:

Proposed OUTDOOR Use Impact Fee by Single Family Residential Lot

Minimum Lot Size (ft ²)	Maximum Lot Size (ft ²)	Irrigated Area (acres)	Infrastructure	Planning	Total
0	2,000	0.03	\$600	\$29	\$629
2,001	4,000	0.03	\$600	\$29	\$629
4,001	6,000	0.06	\$1,200	\$57	\$1,257
6,001	8,000	0.09	\$1,800	\$86	\$1,886
8,001	10,890	0.11	\$2,200	\$105	\$2,305
10,891	21,780	0.15	\$3,000	\$143	\$3,143
≥ 21,780		0.35	\$7,001	\$333	\$7,334

FOCUS OF ACTION:

The purpose of this action is to:

1. Adopt the 2026 Pressurized Irrigation Master Plan as the City’s long-range planning document for water system infrastructure.
2. Adopt the Impact Fee Facilities Plan (IFFP) identifying growth-related capital facilities.
3. Adopt the Impact Fee Analysis (IFA) establishing the legally defensible maximum impact fees.
4. Enact Ordinance No. XX-2026 updating the City’s Pressurized Irrigation Impact Fee Schedule.

Adoption ensures that growth pays its proportionate share of water system capital improvements and that the City remains compliant with state law.

BACKGROUND:

Springville City’s Pressurized Irrigation system must reliably serve existing residents while accommodating continued residential and commercial growth. The Master Plan evaluates:



- Water rights and supply capacity
- Source capacity
- Storage requirements
- Transmission and distribution infrastructure
- Projected buildout demands

The current PI system serves 622 irrigated acres (2025), has capacity for 1,033 irrigated acres and is projected to grow by 242 irrigated acres over the next 10 years (to 864 irrigated acres). The system currently has no deficiencies.

The adopted Level of Service (LOS) for the PI system is outlined as follows:

- Peak Day Source Capacity: 8.5 gpm/irr-ac
- Annual Source Volume: 4.0 ac-ft/irr-ac
- Storage Capacity: 6,120 gallons/irr-ac
- Transmission Capacity: 50 psi minimum during peak demand

The Impact Fee Facilities Plan (IFFP) identifies those capital improvements required to serve future development. The Impact Fee Analysis (IFA) calculates the maximum allowable fee that may be assessed to new development based on proportionate share methodology.. Impact fees are calculated based on:

- Buy-in to existing excess capacity.
- 10-year growth-related capital projects.
- Planning and study costs attributable to growth.

The 2026 update reflects:

- Updated growth and buildout assumptions
- Revised demand modeling
- Updated capital construction costs
- Pressurized irrigation system planning updates

These updates ensure technical accuracy, financial sustainability, and legal defensibility.

DISCUSSION:

Master Plan Update - The 2026 Master Plan identifies infrastructure required to maintain adopted Levels of Service as growth occurs. Key improvements include:



- Transmission main upsizing in growth corridors
- Distribution system looping

Capital cost estimates were updated to reflect current construction pricing and anticipated escalation.

Impact Fee Facilities Plan (IFFP) - The IFFP includes only those facilities required to serve new growth. Replacement of aging infrastructure and correction of existing deficiencies are excluded and remain the responsibility of existing ratepayers.

Eligible project costs are allocated to growth based on projected demand increases.

Impact Fee Analysis (IFA) -The IFA calculates maximum allowable fees using:\

- Projected growth demand
- Irrigated acreage methodology for outdoor use
- Proportionate share allocation
- Statutory compliance under Utah Impact Fees Act

Impact Fee Calculation Summary - The proposed fee is based on:

- \$439,092 in impact-fee-eligible prior City investment.
- \$4,401,699 in impact-fee-eligible future capital projects over the next 10 years.
- Growth of 242 irrigated acres over 10 years.

Total Proposed Impact Fee

Component	Per Irrigated Acre	Per Square Foot
Infrastructure	\$20,003	\$0.4592
Planning	\$950	\$0.0218
Total	\$20,953	\$0.4810

Outdoor Watering Impact Fee - Irrigated Area Methodology

Outdoor demand is proposed to be assessed based on estimated irrigated area associated with typical residential lot sizes. The following table establishes the standard irrigated



acreage assumptions for single-family residential development irrigating from the Pressurized Irrigation system:

Proposed OUTDOOR Use Impact Fee by Single Family Residential Lot

Minimum Lot Size (ft ²)	Maximum Lot Size (ft ²)	Irrigated Area (acres)	Infrastructure	Planning	Total
0	2,000	0.03	\$600	\$29	\$629
2,001	4,000	0.03	\$600	\$29	\$629
4,001	6,000	0.06	\$1,200	\$57	\$1,257
6,001	8,000	0.09	\$1,800	\$86	\$1,886
8,001	10,890	0.11	\$2,200	\$105	\$2,305
10,891	21,780	0.15	\$3,000	\$143	\$3,143
≥ 21,780		0.35	\$7,001	\$333	\$7,334

This standardized schedule provides consistency, predictability, and proportional allocation of outdoor irrigation demand.

ALTERNATIVES:

1. **Adopt the Plans and Maximum Allowable Fees (Staff Recommendation)**
 - o Growth fully funds its proportionate share.
 - o Minimizes subsidy from existing ratepayers.
2. **Adopt a Lower Fee Citywide**
 - o Reduces development costs.
 - o Shifts infrastructure costs to existing ratepayers.
3. **Delay Adoption**
 - o Maintains current fee schedule.
 - o Risks under-collection relative to updated capital costs.

FISCAL IMPACT:

Adoption of the updated impact fees will:

- Align fee revenue with documented growth-related capital improvements.
- Provide funding for wells, storage, transmission mains, and irrigation infrastructure required to serve new development.
- Reduce reliance on water rate revenue or bonding to fund growth-related capacity.



Impact fee revenues will be restricted to eligible capital projects identified in the IFFP in accordance with state law.

STAFF RECOMMENDATIONS:

Staff recommends that the City Council:

1. Adopt the 2026 Pressurized Irrigation Master Plan.
2. Adopt the 2026 Impact Fee Facilities Plan and Impact Fee Analysis.
3. Adopt Ordinance No. XX-2026 enacting the updated Pressurized Irrigation Impact Fees as follows:
 - o \$20,953 per irrigated acre (\$0.4810 per irrigated square foot) for Outdoor Watering (applied citywide)

Respectfully,

Tyson Bartlett, Water Superintendent, Public Works



Exhibit A - MP



Exhibit B - IFFP, IFA



ORDINANCE #__-2026

AN ORDINANCE ADOPTING THE SPRINGVILLE CITY PRESSURIZED IRRIGATION MASTER PLAN, PRESSURIZED IRRIGATION IMPACT FEE FACILITIES PLAN AND PRESSURIZED IRRIGATION IMPACT FEE ANALYSIS AND ENACTING PRESSURIZED IRRIGATION IMPACT FEES.

WHEREAS, Springville City (the “City”) has legal authority pursuant to Title 11, Chapter 36a of the Utah Code known as the “Impact Fee Act” (the “Act”) to impose development impact fees as a condition of development approval, which impact fees are used to defray capital infrastructure costs attributable to new development activity; and

WHEREAS, the City has historically assessed impact fees as a condition of development approval in order to appropriately assign capital infrastructure costs to development in an equitable and proportionate manner; and

WHEREAS, on September 22nd, 2025, pursuant to the Act, the City properly noticed its intent to update and amend its Pressurized Irrigation Master Plan and Capital Facility Plan (the “Master Plan”), Pressurized Irrigation Impact Fee Facilities Plan (the “IFFP”) and Pressurized Irrigation Impact Fee (the “Impact Fee”) based on an updated Pressurized Irrigation Impact Fee Analysis (the “IFA”); and

WHEREAS, the City has reviewed and evaluated the City’s pressurized irrigation water service area for the pressurized irrigation water system, which consists of the entire area within the Springville municipal boundary as shown in the Master Plan, and has determined that it is in the City’s best interest to establish the said service area for the purpose of imposing the Impact Fees; and

WHEREAS, pursuant to the requirements of Sections 11-36a-301 through 304 of the Act, Hansen, Allen & Luce Engineers has prepared (1) the Master Plan, entitled “Pressurized Irrigation Master Plan and Capital Facility Plan”, dated February 2026, and (2) the IFFP and IFA, entitled “Pressurized Irrigation System Impact Fee Facility Plan and Impact Fee Analysis,” dated February 2026, which has been properly certified pursuant to the requirements of Section 11-36a-306 of the Act; and

WHEREAS, Hansen, Allen & Luce Engineers has also calculated for enactment the Impact Fees as set forth in the IFA and pursuant to the requirements of Sections 11-36a-305 of the Act; and

WHEREAS, on January 13, 2026, the Springville Planning Commission held a properly noticed public hearing regarding the Master Plan, IFFP, IFA, and this Impact Fee Ordinance and recommended approving the documents to the City Council; and

WHEREAS, on February 20, 2026, pursuant to Section 11-36a-502 of the Act, a full copy of the Master Plan, IFFP, IFA, and this Ordinance, along with an executive summary of the IFFP and the IFA that was designed to be understood by a lay person, were made available to the public at the Springville City Public Library, posted on the City's Website, and

WHEREAS, on March 3, 2026, the Springville City Council held a public hearing regarding the Master Plan, IFFP, IFA, and this Impact Fee Enactment Ordinance; and

WHEREAS, the Springville City Council does now desire to hereby approve and adopt the Master Plan, IFFP, and IFA and to formally enact and amend Culinary Water Impact Fees pursuant thereto and pursuant to the requirements of Sections 11-36a-401 through 11-36a-403 of the Act.

NOW, THEREFORE, BE IT ORDAINED by the City Council of Springville, Utah:

SECTION 1: Adoption.

The IFFP and the IFA are attached hereto and approved, adopted and incorporated as part of this Ordinance. The Impact Fees for the culinary water system as set forth in the IFA are hereby approved and adopted, and at the time the Impact Fees become effective pursuant to this Ordinance, the fees will replace all previously adopted culinary water impact fees.

SECTION 2: Service Area.

The service area established in the IFFP and the IFA and for which Culinary Water Impact Fees are established and imposed is the entirety of the area within Springville City's municipal boundaries (the "Service Area"). The Service Area is established based upon sound planning and engineering principles for the City's pressurized irrigation water system services.

SECTION 3: Level of Service.

The existing and proposed level of service provided by the City's pressurized irrigation water system shall remain the same as it was prior to this Ordinance and is hereby again adopted as the level of service to be provided throughout the City. The existing and proposed level of service is defined in the Master Plan, the IFFP and the IFA. The Impact Fee Summary of the IFFP and the IFA and defines the level of service, as follows:

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

SECTION 4: Impact Fee Analysis and Impact Fee Calculations.

As found in the IFA, the Pressurized Irrigation Impact Fee calculation is based on the following:

1. Elements. In calculating the Pressurized Irrigation Impact Fee, the City has included those costs allowed, including debt service, if any, that are found under Section 11-36a-305 of the Act.
2. Proportionate Share Analysis. Included within the IFA is a proportionate share analysis as required by Section 11-36a-304 of the Act.
3. Formula. The Pressurized Irrigation Water Impact Fee is based upon the Act's required proportionate share analysis in determining the total project costs to maintain the City's current Pressurized Irrigation water system level of service for new development activity that will occur during the next six (6) to ten (10) years.
4. Impact Fees. The following schedule of Pressurized Irrigation Water Impact Fees specifies the amount of impact fee to be imposed for various sizes of single family residential lots and/or the formula the City will use to calculate each impact fee for multi-family and non-residential uses. A more detailed analysis is found in the attached IFA. Below is Table 3-8 from the Pressurized Irrigation IFFP-IFA.

**Table 3-8
Total Proposed Impact Fee**

Component	Per Irrigated Acre	Per Square Foot
Infrastructure	\$20,003	\$0.4592
Planning	\$950	\$0.0218
Total	\$20,953	\$0.4810

Impact Fee for Outdoor Water Use -Single Family Residential

The cost for outdoor water use of a single family residential lot is calculated according to the lot size being developed. Table 3-9 of the IFA (shown below) provides the applicable impact fee amounts for outdoor water use.

**Table 3-9
Total Proposed Impact Fee by Single Family Residential Lot Size
(Pressurized Irrigation)**

Minimum Lot Size (ft ²)	Maximum Lot Size (ft ²)	Irrigated Area (acres)	Infrastructure	Planning	Total
0	2,000	0.03	\$600	\$29	\$629
2,001	4,000	0.03	\$600	\$29	\$629
4,001	6,000	0.06	\$1,200	\$57	\$1,257
6,001	8,000	0.09	\$1,800	\$86	\$1,886
8,001	10,890	0.11	\$2,200	\$105	\$2,305
10,891	21,780	0.15	\$3,000	\$143	\$3,143
≥ 21,780		0.35	\$7,001	\$333	\$7,334

Impact Fee for Outdoor Water Use - Multi-Family Residential and Non-Residential

Non-residential developments and multi-family residential units with a single water meter servicing multiple homes, condos, townhomes, or apartments will be assessed in the same fashion as a non-residential unit based on the irrigated acre fee in the above Table 3-8 and per the formula shown below. The calculation of irrigated area shall include all common space within the development.

$$\text{Outdoor Impact fee} = (\text{irrigated area, acres}) * (\$20,953 \text{ per irrigated acre}) \text{ or}$$
$$\text{Outdoor Impact fee} = (\text{irrigated area, square foot}) * (\$0.4810 \text{ per irrigated square foot})$$

For example, a nonresidential customer anticipated to have .10 acres of irrigated property would have an impact fee calculated as follows:

$$\text{Outdoor Impact fee} = (.10 \text{ acres}) * (\$20,953 \text{ per irrigated acre}) = \$2,095$$

A more detailed analysis is found in the attached IFA.

5. Non-standard Impact Fees. The City reserves the right under the Act to assess an adjusted impact fee that more closely matches the true impact that the land use will have upon the culinary water system. This adjustment could result in a different impact fee if evidence suggests a particular user will create a different impact than what is standard for its category.
6. Impact Fee Adjustments.
 - a. The City Council is authorized to adjust the standard impact fee at the time the fee is charged to:
 - i. respond to:
 1. unusual circumstances in specific cases; or
 2. a request of a prompt and individualized impact fee review for the development activity of the state, a school district, or a charter school and an offset or credit for a public facility for which an impact fee has or will be collected, and
 - ii. ensure that the impact fees are imposed fairly.
 - b. The impact fee may be adjusted for a particular development based on studies or data provided by a developer after review by the City's Impact Fee Administrator and approval by the City Council.
7. Credits and Reimbursements.
 - a. A developer, including a school district or a charter school, shall receive a credit against or proportionate reimbursement of an impact fee from the City if the developer:
 - i. dedicates land for a system improvement,
 - ii. builds and dedicates some or all of a system improvement, or

- iii. dedicates a public facility that the City and the developer agree will reduce the need for a system improvement.
- b. The City shall require a credit against the impact fee for any dedication of land for, improvement to, or new construction of, any system improvements provided by the developer if the facilities:
 - i. are system improvements, or
 - ii. A. are dedicated to the public, and
 - B. offset the need for an identified system improvement.

SECTION 5: Assessment.

The Impact Fee shall be charged for all new service connections where no existing water service has been provided by the City or whenever a customer desires to increase the size of an existing water service. In the latter instance, the Impact Fee shall be based on the difference in service capacity between the new and existing service. The Impact Fee shall be charged throughout the Service Area for all classes of service.

SECTION 6: Expenditure of Impact Fees.

The City may extend impact fees only for a system improvement identified in the IFFP and for the specific public facility type for which the fee was collected. Impact fees will be expended on a first-in-first-out basis. Impact fees collected pursuant to this Ordinance shall be expended or encumbered for a permissible use within six (6) years of their receipt. The City may hold the fees for longer than six (6) years if it identifies, in writing, an extraordinary and compelling reason why the fees should be held longer than six (6) years and an absolute date by which the fees will be expended.

SECTION 7: Refunds.

The City shall refund any impact fee paid by a developer, plus interest earned, when:

1. the developer does not proceed with the development activity and has filed a written request for a refund;
2. the fee has not been spent or encumbered; and
3. no impact has resulted.

An impact that would preclude a developer from a refund from the City may include any impact reasonably identified by the City, including but not limited to, the City having sized facilities and/or paid for, installed and/or caused the installation of facilities based, in whole or in part, upon the developer's planned development activity even though that capacity may, at some future time, be utilized by another development.

SECTION 8: Impact Fee Challenges.

A person or entity that has standing to challenge an impact fee may appeal the impact fee pursuant to Title 14, Chapter 5 of the Springville City Code. The procedures and time limitations for challenging an impact fee, including procedures for mediation and/or arbitration, shall be as set forth in Sections 11-36a-702 through 705 of the Act. The applicable remedies for an impact fee challenge shall be limited to those set forth in Section 11-36a-701 of the Act.

SECTION 9: Accounting of Impact Fees.

The City shall follow all of the accounting and reporting requirements found in Section 11-36a-601 of the Act.

SECTION 10: Severability.

If any portion or provision of this Ordinance shall be declared invalid for any reason, such decision shall not affect the remaining portions of this Ordinance that shall remain in full force and effect. For this purpose, the provisions of this Enactment are declared to be severable.

SECTION 11: Effective Date.

This Ordinance will become effective 90 days after its approval.

ADOPTED by the City Council of Springville, Utah, this 03rd day of March 2026.

SPRINGVILLE CITY

Matt Packard, Mayor

ATTEST:

Kim Crane, City Recorder



SPRINGVILLE CITY

**PRESSURIZED IRRIGATION MASTER PLAN
AND CAPITAL FACILITY PLAN**

February 2026

SPRINGVILLE CITY

PRESSURIZED IRRIGATION MASTER PLAN AND CAPITAL FACILITY PLAN

(HAL Project No.: 260.61.100)



Tyler Daynes, P.E.
Project Engineer

Recommended By: 
Katie Gibson Jacobsen, P.E., Project Manager



February 2026

TABLE OF CONTENTS

TABLE OF CONTENTS	i
LIST OF TABLES	ii
LIST OF FIGURES	ii
ABBREVIATIONS AND UNITS	iii
CHAPTER 1 INTRODUCTION	1-1
PURPOSE AND SCOPE	1-1
BACKGROUND	1-1
MASTER PLANNING METHODOLOGY	1-2
LEVEL OF SERVICE (LOS)	1-3
DESIGN AND PERFORMANCE CRITERIA	1-3
CHAPTER 2 IRRIGATED ACREAGE	2-1
EXISTING IRRIGATED ACREAGE	2-1
FUTURE IRRIGATED ACREAGE	2-1
GROWTH PROJECTIONS	2-3
CHAPTER 3 WATER SOURCES	3-1
EXISTING PI SOURCES	3-1
EXISTING SOURCE REQUIREMENTS	3-1
Existing Peak Day Demand	3-1
Existing Average Yearly Demand	3-2
FUTURE SOURCE REQUIREMENTS	3-2
Future Peak Day Demand	3-3
Future Average Yearly Demand	3-3
FUTURE SOURCE RECOMMENDATIONS	3-4
CHAPTER 4 WATER STORAGE	4-1
EXISTING WATER STORAGE	4-1
EXISTING WATER STORAGE REQUIREMENTS	4-1
FUTURE WATER STORAGE REQUIREMENTS	4-1
WATER STORAGE RECOMMENDATIONS	4-2
CHAPTER 5 WATER DISTRIBUTION	5-1
PEAK WATER DISTRIBUTION SYSTEM DEMANDS	5-1
Existing Peak Instantaneous Demand	5-1
Future Peak Instantaneous Demand	5-1
HYDRAULIC MODEL	5-1
Development	5-1
Model Components	5-2
ANALYSIS METHODOLOGY	5-3
High Pressure Conditions	5-4
Peak Instantaneous Demand Conditions	5-4
WATER DISTRIBUTION RECOMMENDATIONS	5-4
CHAPTER 6 WATER RIGHTS	6-1
EXISTING WATER RIGHTS	6-1
FUTURE WATER RIGHTS	6-1

WATER RIGHT RECOMMENDATIONS.....	6-3
CHAPTER 7 CAPITAL FACILITY PLAN.....	7-1
GENERAL	7-1
METHODOLOGY	7-1
MASTER PLANNING	7-1
PRECISION OF COST ESTIMATES	7-1
SYSTEM IMPROVEMENT PROJECTS	7-2
REFERENCES	R-1
APPENDIX A	
Model Calibration Reports	
APPENDIX B	
Cost Estimate Calculations	
APPENDIX C	
Water Right Summary	
APPENDIX D	
2022 Water Conservation Plan	
APPENDIX E	
CUP Allotment	

LIST OF TABLES

Table 1-1 System Level of Service.....	1-3
Table 1-2 Key System Design Criteria	1-3
Table 2-1 Irrigation Factors by Land Use Type.....	2-1
Table 2-2 Irrigated Acreage by Lot Size	2-2
Table 2-3 Projected Irrigated Acres.....	2-2
Table 3-1 Existing Pressurized Irrigation System Water Sources	3-1
Table 3-2 Existing PI Peak Day Water Demand and Source Capacity	3-2
Table 3-3 Existing PI Average Yearly Water Demand and Source Capacity	3-2
Table 3-4 Future PI Peak Day Water Demand and Source Capacity	3-3
Table 3-5 Future PI Average Yearly Water Demand and Source Capacity.....	3-3
Table 4-1 Existing Storage Capacity	4-1
Table 4-2 Existing Storage Requirements	4-1
Table 4-3 Future Storage Requirements	4-1
Table 6-1: Existing Water Rights Used in the PI System	6-1
Table 6-2 Existing PI Average Yearly Water Demand and Water Right Capacity	6-1
Table 6-3 Future PI Average Yearly Water Demand and Water Right Capacity	6-2
Table 6-4 Potential Water Rights for Use in the PI System	6-2
Table 7-1 Recommended 0-10 Year Transmission Projects.....	7-4
Table 7-2 Recommended 10-20 Year Transmission Projects.....	7-5

LIST OF FIGURES

Figure 1-1: Springville Projected Population.....	1-2
Figure 1-2: Existing System	1-4
Figure 2-1: Future Growth Projections	2-4
Figure 3-1: Future System.....	3-6
Figure 5-1: Existing Pipeline Diameters	5-1
Figure 5-2: Springville PI Diurnal Curve	5-3
Figure 7-1: Capital Improvement Projects	7-3

ABBREVIATIONS AND UNITS

ac	acre [area]
ac-ft	acre-foot (1 ac-ft = 325,851 gal) [volume]
CIP	Capital Improvement Plan
CFP	Capital Facilities Plan
CUWCD	Central Utah Water Conservancy District
CWP	Central Water Project
DW	Drinking Water
EPA	U.S. Environmental Protection Agency
ERC	Equivalent Residential Connection
ft	foot [length]
ft/s	feet per second [velocity]
gal	gallon [volume]
gpd	gallons per day [flow rate]
gpm	gallons per minute [flow rate]
HAL	Hansen, Allen & Luce, Inc.
hp	horsepower [power]
hr	hour [time]
IFA	Impact Fee Analysis
IFFP	Impact Fee Facilities Plan
in	inch [length]
irr-ac	irrigated acre(s)
kW	kilowatt [power]
kWh	kilowatt hour [energy]
MG	million gallons [volume]
mi	mile [length]
PI	Pressurized Irrigation
PRV	Pressure Reducing Valve
psi	pounds per square inch [pressure]
s	second [time]
SCADA	Supervisory Control And Data Acquisition
SUVMWA	South Utah Valley Municipal Water Association
ULS	Utah Lake Drainage Basin Water Delivery System
yr	year [time]

CHAPTER 1 INTRODUCTION

PURPOSE AND SCOPE

The purpose of this master plan is to provide direction to the City of Springville regarding decisions that will be made to provide an adequate pressurized irrigation (PI) water system for its customers at the most reasonable cost. Recommendations are based on demand data, growth projections, and standard engineering practices. The planning horizon for the master plan is approximately 2070. Buildout occurs beyond 2070 and refers to the time period when all parcels are developed within the annexation declaration boundary according to the current General Plan.

The master plan is a study of the City's PI water system and customer water use. The following topics are addressed herein: growth projections, source requirements, storage requirements, and distribution system requirements. Operational parameters for the City's PI water system were reviewed and optimized based on stability, ease of use, and cost. Based on this study, needed capital improvements have been identified and conceptual-level cost estimates for the recommended improvements have been provided. This master plan includes a Capital Facility Plan (CFP) to identify the PI facilities that are required to meet the demands placed on the system by future development for the 10-year and 20-year planning period.

The results of the study are limited by the accuracy of growth projections, data provided by the City, and other assumptions used in preparing the study. It is expected that the City will review and update this master plan every 5–10 years as new information about development, system performance, or water use becomes available. This master plan updates the previous plan completed by the City of Springville and adopted in August 2020.

BACKGROUND

Springville was originally settled in 1850 and had an estimated population of 36,500 in 2024 (provided by the City). It is located in central Utah County and has an area of 14.4 square miles. As a result of its location along the I-15 corridor and in the rapidly growing Provo-Orem metropolitan area, Springville has experienced rapid growth and is expected to grow into the future. Growth rates were determined based on future population estimates produced by Mountainland Association of Governments (MAG) and average annual growth rates produced by Kem C. Gardner. See population estimates in Figure 1-1. In 2011, Springville obtained nine million dollars of federal funding to build its PI system to service residents and businesses west of the railroad. The PI system was available to customers beginning in approximately 2014.

The City provides water service via a drinking water system and a PI system. While the drinking water system is available throughout the City, the PI system only serves the central-western portion of the City, approximately west of 400 West (see Figure 1-2). Areas of the City without access to the PI system use drinking water for outdoor water use. There are also some customers located within the PI system service area that have not connected to the PI system yet. These customers are considered to be borrowing capacity in the drinking water system. The drinking water system is addressed in a separate master plan.

In 2020, the City prepared a Capital Facilities Plan, with an Impact Fee Facilities Plan (IFFP) and Impact Fee Analysis (IFA) following and updated in 2024 for its PI water system. This master plan will provide the bases for updating those studies and provide a basic full system layout design to guide new development.

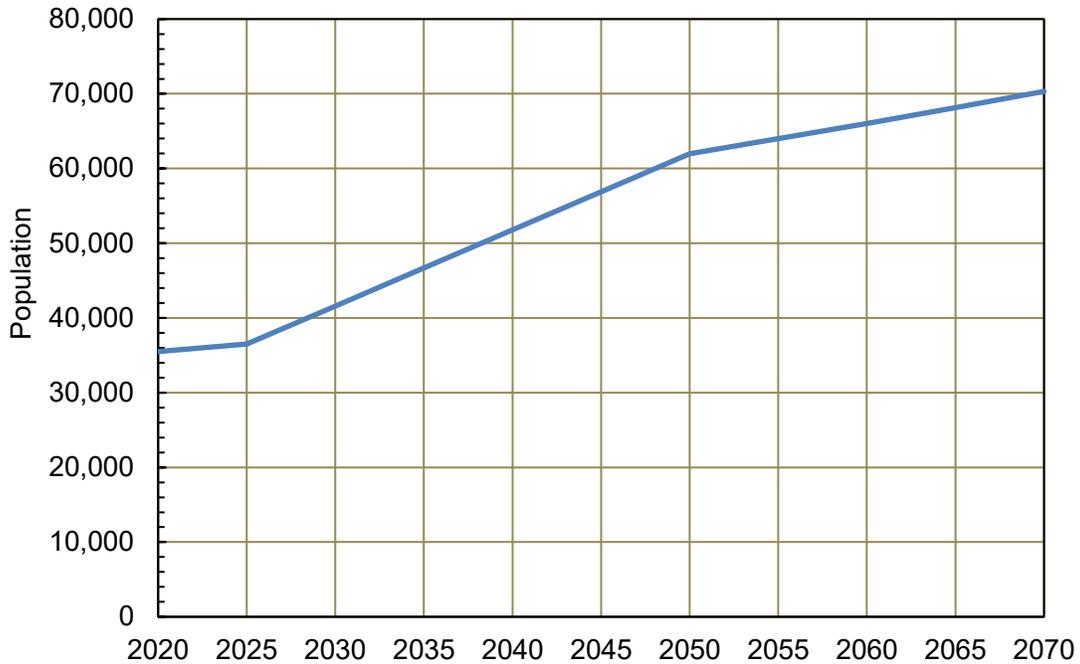


Figure 1-1: Springville Projected Population

The system is serviced by Bartholomew Pond, which is supplied by canyon water from Hobbie Creek/Highline Canal, the North and South Springs, and the Mapleton Springville Lateral Canal Pipeline. The existing PI water system includes a 36-inch transmission pipeline running approximately 3 miles from the PI sources and pond, followed by a 30-inch pipeline that extends another half mile. The existing distribution system contains approximately 41 miles of active pipe (“wet”) with diameters ranging from 4 to 36 inches. An additional 21 miles of pipe are currently disconnected (“dry”) from the PI system. The current PI system has one pressure zone and there are no plans for future pressure zones. The City recognizes that its continued growth necessitates proactively planning additional PI water facilities to maintain the current level of service for outdoor water use.

MASTER PLANNING METHODOLOGY

Pressurized irrigation water systems consist of water sources, storage facilities, distribution pipes, pump stations, and other components. Design and operation of the individual components must be coordinated so that they operate efficiently under a range of demands and conditions. The system must be capable of responding to daily variations in demand.

Identifying present and future water system needs is essential in the management and planning of a water system. For this study, existing water demands are based on billing data and the level of service established by the City. Future water demands were predicted using this level of service, current zoning and densities provided by the City, and estimated future population growth. Computer models of the City’s PI water system were prepared to simulate the performance of facilities under existing and future conditions. System improvement recommendations were prepared from the analysis and are presented in this report.

The report addresses water sources, storage, distribution, minimum pressures, hydraulic modeling, capital improvements, and other topics pertinent to Springville’s PI water system.

LEVEL OF SERVICE (LOS)

To propose a level of service for the PI water system, HAL analyzed production and billing data provided by Springville City for the previous three years. Once water production and demand patterns were well understood, HAL and the City met to discuss an appropriate level of service considering the water use data, variability and uncertainty within this data, standard engineering practices, and anticipated future conservation. The City ultimately selected a level of service which is below current usage, but which is sufficient for landscape irrigation including losses and inefficiencies. The City anticipates that water use will decrease as it continues to promote conservation. A summary of the level of service selected by the City is included in Table 1-1.

**Table 1-1
System Level of Service**

Criteria	Level of Service Per Irrigated Acre
Average Yearly Demand	4.0 ac-ft
Peak Day Demand	8.5 gpm
Peak Instantaneous Demand	17.0 gpm
Storage	6,120 gal

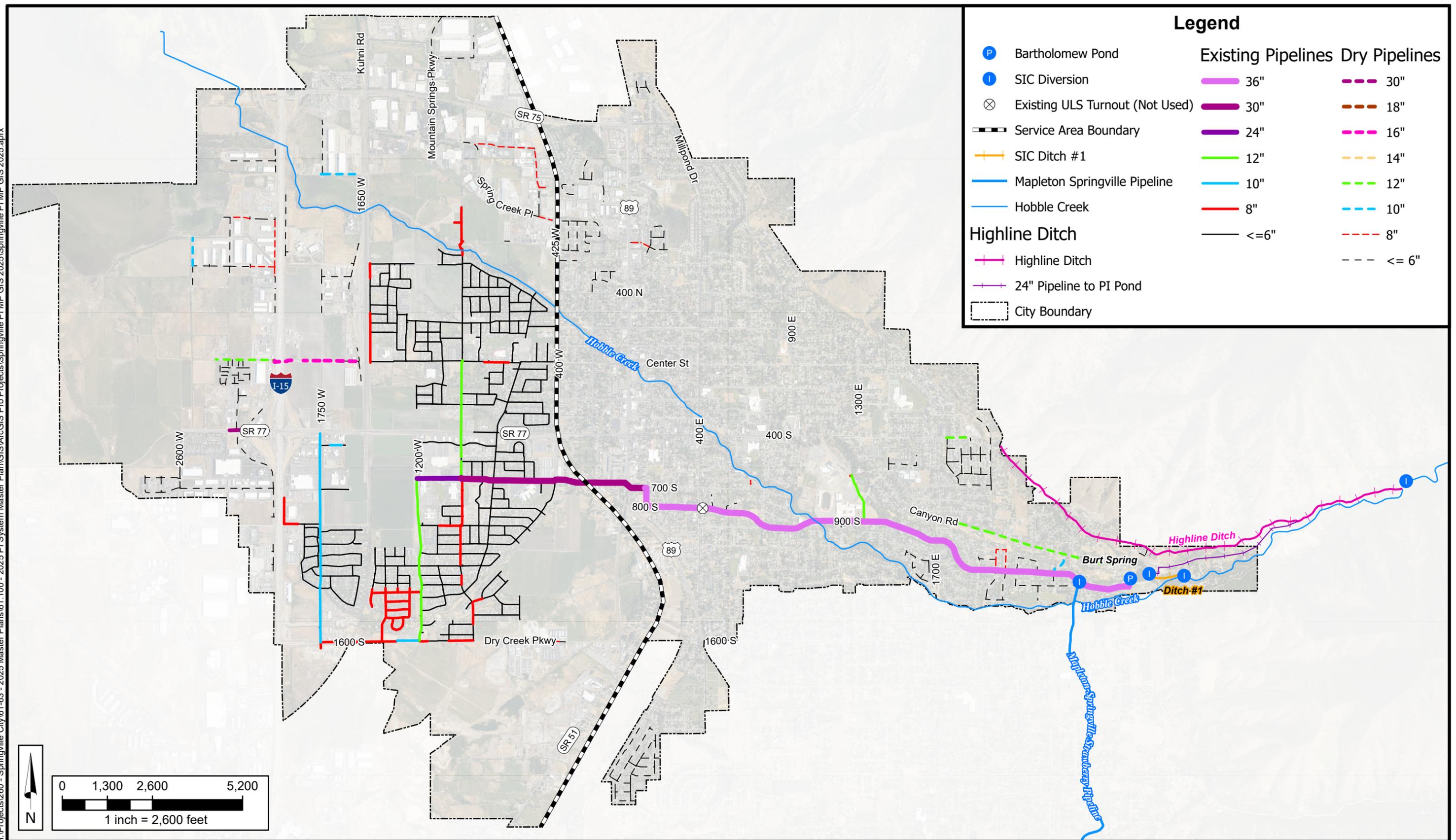
DESIGN AND PERFORMANCE CRITERIA

Summaries of the key design criteria and demand requirements for the PI water system are included in Table 1-2. The design criteria were used in evaluating system performance and recommending future improvements. Criteria development is described in later chapters.

**Table 1-2
Key System Design Criteria**

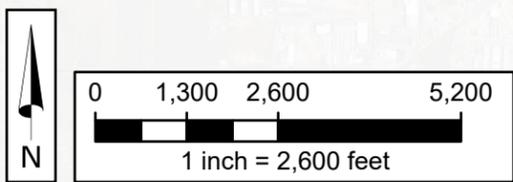
	Criteria	Existing Requirements	Estimated Requirements		
			10-year	20-year	Planning Horizon (2070)
Acreage Irrigated by PI System	Existing and Planned Irrigated acreage	362	788	1,093	1,331
Source					
Peak Day Demand	Level of Service	3,077 gpm	6,698 gpm	9,291 gpm	11,314 gpm
Average Yearly Demand	Level of Service	1,448 acre-ft	3,152 ac-ft	4,371 ac-ft	5,324 ac-ft
Storage	Level of Service	6.8 ac-ft	14.8 ac-ft	20.5 ac-ft	25.0 ac-ft
Distribution					
Peak Instantaneous	2.0 × Pk Day demand	6,154 gpm	13,396 gpm	18,581 gpm	22,627 gpm
Max. Operating Pressure	Level of Service	125 psi	125 psi	125 psi	125 psi
Min. Operating Pressure	Level of Service	50 psi	50 psi	50 psi	50 psi

Date: 10/30/2025
 Document Path: H:\Projects\260 - Springville City\61-63 - 2025 Master Plans\61.100 - 2025 PI System Master Plan\GIS\ArcGIS Pro Projects\Springville PI MP GIS 2025.aprx



Legend

Bartholomew Pond	Existing Pipelines 36"	Dry Pipelines 30"
SIC Diversion	Existing Pipelines 30"	Dry Pipelines 18"
Existing ULS Turnout (Not Used)	Existing Pipelines 24"	Dry Pipelines 16"
Service Area Boundary	Existing Pipelines 12"	Dry Pipelines 14"
SIC Ditch #1	Existing Pipelines 10"	Dry Pipelines 12"
Mapleton Springville Pipeline	Existing Pipelines 8"	Dry Pipelines 10"
Hubble Creek	Highline Ditch <=6"	Dry Pipelines 8"
Highline Ditch	24" Pipeline to PI Pond	Dry Pipelines <= 6"
City Boundary		



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

**SPRINGVILLE CITY
 PRESSURIZED IRRIGATION SYSTEM MASTER PLAN**

EXISTING SYSTEM

CHAPTER 2 IRRIGATED ACREAGE

EXISTING IRRIGATED ACREAGE

Outdoor water demands are based on actual usage on irrigated acreage (irr-ac). The existing irrigated acreage was determined using customer billing data, the City’s level of service, and PI system SCADA records. The irrigated acreage presented in this report for the existing system then refers not to actual areas, rather a calculated value based on actual usage from customers, similar to equivalent residential connections (ERC) which are commonly used for drinking water systems. The estimated irrigated acreage for the existing PI system is 362 acres.

Currently, there are customers within the existing PI system service area that are not connected to the system and use drinking water for outdoor watering. These customers may be near available “wet” pipelines but never connected to the system, or may be unable to connect to the system as they are located near “dry” pipelines or areas without any PI pipelines at all. It is estimated that these connections account for approximately 257 irrigated acres. This estimate was produced by analyzing differences between summer and winter billing data for these customers. After discussions with the City, it was determined that customers within the existing service area with wet pipelines, plus the customers west of I-15 with dry pipelines, would be connected to the system within 10 years. Customers within the industrial park near the Nestle facility north of the existing service area are anticipated to be connected to the system within 20 years.

FUTURE IRRIGATED ACREAGE

Growth projections for the PI system were estimated based on an irrigation factor. This factor represents the portion of land that is irrigated on a parcel. Irrigated factors were assigned to General Plan designations. Irrigated factors were estimated by using aerial imagery from the National Agricultural Imagery Program (NAIP) and billing data. The irrigation factors used for the PI system growth projections are presented in Table 2-1. The irrigation factors presented in this table account for road areas which may take up around 20% of any land use designations. Figure 2-1 shows a map of the land classifications used in this study.

**Table 2-1
Irrigation Factors by Land Classification**

Land Classification	Irrigation Factor
Agriculture (Placeholder for Future Development)	30%
Commercial	15%
Industrial Manufacturing	10%
Low Density Residential	37%
Medium Density Residential	40%
Medium High Density Residential	34%
Medium Low Density Residential	38%
Mixed Use	39%

Additionally, the average irrigated area for various lot sizes were determined based on several factors including City code, aerial imagery, and historical PI usage. These irrigated areas are presented in Table 2-2.

**Table 2-2
Irrigated Acreage by Lot Size**

Minimum Lot Size (ft ²)	Maximum Lot Size (ft ²)	Irrigated Area		Annual Volume (Acre-ft)
		(ft ²)	(acre)	
0	2,000	1,000	0.03	0.09
2,000	3,999	1,100	0.03	0.10
4,000	5,999	2,500	0.06	0.23
6,000	7,999	3,600	0.09	0.33
8,000	10,889	4,400	0.11	0.40
10,990	21,779	6,300	0.15	0.58
≥ 21,780		14,900	0.35	1.37

Future irrigated acreage was calculated by starting with the existing irrigated acreage and adding the area of additional land that is expected to be irrigated by the PI system in 10 years, 20 years, and the planning horizon (2070).

The acreage irrigated by the PI system in 2024 was calculated to be 362 acres. Based on the irrigation factors shown in Table 2-1, the total 2070 irrigated acreage was calculated to be 1,331 acres. This total includes the customers which are currently within the service area but are not connected to the PI system.

Many customers are located within the service area of the PI system but are not currently connected to it for outdoor watering. These customers may have been “grandfathered” into the PI system and never connected or are unable to connect to the system due to infrastructure requirements. These customers may be near “dry” or “wet” pipelines. These customers account for approximately 257 irrigated acres of outdoor demand. The City has a goal to connect all these potential customers to the PI system within the next 20 years. To represent this goal, 173 irrigated acres were added to the 10-year projection to represent the customers near “wet” pipelines and the customers near “dry” pipelines west of I-15. The remaining 84 irrigated acres associated with the industrial park near the Nestle facility were added to the 20-year projection. Table 2-3 shows the total growth projections, including these potential customers, for each scenario.

**Table 2-3
Projected Irrigated Acres**

Scenario	Projected Irrigated Acres	Potential Existing Customers*	Total Irrigated Acres
Existing	362		362
10-year	615	173	788
20-year	836	257	1,093
Planning Horizon	1,074	257	1,331

* The value in this column represents the total amount of additional customers added to the growth projections. The values in this column are not additive.

To improve water conservation, it is recommended that all customers that can connect to the pressurized irrigation are connected and all customers be billed for use with an allocation-based tiered rate structure to conserve water and meet the City's selected level of service.

GROWTH PROJECTIONS

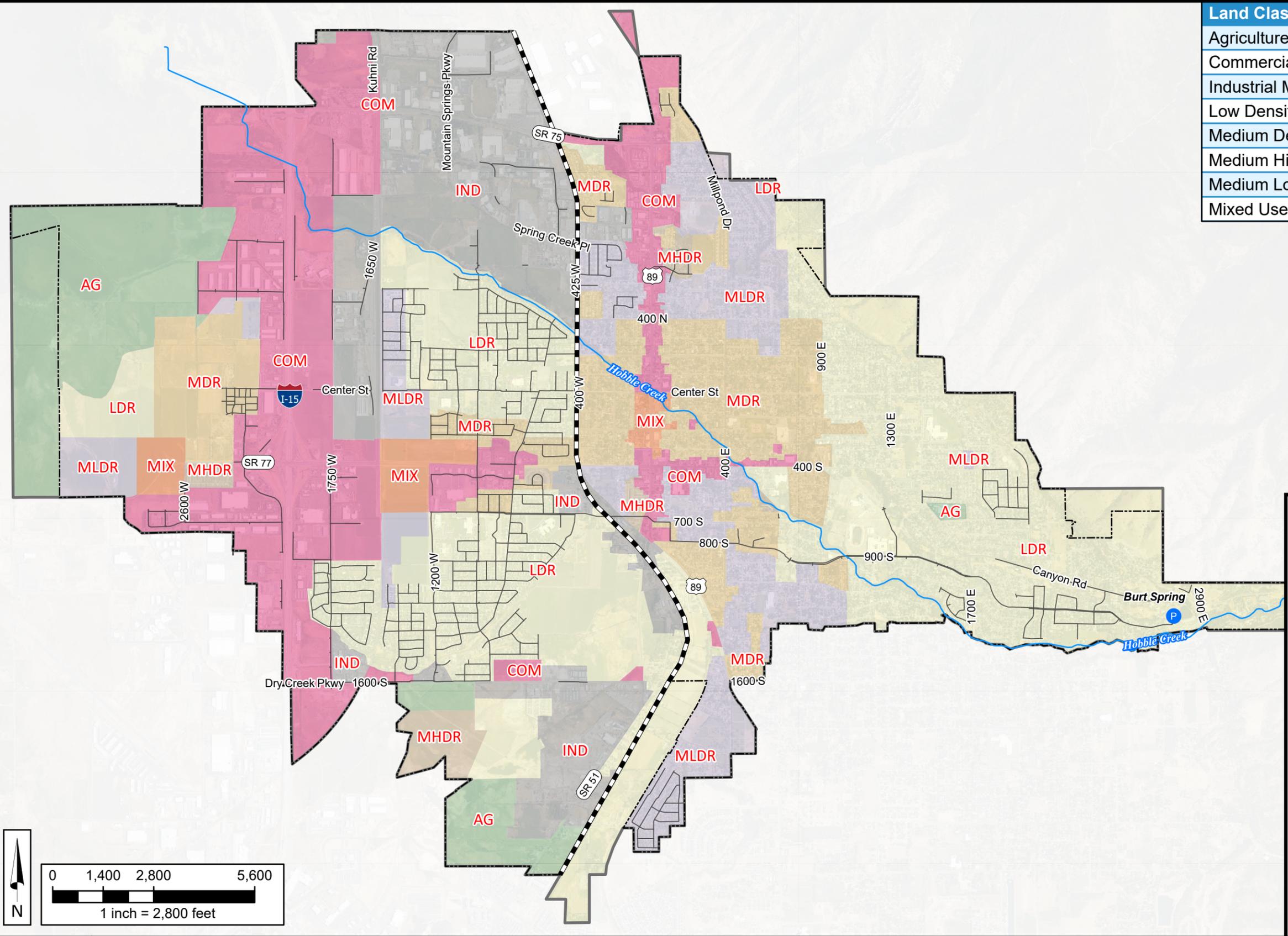
The development of impact fees requires growth projections over the next ten years. In addition to impact fee projects, this report will also highlight anticipated projects required in the next 10 to 20 years in the Capital Facilities Plan section of this report. Growth projections for the City were made as part of the City's strategic, general, and master planning efforts by HAL.

Growth of the PI system was determined by establishing the areas that would be irrigated by the PI system for the existing, 10 year, 20 year, and planning horizon (2070) time frames. The acreage that could be served by the PI system if customers connected today and the acreage that is adjacent to dry PI pipes was not added to the existing irrigated acreage, rather to the 10-year and 20-year projections as discussed previously. The projected irrigated acreages for scenario can be found in Table 1-2.

The City's General Plan land use classifications were used to determine densities and allocate demands across the City. As these classifications were prepared in 2011, updates to these classifications were made by HAL based on community plans for large developments, city zoning, and nearby development. The land classifications used in this study are shown on Figure 2-1.

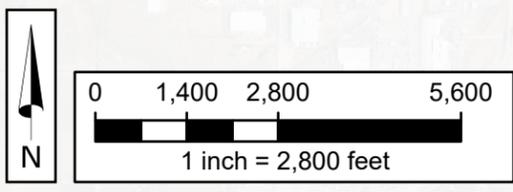
Date: 11/14/2025
 Document Path: H:\Projects\260 - Springville City\61-63 - 2025 Master Plans\61.100 - 2025 PI System Master Plan\GIS\ArcGIS Pro Projects\Springville PI MP GIS 2025.aprx

Land Classification	Irrigation Factor
Agriculture	30%
Commercial	15%
Industrial Manufacturing	10%
Low Density Residential	37%
Medium Density Residential	40%
Medium High Density Residential	34%
Medium Low Density Residential	38%
Mixed Use	39%



Legend

- P Bartholomew Pond
- Service Area Boundary
- Hubble Creek
- Existing Pipelines (Wet & Dry)
- City Boundary
- Annexation Boundary
- Agricultural (AG)
- Commercial (COM)
- Industrial Manufacturing (IND)
- Low Density Residential (LDR)
- Medium Density Residential (MDR)
- Medium High Density Residential (MHDR)
- Medium Low Density Residential (MLDR)
- Mixed Use (MIX)



SPRINGVILLE CITY PRESSURIZED IRRIGATION SYSTEM MASTER PLAN

FUTURE GROWTH PROJECTIONS

**FIGURE
2-1**



CHAPTER 3 WATER SOURCES

Water sources need to be available to supply the PI system with enough water for the entire irrigation season and supply the PI system with enough water to meet demand on the day of greatest water use (peak day demand). The PI water source requirements are based on existing and future irrigated acres and the City's level of service.

EXISTING PI SOURCES

The Springville City PI system is supplied by Hubble Creek through the Highline Ditch and Springville Irrigation Ditch #1 (see Figure 1-2). The PI system is also supplied by water from Strawberry Reservoir (Strawberry water) through the Mapleton-Springville Lateral Canal Pipeline (see Figure 1-2). Burt Springs can supply water to the PI system when not being used in the drinking water system, but for this study it is considered a drinking water source only and is not included in any source water calculations.

For planning purposes, the City has requested that the analysis consider the lowest flows on record as the reliable supply to plan for low water years. The flows from City owned PI sources presented in Table 3-1 represent water available in a low flow year. Minor water sources that cannot be relied on in a low flow year such as Bartholomew Pond Springs are not included in Table 3-1. It is important to note that source capacity requires both the physical water and the water rights to be able to provide water to the system. Water rights are discussed in Chapter 6.

**Table 3-1
Existing Pressurized Irrigation System Water Sources**

Source	Flow Capacity (gpm)*	Flow Capacity (cfs)	Annual Capacity (ac-ft)*
Hubble Creek/ Highline Ditch	2,245	5	500
Springville Irrigation Ditch #1	0**	0**	5,000
Mapleton-Springville Strawberry Pipeline	5,835***	13***	1,600
Total	8,080	18	7,100

* Denotes physical facility capacity. See Chapter 6 for water rights capacity.

** Ditch #1 provides an important supply of water, but is typically dry by the time peak day demand occurs. As such, its peak day capacity was assumed to be 0.

***Turnout capacity to Springville City/SIC is 35 cfs.

EXISTING SOURCE REQUIREMENTS

Existing Peak Day Demand

Peak day demand is the water demand on the day of the year with the highest water use. It is used to determine required source capacity under existing and future conditions. Since the drinking water system provides water for indoor use, only outdoor demand is allocated to the PI system. Outdoor peak day demand was calculated based on a level of service of 8.5 gpm/irr-ac.

Under existing conditions, the City serves 362 irr-ac, requiring 3,077 gpm peak day demand. There are approximately 257 irr-ac of additional demand that could be added to the PI system from customers which are located within the service area but are not connected to the PI system. The City has expressed a desire to connect all these potential connections to the PI system within 10 to 20 years. The total peak day demand of these additional customers is approximately 2,185 gpm. Table 3-2 compares the available source capacity with the peak day demand of the existing system without the additional 257 irr-ac of additional demand from potential drinking water customers.

**Table 3-2
Existing PI Peak Day Water Demand
and Source Capacity**

Parameter	Peak Day (gpm)
Demand	3,077
Capacity*	8,080
Surplus	5,003

* Denotes physical facility capacity.
See Chapter 6 for water rights capacity.

Existing Average Yearly Demand

Average yearly demand is the volume of water used during an entire year, and is used to ensure the sources have enough annual volume to meet demand under existing and future conditions. Since the drinking water system provides water for indoor use, only outdoor demand in the PI system service area is allocated to the PI system. Average yearly demand was determined based on irrigated acreage and a level of service of 4.0 ac-ft/irr-ac.

Based on the existing irrigated acreage of 362, the average yearly demand is 1,448 ac-ft. The 257 irr-ac of potential customers equates to an average yearly demand of 1,028 ac-ft. Table 3-3 compares the capacity of the existing sources with the demand of the existing system. The 257 irr-ac of potential customers are not included in the demand shown in Table 3-3.

**Table 3-3
Existing PI Average Yearly Water Demand
and Source Capacity**

Parameter	Average Yearly (ac-ft)
Demand	1,448
Capacity*	7,100
Surplus	5,652

* Denotes physical facility capacity.
See Chapter 6 for water rights capacity.

FUTURE SOURCE REQUIREMENTS

As with existing PI source requirements, future PI source requirements were evaluated on two criteria. First, sufficient water source capacity is needed to meet peak day flow. Second, the PI sources must also be capable of supplying the average yearly demand.

Future Peak Day Demand

Following the methodology described for existing conditions and the City’s selected level of service, projected irrigated acres and peak day demand was projected for 10 years, 20 years, and for the planning horizon (2070). Table 3-4 compares the future PI peak day demands with the existing peak day source capacity.

**Table 3-4
Future PI Peak Day Water Demand and Source Capacity**

Time	Projected Irrigated Acres	Peak Day Demand (gpm)	Peak Day Capacity* (gpm)	Surplus/ Deficit (gpm)
10-years	788	6,698	8,080	1,385
20-years	1,093**	9,291	8,080	-1,211
2070	1,331**	11,314	8,080	-3,234

* Denotes physical facility capacity. See Chapter 6 for water rights capacity.

** These projections include irrigated acres from the “potential customers.” Refer to Table 2-3 for details on projected irrigated acres.

Table 3-4 indicates that the City will not have sufficient source capacity for the peak day demand for the 20-year timeframe. The source capacity listed in Table 3-4 does not include the additional capacity that will be brought into the system by piping the Highline Canal. This project is currently underway and is expected to bring up to 1,300 gpm of additional peak day capacity once complete. This project will provide sufficient source water for the PI system through the next 20 years. Additionally, flow from the Mapleton-Strawberry Pipeline could be increased; however, the City would not be able to utilize the full capacity of the pipeline due to capacity limitations in the 36-inch pipeline in 900 South.

Future Average Yearly Demand

Following the methodology described for existing conditions and the City’s selected level of service, irrigated acres and average yearly demand was projected for 10 years, 20 years, and for the planning horizon. Table 3-5 compares the future PI average yearly water demands with the average yearly source capacity.

**Table 3-5
Future PI Average Yearly Water Demand and Source Capacity**

Time	Projected Irrigated Acres	Average Yearly Demand (ac-ft)	Average Yearly Capacity* (ac-ft)	Surplus (ac-ft)
10-years	788	3,152	7,100	3,948
20-years	1,093**	4,372	7,100	2,728
2070	1,331**	5,324	7,100	1,776

* Denotes physical facility capacity. See Chapter 6 for water rights capacity.

** These projections include irrigated acres from the “potential customers.” Refer to Table 2-3 for details on projected irrigated acres.

As shown in Table 3-5, the existing PI sources will have excess annual capacity through 2070, unlike the peak day capacity. Rather than developing additional sources, the City may desire to implement water conservation measures to encourage outdoor water conservation from residents. Measures such as allocation-based tiered water rates, restricting outdoor watering times, or requiring water-efficient landscaping for new developments may help improve water conservation. Doing so may reduce the peak day demand for the PI system which could delay or remove the requirement to develop additional PI sources to meet the anticipated peak day demand.

The City's Water Conservation Plan, adopted in 2022, explores some "Best Management Practices" the City can implement to improve water conservation (Hansen, Allen & Luce, 2022). This report was written for the drinking water system, however, many of the recommendations may be applicable for the PI system. A copy of the Water Conservation Plan is provided in Appendix D.

FUTURE SOURCE RECOMMENDATIONS

As indicated in Table 3-5, the City has a surplus of average yearly PI source capacity through 2070 if all sources continue to remain available and to produce as they have in the past. The existing peak day source capacity, however, is insufficient to meet future demands within 20 years. Additional capacity will be introduced once the Highline Canal has been piped. The City will also be obligated to utilize water from the Utah Lake Drainage Basin Water Delivery System of the Bonneville Unit of the Central Utah Project (ULS) within the next 10 years. This water could also be utilized to bolster existing sources.

Possible changes in water rights, transfer of water rights to the drinking water system, climate change, or other unforeseen circumstances could also make it necessary to plan for additional water sources for the PI system much earlier than 2070. It is recommended that the City promote conservation, potentially with an allocation-based tiered rate structure. The following is a list of potential water sources for the PI system. Proposed locations are shown on Figure 3-1. Any locations shown on Figure 3-1 are approximate and can be adjusted to avoid difficult routes and accommodate development.

The Dry Creek Pump Stations are included in the capital improvement plan due to limitations in the transmission capacity of the PI system. The additional sources listed below may also be considered and pursued as resources allow, surrounding land develops, and the projects make sense.

- ULS Water – Springville City is obligated to purchase 5,448 of ULS water through a petition agreement between Central Utah Water Conservancy District (CUWCD) and South Utah Valley Municipal Water Association (SUVMWA). This is the amount remaining after the 3,500 ac-ft given back to fund the construction of the pressurized irrigation system, see Appendix E for details.

The City could look into the possibility of allowing another SUVMWA city to have a portion or all of Springville City's ULS Water allotment. More detail on the ULS water is discussed in Chapter 6. The source capacity equates to a flow rate of at least 6,000 gpm. A proposed location for a turnout to connect the PI system to ULS water is shown on Figure 3-1.

- Piping the Highline Ditch – Piping the Highline Ditch will allow more efficient conveyance of Hobble Creek water to the PI system, especially in the high runoff season in the spring. This would also allow the City to save Strawberry water for use later in the irrigation season. No pumping would be required. Source capacity could be increased by as much

as 1,300 gpm. However, the possibility of moving Hobble Creek water rights up to Bartholomew Springs to use in the drinking water system should be pursued first. This project is currently underway.

- Dry Creek Pump Stations (East and West) – Hobble Creek, Strawberry, underground drains, Fulmer Springs, Big Hollow Irrigation, Wash Creek, and Roundy Spring can all be diverted from Dry Creek. Also, a land owner in the Dry Creek area has a water right to use a portion of Spanish Fork City’s wastewater effluent which is discharged into Dry Creek. Source capacity could be increased by 2,000 gpm or more. Two locations are proposed for future pump stations, the East and West Dry Creek Pump Stations, as shown on Figure 3-1. Construction of each facility will be dependent on the development of nearby property. These facilities are both included in the capital improvements plan in Chapter 7.
- Swenson Pump Station – Hobble Creek, Strawberry, Highline, Wheeler Springs can be pumped into the PI system at this location. Source capacity could be increased by as much as 3,000 gpm.
- Packard Pump Station – Coffman Springs, Wood Springs, Hobble Creek, and underground drains can be pumped into the PI system at this location. Source capacity could be increased by as much as 900 gpm.
- Reuse of Effluent – The City does not deplete all of its water rights because the City returns excess water to Hobble Creek through the effluent of the wastewater treatment plant. Using the excess water the City has the right to use may be a costly and complicated process. The water would need to be pumped into the PI system adding additional ongoing cost. Developing other new sources of water first is recommended.
- Evergreen Well – The Evergreen Well is equipped for use on the drinking water system but is not currently used. The City has expressed desire to equip this well for use on the PI system. Doing so would require the construction of an 8-12 inch transmission line from the well to future pipelines west of State Street. Upgrades to the existing pump and motor may also be necessary to equip the well for use in the PI system. The current capacity of the Evergreen Well is approximately 350 gpm. Upgrades to the well pump and motor may allow the well to produce more water, though further study would be required to make the determination.

Alignments and locations shown are approximate and can be adjusted to avoid difficult routes and accommodate development.

Legend

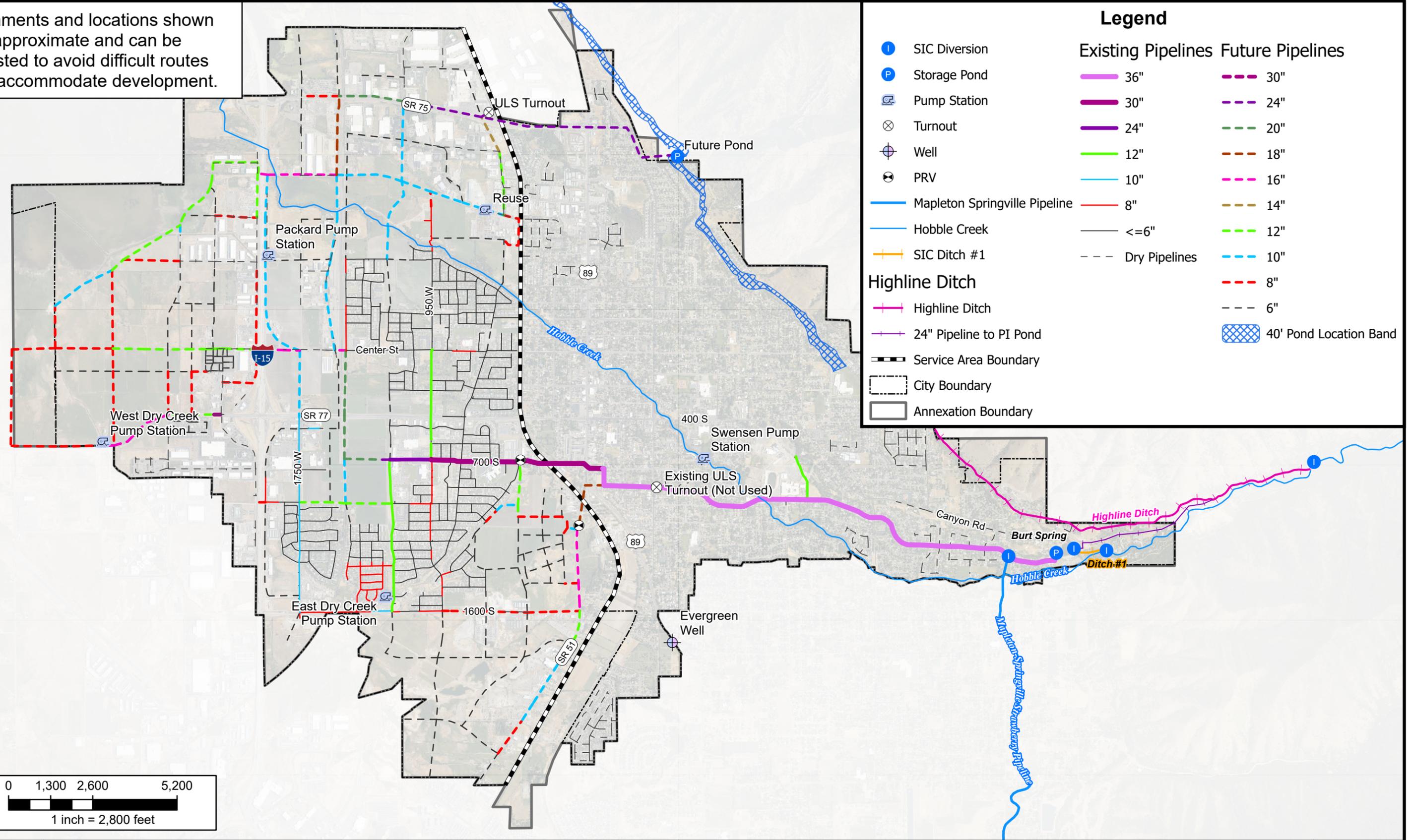
Existing Pipelines		Future Pipelines	
36"	(Solid Pink Line)	30"	(Dashed Pink Line)
30"	(Solid Purple Line)	24"	(Dashed Purple Line)
24"	(Solid Green Line)	20"	(Dashed Green Line)
12"	(Solid Light Green Line)	18"	(Dashed Orange Line)
10"	(Solid Light Blue Line)	16"	(Dashed Magenta Line)
8"	(Solid Red Line)	14"	(Dashed Yellow Line)
<=6"	(Solid Black Line)	12"	(Dashed Light Green Line)
Dry Pipelines	(Dashed Black Line)	10"	(Dashed Light Blue Line)
		8"	(Dashed Red Line)
		6"	(Dashed Black Line)

Highline Ditch

- Highline Ditch (Pink line with cross-ticks)
- 24" Pipeline to PI Pond (Purple line with cross-ticks)

Other Features

- SIC Diversion (Blue circle with 'I')
- Storage Pond (Blue circle with 'P')
- Pump Station (Blue square with 'P')
- Turnout (Circle with 'X')
- Well (Circle with crosshair)
- PRV (Circle with 'V')
- Mapleton Springville Pipeline (Blue line)
- Hobble Creek (Blue line)
- SIC Ditch #1 (Orange line with cross-ticks)
- Service Area Boundary (Thick black dashed line)
- City Boundary (Thin black dashed line)
- Annexation Boundary (Thin black solid line)
- 40' Pond Location Band (Blue hatched area)



Date: 1/9/2026 Document Path: H:\Projects\260 - Springville City\61-63 - 2025 Master Plans\61.100 - 2025 PI System Master Plan\GIS\ArcGIS Pro Projects\Springville PI MP GIS 2025.aprx



SPRINGVILLE CITY PRESSURIZED IRRIGATION SYSTEM MASTER PLAN

FUTURE SYSTEM

**FIGURE
3-1**

CHAPTER 4 WATER STORAGE

EXISTING WATER STORAGE

The purpose of water storage within the PI water system is to provide equalization for when peak demand exceeds the source supply and to provide operational redundancy. The City’s existing PI water system includes one irrigation pond (Bartholomew Pond) with a total capacity of 30 ac-ft. The location of Bartholomew Pond is shown on Figure 1-2. The City is interested in maintaining a minimum water depth of six feet to reduce the vegetation and improve water quality. Based on the design plans and stage-storage curve provided by the City, the available water storage with a water depth of six feet is 19.4 acre-feet. See Table 4-1.

**Table 4-1
Existing Storage Capacity**

Pond	Capacity (ac-ft)
Bartholomew Pond – total	30.3
Bartholomew Pond – 6 feet depth	19.4

EXISTING WATER STORAGE REQUIREMENTS

Existing equalization storage requirements were based on irrigated acreage and the level of service of 6,120 gallons per irr-ac. Therefore, under existing conditions, with an existing irrigated acreage of 362 acres, the required storage is 6.8 ac-ft. Table 4-2 compares the available storage with the required storage for the existing system.

**Table 4-2
Existing Storage Requirements**

Irrigated Acreage	Storage Requirement (ac-ft)	Existing Capacity (ac-ft)	Surplus (ac-ft)
362.0	6.8	19.4	12.6

FUTURE WATER STORAGE REQUIREMENTS

Table 4-3 compares the 10-year, 20-year, and planning horizon (2070) storage requirements based on irrigated acreage projections with the available storage of the pond with a six-foot minimum water depth.

**Table 4-3
Future Storage Requirements**

Time	Irrigated Acreage	Storage Requirement (ac-ft)	Existing Capacity (ac-ft)	Deficiency (-) or Surplus (+) (ac-ft)
10-Years	788	14.8	19.4	+4.6
20-Years	1,093*	20.5	19.4	-1.2
2070	1,331*	25.0	19.4	-5.6

* These projections include irrigated acres from the “potential customers.” Refer to Table 2-3 for details on projected irrigated acres.

As shown in Table 4-3, beginning in 20 years, the storage requirement for the PI system will exceed the available capacity of Bartholomew Pond with a six-foot minimum depth. If the City were to allow the storage level of the pond to drop to 3 feet of water depth, the available storage of the pond would be 25.4 ac-ft and would meet the requirements for the planning horizon (2070) of this study.

Additionally, a secondary overflow structure is constructed one foot higher than the primary overflow structure. This structure is not currently utilized by system operators. Raising the maximum pond level to utilize the secondary overflow structure would bring an additional 3.5 ac-ft of storage capacity to the pond, bringing the total storage capacity up to 22.8 ac-ft while keeping the same minimum water depth of 6 feet. Lastly, a minimum water depth of 5 feet, coupled with the secondary overflow structure, provides a total storage volume of 25 ac-ft, which meets the requirements for the planning horizon for this study. Operational constraints may still require an additional pond.

WATER STORAGE RECOMMENDATIONS

Based on the growth projections, level of service, pond stage-storage curve, and maximum pond drawdown assumptions, almost enough storage is already available to maintain the desired six foot minimum pond depth in 20 years. Increasing the daily pond level fluctuations by one foot would increase the available volume to 21.5 ac-ft, which would meet the 20-year storage requirements. Another one foot of drawdown would likely not affect recreation at the pond even during peak PI system usage hours.

Another alternative to increasing the capacity of the Bartholomew Pond is to utilize the existing secondary overflow structure. This structure is currently constructed one foot higher than the existing primary overflow structure. This additional foot of storage provides an additional 3.5 ac-ft of storage capacity, which increases the total storage capacity of the pond to 22.8 ac-ft while maintaining the six-foot minimum water depth. Increasing the maximum water depth by one foot will provide enough storage to meet the 20-year storage requirements.

An option beyond 20 years would be to construct a second storage pond in the northern end of the City. Installing PRVs to reduce the high pressure in the system would also allow this second pond to be constructed at a lower elevation than Bartholomew Pond, approximately 4725 to 4730 feet. A proposed location for this second pond is shown on Figure 3-1. This pond would not only reduce the storage requirement of Bartholomew Pond, but it would also allow system operators to more efficiently store ULS water from the proposed connection shown on Figure 3-1.

No storage projects are included in the capital improvement plan in this master plan because no additional storage is projected to be needed within the next 20 years if the City allows Bartholomew pond to maintain a five-foot water depth or utilizes the secondary overflow structure.

CHAPTER 5 WATER DISTRIBUTION

PEAK WATER DISTRIBUTION SYSTEM DEMANDS

Springville’s PI water distribution system consists of all pipelines, valves, fittings, and other appurtenances used to convey water from sources and storage to water users. The existing water system contains approximately 41 miles of wet pipelines (in use) with diameters of 4 to 36 inches with approximately 21 miles of dry pipelines disconnected to the system. The PI system has one pressure zone (see Figure 1-2). Figure 5-1 shows the distribution of wet pipeline sizes throughout the PI system.

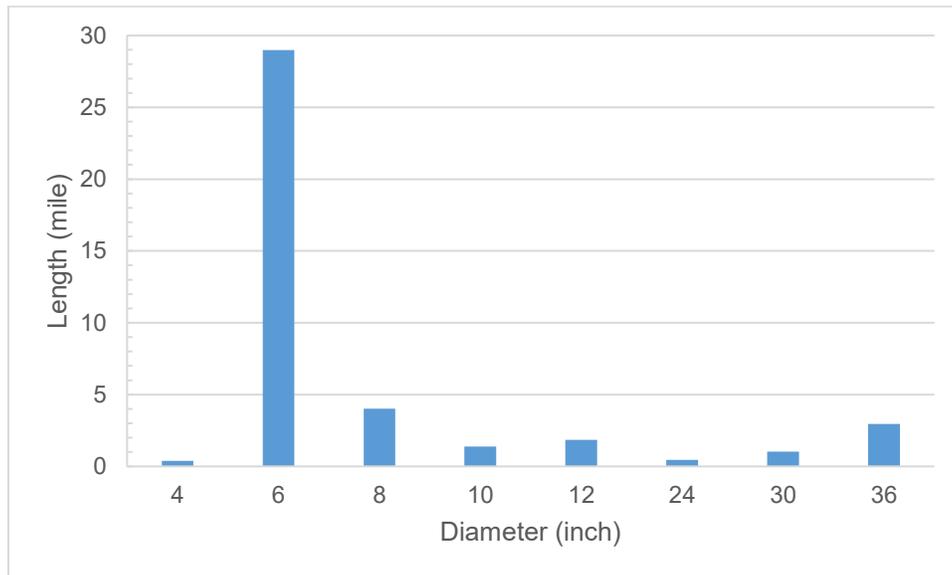


Figure 5-1: Existing Pipeline Diameters

Existing Peak Instantaneous Demand

Peak instantaneous demand was calculated based on irrigated acreage and the level of service defined by analysis of usage data. The selected level of service was 17.0 gpm per irrigated acre; therefore, the total peak instantaneous is 6,148 gpm under existing conditions. This does not include the 257 acres currently irrigated by the drinking water system.

Future Peak Instantaneous Demand

Future peak instantaneous demand in 2070 was calculated based on the same level of service as defined for existing conditions. The total future irrigated acreage estimated at 2070 is 1,331 acres. Therefore, the future peak instantaneous demand was calculated as 22,626 gpm.

HYDRAULIC MODEL

Development

A computer model of the City’s PI water distribution system was developed to analyze the performance of the existing and future distribution system and to prepare solutions for existing facilities not meeting the distribution system requirements. The model was developed with the software InfoWater Pro, published by Autodesk. InfoWater Pro simulates the hydraulic behavior

of pipe networks as an ArcGIS Pro extension. Sources, pipes, tanks, valves, controls, and other data used to develop the model were obtained from GIS data of the city's PI water system and other updated information supplied by the City.

HAL developed models for each development phase discussed in this report (10-year, 20-year, 2070) plus an existing system model and a buildout model. The first phase of modeling was a model representing the existing system (existing model). This model was used to calibrate the model and identify if any deficiencies were present in the existing system. The second phase of modeling included all future scenario models (10-year, 20-year, 2070, and buildout) which represent future conditions and the improvements necessary to accommodate growth (future models).

Model Components

The two basic elements of the model are pipes and nodes. A pipe is described by its inside diameter, length, minor friction loss factors, and a roughness value associated with friction head losses. A pipe can contain elbows, bends, valves, pumps, and other operational elements. Nodes are the endpoints of a pipe and can be categorized as junction nodes or boundary nodes. A junction node is a point where two or more pipes meet, where a change in pipe diameter occurs, or where flow is added (source) or removed (demand). A boundary node is a point where the hydraulic grade is known (a reservoir, tank, or PRV). Other components include tanks, reservoirs, pumps, valves, and controls.

The model is not an exact replica of the actual system. Pipeline locations used in the model are approximate and not every pipeline may be included in the model, although efforts were made to make the model as complete and accurate as possible. Moreover, it is not necessary to include all the distribution system pipes in the model to accurately simulate its performance.

Pipe Network

The pipe network layout originated from GIS data provided by the City. HAL verified its accuracy by reviewing maps and drawings provided by the City, as well as a model prepared for the previous master plan. Elevation information was obtained from AGRC 0.5 Meter 2013-2014 LiDAR Data. Hazen-Williams roughness coefficients for pipes in this model ranged from 130 - 150, which are typical for common pipe materials in PI systems.

Water Demands

Water demands were allocated in the model based on billing data and billing address. The peak day demand was determined for each billing address, and then the billing addresses were geocoded to link the demands to a physical location. The geocoded demands were then assigned to the closest model node. Future demand was assigned to nodes in the future model which best represented the location of anticipated development.

The pattern of water demand over a 24 hour period is called the diurnal curve or daily demand curve. HAL developed a diurnal curve for peak day conditions using SCADA data and a peak factor of 2.3 (the ratio of peak instantaneous demand to peak day average demand). The diurnal curve used in this study is presented in Figure 5-2. The diurnal curve was input into the model to simulate changes in the water system throughout the day.

Using a peaking factor of 2.3 provided very good calibration for the existing system models but created extreme pressure swings and maximum velocities in future system models. The 2.3 peaking factor accurately simulates the existing conditions. High water use occurs

around 5 am across the PI system when many residents turn on automated sprinkler systems. Existing model calibration reports are provided in Appendix A.

After evaluating previous planning documents, the City’s accepted level of service, and discussing with the City, a responsible peaking factor of 2.0 was recommended for use with future modeling. This lower peaking factor represents a “spreading out” of water demand across the system to reduce the demand incurred on the system at 5 am. The City has also previously adopted a 2.0 peaking factor as the level of service for the PI system. Both the 2.0 and 2.3 peaking factor demand patterns are provided in Figure 5-2 for comparison.

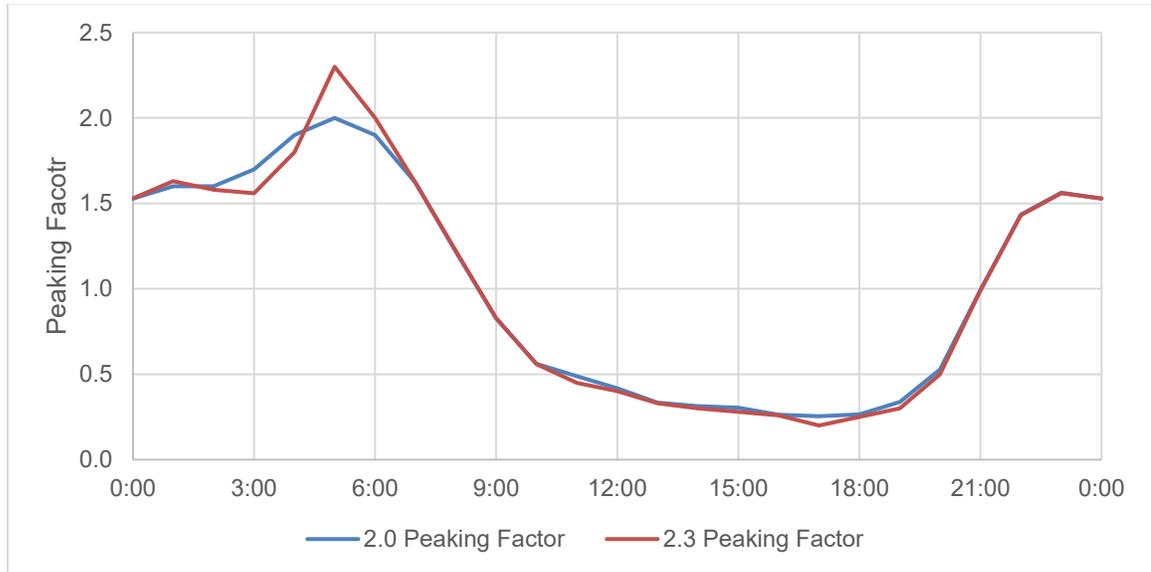


Figure 5-2: Springville PI Diurnal Curve

Water Sources and Storage Pond

The existing sources include water provided by Springville’s existing shares in Springville Irrigation Company. The main two diversion locations include the “City Diversion” which is located on Hobble Creek a short distance above the existing debris basin and the Mapleton Springville Lateral Canal Pipeline which connects to the 36” main pipeline out of the pond. The pond location, elevation, and volume are represented in the model. The extended-period models predicts water levels in the pond as they fill from sources and as they empty to meet demand in the system.

ANALYSIS METHODOLOGY

HAL used extended-period models to analyze the performance of the water system with current and projected future demands. An extended-period model represents system behavior over a period of time: pond filling and draining, pressures fluctuating, and flows shifting in response to demands. The models were used to analyze flow conditions, controls, operation, and performance. Recommendations for existing and future conditions were checked with the extended-period models to confirm adequacy.

Two extreme operating conditions analyzed with the model were high pressure conditions and peak instantaneous demand conditions. Peak day plus fire flow conditions were not analyzed because water for fire flow will come from the drinking water system. Each of these conditions is

a worst-case situation so the performance of the distribution system may be analyzed for compliance with City requirements. Each operating condition is discussed in more detail below.

High Pressure Conditions

Low flow conditions are usually the worst case for high pressures in a PI system. Before the evening irrigation begins, storage is typically nearly full, and movement of water through the system is minimal. Similar conditions may also occur early and late in the irrigation season and on rainy days. Under these conditions, the system approaches a static condition where water pressures are dictated only by elevation differences and pressure-regulating devices. This high-pressure condition was simulated with the model to analyze the system's existing and future conformance to pressure requirements.

Peak Instantaneous Demand Conditions

Peak instantaneous demand conditions are the worst-case for low pressures in a PI system. The PI system reaches peak instantaneous demand conditions when irrigation is the highest, such as hot summer days or holidays. For PI systems, peak instantaneous demand typically occurs around 4 to 6 am, when residents turn on automatic sprinkler systems. The high demand causes high velocities and increased losses in the distribution pipes, resulting in reduced pressure.

WATER DISTRIBUTION RECOMMENDATIONS

The existing model calibration indicates that the PI system experiences high peak demands around 5 am. When applying this high demand pattern to future models, the PI system experienced pressure swings greater than 30 to 40 psi. Implementing water conservation measures such as allocation-based tiered water rates or restricting outdoor watering times can help to "smooth out" the high peak demands experienced at 5 am and improve system performance. Additional recommendations from the 2022 Water Conservation Plan may also be effective at reducing high peak demands. A copy of the 2022 Water Conservation Plan is included in Appendix D.

It is recommended that the City install a PRV on the existing 30-inch pipeline in 700 South to control high pressure conditions. A second PRV on the proposed 18-inch pipeline in 800 South is also recommended. Installing these PRVs will reduce the high-pressure conditions experienced during low flow periods while maintaining adequate pressures during peak instantaneous demand conditions.

All existing distribution pipelines are sufficient to meet the existing level of service. It is recommended that sufficiently sized pipelines continue to be installed as development continues. Recommended pipeline projects anticipated in the next 20 years are detailed in the capital facility plan in Chapter 7. Pipeline projects anticipated beyond 20 years are displayed in Figure 3-1. Recommended pipes are intended to accomplish the following objectives:

- Provide transmission capacity to developing areas west of I-15
- Connect areas to the system which currently rely on drinking water to meet irrigation demands
- Provide acceptable service pressures and pressure swings
- Reserve sufficient capacity for future demands

CHAPTER 6 WATER RIGHTS

EXISTING WATER RIGHTS

Springville City currently owns water rights for use in the PI system. Some water rights are owned directly by the City and the remaining water rights are Springville Irrigation Company Shares owned by the City. Table 6-1 is a summary of the water rights used in the PI system delivered to Bartholomew Pond by the PI system sources list in Table 3-1.

Table 6-1: Existing Water Rights Used in the PI System

Water Right	Flow* (gpm)	Volume* (ac-ft)	PI Source
Strawberry Water Shares (Springville Irrigation Company)	3,000	1,970	Mapleton-Springville Strawberry Pipeline
Springville Irrigation Company Shares (Non-Strawberry Water)	645	855	Springville Irrigation Ditch #1
51-6025	627	490	Hobble Creek/ Highline Ditch
51-6219	145	103	Hobble Creek/ Highline Ditch
TOTAL	4,417	3,418	

* Flow and volume for each water right is estimated based on the State of Utah water right database and City records.

Springville City has a total of 3,418 ac-ft of water rights available for use in PI water system. Compared to the existing level of service water requirement of 1,448 ac-ft, the City currently owns a surplus of 1,970 ac-ft of water rights currently available for use in the PI water system (see Table 6-2).

**Table 6-2
Existing PI Average Yearly Water Demand
and Water Right Capacity**

Parameter	Average Yearly (ac-ft)
Demand	1,448
Capacity	3,418
Surplus	1,970

FUTURE WATER RIGHTS

By 2070, the City will require a minimum of 5,324 ac-ft of water rights to meet requirements for the PI water system. Compared to the existing water rights available in the PI system, the City currently is short 1,906 ac-ft (see Table 6-3). Buildout requirements for the City will be higher than the predicted 2070 requirements. Similar to other components of the PI water system, water rights

should have redundancy. Typically, some water rights cannot be used as planned or do not yield the allowed flow, and the City will need to acquire more than the minimum rights calculated in order to have the usable flow and volume required.

**Table 6-3
Future PI Average Yearly Water Demand and Water Right Capacity**

Time	Irrigated Acreage	Average Yearly Demand (ac-ft)	Average Yearly Capacity (ac-ft)	Surplus (ac-ft)
10-years	788	3,152	3,418	266
20-years	1,093	4,372	3,418	-954
2070	1,331	5,324	3,418	-1,906

Water rights are independent of physical source capacity in this study. For example, the Mapleton-Springville Strawberry Pipeline has a physical capacity of more than 6,000 gpm, but the City currently does not own enough water rights to supply the PI system at this rate throughout irrigation season. Other water rights and Springville Irrigation Company shares the City owns are used for irrigation in small independent City-owned irrigation systems not connected to the PI system or are not currently used by the City. These water rights are summarized in Table 6-4. It is recommended that the City file change applications to change the use of these water rights to municipal use for better protection and ease of management of the water rights. It is recommended that the City file a change application to add a point of diversion on the Plat A water right (51-5224) at the City Dam to use the water in the PI system.

**Table 6-4
Potential Water Rights for Use in the PI System**

Water Right	Flow (gpm)	Volume (ac-ft)	Current Use	Water Source
51-5328	450	724	Hobble Creek Golf Course	Jurd Springs
Springville Irrigation Shares	245	195	Jolly's Park, Kelly Park, and Hobble Creek Golf Course	Hobble Creek
51-5224	1,571	2,000	Plat A Irrigation System	Hobble Creek
51-5230	25	20	Irrigation at Westroc	Roundy Springs
51-7463 (a24494)	50	37	Industrial Park	Little Spring Creek
Total	2,341	2,976		

* Flow and volume for each water right is estimated based on the State of Utah water right database and City records.

ULS AND SUVMWA WATER

The City is obligated to purchase 5,448 ac-ft of ULS water through a petition agreement between CUWCD and SUVMWA, see Appendix E for details. It is recommended that the City plan for how the ULS water will be used.

There is important information in the contract between SUVMWA and CUWCD for delivery of ULS water that the City should consider about the proper timing, cost, payment, and potential options

to avoid the purchase of the ULS water. It is recommended that the City start discussions with the Department of Interior, CUWCD and SUVMWA immediately to fully understand the contract and negotiate potential options so the City can make informed and timely decisions for the ULS water. The City could consider discussing the possibility of purchasing a portion of the water, purchasing an increasing portion of the water over time, or allowing another SUVMWA city to have a portion or all of Springville City's ULS Water allotment.

The ULS water would be the most expensive water in the City's entire portfolio currently estimated at around \$350 per acre-foot per year for 50 years. This would be a yearly cost of \$1.9 Million and a total cost of \$95.3 Million. After 50 years the City would pay operation and maintenance costs for the water, currently estimated at about \$40 an acre-foot in today's dollars. If the full cost of the ULS water is delayed for up to 10 years, the annual payment will be higher at the end of the deferral because the amortization period will be shorter. For example, if the annual cost for the 5,448 ac-ft allotment without deferment is \$1.9 Million based on a 50-year period, it will be near \$2.4 Million for a 10-year deferment based on a 40-year period. However, there is no interest assessed for delaying and the total cost remains the same.

It is important to note that there are conservation requirements in the contract that the City will be immediately subject to when the City starts to take ULS water. If the conservation requirements are not met, the City will be surcharged 5%. The City should confirm conservation documentation to be ready to prove the required reductions of 12.5% by 2020 and 25% by 2050. It is also important to note that no debt can be used to pay for the ULS water and none of the return flows of the ULS water may be claimed or used.

The feasibility of a drinking water treatment plant in Salem supplied by ULS water is being studied by CUWCD. It is recommended that the City participate and provide input in the study.

Springville also owns 95 ac-ft of East Jordan Canal water through the City's approximate 23.7 percentage of SUVMWA. It is recommended that the City sell the SUVMWA East Jordan Canal water right.

WATER RIGHT RECOMMENDATIONS

In summary, although the City has sufficient water rights to meet existing demands in the PI system, several actions with regards to PI water rights are recommended to ensure future demands have sufficient water rights. They include:

- Work with the Utah Division of Water Rights to aid in a decision being finalized in the water right adjudication.
- File change applications for all water rights based on shares to municipal use.
- File a change application to add a point of diversion on the Plat A water right (51-5224) at the City Dam to use the water in the PI system.
- Sell the City's SUVMWA portion of an East Jordan Canal water right.
- Start discussions with the Department of Interior, CUWCD, and SUVMWA to understand the contract between the SUVMWA and CUWCD for delivery of ULS water. The City should plan for the best options for meeting the obligation and using the water.

CHAPTER 7 CAPITAL FACILITY PLAN

GENERAL

The purpose of this section is to identify the PI facilities that are required to meet the demands placed on the system by future development for the 10-year planning period (impact fee) and the 20-year planning period (capital facility plan). Proposed facility capacities were sized to adequately meet the planning horizon growth projections and were compared to current master planned facilities. A detailed design analysis will be required before construction of the facilities to ensure that the location and sizing is appropriate for the actual growth that has taken place since this CFP was developed.

METHODOLOGY

Future water demands were based on the growth projections converted into irrigated acreage projections as discussed in Chapter 2. The 20-year growth projection was used to identify the capital projects listed in this chapter. While capital projects are selected for the 20-year growth projection, the facilities were sized to service future growth projections through the planning horizon. A hydraulic model was developed for the purpose of assessing the system operation and capacity with future demands added to the system. This model was used to identify problem areas in the system and to identify the most efficient way to make improvements.

MASTER PLANNING

Throughout the master planning process, the three main components of the PI system (source, storage, and distribution) were analyzed to determine the system's ability to meet existing demands and also the anticipated future demands. Each of the system deficiencies identified in the master planning process and described previously in this report were presented in an alternatives workshop with City staff. Possible alternatives for future growth and facilities were discussed. After the workshop, HAL studied the feasibility of the alternatives and developed conceptual level cost estimates.

One important method of paying for system improvements is through impact fees. Impact fees are collected from new development and should only be used to pay for system improvements related to new development. For this reason, it is important to identify which projects are related to resolving existing deficiencies, and which projects are related to providing anticipated future capacity for new development.

PRECISION OF COST ESTIMATES

When considering cost estimates, there are several levels or degrees of precision, depending on the purpose of the estimate and the percentage of detailed design that has been completed. The following levels of precision are typical:

<u>Type of Estimate</u>	<u>Precision</u>
Master Planning	-50% to +100%
Preliminary Design	-30% to +30%
Final Design or Bid	-10% to +10%

For example, at the master planning level (or conceptual or feasibility design level), if a project is estimated to cost \$1,000,000, then the precision or reliability of the cost estimate would typically be expected to range between approximately \$500,000 and \$2,000,000. While this may seem

very imprecise, the purpose of master planning is to develop general sizing, location, cost, and scheduling information on a number of individual projects that may be designed and constructed over a period of many years. Master planning also typically includes the selection of common design criteria to help ensure uniformity and compatibility among future individual projects. Details such as the exact capacity of individual projects, the level of redundancy, the location of facilities, the alignment and depth of pipelines, the extent of utility conflicts, the cost of land and easements, the construction methodology, the types of equipment and material to be used, the time of construction, interest and inflation rates, permitting requirements, etc., are typically developed during the more detailed levels of design.

At the preliminary design level, some of the aforementioned information will have been developed. Major design decisions such as the size of facilities, selection of facility sites, pipeline alignments and depths, and the selection of the types of equipment and material to be used during construction will typically have been made. At this level of design, the precision of the cost estimate for a \$1,000,000 project would typically be expected to range between approximately \$700,000 and \$1,300,000.

After the project has been completely designed and is ready to bid, all design plans and technical specifications will have been completed and nearly all of the significant details about the project should be known. At this level of design, the precision of the cost estimate for the same \$1,000,000 project would typically be expected to range between approximately \$900,000 and \$1,100,000.

SYSTEM IMPROVEMENT PROJECTS

As discussed in previous chapters, source, storage and distribution system capacity expansion will be needed to meet the demands of future growth. Project descriptions for PI system improvements are presented in Chapters 3, 4 and 5 with the location of each project shown on Figure 3-1. Each recommendation includes a conceptual cost estimate for construction and year needed.

Unit costs for the construction cost estimates are based on conceptual level engineering. Sources used to estimate construction costs include:

1. "Means Heavy Construction Cost Data, 2025"
2. Price quotes from equipment suppliers
3. Recent construction bids for similar work

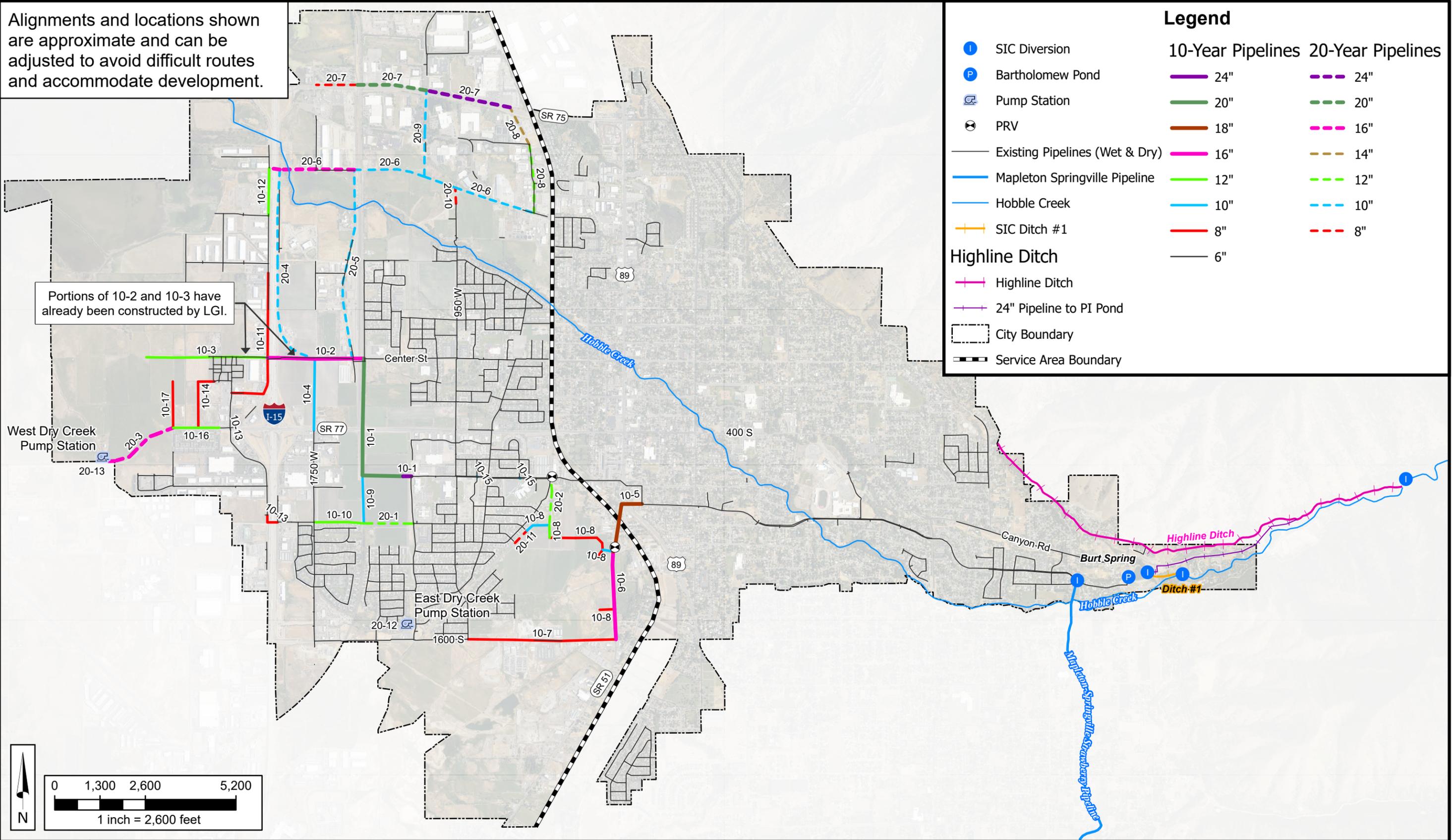
All costs are presented in 2025 dollars. Recent price and economic trends indicate that future costs are difficult to predict with certainty. Engineering cost estimates provided in this study should be regarded as conceptual level for use as a planning guide. Only during final design can a definitive and more accurate estimate be provided for each project.

The recommended system improvement projects for the next 20 years through 2045 are summarized in Tables 7-1 and 7-2 and shown on Figure 7-1. A cost estimate calculation for each recommended project is provided in Appendix B. The estimated cost for the recommended system capital improvement projects for the next 10 years is **\$17,243,000**. In the 10-20 year planning window, there is another **\$33,634,000** in estimated cost for capital improvement projects.

Date: 1/9/2026 Document Path: H:\Projects\260 - Springville City\61-63 - 2025 Master Plans\61.100 - 2025 PI System Master Plan\GIS\ArcGIS Pro Projects\Springville PI MP GIS 2025.aprx

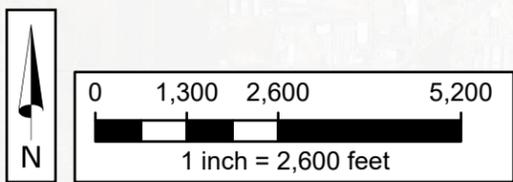
Alignments and locations shown are approximate and can be adjusted to avoid difficult routes and accommodate development.

Portions of 10-2 and 10-3 have already been constructed by LGI.



Legend

	SIC Diversion		10-Year Pipelines 24"		20-Year Pipelines 24"
	Bartholomew Pond		10-Year Pipelines 20"		20-Year Pipelines 20"
	Pump Station		10-Year Pipelines 18"		20-Year Pipelines 16"
	PRV		10-Year Pipelines 16"		20-Year Pipelines 14"
	Existing Pipelines (Wet & Dry)		10-Year Pipelines 12"		20-Year Pipelines 12"
	Mapleton Springville Pipeline		10-Year Pipelines 10"		20-Year Pipelines 10"
	Hobble Creek		10-Year Pipelines 8"		20-Year Pipelines 8"
	SIC Ditch #1		10-Year Pipelines 6"		
	Highline Ditch				
	24" Pipeline to PI Pond				
	City Boundary				
	Service Area Boundary				



SPRINGVILLE CITY PRESSURIZED IRRIGATION SYSTEM MASTER PLAN

CAPITAL FACILITIES PLAN

**FIGURE
7-1**



**Table 7-1
Recommended 0-10 Year Transmission Projects**

Project ID*	Recommendation	Impact Fee Eligible Cost	% Impact Fee Eligible	Total Cost Estimate
10-1	20-inch diameter pipe in 1500 W - from Center St to 700 S - and 24-inch diameter pipe east of 700 S	\$4,370,000	100%	\$4,370,000
10-2**	16-inch diameter pipe in Center Street - from 1200 W to 1500 W	\$2,271,000	100%	\$2,271,000
10-3**	12-inch diameter pipe Center Street – West of 2000 W. This cost is for the remaining portion of pipeline not constructed by LGI	\$280,000	25%	\$1,120,000
	This cost is for the impact fee eligible cost of upsizing the 1,160 LF of pipe that has already been constructed by LGI.	\$73,000	100%	\$73,000
10-4	10-inch diameter pipe in 1750 W - from Center St to 400 S	\$230,000	15%	\$1,460,000
10-5	18-inch diameter pipe in State St (near 1000 S) and PRV to 18" pipe	\$3,470,000	100%	\$3,470,000
10-6	16-inch diameter pipe in State St	\$1,440,000	100%	\$1,440,000
10-7	8-inch diameter pipe in 1600 S - from State St to 950 W	\$1,890,000	100%	\$1,890,000
10-8	8-inch, 10-inch, and 12-inch diameter pipes across Dry Creek area	\$210,000	13%	\$1,560,000
10-9	10-inch diameter pipe in 1700 W - from 700 S to 900 S	\$80,000	14%	\$530,000
10-10	12-inch diameter pipe in 900 S - from 1750 W to 1700 W	\$230,000	25%	\$880,000
10-11	8-inch diameter pipe in 2000 W - from about 500 N to Sweetwater Dr and 6-inch diameter pipe in 500 N - from 2400 W to 2250 West	\$1,560,000	100%	\$1,560,000
10-12	12-inch diameter pipe in 2000 W - from 1000 N to 800 N	\$570,000	100%	\$570,000
10-13	8-inch diameter pipe in 900 S under I-15 and 6-inch diameter pipe in 2200 West under 400 South	\$990,000	100%	\$990,000
10-14	8-inch diameter pipe off 2250 W	\$50,000	7%	\$640,000
10-15	10-inch diameter pipe across 700 S road to connect 30" pipe to 6" pipe and a PRV to 30" pipe near 400 W 700 S	\$550,000	100%	\$550,000
10-16	12-inch diameter pipe in 400 S - from 2400 W to 2600 W	\$180,000	24%	\$710,000
10-17	8-inch diameter pipe in 2600 W to connect to 400 S pipeline	\$40,000	6%	\$580,000
Total		\$18,484,000	75%	\$24,664,000

* See Figure 7-1

** Projects 10-2 and 10-3 are currently under construction by developers. Cost information was provided by the City and is included in Appendix B.

**Table 7-2
Recommended 10-20 Year Transmission Projects**

Project ID*	Recommendation	Impact Fee Eligible Cost	% Impact Fee Eligible	Total Cost Estimate
20-1	12-inch diameter pipe in 900 S - from 1700 W to 1200 W	\$190,000	24%	\$760,000
20-2	12-inch diameter pipe in 400 W - from 700 S to about 900 S	\$220,000	26%	\$850,000
20-3	16-inch diameter pipe in 400 S - from West Dry Creek PS to 100 W	\$1,210,000	100%	\$1,210,000
20-4	10-inch diameter pipe parallel to I-15 - from 1000 N to Center St	\$360,000	14%	\$2,500,000
20-5	10-inch diameter pipe in 1650 W - from to 1000 N to Center St	\$340,000	14%	\$2,380,000
20-6	10-inch diameter pipe in Spring Creek Rd - from 950 W to 400 W and 16-inch diameter pipe in 1000 N - from I-15 to 950 W	\$2,300,000	36%	\$6,320,000
20-7	8-inch, 20-inch, and 24-inch diameter pipes in State Route 75 - from 1750 W to ULS Turnout	\$4,120,000	100%	\$4,120,000
20-8	12-inch diameter pipe in 450 W St - from 1200 N to Spring Creek Rd and 14-inch diameter pipe in 450 W - from ULS Turnout to 1200 N	\$1,810,000	100%	\$1,810,000
20-9	10-inch diameter pipe in Mtn Springs Pkwy - from State Route 75 to 1000 N/Spring Creek Rd	\$1,060,000	100%	\$1,060,000
20-10	8-inch diameter pipe in 950 W - from Spring Creek Rd to about 900 N	\$20,000	5%	\$270,000
20-11	8-inch diameter pipe parallel to Spring Canyon Way (to connect to 10" pipe proposed in Project 10-8)	\$20,000	7%	\$180,000
20-12	East Dry Creek PS and Holding Pond along Dry Creek and near 1200 W	\$8,060,000	100%	\$8,060,000
20-13	West Dry Creek PS and Holding Pond along Dry Creek and near 4000 South	\$8,060,000	100%	\$8,060,000
Total		\$27,770,000	74%	\$37,580,000

* See Figure 7-1

REFERENCES

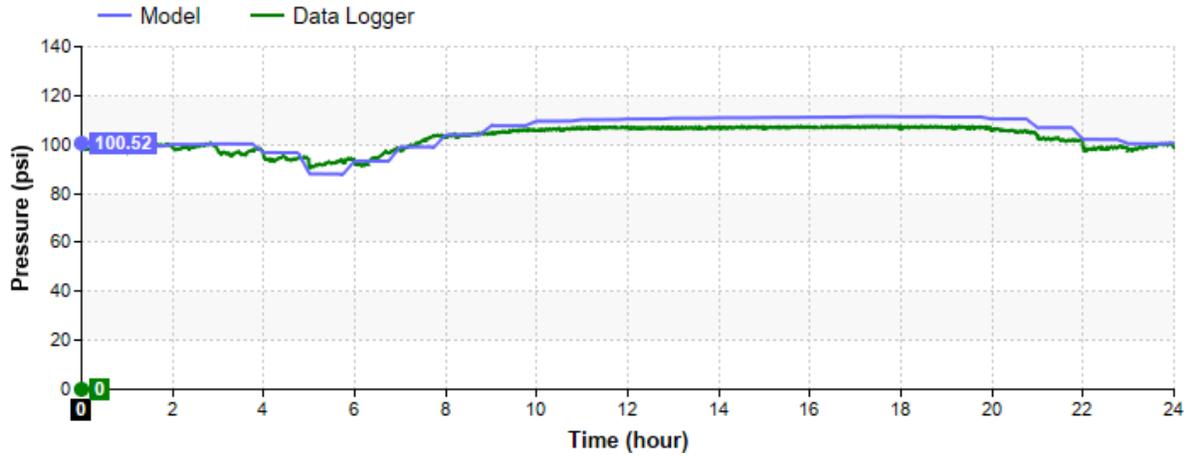
- DWR (Utah Division of Water Rights). 2025. Public Water Supplier Information, Springville City. Accessed Nov. 3.
https://waterrights.utah.gov/asp_apps/viewEditPWS/pwsView.asp?SYSTEM_ID=1343
- Hansen, Allen & Luce (HAL). 2022. "Springville City: 2022 Water Conservation Plan Update". Springville City.
- Kem C. Gardner Policy Institute. 2022. "State and County Projections 2020-2060". Accessed July 15.
<https://gardner.utah.edu/wp-content/uploads/Gardner-Policy-Institute-State-and-County-Projections-2020-2060-Data.xlsx>
- Mountainland Association of Governments. 2019. "Mountainland AOG Small Area Population and Employment Projections". Accessed July 15.
<https://magutah.gov/static/files/data/demographics/MAG%20Small%20Area%20Population%20Projections%202019.pdf>
- Springville City. 2011. "Springville City General Plan: Chapter 2 – Land Use and Population". Springville City.
- State of Utah. 2014a. Utah Administrative Code, Section R309-105: Administration: General Responsibilities of Public Water Systems. In effect Aug. 1. Accessed Nov. 3.
<https://adminrules.utah.gov/public/rule/R309-105/Current%20Rules?#>
- . 2014b. Utah Administrative Code, Section R309-510: Facility Design and Operation: Minimum Sizing Requirements. In effect Aug. 1. Accessed Oct. 10.
<https://adminrules.utah.gov/public/rule/R309-510/Current%20Rules?#>
- . 2014c. Utah Code Annotated, Section 11-36a: Impact Fees Act. Accessed Nov. 3.
https://le.utah.gov/xcode/Title11/Chapter36A/11-36a.html?v=C11-36a_1800010118000101

APPENDIX A

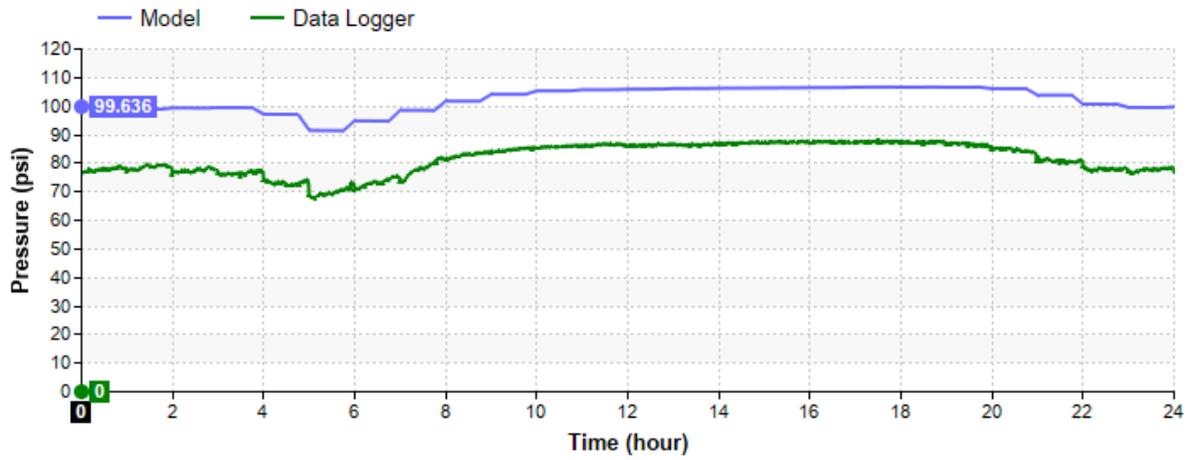
Model Calibration Reports



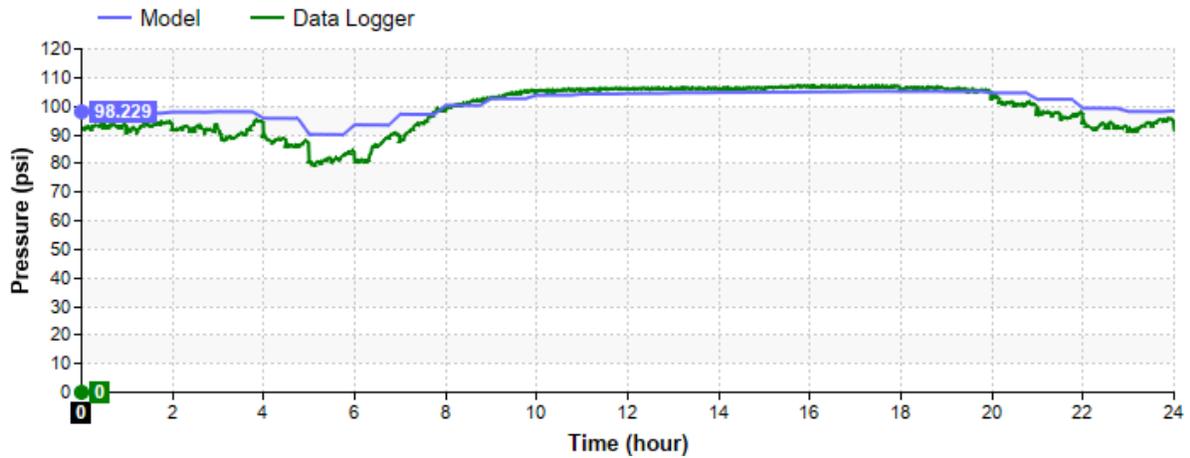
878 W 175 S



722 W 1375 S



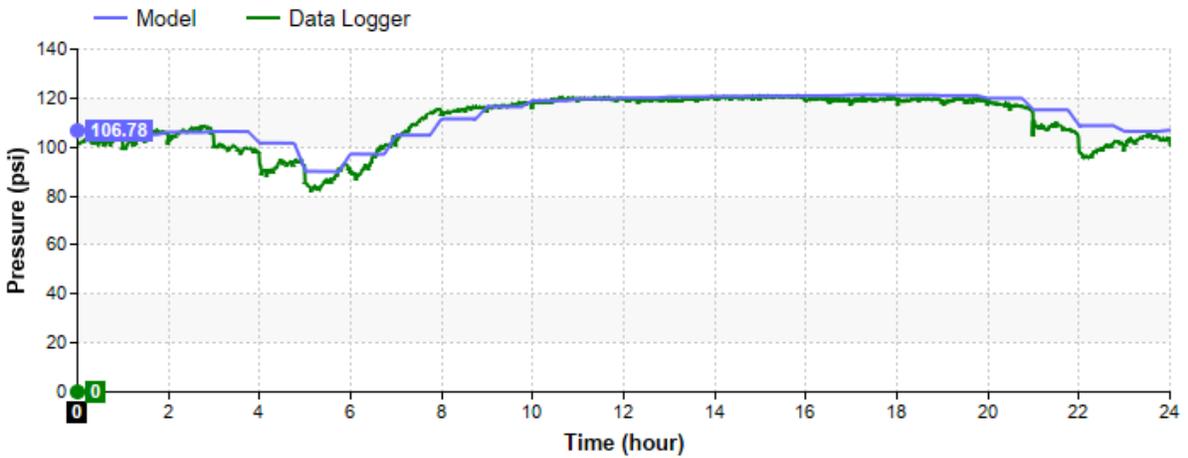
1008 W 1550 S



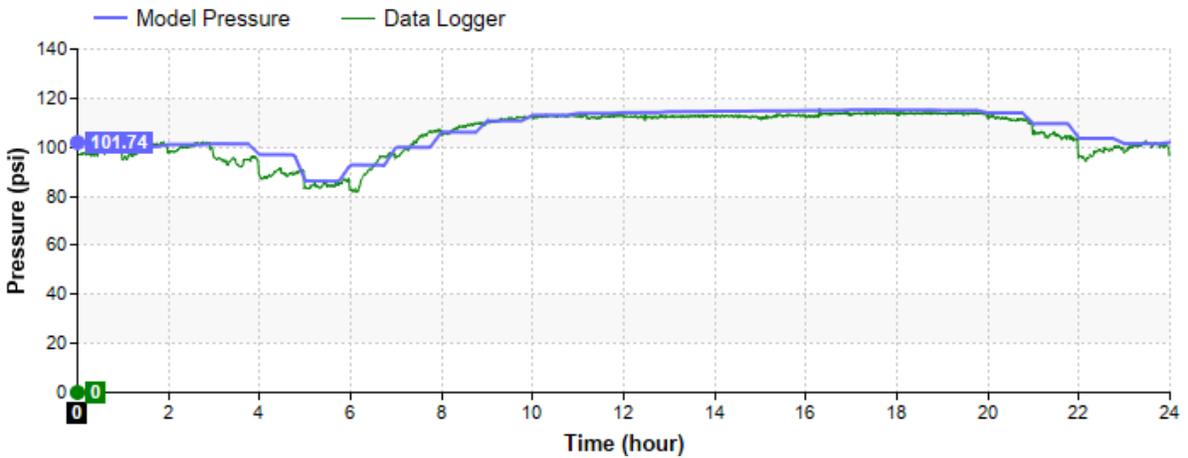
1481 W 150 N



350 N 750 W



1168 W Center



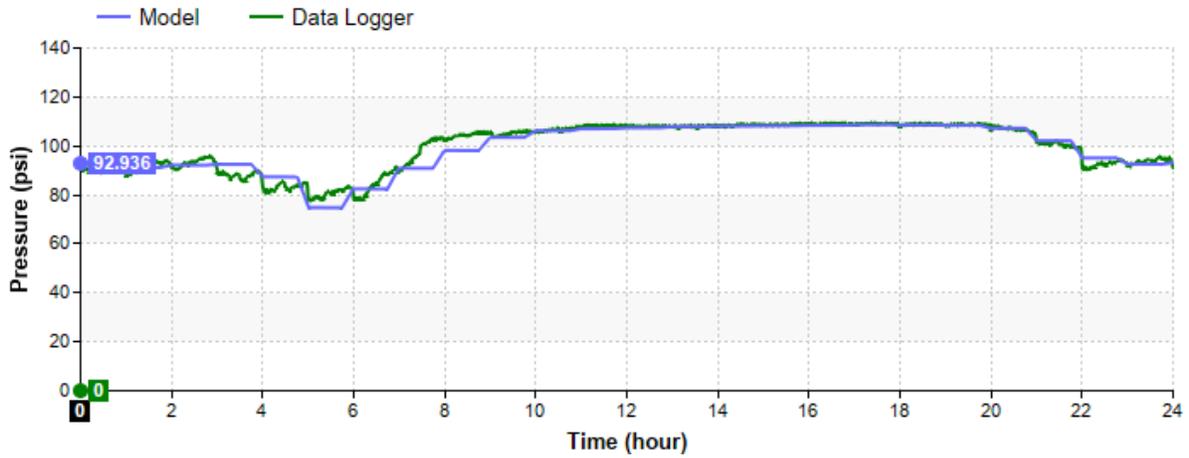
543 W 200 S



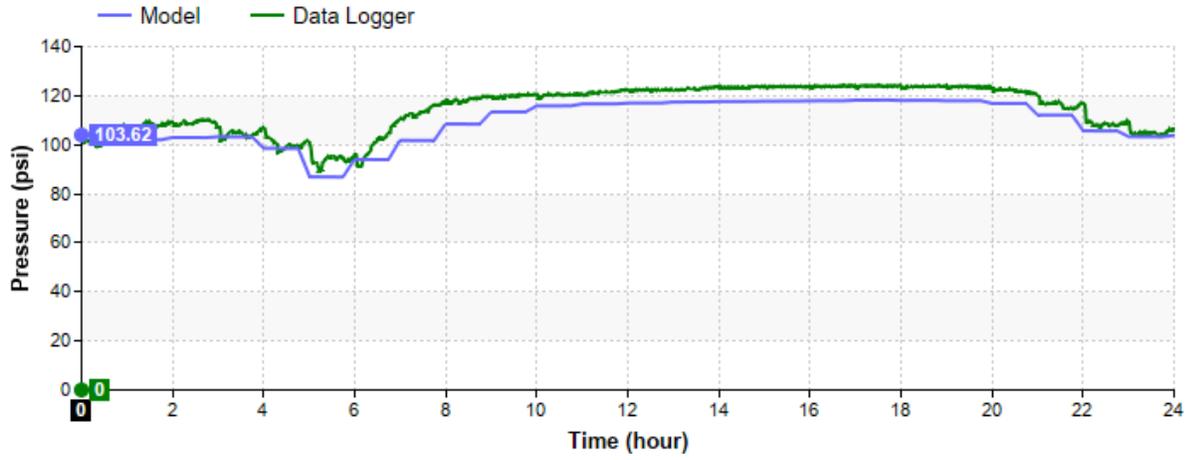
556 N 950 W



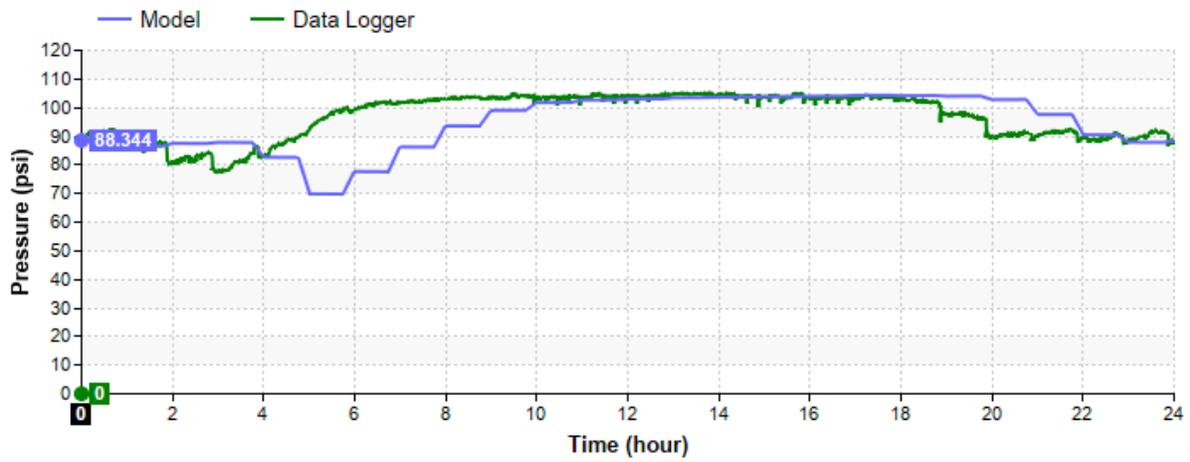
780 W 250 N



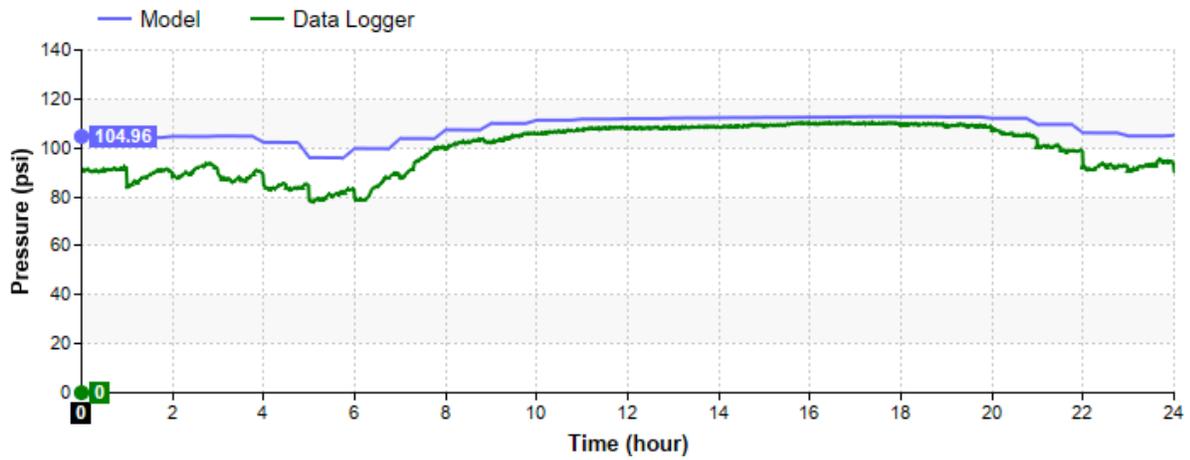
1433 W 550 N



434 W Devon Glen



1418 S Avalon



APPENDIX B

Cost Estimate Calculations



Springville City Pressurized Irrigation Water Master Plan - Capital Facility Plan Project Cost Estimates

Springville City
by Hansen, Allen & Luce, Inc.

AACE Class: 5

Project 10-2 and 10-3 have been or are currently under construction. The costs shown for these projects reflect the bid or reimbursement agreement amounts provided by the City.

10-2: Bid document - Lakeside-Landing Offsite PI Improvements by Landmark Excavating

10-3: Reimbursement agreement - Center Street pressurized irrigation water system improvements

Scenario	Project ID	Item Type	Location/Description	Diameter	Quantity	Rounded Quantity	Unit	Unit Cost	Base Cost	Contingency (20%)	Engineering (10%)	Project Total Cost	Project Total Cost Rounded	Impact Fee Eligible Cost	Impact Fee Eligible Cost Rounded	% Impact Fee Eligible
PI Project 10-1																
10-Year	10-1	Pipe	20-inch diameter pipe	20	4507	4510	LF	\$ 440	\$ 1,984,400	\$ 396,880	\$ 198,440	\$ 2,579,720	\$ 2,580,000	\$ 2,579,720	\$ 2,580,000	100%
10-Year	10-1	Pipe	24-inch diameter pipe	24	241	250	LF	\$ 510	\$ 127,500	\$ 25,500	\$ 12,750	\$ 165,750	\$ 166,000	\$ 165,750	\$ 166,000	100%
10-Year	10-1	Bore-20	Bore 20-inch diameter pipe across SR77/400 S (180')	20	180	180	LF	\$ 4,800	\$ 864,000	\$ 172,800	\$ 86,400	\$ 1,123,200	\$ 1,124,000	\$ 1,123,200	\$ 1,124,000	100%
10-Year	10-1	Bore-20	Bore 20-inch diameter pipe across (2) canals (40')	20	80	80	LF	\$ 4,800	\$ 384,000	\$ 76,800	\$ 38,400	\$ 499,200	\$ 500,000	\$ 499,200	\$ 500,000	100%
												PI Project 10-1 Total	\$ 4,370,000	10-1 Total	\$ 4,370,000	100%
PI Project 10-2 (Lakeside Offsite PI, under construction)																
10-Year	10-2	Pipe	16-inch along Center St from 1500 W to 2000 W	16	(-)	(-)	(-)	(-)	Bid Cost \$ 1,973,978	Contingency (10%) \$ 197,398	Engineering (5%) \$ 98,699	Total \$ 2,270,075	Rounded \$ 2,271,000	\$ 2,271,000	\$ 2,271,000	100%
												PI Project 10-2 Total	\$ 2,271,000	10-2 Total	\$ 2,271,000	100%
PI Project 10-3 (LGI Center Street Offsite PI, West of I-15, portion constructed)																
10-Year	10-3	Pipe	12-inch along Center St (constructed)	12	1160	1160	LF	(-)	(-)	(-)	(-)	\$ 72,945	\$ 73,000	\$ 72,945	\$ 73,000	100%
												PI Project 10-3 Subtotal	\$ 73,000	10-3 Subtotal	\$ 73,000	100%
10-Year	10-3	Pipe	12-inch diameter pipe	12	1916	1920	LF	\$ 320	\$ 614,400	\$ 122,880	\$ 61,440	\$ 798,720	\$ 799,000	\$ 174,720	\$ 175,000	22%
10-Year	10-3	Bore-12	Bore 12-inch diameter pipe across (2) canals (40')	12	80	80	LF	\$ 3,000	\$ 240,000	\$ 48,000	\$ 24,000	\$ 312,000	\$ 312,000	\$ 104,000	\$ 104,000	33%
												PI Project 10-3 Subtotal	\$ 1,120,000	10-3 Subtotal	\$ 280,000	25%
												PI Project 10-3 Total	\$ 1,193,000	10-3 Total	\$ 353,000	
10-Year	10-4	Pipe	10-inch diameter pipe	10	2049	2050	LF	\$ 290	\$ 594,500	\$ 118,900	\$ 59,450	\$ 772,850	\$ 773,000	\$ 106,600	\$ 107,000	14%
10-Year	10-4	Bore-10	Bore 10-inch diameter pipe across SR77 (180')	10	180	180	LF	\$ 2,400	\$ 432,000	\$ 86,400	\$ 43,200	\$ 561,600	\$ 562,000	\$ 93,600	\$ 94,000	17%
10-Year	10-4	Bore-10	Bore 10-inch diameter pipe across canal (40')	10	40	40	LF	\$ 2,400	\$ 96,000	\$ 19,200	\$ 9,600	\$ 124,800	\$ 125,000	\$ 20,800	\$ 21,000	17%
												PI Project 10-4 Total	\$ 1,460,000	10-4 Total	\$ 230,000	15%
PI Project 10-5																
10-Year	10-5	Pipe	18-inch diameter pipe	18	1971	1980	LF	\$ 400	\$ 792,000	\$ 158,400	\$ 79,200	\$ 1,029,600	\$ 1,030,000	\$ 1,029,600	\$ 1,030,000	100%
10-Year	10-5	PRV-18	PRV to 18" pipe on 1000 S State St.	18	1	1	Each	\$ 400,000	\$ 400,000	\$ 80,000	\$ 40,000	\$ 520,000	\$ 520,000	\$ 520,000	\$ 520,000	100%
10-Year	10-5	Bore-18	Bore 18-inch diameter pipe across US 89 (300')	18	300	300	LF	\$ 4,200	\$ 1,260,000	\$ 252,000	\$ 126,000	\$ 1,638,000	\$ 1,638,000	\$ 1,638,000	\$ 1,638,000	100%
10-Year	10-5	Bore-18	Bore 18-inch diameter pipe across railroad (50')	18	50	50	LF	\$ 4,200	\$ 210,000	\$ 42,000	\$ 21,000	\$ 273,000	\$ 273,000	\$ 273,000	\$ 273,000	100%
												PI Project 10-5 Total	\$ 3,470,000	10-5 Total	\$ 3,470,000	100%
PI Project 10-6																
10-Year	10-6	Pipe	16-inch diameter pipe	16	2516	2520	LF	\$ 370	\$ 932,400	\$ 186,480	\$ 93,240	\$ 1,212,120	\$ 1,213,000	\$ 1,212,120	\$ 1,213,000	100%
10-Year	10-6	Bore-16	Bore 16-inch diameter pipe across Dry Creek (40')	16	40	40	LF	\$ 4,200	\$ 168,000	\$ 33,600	\$ 16,800	\$ 218,400	\$ 219,000	\$ 218,400	\$ 219,000	100%
												PI Project 10-6 Total	\$ 1,440,000	10-6 Total	\$ 1,440,000	100%
PI Project 10-7																
10-Year	10-7	Pipe	8-inch diameter pipe	8	4245	4250	LF	\$ 270	\$ 1,147,500	\$ 229,500	\$ 114,750	\$ 1,491,750	\$ 1,492,000	\$ 1,491,750	\$ 1,492,000	100%
10-Year	10-7	Bore-8	Bore 8-inch diameter pipe across SR51 (150')	8	150	150	LF	\$ 2,000	\$ 300,000	\$ 60,000	\$ 30,000	\$ 390,000	\$ 390,000	\$ 390,000	\$ 390,000	100%
												PI Project 10-7 Total	\$ 1,890,000	10-7 Total	\$ 1,890,000	100%
PI Project 10-8																
10-Year	10-8	Pipe	8-inch diameter pipe	8	2464	2470	LF	\$ 270	\$ 666,900	\$ 133,380	\$ 66,690	\$ 866,970	\$ 867,000	\$ 64,220	\$ 65,000	7%
10-Year	10-8	Pipe	10-inch diameter pipe	10	1006	1010	LF	\$ 290	\$ 292,900	\$ 58,580	\$ 29,290	\$ 380,770	\$ 381,000	\$ 52,520	\$ 53,000	14%
10-Year	10-8	Pipe	12-inch diameter pipe	12	361	370	LF	\$ 320	\$ 118,400	\$ 23,680	\$ 11,840	\$ 153,920	\$ 154,000	\$ 33,670	\$ 34,000	22%
10-Year	10-8	Bore-12	Bore 12-inch diameter pipe across canal (40')	12	40	40	LF	\$ 3,000	\$ 120,000	\$ 24,000	\$ 12,000	\$ 156,000	\$ 156,000	\$ 52,000	\$ 52,000	33%
												PI Project 10-8 Total	\$ 1,560,000	10-8 Total	\$ 210,000	13%
PI Project 10-9																
10-Year	10-9	Pipe	10-inch diameter pipe	10	1375	1380	LF	\$ 290	\$ 400,200	\$ 80,040	\$ 40,020	\$ 520,260	\$ 521,000	\$ 71,760	\$ 72,000	14%
												PI Project 10-9 Total	\$ 530,000	10-9 Total	\$ 80,000	14%
PI Project 10-10																
10-Year	10-10	Pipe	12-inch diameter pipe	12	1435	1440	LF	\$ 320	\$ 460,800	\$ 92,160	\$ 46,080	\$ 599,040	\$ 600,000	\$ 131,040	\$ 132,000	22%
10-Year	10-10	Bore-12	Bore 12-inch diameter pipe across railroad (70')	12	70	70	LF	\$ 3,000	\$ 210,000	\$ 42,000	\$ 21,000	\$ 273,000	\$ 273,000	\$ 91,000	\$ 91,000	33%
												PI Project 10-10 Total	\$ 880,000	10-10 Total	\$ 230,000	25%
PI Project 10-11																
10-Year	10-11	Pipe	8-inch diameter pipe	8	4403	4410	LF	\$ 270	\$ 1,190,700	\$ 238,140	\$ 119,070	\$ 1,547,910	\$ 1,548,000	\$ 1,547,910	\$ 1,548,000	100%
10-Year	10-11	Bore-8	Bore 8-inch diameter pipe across canal structure (20')	8	1	1	LF	\$ 2,000	\$ 2,000	\$ 400	\$ 200	\$ 2,600	\$ 3,000	\$ 2,600	\$ 3,000	100%
												PI Project 10-11 Total	\$ 1,560,000	10-11 Total	\$ 1,560,000	100%
PI Project 10-12																
10-Year	10-12	Pipe	12-inch diameter pipe	12	1365	1370	LF	\$ 320	\$ 438,400	\$ 87,680	\$ 43,840	\$ 569,920	\$ 570,000	\$ 569,920	\$ 570,000	100%
												PI Project 10-12 Total	\$ 570,000	10-12 Total	\$ 570,000	100%
PI Project 10-13																
10-Year	10-13	Pipe	8-inch diameter pipe	8	502	510	LF	\$ 270	\$ 137,700	\$ 27,540	\$ 13,770	\$ 179,010	\$ 180,000	\$ 179,010	\$ 180,000	100%
10-Year	10-13	Pipe	6-inch diameter pipe	6	73	80	LF	\$ 250	\$ 20,000	\$ 4,000	\$ 2,000	\$ 26,000	\$ 26,000	\$ 26,000	\$ 26,000	100%
10-Year	10-13	Bore-8	Bore 8-inch diameter pipe across I-15 (300')	8	300	300	LF	\$ 2,000	\$ 600,000	\$ 120,000	\$ 60,000	\$ 780,000	\$ 780,000	\$ 780,000	\$ 780,000	100%
												PI Project 10-13 Total	\$ 990,000	10-13 Total	\$ 990,000	100%
PI Project 10-14																
10-Year	10-14	Pipe	8-inch diameter pipe	8	1793	1800	Each	\$ 270	\$ 486,000	\$ 97,200	\$ 48,600	\$ 631,800	\$ 632,000	\$ 46,800	\$ 47,000	7%
												PI Project 10-14 Total	\$ 640,000	10-14 Total	\$ 50,000	7%
PI Project 10-15																
10-Year	10-15	Pipe	10-inch diameter pipe	10	62	70	LF	\$ 290	\$ 20,300	\$ 4,060	\$ 2,030	\$ 26,390	\$ 27,000	\$ 26,390	\$ 27,000	100%
10-Year	10-15	PRV-30	PRV to 30" pipe on 400 W 700 S	30	1	1	Each	\$ 400,000	\$ 400,000	\$ 80,000	\$ 40,000	\$ 520,000	\$ 520,000	\$ 520,000	\$ 520,000	100%
												PI Project 10-15 Total	\$ 550,000	10-15 Total	\$ 550,000	100%
PI Project 10-16																
10-Year	10-16	Pipe	12-inch diameter pipe	12	1323	1330	LF	\$ 320	\$ 425,600	\$ 85,120	\$ 42,560	\$ 553,280	\$ 554,000	\$ 121,030	\$ 122,000	22%
10-Year	10-16	Bore-12	Bore 12-inch diameter pipe across canal (40')	12	40	40	LF	\$ 3,000	\$ 120,000	\$ 24,000	\$ 12,000	\$ 156,000	\$ 156,000	\$ 52,000	\$ 52,000	33%
												PI Project 10-16 Total	\$ 710,000	10-16 Total	\$ 180,000	24%
PI Project 10-17																
10-Year	10-17	Pipe	8-inch diameter pipe	8	1327	1330	LF	\$ 270	\$ 359,100	\$ 71,820	\$ 35,910	\$ 466,830	\$ 467,000	\$ 34,580	\$ 35,000	7%
10-Year	10-17	Bore-8	Bore 8-inch diameter pipe across canal (40')	8	40	40	LF	\$ 2,000	\$ 80,000	\$ 16,000	\$ 8,000	\$ 104,000	\$ 104,000	\$ -	\$ -	0%
												PI Project 10-17 Total	\$ 580,000	10-17 Total	\$ 40,000	6%

Springville City Pressurized Irrigation Water Master Plan - Capital Facility Plan Project Cost Estimates

Springville City
by Hansen, Allen & Luce, Inc.

AACE Class: 5

Project 10-2 and 10-3 have been or are currently under construction. The costs shown for these projects reflect the bid or reimbursement agreement amounts provided by the City.

10-2: Bid document - Lakeside-Landing Offsite PI Improvements by Landmark Excavating

10-3: Reimbursement agreement - Center Street pressurized irrigation water system improvements

Scenario	Project ID	Item Type	Location/Description	Diameter	Quantity	Rounded Quantity	Unit	Unit Cost	Base Cost	Contingency (20%)	Engineering (10%)	Project Total Cost	Project Total Cost Rounded	Impact Fee Eligible Cost	Impact Fee Eligible Cost Rounded	% Impact Fee Eligible
PI Project 20-1																
20-Year	20-1	Pipe	12-inch diameter pipe	12	1428	1430	LF	\$ 320	\$ 457,600	\$ 91,520	\$ 45,760	\$ 594,880	\$ 595,000	\$ 130,130	\$ 131,000	22%
20-Year	20-1	Bore-12	Bore 12-inch diameter pipe across canal structure (40')	12	40	40	LF	\$ 3,000	\$ 120,000	\$ 24,000	\$ 12,000	\$ 156,000	\$ 156,000	\$ 52,000	\$ 52,000	33%
												PI Project 20-1 Total	\$ 760,000	20-1 Total	\$ 190,000	24%
PI Project 20-2																
20-Year	20-2	Pipe	12-inch diameter pipe	12	1367	1370	LF	\$ 320	\$ 438,400	\$ 87,680	\$ 43,840	\$ 569,920	\$ 570,000	\$ 124,670	\$ 125,000	22%
20-Year	20-2	Bore-12	Bore 12-inch diameter pipe across railroad (70')	12	70	70	LF	\$ 3,000	\$ 210,000	\$ 42,000	\$ 21,000	\$ 273,000	\$ 273,000	\$ 91,000	\$ 91,000	33%
												PI Project 20-2 Total	\$ 850,000	20-2 Total	\$ 220,000	26%
PI Project 20-3																
20-Year	20-3	Pipe	16-inch diameter pipe	16	2265	2270	LF	\$ 370	\$ 839,900	\$ 167,980	\$ 83,990	\$ 1,091,870	\$ 1,092,000	\$ 1,091,870	\$ 1,092,000	100%
20-Year	20-3	UDOT	UDOT ROW (SR 77)		1	1	LS	10% project	\$ 83,990	\$ 16,798	\$ 8,399	\$ 109,187	\$ 110,000	\$ 109,187	\$ 110,000	100%
												PI Project 20-3 Total	\$ 1,210,000	20-3 Total	\$ 1,210,000	100%
PI Project 20-4																
20-Year	20-4	Pipe	10-inch diameter pipe	10	5958	5960	LF	\$ 290	\$ 1,728,400	\$ 345,680	\$ 172,840	\$ 2,246,920	\$ 2,247,000	\$ 309,920	\$ 310,000	14%
20-Year	20-4	Bore-10	Bore 10-inch diameter pipe across canal (80')	10	80	80	LF	\$ 2,400	\$ 192,000	\$ 38,400	\$ 19,200	\$ 249,600	\$ 250,000	\$ 41,600	\$ 42,000	17%
												PI Project 20-4 Total	\$ 2,500,000	20-4 Total	\$ 360,000	14%
PI Project 20-5																
20-Year	20-5	Pipe	10-inch diameter pipe	10	5464	5470	LF	\$ 290	\$ 1,586,300	\$ 317,260	\$ 158,630	\$ 2,062,190	\$ 2,063,000	\$ 284,440	\$ 285,000	14%
20-Year	20-5	Bore-10	Bore 10-inch diameter pipe across Hobble Creek (100')	10	100	100	LF	\$ 2,400	\$ 240,000	\$ 48,000	\$ 24,000	\$ 312,000	\$ 312,000	\$ 52,000	\$ 52,000	17%
												PI Project 20-5 Total	\$ 2,380,000	20-5 Total	\$ 340,000	14%
PI Project 20-6																
20-Year	20-6	Pipe	10-inch diameter pipe	10	5355	5360	LF	\$ 290	\$ 1,554,400	\$ 310,880	\$ 155,440	\$ 2,020,720	\$ 2,021,000	\$ 278,720	\$ 279,000	14%
20-Year	20-6	Pipe	16-inch diameter pipe	16	2442	2450	LF	\$ 370	\$ 906,500	\$ 181,300	\$ 90,650	\$ 1,178,450	\$ 1,179,000	\$ 382,200	\$ 383,000	32%
20-Year	20-6	Bore-16	Bore 16-inch diameter pipe across railroad (170')	16	170	170	LF	\$ 4,200	\$ 714,000	\$ 142,800	\$ 71,400	\$ 928,200	\$ 929,000	\$ 486,200	\$ 487,000	52%
20-Year	20-6	Bore-16	Bore 16-inch diameter pipe across Hobble Creek (100')	16	100	100	LF	\$ 4,200	\$ 420,000	\$ 84,000	\$ 42,000	\$ 546,000	\$ 546,000	\$ 286,000	\$ 286,000	52%
20-Year	20-6	Bore-16	Bore 16-inch diameter pipe under I-15 (300')	16	300	300	LF	\$ 4,200	\$ 1,260,000	\$ 252,000	\$ 126,000	\$ 1,638,000	\$ 1,638,000	\$ 858,000	\$ 858,000	52%
												PI Project 20-6 Total	\$ 6,320,000	20-6 Total	\$ 2,300,000	36%
PI Project 20-7																
20-Year	20-7	Pipe	8-inch diameter pipe	8	1160	1160	LF	\$ 270	\$ 313,200	\$ 62,640	\$ 31,320	\$ 407,160	\$ 408,000	\$ 407,160	\$ 408,000	100%
20-Year	20-7	Pipe	20-inch diameter pipe	20	2010	2010	LF	\$ 440	\$ 884,400	\$ 176,880	\$ 88,440	\$ 1,149,720	\$ 1,150,000	\$ 1,149,720	\$ 1,150,000	100%
20-Year	20-7	Pipe	24-inch diameter pipe	24	2448	2450	LF	\$ 510	\$ 1,249,500	\$ 249,900	\$ 124,950	\$ 1,624,350	\$ 1,625,000	\$ 1,624,350	\$ 1,625,000	100%
20-Year	20-7	Bore-20	Bore 20-inch diameter pipe across railroad (150')	20	150	150	LF	\$ 4,800	\$ 720,000	\$ 144,000	\$ 72,000	\$ 936,000	\$ 936,000	\$ 936,000	\$ 936,000	100%
												PI Project 20-7 Total	\$ 4,120,000	20-7 Total	\$ 4,120,000	100%
PI Project 20-8																
20-Year	20-8	Pipe	12-inch diameter pipe	12	1955	1960	LF	\$ 320	\$ 627,200	\$ 125,440	\$ 62,720	\$ 815,360	\$ 816,000	\$ 815,360	\$ 816,000	100%
20-Year	20-8	Pipe	14-inch diameter pipe	14	1213	1220	LF	\$ 330	\$ 402,600	\$ 80,520	\$ 40,260	\$ 523,380	\$ 524,000	\$ 523,380	\$ 524,000	100%
20-Year	20-8	Bore-14	Bore 14-inch diameter pipe across SR75 (100')	14	100	100	LF	\$ 3,600	\$ 360,000	\$ 72,000	\$ 36,000	\$ 468,000	\$ 468,000	\$ 468,000	\$ 468,000	100%
												PI Project 20-8 Total	\$ 1,810,000	20-8 Total	\$ 1,810,000	100%
PI Project 20-9																
20-Year	20-9	Pipe	10-inch diameter pipe	10	2468	2470	LF	\$ 290	\$ 716,300	\$ 143,260	\$ 71,630	\$ 931,190	\$ 932,000	\$ 931,190	\$ 932,000	100%
20-Year	20-9	Bore-10	Bore 10-inch diameter pipe across canal (40')	10	40	40	LF	\$ 2,400	\$ 96,000	\$ 19,200	\$ 9,600	\$ 124,800	\$ 125,000	\$ 124,800	\$ 125,000	100%
												PI Project 20-9 Total	\$ 1,060,000	20-9 Total	\$ 1,060,000	100%
PI Project 20-10																
20-Year	20-10	Pipe	8-inch diameter pipe	8	460	460	LF	\$ 270	\$ 124,200	\$ 24,840	\$ 12,420	\$ 161,460	\$ 162,000	\$ 11,960	\$ 12,000	7%
20-Year	20-10	Bore-8	Bore 8-inch diameter pipe across canal (40')	8	40	40	LF	\$ 2,000	\$ 80,000	\$ 16,000	\$ 8,000	\$ 104,000	\$ 104,000	\$ -	\$ -	0%
												PI Project 20-10 Total	\$ 270,000	20-10 Total	\$ 20,000	5%
PI Project 20-11																
20-Year	20-11	Pipe	8-inch diameter pipe	8	489	490	LF	\$ 270	\$ 132,300	\$ 26,460	\$ 13,230	\$ 171,990	\$ 172,000	\$ 12,740	\$ 13,000	7%
												PI Project 20-11 Total	\$ 180,000	20-11 Total	\$ 20,000	7%
PI Project 20-12																
20-Year	20-12	PS	East Dry Creek PS		1	1	Each	\$ 5,000,000	\$ 5,000,000	\$ 1,000,000	\$ 500,000	\$ 6,500,000	\$ 6,500,000	\$ 6,500,000	\$ 6,500,000	100%
20-Year	20-12	Pond	East Dry Creek Holding Pond		3	3	ac-ft	\$ 400,000	\$ 1,200,000	\$ 240,000	\$ 120,000	\$ 1,560,000	\$ 1,560,000	\$ 1,560,000	\$ 1,560,000	100%
												PI Project 20-12 Total	\$ 8,060,000	20-12 Total	\$ 8,060,000	100%
PI Project 20-13																
20-Year	20-13	PS	West Dry Creek PS		1	1	Each	\$ 5,000,000	\$ 5,000,000	\$ 1,000,000	\$ 500,000	\$ 6,500,000	\$ 6,500,000	\$ 6,500,000	\$ 6,500,000	100%
20-Year	20-13	Pond	West Dry Creek Holding Pond		3	3	ac-ft	\$ 400,000	\$ 1,200,000	\$ 240,000	\$ 120,000	\$ 1,560,000	\$ 1,560,000	\$ 1,560,000	\$ 1,560,000	100%
												PI Project 20-13 Total	\$ 8,060,000	20-13 Total	\$ 8,060,000	100%

	Total	Impact Fee Eligible	
10-Year	\$ 24,664,000	\$ 18,484,000	75%
20-Year	\$ 37,580,000	\$ 27,770,000	74%

APPENDIX C

Water Right Summary

Pending APP	51-8366	a35086	2008	SHAR	N/A	1890-1934	None	631934	I	4/01-10/31	Springville City Corporation Wood Springs Irrigation Company	City Wood Springs	N/A	N/A	252.000	Share Statement (2008)	252.000	126.00					drain	drain	(1) S 670 feet W 1370 feet from E4 corner, Sec 28 T 75 R 3E SLBM			Wood Springs Irrigation Company	63	104.958	Request to Activate	drinking water use. Applications have been approved recently but are irrigation rights that state the strawberry portion will not be used for domestic use.			
Pending APP	51-8791	a43637	2018	SHAR	N/A	1861	None	724480	I	4/01-10/31	Springville City Corporation Mill Pond Irrigation Company	City Mill Pond Irrigation	N/A	N/A	387.855	Share Statement (2018)	387.855	193.93					springs creek	springs creek	(1) S 3030 feet E 20 feet from N4 corner, Sec 28 T 75 R 3E SLBM (2) S 150 feet W 1320 feet from NE corner, Sec 32 T 75 R 3E SLBM (3) S 860 feet W 1050 feet from E4 corner, Sec 30 T 75 R 3E SLBM (4) N 790 feet W 480 feet from SE corner, Sec 29 T 75 R 3E SLBM	(1) Mill Pond (2) Hobble Creek (3) Mill Pond Irrigation Well (4) Mendenahl Spring	Mill Pond Irrigation Company	99.45	396.8055	Check Share Value	12/04/2008 - Change Application filed on 89.63 12/14/2011 - Mill Pond Irrigation Company - States 89.63 shares, 391.68 AF, 39.17 AF carrier losses, and 352.51 AF available to transfer out of the system. 4.37 AF, 10% losses, 3.933 AF 04/26/2012. 06/29/2020 - OSE, PD 535.28 acres irrigation and 504.21 shares, Company stated 3.09 AF per share. 6/2011 Francon Civil Engineers states 1660 AF delivery, DWRI concludes 3.304 AF per share, 0.826 acre/share, depletion 1.863 AF per share. Approved 89.63 shares for 266.5238 AF and 166.98 AF. 7/20/2020 - Request for Reconsideration granted to the City on 7/22/2020 In light of the critical nature of the share calculations, the City respectfully requests that you grant this Request for Reconsideration and revert the Change Applications to unapproved status in order to give the City and the irrigation companies the necessary time to research the key information, provide the Division with the requested information and documentation, and to review the share calculations with the Division. J. Craig Smith and Jeffrey R. Gittins.				
Pending APP	51-8639	a40922	2015	SHAR	N/A	1890-1934	None	637325	I	4/01-10/31	Springville City Corporation Springville Irrigation Company	City Springville Irrigation	N/A	N/A	259.400	Share Statement (2015)	259.400	129.70					creek spring well	creek spring well	All SIC diversions, etc			Springville Irrigation Company (SIC)	64.85	259.4	Not Listed on Company Page				
Pending APP Objection in PD	51-8368	a35091	2008	SHAR WUC	N/A	1890-1934	None	231366	I	4/01-10/31	Springville City Corporation Springville Irrigation Company	City	N/A	N/A	1236.080	Share Statement (2008)	1236.080	618.04					creek	creek	(1) N 1770 feet E 1860 feet from SW corner, Sec 1 T 85 R 3E SLBM (2) N 1048 feet W 1368 feet from SE corner, Sec 2 T 85 R 3E SLBM (3) N 964 feet E 715 feet from SW corner, Sec 2 T 85 R 3E SLBM (4) S 582 feet E 53 feet from NW corner, Sec 3 T 85 R 3E SLBM (5) S 800 feet E 3150 feet from NW corner, Sec 6 T 85 R 4E SLBM	Hobble Creek: #1 Diversion Island Dam Diversion Sage Creek Diversion Swenson Dam Diversion City Dam Diversion	Springville Irrigation Company (SIC)	309.02	1236.08	Objection in PD					
Pending APP	51-8790	a44540	2019	SHAR	N/A	1890-1934	None	724479	I	4/01-10/31	Springville City Corporation Springville Irrigation Company	City	N/A	N/A	3660.000	Share Statement (2018)	3660.000	1830.00					creek spring well	creek spring well	See SIC points of diversion			Springville Irrigation Company (SIC)	915	3660					
Pending APP	51-8367	a35088	2008	SHAR	N/A	1861	None	230402	I S	4/01-10/31 01/01-12/31	Springville City Corporation Coffman Springs Irrigation Company	City Coffman Springs	N/A	N/A	46.560	Share Statement (2008)	46.560	23.28					spring	spring	(1) S 1220 feet W 670 feet from N4 corner, Sec 32 T 75 R 3E SLBM	Coffman Springs	Springville Irrigation Company (SIC)	11.64	26.72544	Check Share Value					
None	51-8794	N/A	N/A	SHAR	N/A	1851-1953	None	724483	I	4/01-10/31	Springville City Corporation Mapleton Irrigation Company	City Mapleton Irrigation	N/A	N/A	0.380	Share Statement (2018)	0.380	0.19					creeks springs	creeks springs	See MIC points of diversion			Mapleton Irrigation Company (MIC)	0.38	0.38		Not Included in total amount for reuse (include for pending amount)			
Pending APP	51-1322	a28531(pending)	2003	APPL	N/A	1955	None	227541- 227544 227546- 227560	I S	4/01-10/31 01/01-12/31	Springville Municipal Corporation	City	4.57	CERT (1969)	Unevaluated Sole Supply	CERT (1969)	909.710	454.86					drain	wells	(1) S 592 feet W 135 feet from NE corner, Sec 32 T 75 R 3E SLBM	Drain	Abandoned Sewer Drain	N/A	N/A	N/A	File Declaration of Beneficial Use Process Change Application	Not included in total amount for reuse (include for pending amount) Beneficial Use Groups have multiple other owners and no sole supply of this right.			
WUC	51-5453	none	N/A	DIL	N/A	1861	None	227546	I S	4/01-10/31 01/01-12/31	Springville City	City	2.97	PD(1986)	Unevaluated Sole Supply	N/A	0.000	0.00							(1) N 250 feet E 2365 feet from SW corner, Sec 28 T 75 R 3E SLBM (2) S 300 feet W 800 feet from NE corner, Sec 33 T 75 R 3E SLBM	Creek	Little Spring Creek	N/A	N/A	N/A	File Declaration of Beneficial Use Change Application to municipal	Not included for reuse. ROC(2020) - To Springville City Beneficial Use Groups have multiple other owners and no sole supply of this right. Supplemental Use to 51-1322 and 51-2778 (owned by Corp of Presiding Bishop) Groups total 38.86 acre-feet			
Pending Totals																	SubTotal:	6,985.77	3,492.88	50%															

APPENDIX D

2022 Water Conservation Plan

CITY COUNCIL OF SPRINGVILLE CITY

RESOLUTION NUMBER: #2022-52

SHORT TITLE: A RESOLUTION BY THE SPRINGVILLE CITY COUNCIL
ADOPTING THE SPRINGVILLE CITY WATER CONSERVATION PLAN
2022.

PASSAGE BY THE CITY COUNCIL
ROLL CALL

NAME	MOTION	SECOND	FOR	AGAINST	OTHER
Liz Crandall		✓	✓		
Craig Jensen			✓		
Chris Sorensen			✓		
Jason Miller	✓		✓		
Mike Snelson			✓		
	TOTALS		5	—	—

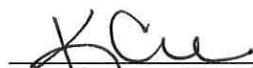
This resolution was passed by the City Council of Springville City, Utah, on the 20th day of December 2022; on a roll call vote as described above.

Approved and signed by me this 20th day of December 2022.




Matt Packard, Mayor

ATTEST:


Kim Crane, City Recorder

RESOLUTION #2022-52

A RESOLUTION BY THE SPRINGVILLE CITY COUNCIL ADOPTING THE SPRINGVILLE CITY WATER CONSERVATION PLAN 2022.

WHEREAS, Springville City recognizes the need to conserve water within *Springville City*, and

WHEREAS, Springville City has participated in the creation of a water conservation plan, hereby known as the Springville City Water Conservation Plan 2022 in accordance with State Code 73-10-32; and

WHEREAS, the Springville City Water Conservation Plan 2022 identifies water conservation goals and actions to reduce water on property in Springville City as required by State law; and

WHEREAS, adoption by Springville City demonstrates their commitment to conserve water and achieve the goals outlined in the Springville City Water Conservation Plan 2022; and

WHEREAS, after providing the 14-day public notice as required by Utah State law, the Springville City Council held a public hearing and found that the Springville City Water Conservation Plan 2022 meets the requirements of Utah State law and is in the best interests of Springville City's water conservation efforts moving forward.

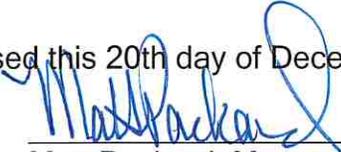
NOW THEREFORE, BE IT RESOLVED BY THE SPRINGVILLE CITY COUNCIL:

SECTION 1. Springville City approves and adopts the Springville City Water Conservation Plan 2022 and directs public works to submit to the Division of Drinking Water, with Utah State.

SECTION 2. This resolution shall be effective on the date it is adopted.



Passed this 20th day of December, 2022


Matt Packard, Mayor
Springville City

Attest: 
Kim Crane, City Recorder

EXHIBIT A

Springville City Water Conservation Plan 2022



SPRINGVILLE CITY

**2022 WATER CONSERVATION
PLAN UPDATE**

(HAL Project No.: 260.58.100)

SPRINGVILLE CITY

2022 WATER CONSERVATION PLAN UPDATE

(HAL Project No.: 260.58.100)



Lance Nielsen, P.E.
Principal, Project Engineer



December 2022

ACKNOWLEDGEMENTS

Successful completion of this water conservation plan update was made possible by the cooperation and assistance of many individuals, including the Mayor of Springville, City Council members, and City Staff as shown below. We sincerely appreciate the cooperation and assistance provided by these individuals.

Springville City

Mayor

Matt Packard

City Council

Liz Crandall

Craig Jensen

Jason Miller

Chris Sorensen

Michael Snelson

Public Works Department

Brad Stapley, Public Works Director

Water Department Staff

Shawn Barker, Water Supervisor

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	i
TABLE OF CONTENTS	ii
LIST OF TABLES AND FIGURES	iii
CHAPTER 1 – INTRODUCTION	1-1
PURPOSE.....	1-1
BACKGROUND.....	1-1
CHAPTER 2 – EXISTING WATER SYSTEMS	2-1
SYSTEM PROFILES	2-1
M&I Water Connections	2-1
INVENTORY OF WATER RESOURCES.....	2-2
WATER RIGHTS.....	2-3
RELIABLE WATER SUPPLY.....	2-4
ULS Pipeline	2-4
HISTORICAL SUPPLY.....	2-5
CHAPTER 3 – WATER USE	3-1
PER CAPITA WATER USE	3-1
FUTURE WATER NEEDS.....	3-1
CHAPTER 4 – WATER & REVENUE LOSS CONTROL	4-1
WATER LOSS.....	4-1
BILLING RATES.....	4-2
CHAPTER 5 – CONSERVATION GOALS & PRACTICES	5-1
IDENTIFIED PROBLEMS.....	5-1
WATER CONSERVATION GOALS.....	5-1
Provo River Regional Goals	5-1
Springville City Water Conservation Goals.....	5-2
BEST MANAGEMENT PRACTICES	5-2
Existing Best Management Practices	5-2
Proposed Best Management Practice	5-3
CHAPTER 6 – IMPLEMENTATION PLAN	6-1
REFERENCES	R-1
APPENDIX A WATER USE PROJECTIONS	
APPENDIX B ADDITIONAL WATER CONSERVATION MEASURES	
APPENDIX C SPRINGVILLE CITY COUNCIL ADOPTION OF CONSERVATION PLAN	

LIST OF TABLES AND FIGURES

TABLE 2-1: DRINKING WATER CONNECTIONS	2-1
FIGURE 2-1: TOTAL SERVICE CONNECTIONS	2-2
TABLE 2-2: CULINARY WATER RIGHTS	2-3
TABLE 2-3: PI WATER RIGHTS	2-4
TABLE 2-4: RELIABLE WATER SUPPLY	2-4
TABLE 2-5: HISTORICAL DRINKING WATER SUPPLY	2-5
TABLE 2-6: HISTORICAL PI WATER SUPPLY	2-5
FIGURE 3-1: HISTORICAL PER-CAPITA WATER USE	3-1
FIGURE 3-2: WATER USE PROJECTIONS	3-2
TABLE 4-1: HISTORICAL DRINKING WATER LOSS	4-1
FIGURE 4-1: HISTORICAL DRINKING WATER PRODUCTION & USE	4-2
TABLE 4-2: DRINKING WATER RATES	4-2
TABLE 4-3: PRESSURIZED IRRIGATION RATES	4-3
TABLE 5-1: PROVO RIVER REGION CONSERVATION GOALS	5-1
TABLE 5-2: SPRINGVILLE CITY CONSERVATION GOALS	5-2
TABLE 5-2: BEST MANAGEMENT PRACTICES	5-3
TABLE 6-1: IMPLEMENTATION PLAN	6-1

CHAPTER 1 – INTRODUCTION

PURPOSE

The purpose of this plan is to assess the water conservation alternatives available to Springville, Utah (the City), to set reasonable and achievable goals to conserve water, and to identify the methods and measures which the City will take to reach these goals. This plan will serve as a guide to maintaining the same level of service to Springville’s residents into the future.

This plan addresses future water needs and the City’s ability to meet these needs. The City may choose the presented alternatives that best suit their interests, while attaining the selected goals. Once the conservation measures are implemented, the water system will be monitored to ensure that the methods are effective in improving water conservation.

BACKGROUND

Historically, the City has consistently met its primary goal of meeting the water demands for its residents. Engineering, master planning, and good civic leadership have been the keys for keeping the City on track. This plan will serve as a guide to maintaining the same level of service to Springville Residents into the future.

The City of Springville recognizes the need for proactive planning to meet the water needs of its residents. The Utah State Legislature has passed legislation requiring public water suppliers to prepare and periodically update a Water Conservation Plan. This report is an update to the 2016 Water Conservation Plan for the City. Included in this document are descriptions of the drinking water and pressurized irrigation (PI) systems, summaries of water consumption rates, assessments of water conservation alternatives, goals for water conservation, and details for existing and proposed conservation measures for the City.

CHAPTER 2 – EXISTING WATER SYSTEMS

SYSTEM PROFILES

The City is located in southern Utah County, on the eastern side of Utah Lake. The City boundaries include approximately 15 square miles, with an additional annexation area of approximately 17 square miles planned for future acquisition. The City also services some residents in Hobble Creek Canyon, which is outside the City limits.

M&I Water Connections

The City owns and operates both a public drinking water system and a public pressurized irrigation system servicing 9,666 and 1,591 connections respectively (Utah Division of Water Rights, 2022). The City began service for the pressurized irrigation system in 2019 and is actively pursuing growth of the system. A summary of the drinking water system connections for 2005 to 2021 is included in Table 2-1 below.

Table 2-1: Drinking Water Connections

Year	Connection Distribution					Total Connections
	Residential	Commercial	Industrial	Institutional	Other	
2005	93.59%	4.96%	0.48%	0.86%	0.11%	7,240
2006	93.43%	5.09%	0.46%	0.90%	0.12%	7,334
2007	93.53%	5.04%	0.40%	0.90%	0.13%	7,664
2008	93.31%	5.19%	0.39%	0.98%	0.14%	7,770
2009	92.48%	5.16%	0.38%	0.99%	0.99%	7,964
2010	92.48%	5.16%	0.37%	0.98%	1.01%	8,084
2011	92.39%	5.23%	0.33%	1.02%	1.03%	8,159
2012	92.22%	5.23%	0.33%	1.16%	1.05%	8,177
2013	91.82%	5.42%	0.01%	1.70%	1.05%	8,471
2014	92.12%	5.59%	0.09%	1.78%	0.41%	8,531
2015	90.76%	5.97%	0.09%	3.18%	-	8,765
2016	92.08%	5.84%	0.09%	1.99%	-	8,685
2017	93.83%	4.01%	0.09%	2.06%	-	8,673
2018	92.43%	5.48%	0.09%	2.00%	-	8,983
2019	92.75%	4.91%	0.56%	1.78%	-	9,099
2020	92.74%	4.93%	0.62%	1.70%	-	9,344
2021	92.76%	4.98%	0.60%	1.67%	-	9,666

Source: Utah Division of Water Rights

As shown in Table 2-1, most of the drinking water system connections are residential; while not shown in any table or figure, this is also the case for the pressurized irrigation system. The “other” category of service connections in Table 2-1 includes stock, wholesale, miscellaneous, and unmetered connections. The City has made efforts to install meters on unmetered connections,

and as of 2016, no unmetered connections have been reported to the Division of Water Rights. Water meters are read monthly, March through October, and are replaced on an as-needed basis.

In 2019, the City began reporting service for customers within the pressurized irrigation system to the Division of Water Rights. The pressurized irrigation system currently only serves the newer developments on the west side of the City. Since the PI service began, the City has expanded it rapidly, with the total number of connections growing from 894 in 2019 to 1,399 in 2021 (Utah Division of Water Rights, 2022). Figure 2-1 shows a chart of the total service connections for both the drinking water system and pressurized irrigation system from 2005 to 2021.

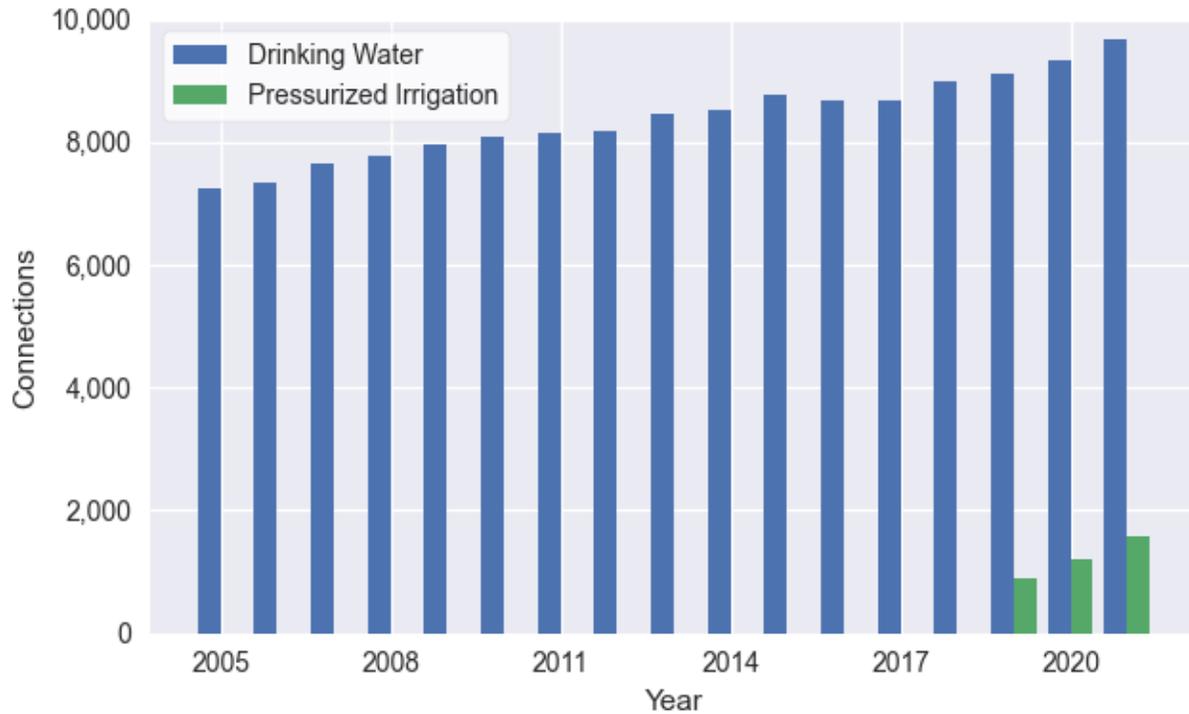
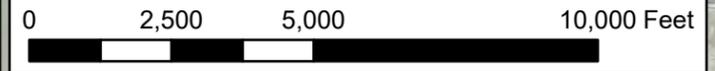
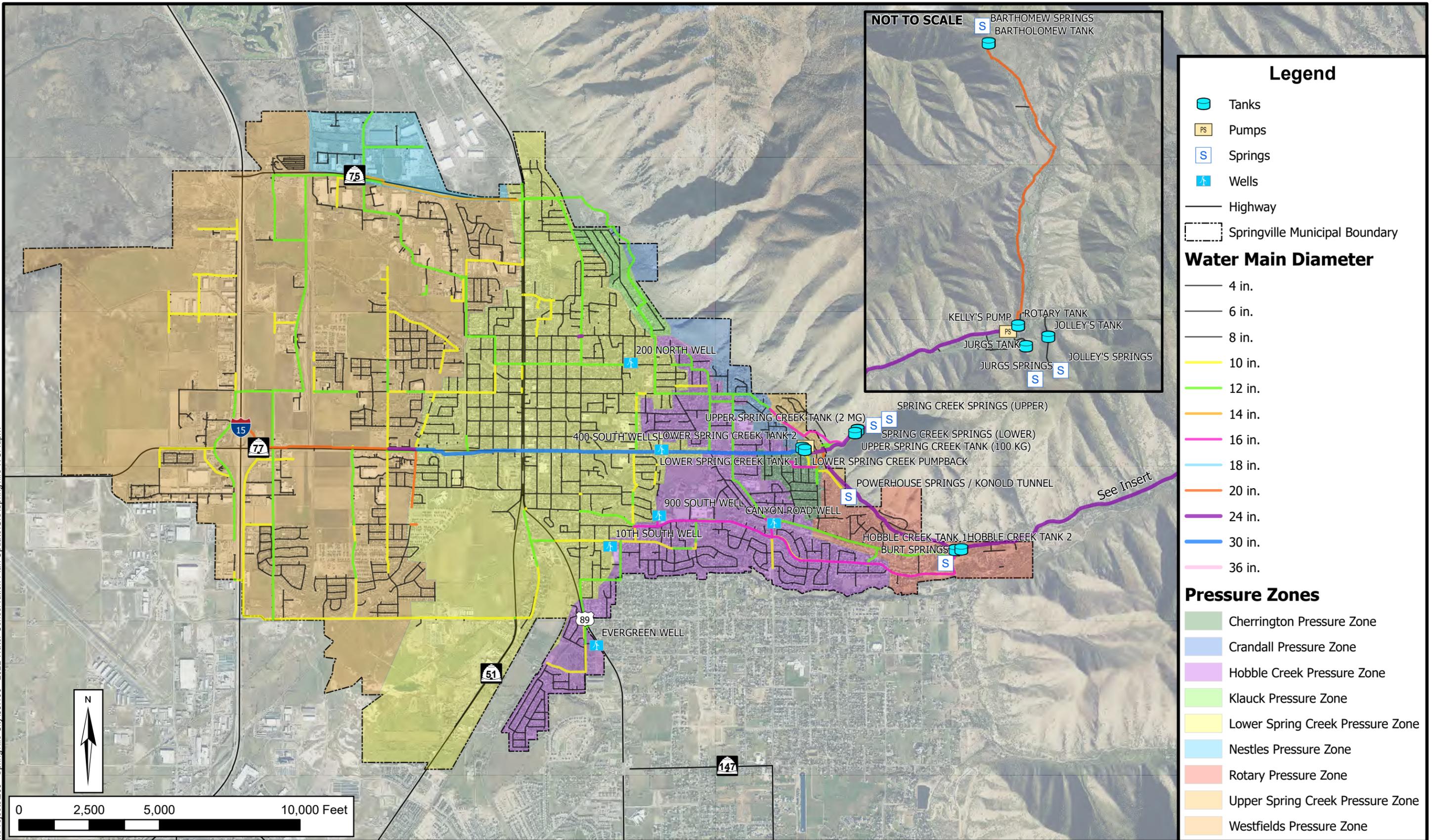


Figure 2-1: Total Service Connections

INVENTORY OF WATER RESOURCES

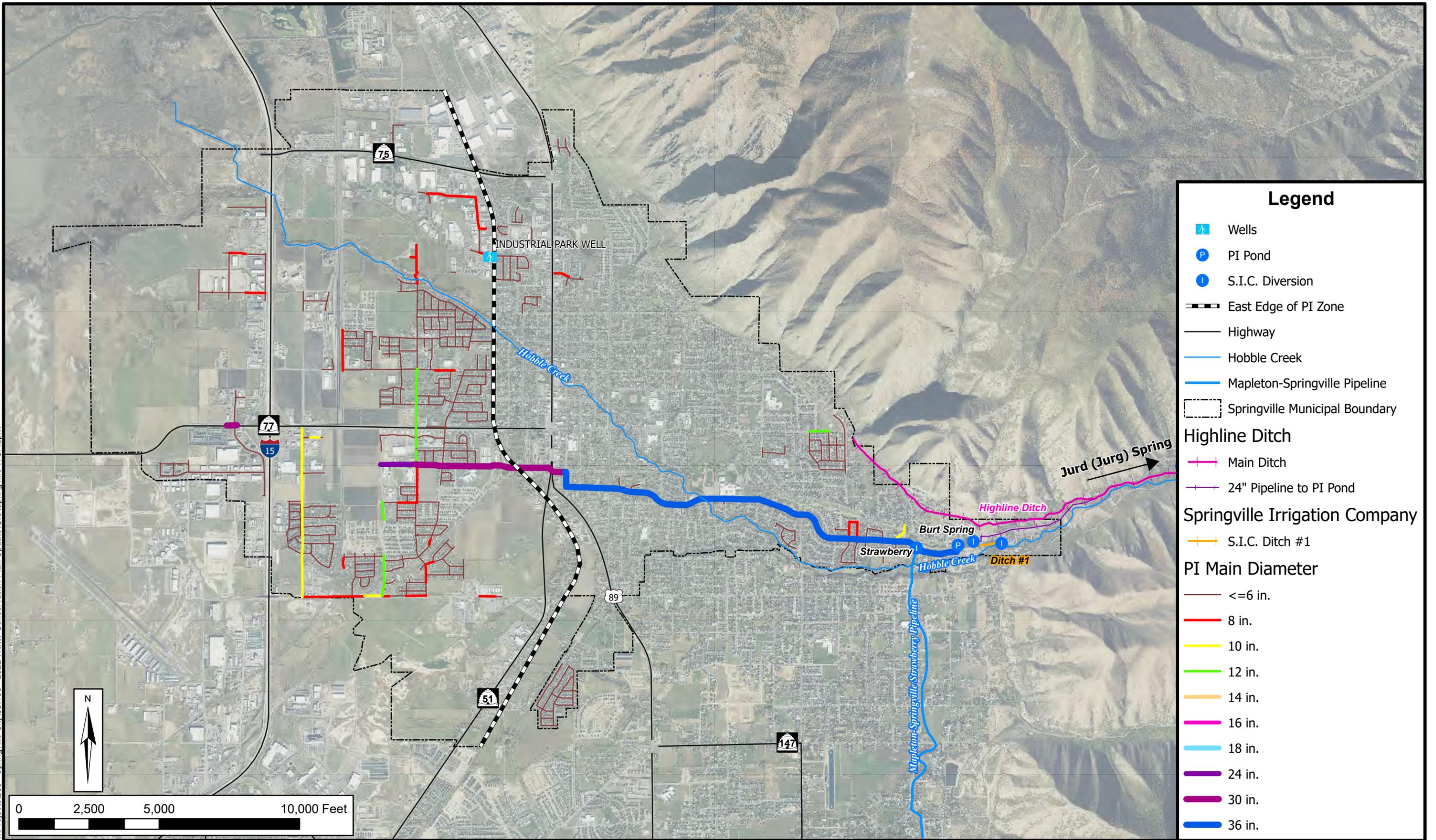
The drinking water system consists of nine main pressure zones and services the residents of Springville City and a small number of the residents in Hobble Creek Canyon. There is a total of seven wells and four springs which supply water for the drinking water system. The City uses eight storage tanks for drinking water storage. Figure 2-2 shows a map of the drinking water system.

The pressurized irrigation system primarily uses Hobble Creek, Burt Springs, and Strawberry Reservoir as water sources, with a small amount of water source coming from Jurd Spring (a.k.a. Jurg Spring), which flows into the middle reach of Hobble Creek. The Industrial Park Well (an artesian well) flows into little Spring Creek. The water from the Industrial Park Well is subsequently drawn from Little Spring Creek to service an industrial customer’s outdoor irrigation. Figure 2-3 shows a map of the pressurized irrigation system.



**SPRINGVILLE
 2022 WATER CONSERVATION PLAN UPDATE**

DRINKING WATER SYSTEM



Legend

- Wells
- PI Pond
- S.I.C. Diversion
- East Edge of PI Zone
- Highway
- Hubble Creek
- Mapleton-Springville Pipeline
- Springville Municipal Boundary

Highline Ditch

- Main Ditch
- 24" Pipeline to PI Pond

Springville Irrigation Company

- S.I.C. Ditch #1

PI Main Diameter

- <=6 in.
- 8 in.
- 10 in.
- 12 in.
- 14 in.
- 16 in.
- 18 in.
- 24 in.
- 30 in.
- 36 in.

WATER RIGHTS

The 2020 Drinking Water Master Plan identifies the water rights currently held by the City and potential water rights the City could acquire in the future. The City currently has a total of 15,831 acre-feet of water rights available for use in the drinking water system. Table 2-2 below is from the 2020 Drinking Water Master Plan and summarizes the drinking water rights currently owned by the City (Hansen, Allen & Luce, Inc. 2020). It should be noted that some of these water rights are used in the pressurized irrigation system as it uses a small amount of water from Jurd Spring and the Industrial Park Well.

Table 2-2: Culinary Water Rights

Water Right(s)	Flow (gpm)	Volume (Acre-feet)	Source
51-111 (a26443) Includes 51-6666, 51-6990, 51-7242	198	103	City Wells
51-1455 (a28365) Includes 51-1486, 51-1493	4,937	7,964*	City Wells
51-2530 (a29656) Includes 51-3679	2,703	144	City Wells
51-2780 (a28366)	1,346	439	City Wells
51-5450 (a40919)	1,333	14	City Wells
51-6970 (a28367) Includes 51-1024, 51-1025, 51-1088	1,472	1,746	City Wells
51-8641	35	33	City Wells
51-8793 (a43986)	9	14	City Wells
51-5329	1,300	2,069**	Burt Springs
51-5330	180	290*	Konold Springs
51-5520	662	1,068#	Bartholomew Springs
51-6027	1,200	1,947###	Spring Creek Canyon Springs
Total	15,375	15,831	

Source: 2020 Drinking Water Master Plan

* Potential volume if sources are able to produce designated flow rate year-round. Actual volume may be limited by either source capacity (i.e., a spring may not be able to produce the designated flow rate year-round) or by demand.

** W.U.C. indicates that 8 cfs is diverted 24 hours for 5 days out of each 8-1/3 days from April 1 to October 31. This would equal 128.45 days with an estimated volume of 2,038.24 ac-ft.

Springville Irrigation Company water right used by Springville City based on City ownership of 267 shares. Each share equals 4 ac-ft resulting in an annual volume of 1,068 ac-ft.

10-year average yield of the spring from 1999 – 2009

Springville City, in conjunction with Springville Irrigation Company, own water rights for use in the pressurized irrigation system. There is a total of 3,097 acre-feet of water rights available for use in the pressurized irrigation system according to the 2020 Pressurized Irrigation Water Master Plan. Table 2-3 is taken from the 2020 Pressurized Irrigation Water Master Plan and shows a

summary of the water rights used in the pressurized irrigation system (Hansen, Allen & Luce Inc., 2020).

Table 2-3: PI Water Rights

Water Right	Flow (gpm)	Volume (Acre-feet)	Source
Strawberry Water Shares (Springville Irrigation Company)	3,000	1,970	Springville/Mapleton Strawberry Pipeline
Springville Irrigation Company Shares (Non-Strawberry Water)	645	513	Springville Irrigation Ditch #1
51-6025	627	499	Hobble Creek/ Highline Ditch
51-6219	145	115	Hobble Creek/ Highline Ditch
Total	4,417	3,097	

Source: 2020 Pressurized Irrigation Water Master Plan

* Flow and volume for each water right is estimated based on the Division of Water Rights database and City records.

RELIABLE WATER SUPPLY

The City's annual reliable water supply is comprised of the combined volume of the drinking water and pressurized irrigation system water rights. In addition to the current water supply, additional water will become available to the City when the Utah Lake Drainage Basin Water Delivery System of the Bonneville Unit of the Central Utah Project (ULS) is complete. This additional water will be used in the pressurized irrigation system.

ULS Pipeline

Through a petition agreement between the Central Utah Water Conservancy District (CUWCD) and the South Utah Valley Municipal Water Association (SUVMWA), the City is obligated to purchase 4,945 acre-feet of ULS water. The pipeline to Springville is complete, with pipelines to the remaining SUVMWA cities finishing as early as 2025. When the remaining SUVMWA pipelines are completed, the City will be obligated to start purchasing water from the ULS pipeline. The 2020 Pressurized Irrigation Master Plan has more details regarding use of the ULS pipeline water (Hansen, Allen & Luce, 2020). Table 2-4 shows the reliable water supply for the City with the additional ULS water.

Table 2-4: Reliable Water Supply

System	Annual Capacity (Acre-feet)
Drinking Water System	15,831
Pressurized Irrigation System	3,097
Total	18,928
ULS Water	4,945
Total with ULS Water	23,873

HISTORICAL SUPPLY

The City uses seven wells and four springs to supply drinking water to the drinking water system. Over time, the production of well water has increased while the production of spring water has decreased. Prior to 2015, a majority of the water supplied to drinking water system was through springs. Currently, the majority of the water supplied to the drinking water system is from wells. Table 2-5 summarizes the historical water supply for the drinking water system.

Table 2-5: Historical Drinking Water Supply

Year	Water Supplied (Acre-feet)		Total
	Springs	Wells	
2005	8,142.93	2,136.61	10,279.54
2006	14,714.38	1,500.62	16,215.00
2007	6,719.66	5,895.96	12,615.62
2008	5,054.43	4,696.21	9,750.64
2009	4,786.38	1,899.80	6,686.18
2010	3,448.20	3,193.15	6,641.35
2011	5,269.03	1,905.68	7,174.71
2012	4,823.95	5,080.97	9,904.92
2013	4,344.91	5,746.27	10,091.18
2014	5,251.69	3,755.31	9,007.00
2015	3,484.88	4,818.24	8,303.12
2016	3,219.00	5,207.47	8,426.47
2017	3,338.00	3,906.00	7,244.00
2018	2,801.00	4,818.63	7,619.63
2019	3,278.86	3,218.00	6,496.86
2020	2,868.64	6,195.78	9,064.42
2021	2,578.00	6,020.73	8,598.73

Source: Utah Division of Water Rights

The majority of the water supplied to the pressurized irrigation system comes from Hobble Creek, Burt Springs, and Strawberry Reservoir, with some additional supply from Jurd Spring and the Industrial Park Well. Since the pressurized irrigation system is new, historical data for the system is limited to 2016. The water for the pressurized irrigation system is stored in the Bartholomew Pond which has a capacity of 32 acre-feet. Table 2-6 shows the historical water supply for the pressurized irrigation system.

Table 2-6: Historical PI Water Supply

Year	Water Supplied (Acre-feet)			Total
	Surface Water	Industrial Park Well*	Jurd Spring	
2016	1,120.94	0.00	0.00	1,120.94
2017	1,634.88	0.00	0.00	1,634.88
2018	1,902.87	0.00	0.00	1,902.87

Year	Water Supplied (Acre-feet)			Total
	Surface Water	Industrial Park Well*	Jurd Spring	
2019	1,647.38	0.00	0.00	1,647.38
2020	2,327.11	8.04	112.89	2,448.04
2021	2,328.31	8.04	82.75	2,419.10

Source: Utah Division of Water Rights

* The Utah Division of Water Rights refers to this well as the Treatment Plant Well

CHAPTER 3 – WATER USE

PER CAPITA WATER USE

A useful way of measuring water usage is in gallons per capita per day (gpcd). This expression is calculated by dividing annual water use by the service area population. Expressing water use in this manner gives an estimate for the average amount of water used by an individual on a daily basis. Since the City operates both a drinking water system and a pressurized irrigation system, the per-capita usage was calculated for both systems. The Division of Water Rights stores annual use data on their database. Per-capita usage rates were calculated for both systems from 2005 to 2021 (data for the pressurized irrigation system is only available from 2019 since service started that year). The combined per-capita usage rates from 2005 to 2021, along with the regional conservation goals are shown in Figure 3-1.

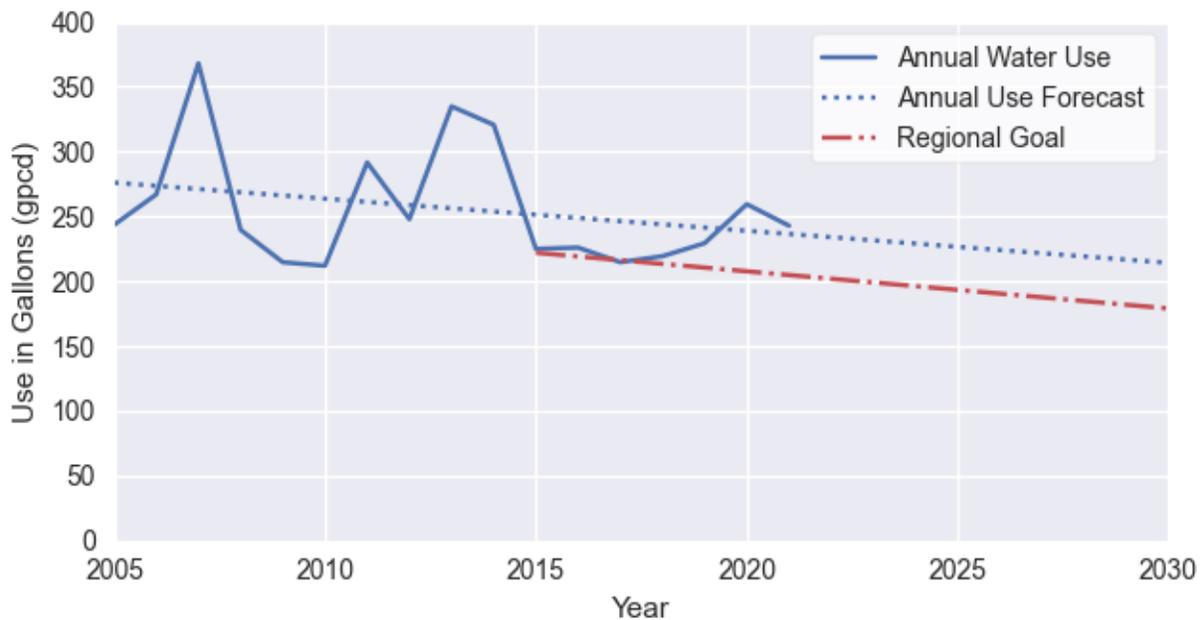


Figure 3-1: Historical Per-Capita Water Use

FUTURE WATER NEEDS

The City, much like the rest of Utah County, is expected to grow substantially over the next several years. The population in 2021 was 36,565 (Utah Division of Water Rights, 2022). The Drinking Water Master Plan projected that the population would reach approximately 45,000 by 2030 and 62,000 by 2060 (Hansen, Allen & Luce, 2020).

The 5-year average water use for 2016 to 2021 is 233.14 gallons per capita per day. This value was used to project the water demand for the City by multiplying it with the population projections from the Drinking Water Master Plan. Figure 3-2 compares the annual and projected water use from 2005 to 2060 with the reliable water supply (discussed in Chapter 2) and the efficient water use for the Provo River region. The efficient water use was calculated with the reduction goals included in Utah’s Regional M&I Water Conservation Goals. This report establishes the Provo

River regional goals of 179 gpcd water use by 2030 and 162 gpcd by 2040 (HAL & BCA, 2019). These goals are discussed further in Chapter 5.

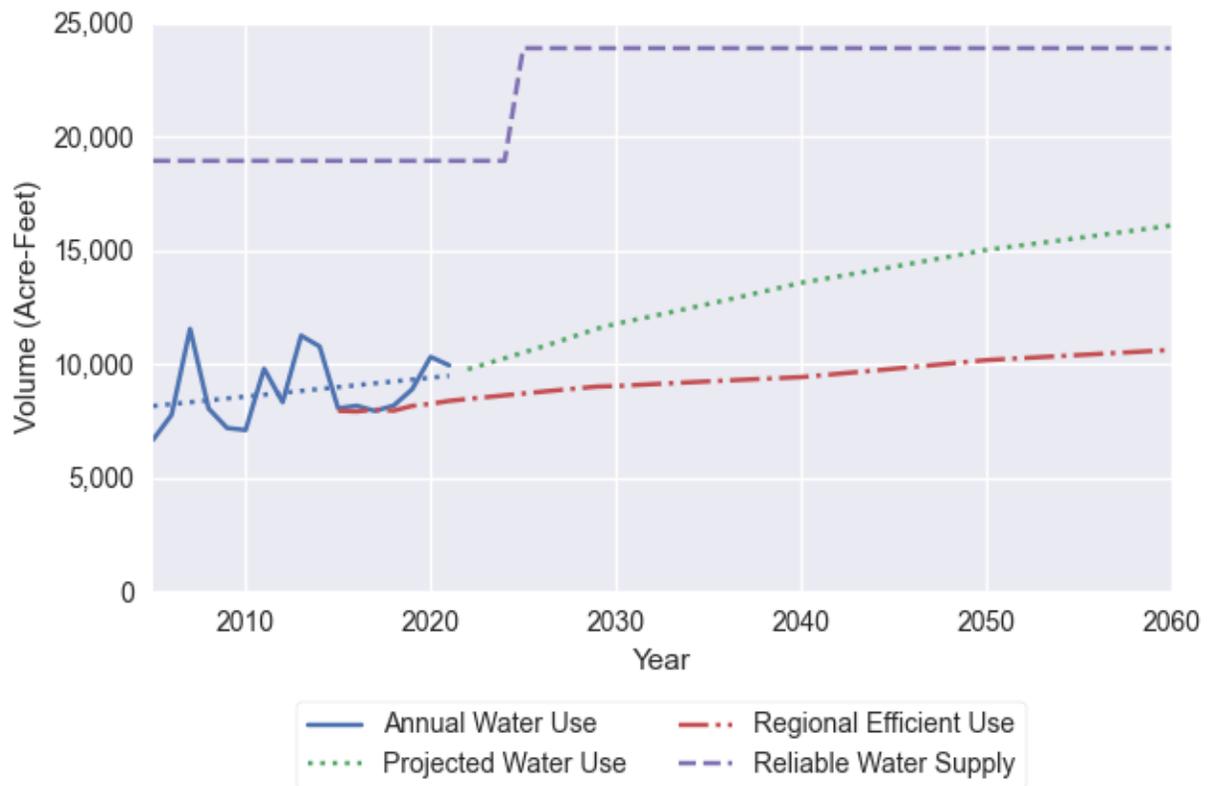


Figure 3-2: Water Use Projections

The regional efficient use as shown in Figure 3-2 was calculated by applying the Provo River regional conservation goals to the population projection for the City. The Provo River regional goals for 2015, 2030, and 2040 are 222, 179, and 162 gpcd, respectively. The raw data for the calculations shown in Figure 3-2 is included in Appendix A.

Although the per-capita water use rate for the City is trending downward, as shown in Figure 3-1, the annual water use volume has been steadily increasing since 2005. This is expected as the population of Springville has been growing rapidly. Figure 3-2 shows a diverging trend for the projected water use and regional efficient water use projection. The City should aim to have these curves converge so that future water use can meet the regional efficient water use goals.

Figure 3-2 also shows that the projected water use is not expected to exceed the City’s reliable water supply. In the off-chance that demand does exceed water supply, the City has identified ways to acquire additional water rights in both the 2020 Drinking Water Master Plan and the Pressurized Irrigation Master Plan.

CHAPTER 4 – WATER & REVENUE LOSS CONTROL

WATER LOSS

Every water system experiences some type of water loss. Water is often lost through pipe leaks or breaks, hydrant flushing, construction water, waste pumping, and unmetered connections. According to a study done by the EPA, public water systems lose an average of 16%, and some Utah systems are known to lose 30% or more of their water (EPA, 2017). Water loss is not only a loss of a valuable resource, it also may lead to revenue and energy loss. Preventing and mitigating water loss should be a high priority for public water systems.

The Division of Water Rights reports estimated water loss on their database for public water suppliers. The reported data for the City’s drinking water system shows that the estimated water loss has reduced since 2005. The City has made considerable efforts to reduce water loss by upgrading infrastructure and installing water meters on unmetered connections. Unfortunately, since the pressurized irrigation system is new, estimated water loss records are not available at this time. These records will become available as the City installs more water meters for the pressurized irrigation system. Table 4-1 and Figure 4-1 show the comparison of drinking water used with the amount produced from 2005 to 2021.

Table 4-1: Historical Drinking Water Loss

Year	Total Retail Use (Acre-feet)	Total From Sources (Acre-feet)	Estimated Water Loss
2005	6,682.35	12,274.54	45.56%
2006	7,774.74	18,162.25	57.19%
2007	11,545.60	14,455.42	20.13%
2008	8,052.75	11,317.17	28.84%
2009	7,196.46	8,802.04	18.24%
2010	7,107.06	8,403.86	15.43%
2011	9,800.03	9,829.24	0.3%
2012	8,330.18	11,896.04	29.98%
2013	11,253.91	11,285.67	0.28%
2014	10,776.99	10,563.13	-2.02%
2015	8,059.70	9,798.88	17.75%
2016	8,172.75	10,075.47	18.88%
2017	7,946.76	9,438.00	15.8%
2018	8,179.66	9,576.63	14.59%
2019	8,052.00	8,873.86	8.92%
2020	9,167.81	11,150.42	17.5%
2021	8,189.53	9,368.00	12.33%

Source: Utah Division of Water Rights

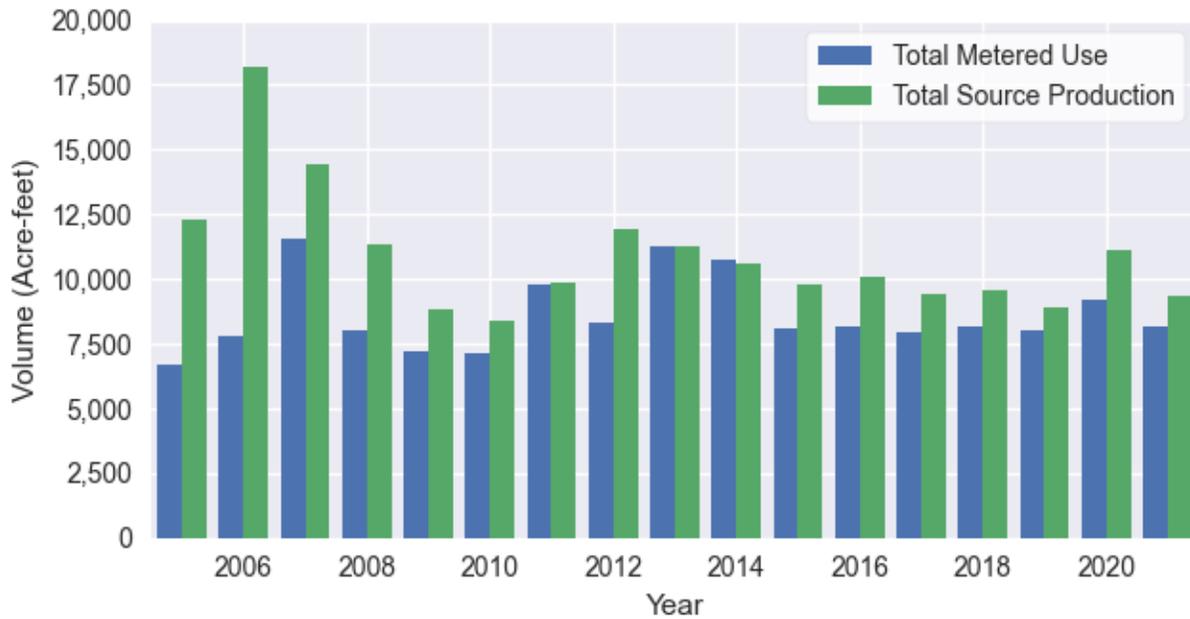


Figure 4-1: Historical Drinking Water Production & Use

BILLING RATES

To promote water conservation, the City has enforced tiered water rates for customers for both the drinking water system and the pressurized irrigation system. The City encourages customers to utilize the pressurized irrigation system, if they are able to, by slightly increasing drinking water rates and offering lower irrigation water rates for those customers. Tables 4-2 and 4-3 show the City’s current water rates. Residential water meters are read in the months of March through October. All other months are billed at the minimum fee of \$16.32 per month, with an additional fee of \$1.21 for each 1,000 gallons used above 5,000 gallons.

Table 4-2: Drinking Water Rates

Fee		Description
If PI is Not Used	If PI is Used	
\$16.32	\$16.32	Minimum monthly fee.
\$1.00	\$1.13	For each 1,000 gallons or portion thereof between 5,001 and 12,000 gallons.
\$1.32	\$1.49	For each 1,000 gallons or portion thereof between 12,001 and 20,000 gallons.
\$1.64	\$1.85	For each 1,000 gallons or portion thereof between 20,001 and 40,000 gallons.
\$1.95	\$2.20	For each 1,000 gallons or portion thereof between 40,001 and 60,000 gallons.
\$2.22	\$2.50	For each 1,000 gallons or portion thereof between 60,001 and 100,000 gallons.
\$3.01	\$3.39	For each 1,000 gallons or portion thereof between 100,001 and 150,000 gallons

Fee		Description
If PI is Not Used	If PI is Used	
\$3.43	\$3.87	For each 1,000 gallons or portion thereof between 150,001 and 200,000 gallons
\$4.22	\$4.76	For each 1,000 gallons or portion above 200,000 gallons.

Source: Springville 2022-2023 Comprehensive Fee Schedule

Table 4-3: Pressurized Irrigation Rates

Fee	Description
No Charge	For the first 5,000 gallons
\$0.91	For each 1,000 gallons or portion thereof between 5,001 and 20,000 gallons.
\$1.43	For each 1,000 gallons or portion thereof between 20,001 and 60,000 gallons.
\$1.90	For each 1,000 gallons or portion thereof between 60,001 and 100,000 gallons.
\$2.38	For each 1,000 gallons or portion thereof between 100,001 and 150,000 gallons.
\$2.85	For each 1,000 gallons or portion thereof between 150,001 and 200,000 gallons.
\$3.80	For each 1,000 gallons or portion above 200,000 gallons.

Source: Springville 2022-2023 Comprehensive Fee Schedule

CHAPTER 5 – CONSERVATION GOALS & PRACTICES

The City is aware of the need for water conservation and is committed to improve water conservation efforts. City staff are aware of the water conservation goals and work to together to achieve them. The Public Works Director is responsible for overseeing water conservation efforts.

Brad Stapley
Public Works Director
801-489-2711

IDENTIFIED PROBLEMS

The following issues were identified in the 2016 Water Conservation Plan. These issues are still priorities for the City.

- “The City is seeing a change in demographics as their agricultural areas turn into residential subdivisions. This change emphasizes the need to inform all residents, but especially new residents, about indoor conservation practices. Residents lack information and understanding of landscaping water requirements and efficient water-use habits and practices.
- Along with indoor use, residential outdoor use is also a large concern. It is well documented that water used to irrigate turf grass drives summer water use to its peak during the summer months. Much of the City’s clean culinary water is [not used efficiently] through over watering. Most residents’ irrigation practices are based on convenience rather than plant needs.
- Springville City has many aging water lines that are contributing to the water losses seen in the City” (Springville City, 2016).

WATER CONSERVATION GOALS

Provo River Regional Goals

Utah’s Regional M&I Water Conservation Goals establishes water conservation goals for the major river basins, referred to as regions, in the state. Since the Provo River Region is highly populated, it has some of the strongest conservation goals compared to the other regions. By 2030 the water conservation goal for the Provo River Region is 179 gpcd, which is a 20% reduction from the 2015 goal of 222 gpcd (HAL & BCA, 2019). Table 5-1 summarizes the regional conservation goals and the percentage reduction from the 2015 goal.

Table 5-1: Provo River Region Conservation Goals

Year	Conservation Goal (gpcd)	Reduction from 2015 Baseline
2015	222 (Baseline)	N/A
2030	179	20%
2040	162	27%
2065	152	32%

Source: *Utah’s Regional M&I Water Conservation Goals*

Springville City Water Conservation Goals

The City has set a goal to continue current water conservation trends until 2030. Following the Annual Use Forecast series in Figure 3-1, the forecasted water use rate in 2030 is 214 gpcd which is a 4.89% reduction from the 2015 rate of 225 gpcd. This forecast is based on data provided by the Division of Water Rights. The City should periodically monitor water use rates to ensure that this water conservation goal is met. The City plans to reevaluate the 2030 and future goals in subsequent updates to this water conservation plan.

Table 5-2: Springville City Conservation Goals

Year	Conservation Goal (gpcd)	Reduction from 2015 Baseline
2015	225 (Baseline)	N/A
2030	214	4.89%

In addition to the water conservation goals listed in Table 5-2, the City has continued the following conservation goals from the 2016 Water Conservation Plan:

- “Continue to support the current conservation measures that have brought the City success in reducing the water used...”
- Inform residents of water conservation practices for indoor and outdoor use.
- Conserve culinary water by using secondary water for irrigation per the City’s master plans.
- Continue the City’s existing aging water meter replacement program” (Springville City, 2016).

BEST MANAGEMENT PRACTICES

Best Management Practices (BMPs) are the practices adopted by public water suppliers and water conservation districts to conserve water use within their respective service areas.

Existing Best Management Practices

In previous water conservation plans, the City has implemented aggressive water conservation measures that have proven to be successful. The following BMPs have already been implemented by the City in previous water conservation plans:

- “Promoting the ‘Slow the Flow Program’ sponsored by the State, which includes educational brochures, free water audits and checks, and free water wise landscaping seminars...”
- Requiring low flow indoor fixtures as required in the plumbing code on all new construction.
- Using, evaluating, and periodically refining the water rates structure that charges users using a tiered rate structure which both promotes water conservation and continues to keep the water system viable.
- Replacing galvanized steel water service lines with copper and polyethylene pipe.
- Performing leak-detection testing for all water lines prior to new overlays of asphalt.

- Performing annual leakage surveys to identify unsurfacing leaks on main pipelines and services, especially in older areas of the water system.
- Replacing water meters with new, more efficient meters.
- Implementing a pressurized irrigation (secondary water) system with metered services in the developing western portion of the community” (Springville City, 2016).
- Meter replacement program for aging water meters.

Since the 2016 Water Conservation Plan, the City has also implemented the following BMPs:

- Continue and expand leak detection efforts by hiring a leak detection company.
- Offer opportunities for residents to submit complaints about water waste.
- Receive a weekly water waste report from the Utah Division of Water Resources.
- Continue installing water meters for the pressurized irrigation system

Proposed Best Management Practice

The BMPs implemented in previous water conservation plans have helped the City achieve previous water conservation goals. The City will need to implement additional BMPs to meet the water conservation goal discussed previously. The following BMPs are proposed for the City to adopt, any combination of these BMPs can be adopted as the City sees fit. Additional BMPs which the City may also consider are included in Appendix B.

- Enact a time-of-day watering ordinance
- Enact a water-efficient landscape ordinance for new commercial developments

The City encourages residents to limit outdoor watering between 10 am and 6 pm; however, city ordinances do not currently restrict water use. Enacting a city ordinance that prohibits outdoor irrigation times during summer months would further enable the City to enforce water conservation for residents and commercial developments.

In addition to a time-of-day watering ordinance, the City may enact an ordinance which requires water-efficient landscaping for new commercial developments. While it is true that most of the water use is residential, reducing water use in all categories is critical for meeting water conservation goals. By requiring commercial developments to use water-efficient landscaping, the City may be able to reduce water use for commercial connections.

Table 5-2 shows a summary of all BMPs that the City has and can implement to reach their water conservation goals.

Table 5-2: Best Management Practices

Best Management Practice	Description
Existing BMPs	
Promote the “Slow the Flow Program”	Promote the “Slow the Flow Program” sponsored by the state to residents. Encourage them to take advantage of the opportunities the program provides.
Require Low Flow Indoor Fixtures	Require low flow indoor fixtures on all new construction in city code.

Best Management Practice	Description
Tiered Water Rate Structure	Continue to use and periodically refine the tiered water rates for both water systems.
Replace Galvanized Steel Lines	Continue replacing galvanized steel water service lines with copper and polyethylene pipe, as necessary.
Leak Testing	Continue to test for leaks in all water lines before overlaying asphalt.
Annual Leak Surveys	Perform annual leak surveys to test for unsurfacing leaks, especially in older parts of the water system.
Meter & Pipe Replacement Program	Continue to replace aging meters and pipelines throughout the drinking water system. Install more efficient water meters when replacing old meters which do not meet American Water Works Association Standards.
Pressurized Irrigation System	Continue to expand the pressurized irrigation system according to city master plans.
Professional Leak Detection	Continue to hire a leak detection company to expand leak detection efforts.
Water Waste Complaints	Encourage residents to notify the City of water waste. Respond to the complaints when possible.
Weekly Water Waste Report	Receive the weekly water waste report from the Division of Water Resources. Act on any recommendations or issues raised in the reports.
Pressurized Irrigation Meters	Continue installing efficient water meters in the pressurized irrigation system as the system expands.
Proposed BMPs	
Enact a Time-of-Day Watering Ordinance	Enact a city ordinance which restricts outdoor irrigation from 10 am to 6 pm during summer months.
Enact a Water-Efficient Landscape Ordinance	Enact a city ordinance which requires new commercial developments to use water-efficient landscaping.
Additional Water Conservation Measures	Consider implementing other conservation measures included in Appendix B.

CHAPTER 6 – IMPLEMENTATION PLAN

This Water Conservation Plan renews the existing water conservation measures for at least the next five years. Existing and proposed water conservation measures will be implemented according to Table 6-1. Additional conservation measures the city may choose to adopt are included in Appendix B.

Table 6-1: Implementation Plan

Conservation Measure	Implementation Plan
Existing Conservation Measures	
Promote the “Slow the Flow Program”	Continue promoting the “Slow the Flow Program” to city residents. <ul style="list-style-type: none"> • Print and deliver fliers during periods of high use. • Advertise classes and events on social media, city websites, and by email.
Require Low Flow Indoor Fixtures	Require low flow indoor fixtures in the plumbing code on all new construction and developments. Require the following fixtures be fitted with low flow variants: <ul style="list-style-type: none"> • Shower heads • Sink faucets • Toilets
Tiered Water Rate Structure	Continue using and updating the tiered water rate structure for both the drinking water and pressurized irrigation systems. <ul style="list-style-type: none"> • Consider water conservation goals during annual review of water rates.
Leak Testing	Continue testing for leaks in all water lines before overlaying asphalt. <ul style="list-style-type: none"> • Perform annual leak surveys. • Continue hiring a professional leak detection company.
Meter & Pipe Replacement Program	Continue replacing galvanized steel lines with copper and polyethylene pipe. <ul style="list-style-type: none"> • Continue replacing aging meters and pipelines throughout the drinking water system. • Install efficient water meters when replacing old meters which do not meet City standards.
Pressurized Irrigation System	Expand the pressurized irrigation system by implementing master plan projects.
Water Waste Complaints	Continue providing means for residents to submit complaints about wasted water throughout the City. <ul style="list-style-type: none"> • Follow up with complaints to ensure that responsible parties are held accountable. • Consider imposing fines for repeated counts of wasted water.
Weekly Water Waste Report	Continue to review weekly water waste reports from the Division of Water Resources.

Conservation Measure	Implementation Plan
Pressurized Irrigation Meters	Continue to install efficient water meters throughout the pressurized irrigation system as it expands. <ul style="list-style-type: none"> • Replace existing meters on an as-needed basis.
Proposed Conservation Measures	
Time-of-Day Watering Ordinance	<ul style="list-style-type: none"> • Enact a city ordinance which restricts outdoor watering from 10 am to 6 pm during summer months. • Consider imposing fines for repeat violators.
Water-Efficient Landscape Ordinance	Enact a city ordinance which requires new commercial developments to use water-efficient landscaping. Examples include: <ul style="list-style-type: none"> • Providing a Pressurized Irrigation connection for eligible developments • Using native, low-water plants • Using drip irrigation • Xeriscaping when appropriate
Additional Water Conservation Measures	Consider implementing other conservation measures included in Appendix B.

REFERENCES

- Environmental Protection Agency (EPA). 2017. *Water Audits and Water Loss Control for Public Water Systems*. 6/17/2022.
<<https://www.epa.gov/sites/production/files/2015-04/documents/epa816f13002.pdf>>
- Hansen, Allen & Luce, Inc. (HAL) 2020. *Drinking Water Master Plan and Capital Facility Plan*. Springville City.
- Hansen, Allen & Luce, Inc. (HAL) 2020. *Pressurized Irrigation Water Master Plan and Capital Facility Plan*. Springville City.
- Hansen, Allen & Luce, Inc. (HAL) and Bowen Collins & Associates (BCA). 2019. *Utah's Regional M&I Water Conservation Goals*. Utah Department of Natural Resources.
- Springville City. 2016. *Water Conservation Plan-2016 Update*. Springville City
- Springville City. 2022. *Fiscal 2022-2023 Comprehensive Fee Schedule*. Springville City
- Utah Division of Water Rights. 2022. *Public Water Supplier Information*. 5/25/2022.
<https://waterrights.utah.gov/asp_apps/viewEditPWS/pwsView.asp?SYSTEM_ID=1343>
- Utah Division of Water Rights. 2022. *Public Water Supplier Information*. 5/25/2022.
<https://waterrights.utah.gov/asp_apps/viewEditSEC/secView.asp?SYSTEM_ID=11452>

APPENDIX A
WATER USE PROJECTIONS

Year	Population	(Acre-feet) DW Use	(Acre-feet) PI Use	(Acre-feet) Total Use	(GPCD) Per-Capita	(GPCD) 5-Year Avg.	(Acre-feet, using 2021 5- year average) Projected Use	(GPCD) Regional Goal	(Acre-feet) Efficient Use	(Acre-feet) Water Supply
2005	24,500	6,682.35		6,682.35	243.49					18,928
2006	26,000	7,774.74		7,774.74	266.96					18,928
2007	28,000	11,545.60		11,545.60	368.12					18,928
2008	30,000	8,052.75		8,052.75	239.63					18,928
2009	29,930	7,196.46		7,196.46	214.65	266.57				18,928
2010	29,930	7,107.06		7,107.06	211.99	260.27				18,928
2011	30,000	9,800.03		9,800.03	291.63	265.20				18,928
2012	30,000	8,330.18		8,330.18	247.89	241.16				18,928
2013	30,000	11,253.91		11,253.91	334.89	260.21				18,928
2014	30,000	10,776.99		10,776.99	320.70	281.42				18,928
2015	31,982	8,059.70		8,059.70	224.98	284.02		222	7,952	18,928
2016	32,286	8,172.75		8,172.75	225.99	270.89		219	7,924	18,928
2017	33,044	7,946.76		7,946.76	214.70	264.25		216	8,004	18,928
2018	33,294	8,179.66		8,179.66	219.33	241.14		213	7,957	18,928
2019	34,632	8,052.00	845.54	8,897.54	229.36	222.87		211	8,166	18,928
2020	35,504	9,167.81	1,150.09	10,317.90	259.44	229.76		208	8,258	18,928
2021	36,565	8,189.53	1,757.85	9,947.38	242.87	233.14		205	8,387	18,928
2022	37,448						9,778.17	202	8,469	18,928
2023	38,353						10,014.43	199	8,551	18,928
2024	39,280						10,256.40	196	8,631	18,928
2025	40,229						10,504.22	193	8,711	23,873
2026	41,201						10,758.02	190	8,789	23,873
2027	42,197						11,017.96	188	8,866	23,873
2028	43,216						11,284.18	185	8,941	23,873
2029	44,260						11,556.83	182	9,015	23,873
2030	45,078						11,770.31	179	9,037	23,873
2031	45,724						11,938.99	177	9,079	23,873
2032	46,379						12,110.08	176	9,121	23,873
2033	47,044						12,283.63	174	9,162	23,873
2034	47,718						12,459.67	172	9,203	23,873
2035	48,402						12,638.23	171	9,243	23,873
2036	49,096						12,819.34	169	9,282	23,873
2037	49,799						13,003.05	167	9,320	23,873
2038	50,513						13,189.40	165	9,357	23,873
2039	51,237						13,378.41	164	9,394	23,873
2040	51,971						13,570.14	162	9,429	23,873
2041	52,499						13,708.03	162	9,502	23,873
2042	53,033						13,847.32	161	9,574	23,873
2043	53,571						13,988.02	161	9,648	23,873
2044	54,116						14,130.16	160	9,722	23,873
2045	54,666						14,273.74	160	9,796	23,873
2046	55,221						14,418.78	160	9,871	23,873
2047	55,782						14,565.29	159	9,946	23,873
2048	56,349						14,713.29	159	10,022	23,873
2049	56,922						14,862.79	158	10,098	23,873
2050	57,500						15,013.82	158	10,175	23,873
2051	57,897						15,117.58	158	10,219	23,873
2052	58,298						15,222.07	157	10,264	23,873
2053	58,700						15,327.27	157	10,309	23,873
2054	59,106						15,433.21	156	10,353	23,873
2055	59,515						15,539.87	156	10,398	23,873
2056	59,926						15,647.28	156	10,443	23,873
2057	60,340						15,755.42	155	10,488	23,873
2058	60,757						15,864.32	155	10,534	23,873
2059	61,177						15,973.96	154	10,579	23,873
2060	61,600						16,084.37	154	10,625	23,873

APPENDIX B
ADDITIONAL WATER CONSERVATION MEASURES



Conservation Best Management Practices (BMP's)

Water Conservation Coordinator, Committee or Team
Hire or designate a Water Conservation Coordinator.
Create a committee/team/board with a chair that includes a combination of the following participants; Water Conservation Coordinator, Public Works Director, City Council Member, and/or applicable local advocacy group member to help research, coordinate, create and implement public information campaign(s), water conservation programs and incentives.
Water Conservation Plan (WCP)
Develop a WCP. More information at www.conservewater.utah.gov/wcp.html .
Provide contact information, system profile, water use history and detail specific ongoing and new conservation programs.
Public Awareness & Public Outreach
Develop or utilize existing messaging from Slow The Flow, Water Resources, CWEL and WaterSense.
Display educational materials & resources on agency website(s), social media & bills.
Offer agency materials and resources to community partners for distribution.
Hold or collaborate events, programs and/or presentations.
Education & Training
Provide adult efficient water use education and training. Or, direct them to available local training(s) such as Localscapes .
Provide or support youth education programs for elementary school students.
Provide or recommend a waterwise demonstration garden.
Educate customers about new water-saving technology. Example: weather based smart controllers.
Provide new homeowner water-efficient landscape information.
Participate and promote large efficient landscape training and programs: https://www.qwelutah.com/training/
Create and/or distribute "how to videos". Example: switching to drip.
Rebates Incentives Rewards
Offer or collaborate on rebates for high efficiency appliances, fixtures, irrigation smart controllers, drip irrigation, nozzles, shut off hose valves, and landscape conversions.
Promote rebates offered in your service area



Conservation Best Management Practices (BMP's)

Public Involvement
Offer or collaborate on residential water audit programs.
Offer or collaborate on landscape consultation programs.
Offer residential water budgeting programs.
Offer indoor and outdoor retrofit kits.
Perform outdoor high water use inquiries and resolution techniques.
Address water waste complaints
Identify structures built before 1992 and organize low efficiency fixture replacements.
Ordinances & Standards
Adopt a time-of-day watering ordinance. Example: no watering between 10-6pm and alternating watering days
Adopt an ordinance requiring a water-efficient landscaping in all new residential developments.
Review existing plumbing codes and revise them as necessary to ensure water-conserving measures in all new construction.
Adopt an ordinance requiring water-efficient landscaping in all new commercial development.
Change business license requirements to require water reuse and recycling in new facilities.
Mandate retrofit upon resale.
Water Pricing
Utah SB28 requires water rates to rise for higher tiers of consumption
Charge for secondary water based on individual use.
High water use notification.
Physical System
Install & maintain efficient irrigation, utilize water-wise landscaping & smart controller technology at agency facilities.
Perform agency water system audit and implement a leak detection program
Meter all connections (UT SCR 1), repair and replacement program, read meters on a regular basis.
Consider water reuse.

APPENDIX C

SPRINGVILLE CITY COUNCIL ADOPTION OF CONSERVATION PLAN



Utah Department of Natural Resources
Division of Water Resources

Certification of Adoption

We hereby certify that the attached Water Conservation Plan has been established and adopted by the Springville City Council on December 20, 2022



A handwritten signature in blue ink, appearing to read "Matt Packard", written over a horizontal line.

Matt Packard, Mayor

Attest:

A handwritten signature in blue ink, appearing to read "Kim Crane", written over a horizontal line.

Kim Crane, City Recorder

APPENDIX E

CUP Allotment



**SOUTH UTAH VALLEY MUNICIPAL WATER ASSOCIATION
CUP 1590 AC-FT ALLOTMENT
AND JORDAN CANAL WATER**

CITY	% 1998	CUP(1,590) ALLOTMENT	JORDAN CANAL	% 2003	CUP (30,000) ALLOTMENT	GIVEN BACK APR 2003*	GIVEN BACK FEB 2004*	GIVEN BACK JUNE 2007	GIVEN BACK MAY 2010	GIVEN BACK AUGUST 2013	TOTAL GIVEN BACK	REMAINDER CUP (30,000) ALLOTMENT	TOTAL	CITY
Springville	31.66%	503.39	126.64	28.15%	8,445			500		3,000	3,500	4,945	5,575	Springville
Mapleton	6.67%	106.05	26.68	8.01%	2,403			500	1,000		1,500	903	1,036	Mapleton
Spanish Fork	28.33%	450.45	113.32	27.90%	8,370	1,000					1,000	7,370	7,934	Spanish Fork
Salem	5%	79.50	20.00	6.03%	1,809			1,000			1,000	809	909	Salem
Woodland Hills	1.25%	19.88	5.00	1.30%	390						0	390	415	Woodland Hills
Elk Ridge	1.25%	19.88	5.00	2.53%	759						0	759	784	Elk Ridge
Payson	18.34%	291.61	73.36	17.53%	5,259		500				500	4,759	5,124	Payson
Santaquin	5%	79.50	20.00	6.03%	1,809			1,000			1,000	809	909	Santaquin
Goshen	1.25%	19.88	5.00	1.32%	396						0	396	421	Goshen
Genola	1.25%	19.88	5.00	1.20%	360						0	360	385	Genola
TOTAL	100.00%	1,590.00	400.00	100.00%	30,000	1,000	500	3,000	1,000	3,000	8,500	21,500	23,490	TOTAL

* This water was technically given back from the CUP 1,590 Allotment. However, because the individual entities didn't have the water to give back, SUVMWA handled the exchange at the time. For ease of calculation, it has been counted against the 30,000 AF allotment.



**PRESSURIZED IRRIGATION SYSTEM
IMPACT FEE FACILITY PLAN AND
IMPACT FEE ANALYSIS**

(HAL Project No.: 260.61.200)

SPRINGVILLE CITY

PRESSURIZED IRRIGATION SYSTEM

IMPACT FEE FACILITY PLAN AND
IMPACT FEE ANALYSIS

(HAL Project No.:260.59.100)



Enoch Jones, P.E.

Project Engineer



FEBRUARY 2026

IMPACT FEE CERTIFICATION

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

IFFP Certification

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

1. includes only the costs of public facilities that are:
 - a. allowed under the Impact Fees Act; and
 - b. actually incurred; or
 - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
 - a. costs of operation and maintenance of public facilities;
 - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents;
 - c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement; and
3. complies in each and every relevant respect with the Impact Fees Act.

HANSEN, ALLEN & LUCE, INC.

IFA Certification

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

1. includes only the costs of public facilities that are:
 - a. allowed under the Impact Fees Act; and
 - b. actually incurred; or
 - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
 - a. costs of operation and maintenance of public facilities;
 - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents;
 - c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement;
 - d. costs with grants or other alternate sources of payment; and
3. complies in each and every relevant respect with the Impact Fees Act.

HANSEN, ALLEN & LUCE, INC.

TABLE OF CONTENTS

	<u>Page No</u>
IMPACT FEE SUMMARY	vi
SECTION 1 – INTRODUCTION	
1.1 Background.....	1-1
1.2 Purpose.....	1-1
1.3 Impact Fee Collection.....	1-1
1.4 Master Planning	1-2
SECTION 2 – EXISTING PRESSURIZED IRRIGATION WATER SYSTEM	
2.1 General	2-1
2.2 Existing Irrigated Acreage	2-1
2.3 Level of Service.....	2-1
2.4 Methodology Used to Determine Existing System Capacity	2-2
SECTION 3 – IMPACT FEE CALCULATION	
3.1 General	3-1
3.2 Growth Projections	3-1
3.3 Cost of Existing Pressurized Irrigation Water Facilities	3-2
3.4 Cost of Future Pressurized Irrigation Water Facilities	3-2
3.5 Impact Fee Unit Calculation	3-4
3.6 Total Impact Fee Calculation for a Typical Single-Family Residence	3-6
3.7 Facility Cost by Time Period	3-6
3.8 Revenue Options	3-7

LIST OF FIGURES

Figure 3-1: Areas of Projected Growth After 3-1

LIST OF TABLES

Table S-1: Proposed Impact Fee by Component..... vii
Table 2-1: Capacity of Existing Distribution System2-2
Table 3-1: Growth Projections over next Ten Years.....3-1
Table 3-2: Impact Fee Eligibility of Prior Expenditures3-2
Table 3-3: Estimated Cost of 10-Year Projects3-3
Table 3-4: Proposed Infrastructure Component of Fee3-4
Table 3-5: Infrastructure Cost by Time Period3-4
Table 3-6: Planning Component of Impact Fee3-5
Table 3-7: Planning Costs by Time Period3-5
Table 3-8: Total Proposed Impact Fee3-5
Table 3-9: Total Proposed Impact Fee by Lot Size3-6
Table 3-10: Facility Cost by Time Period3-7

Appendix A: Information from the Drinking Water Master Plan

Appendix B: Cost of Existing Infrastructure

Appendix C: Estimated Future Project Costs

IMPACT FEE SUMMARY

The impact fees for the Springville pressurized irrigation system were last updated in 2024. The Pressurized Irrigation System Master Plan has recently been updated in 2025. Construction costs continue to rise due to a number of factors, including material shortages, labor shortages, and supply chain constraints. To incorporate the master plan update and account for rising construction costs, Springville City commissioned this impact fee update.

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

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

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

Level of Service

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

The existing system served about 622 irrigated acres in 2025. Projected **growth** adds 242 irrigated acres in the next 10 years, for a total of 864 irrigated acres.

The existing pressurized irrigation water system has no existing deficiencies. The costs calculated for the capacity required for growth in the next 10 years comes from the proportional historical buy-in costs of **excess capacity** and **new projects** required entirely to provide capacity for new development.

The **pressurized irrigation water impact fee** is calculated based on the estimated cost of projects needed to support anticipated growth. The fee is calculated to be \$20,953 per irrigated acre.

Table S-1
Proposed Impact Fee by Component

Component	Per Irrigated Acre
Infrastructure	\$20,003
Planning	\$950
Total	\$20,953

SECTION 1 INTRODUCTION

1.1 Background

Springville is located in central Utah County, alongside I-15 and on the southern end of the Provo-Orem metropolitan area. Springville had an estimated population of 36,500 in 2024 as reported by the City. The primary pressurized irrigation water sources for Springville are Hobble Creek, Springville Irrigation Ditch #1, and the Mapleton-Springville Strawberry Pipeline.

1.2 Purpose

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

The impact fees for the Springville drinking water system were last updated in 2024. Since that time, the Drinking Water System Master Plan has been updated and construction costs have risen due to a number of factors, including material shortages, labor shortages, and supply chain constraints. To incorporate the master plan update and account for rising construction costs, Springville City commissioned this impact fee update.

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. The Pressurized Irrigation Water Master Plan was used to support this analysis. The Master Plan identified several growth-related projects needed within the 10-year planning window. Therefore, the calculated impact fee is based on excess capacity and documented historic costs, as well as future capital projects.

1.3 Impact Fee Collection

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

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

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

1.4 Master Planning

A Pressurized Irrigation Water System Master Plan was prepared in 2025 and is incorporated by reference into this analysis. The master plan for the City's pressurized irrigation water system is more comprehensive than the IFFP and IFA. It provides the basis for the IFFP and IFA and identifies all capital facilities required for the pressurized irrigation system inside the 20-year planning range, including maintenance, repair, replacement, and growth-related projects.

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

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

SECTION 2 SYSTEM DEMAND AND CAPACITY

2.1 General

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

The existing pressurized irrigation system is comprised of a pipe network, water sources, and a water storage pond. Figure 1-2 from the City's Master Plan illustrates the existing water system (at the time the master plan was published) and its service area and is included for reference in Appendix A.

2.2 Existing Irrigated Acreage

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

At the end of 2025, the City was estimated to have 622 irrigated acres served by the pressurized irrigation system, including areas adjacent to pressurized irrigation system pipe that are not currently connected to the system. Irrigated areas that will always be served by the drinking water system were not considered in this analysis.

2.3 Level of Service

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

Level of Service

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

2.4 Methodology Used to Determine Existing System Capacity

As specified in the Master Plan, the existing pressurized irrigation system pond has a capacity of 1,033 irrigated acres. This was considered to be the capacity of the existing system. See Table 2-1.

**Table 2-1
Capacity of Existing Distribution System**

Timeframe	Irrigated Acreage	Percent of Total
Existing	622	60.2%
Future	411	39.8%
Total	1,033	100%

Approximately 39.8% of capacity in existing infrastructure is available to serve future growth.

SECTION 3 IMPACT FEE FACILITY PLAN AND ANALYSIS

3.1 General

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

3.2 Growth Projections

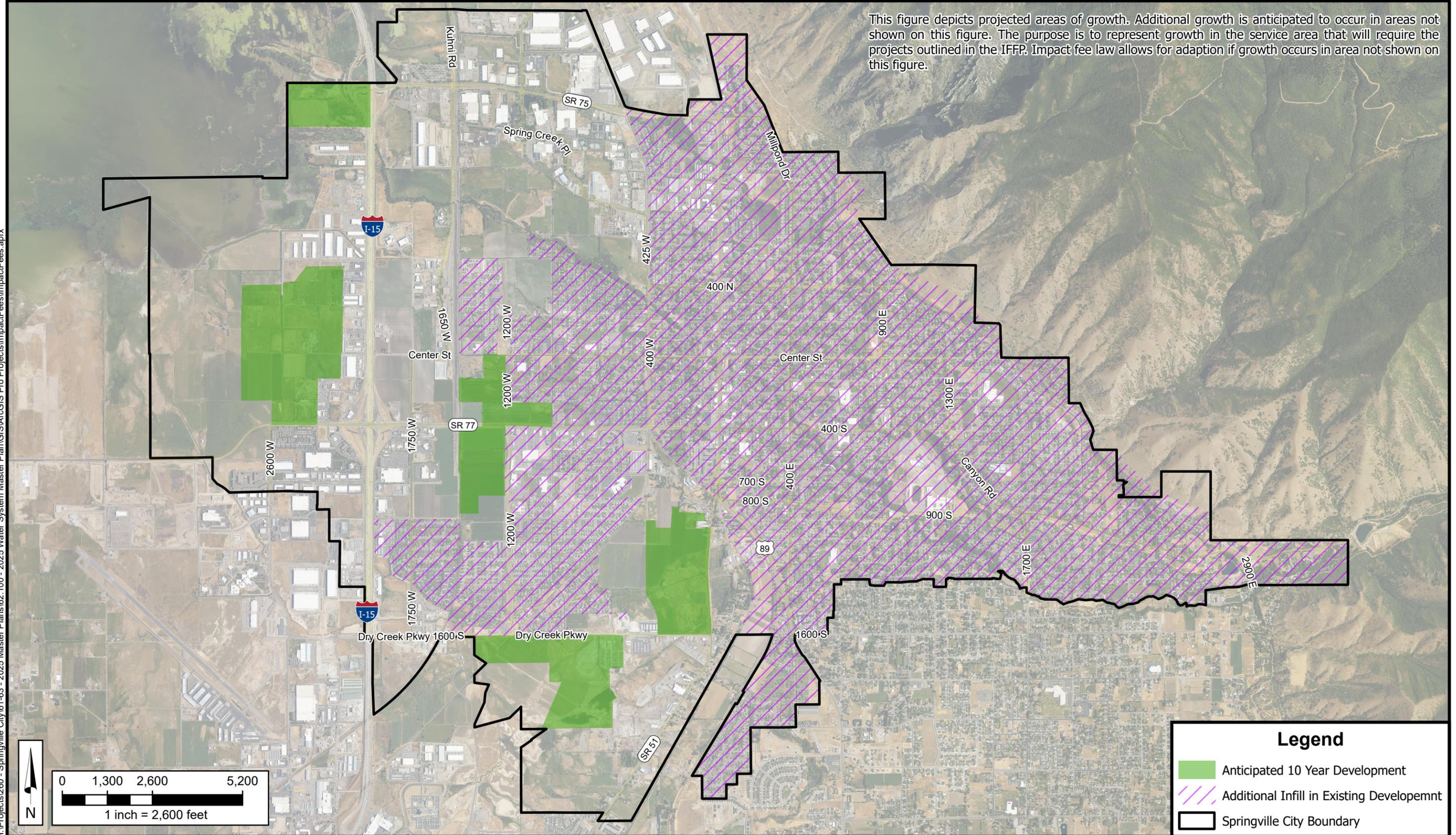
The development of impact fees requires growth projections over the next ten years. Growth projections for Springville were made by projecting future irrigated acreage in areas identified by City personnel as most likely to develop during the next ten years. Total growth projections for the City through 2035 are summarized in Table 3-1.

**Table 3-1
Growth Projections Over Next Ten Years**

Year	Irrigated Acres
2025	622
2026	646
2027	670
2028	695
2029	719
2030	743
2031	767
2032	791
2033	816
2034	840
2035	864
Change	+242

The existing system served about 622 irrigated acres at the end of 2025. Projected growth adds 242 irrigated acres in the next 10 years for a total of 864 irrigated acres. See Figure 3-1 for areas of projected growth.

This figure depicts projected areas of growth. Additional growth is anticipated to occur in areas not shown on this figure. The purpose is to represent growth in the service area that will require the projects outlined in the IFFP. Impact fee law allows for adaption if growth occurs in area not shown on this figure.



Legend

- Anticipated 10 Year Development
- Additional Infill in Existing Development
- Springville City Boundary

Date: 10/30/2025 Document Path: H:\Projects\260 - Springville City\61-63 - 2025 Master Plans\62.100 - 2025 Water System Master Plan\GIS\ArcGIS Pro Projects\ImpactFees\ImpactFees.aprx

3.3 Cost of Existing Pressurized Irrigation Water Facilities

In 2011, the City obtained a \$9 million federal grant to build its PI system. On top of that, the City has furnished \$1,103,606 in additional funds which are eligible to be repaid by impact fees (see Appendix B), for a total existing cost of \$10,103,606. These funds contributed to the construction of Bartholomew Pond and the major transmission line to the service area of the system, which created capacity for both existing and future users. A summary of the eligibility of these expenditures to be reimbursed with impact fees is included in Table 3-2.

**Table 3-2
Impact Fee Eligibility of Prior Expenditures**

Funding Source	Expended	Percent Eligible for Impact Fee Reimbursement	Impact Fee Eligible Cost
Federal Grant	\$9,000,000.00	0% ¹	\$0
City Funds	\$1,103,606.00	39.8% ²	\$439,092.03
Total	\$10,103,606.00	-	\$439,092.03

1. Grant funding is not eligible to be reimbursed by impact fees
2. See Table 2-1.

3.4 Cost of Future Pressurized Irrigation Water Facilities

A hydraulic model was used to determine the facilities necessary to serve growth through the 10-year planning period. These facilities are shown in Table 3-3 and on Figure 7-1 in the Pressurized Irrigation Water System Master Plan (which has been included in Appendix A for reference). Estimated costs include only the portion of cost anticipated to be paid by the City, shown as impact fee eligible cost. Detailed estimates for future project costs have been included in Appendix C.

Unit costs for the construction cost estimates are based on conceptual level engineering. Sources used to estimate construction costs include:

1. "Means Heavy Construction Cost Data, 2025"
2. Price quotes from equipment suppliers
3. Recent construction bids for similar work

All costs are presented in 2025 dollars.

Master plan projects are a high-level representation of the infrastructure the City will need to construct in order to address existing deficiencies or meet future growth needs. However, due to the many unknown factors at this stage of design (such as alignment and depth of pipes, utility conflicts, the cost of land and easements, construction methodology, types of equipment and material to be used, interest and inflation rates, permitting requirements, etc.), there is a significant level of uncertainty in estimated costs. Master plan-level cost estimates can typically be expected to be accurate within +/- 50% of their actual cost. Prices have been exceptionally

volatile from 2020 to 2025 due to supply chain and labor market issues, further complicating attempts to estimate future construction costs.

While detailed cost estimates for all projects are beyond the scope of this study, the intent of planning-level cost estimates is to present reasonable projections of expected project costs. This results in a computed impact fee that is reasonable and fair to both the City and the developer. This is consistent with impact fee law, which requires that the fee must be "roughly proportionate and reasonably related" to the impact caused by new development.

**Table 3-3
Estimated 10-Year Project Costs**

Project¹	Map ID	Total Estimated Cost	Percent Eligible for Impact Fee²	Impact Fee Eligible Cost	Cost for Development Within 10 Years³
20-inch Pipeline – Center Street 24-inch Pipeline – 700 S	10-1	\$4,370,000	100%	\$4,370,000	\$1,040,653
16-inch Pipeline – Center	10-2	\$2,271,000	100%	\$2,271,000	\$540,806
12-inch Pipeline – Center Street	10-3	\$1,193,000	30%	\$353,000	\$84,062
10-inch Pipeline – 1750 West	10-4	\$1,460,000	15%	\$230,000	\$54,771
18-inch Pipeline – State Street	10-5	\$3,470,000	100%	\$3,470,000	\$826,331
16-inch Pipeline – State Street	10-6	\$1,440,000	100%	\$1,440,000	\$342,915
8-inch Pipeline – 1600 South	10-7	\$1,890,000	100%	\$1,890,000	\$450,076
8, 10, and 12-inch Pipelines – Dry Creek Area	10-8	\$1,560,000	13%	\$210,000	\$50,008
10-inch Pipeline – 1700 West	10-9	\$530,000	14%	\$80,000	\$19,051
12-inch Pipeline – 900 South	10-10	\$880,000	25%	\$230,000	\$54,771
8-inch Pipeline – 2000 West 6-inch Pipeline – 500 North	10-11	\$1,560,000	100%	\$1,560,000	\$371,492
12-inch Pipeline – 2000 West	10-12	\$570,000	100%	\$570,000	\$135,737
8-inch Pipeline – 900 South	10-13	\$990,000	100%	\$990,000	\$235,754
8-inch Pipeline – 2250 West	10-14	\$640,000	7%	\$50,000	\$11,907
10-inch Pipeline – 700 South	10-15	\$550,000	100%	\$550,000	\$130,975
12-inch Pipeline – 400 South 30-inch Pipeline – 400 South	10-16	\$710,000	24%	\$180,000	\$42,864
8-inch Pipeline – 100 West	10-17	\$580,000	6%	\$40,000	\$9,525
Totals		\$24,664,000	-	\$18,484,000	\$4,401,699

1. Refer to Figure 7-1 in the City's Master Plan for the project and its corresponding ID number. This figure has been included in Appendix A for reference.
2. Where the City is expected to upsize a developer-installed pipe, only the portion attributable to the upsize is considered impact fee eligible.
3. Future costs for development within 10 years were calculated for the irrigated acres within 10 years by assigning a proportionate share of the impact fee eligible costs to the irrigated acres within 10 years. Refer to Table 3-5.

3.5 Impact Fee Unit Calculation

The impact fee unit of measure for the pressurized irrigation system is an irrigated acre. The fees per irrigated acre for the infrastructure and planning components of the impact fee are calculated as shown in this section.

Infrastructure

The total infrastructure component of the impact fee was calculated as shown in Table 3-4.

**Table 3-4
Proposed Infrastructure Component of Fee**

Item	Prior Expenditures ¹	Future Projects ²	Total ³
Impact Fee Eligible Costs	\$439,092.03	\$18,484,000.00	\$18,923,092.03
Irrigated Acreage Served	411	535	946
Cost per Irrigated Acre	-	-	\$20,003.27

1. See Table 3-2

2. See Table 3-3

3. Cost per irrigated acre is computed as impact fee eligible costs divided by future irrigated acreage served.

Infrastructure costs by time period are summarized in Table 3-5.

**Table 3-5
Infrastructure Costs by Time Period**

Time Period	Irr-ac Served	Buy-in Cost	Growth Cost	Total Cost
Existing	622	\$664,513.97	\$0.00	\$664,513.97
Next 10 Years	242	\$439,092.03	\$4,401,698.96	\$4,840,790.98
Beyond 10 Years	704	\$0.00	\$14,082,301.04	\$14,082,301.04
Total	1,568	\$1,103,606.00	\$18,484,000.00	\$19,587,606.00

Planning

Planning services are also needed to support growth. The City updates their master plans approximately every 5 years and their impact fee studies are anticipated to be updated every year. The yearly cost to update the impact fee studies is anticipated to be half the cost of the 2025 IFFP and IFA. Considering this schedule, and the cost of the most recent impact fee updates, a planning impact fee was calculated as shown in Table 3-6.

**Table 3-6
Planning Component of Impact Fee**

Planning Document	Cost	% Associated with Growth¹	Cost Associated with Growth	Irr-ac Served²	Cost per Irr-Ac
2025 Master Plan	\$80,740	60%	\$48,444	121	\$400.36
2025 IFFP and IFA	\$13,300	100%	\$13,300	24	\$549.59
Total	\$94,040	-	\$61,744	-	\$949.95

1. Percentages to growth for the master plan was based on a review of the scope of the plan and associated fees for tasks associated with the existing system and future growth. The IFFP and IFA are 100% associated with growth.
2. Irr-ac served was defined as the amount of irrigated acreage expected to develop during the 5-year life of the master plan and the 1-year life of the IFFP and IFA, respectively.

Table 3-7 shows expected planning costs by time period.

**Table 3-7
Planning Costs by Time Period**

Time Period	Irr-ac Served	Buy-in Cost	Growth Cost	Total Cost
Existing	622	\$0.00	\$0.00	\$0.00
Next 10 Years	242	\$94,040.00	\$135,848.00	\$229,888.00
Beyond 10 Years	704	\$0.00	\$0.00	\$0.00
Total	1,568	\$94,040.00	\$135,848.00	\$229,888.00

Total Impact Fee

Table 3-8 shows the proposed impact fee per irrigated acre.

**Table 3-8
Total Proposed Impact Fee**

Component	Per Irrigated Acre	Per Square Foot
Infrastructure	\$20,003	\$0.4592
Planning	\$950	\$0.0218
Total	\$20,953	\$0.4810

The impact fee for development types other than single family residential development is calculated by multiplying the impact fee per irrigated area or per square foot from Table 3-8 by the anticipated irrigated area of the development as follows:

$$\text{Impact fee} = (\text{irrigated area, acres}) * (\$20,953 \text{ per irrigated acre}) \text{ or}$$

$$\text{Impact fee} = (\text{irrigated area, square feet}) * (\$0.4810 \text{ per irrigated square foot})$$

3.6 Total Impact Fee Calculation for a Typical Single Family Residential Connection

Typical irrigated area by lot sizes in Springville are listed in Table 2-2 of the Master Plan. Table 3-9 gives the proposed impact fee for various single family residential lot sizes based on these typical irrigated areas.

Table 3-9
Total Proposed Impact Fee by Single Family Residential Lot Size

Minimum Lot Size (ft ²)	Maximum Lot Size (ft ²)	Irrigated Area (acres)	Infrastructure	Planning	Total
0	2,000	0.03	\$600	\$29	\$629
2,001	4,000	0.03	\$600	\$29	\$629
4,001	6,000	0.06	\$1,200	\$57	\$1,257
6,001	8,000	0.09	\$1,800	\$86	\$1,886
8,001	10,890	0.11	\$2,200	\$105	\$2,305
10,891	21,780	0.15	\$3,000	\$143	\$3,143
≥ 21,780		0.35	\$7,001	\$333	\$7,334

3.7 Facility Cost by Time Period

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

**Table 3-10
Facility Cost by Time Period**

	Existing	Next 10 Years	Beyond 10 Years	Total
Infrastructure	\$664,513.97	\$4,840,790.98	\$14,082,301.04	\$19,587,606.00
Planning	\$0.00	\$229,888.00	\$0.00	\$229,888.00
Total Cost	\$664,513.97	\$5,070,678.98	\$14,082,301.04	\$19,817,494.00

3.8 Revenue Options

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

General Obligation Bonds through Property Taxes

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

Revenue Bonds

This form of debt financing is also available to the City for utility related capital improvements. Unlike G.O. bonds, revenue bonds are not backed by the City as a whole, but constitute a lien against the water service charge revenues of a Water Utility. Revenue bonds present a greater risk to the investor than do G.O. bonds, since repayment of debt depends on an adequate revenue stream, legally defensible rate structure /and sound fiscal management by the issuing jurisdiction. Due to this increased risk, revenue bonds generally require a higher interest rate than G.O. bonds, although currently interest rates are at historic lows. This type of debt also has

very specific coverage requirements in the form of a reserve fund specifying an amount, usually expressed in terms of average or maximum debt service due in any future year. This debt service is required to be held as a cash reserve for annual debt service payment to the benefit of bondholders. Typically, voter approval is not required when issuing revenue bonds. For growth related projects this type of revenue places an unfair burden on existing residents as they had previously paid for their level of service.

State/Federal Grants and Loans

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

It is also important to assess likely trends regarding federal / state assistance in infrastructure financing. Future trends indicate that grants will be replaced by loans through a public works revolving fund. Local governments can expect to access these revolving funds or public works trust funds by demonstrating both the need for and the ability to repay the borrowed monies, with interest. As with the revenue bonds discussed earlier, the ability of infrastructure programs to wisely manage their own finances will be a key element in evaluating whether many secondary funding sources, such as federal/state loans, will be available to the City.

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

User Fees

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

Impact Fees

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

APPENDIX A

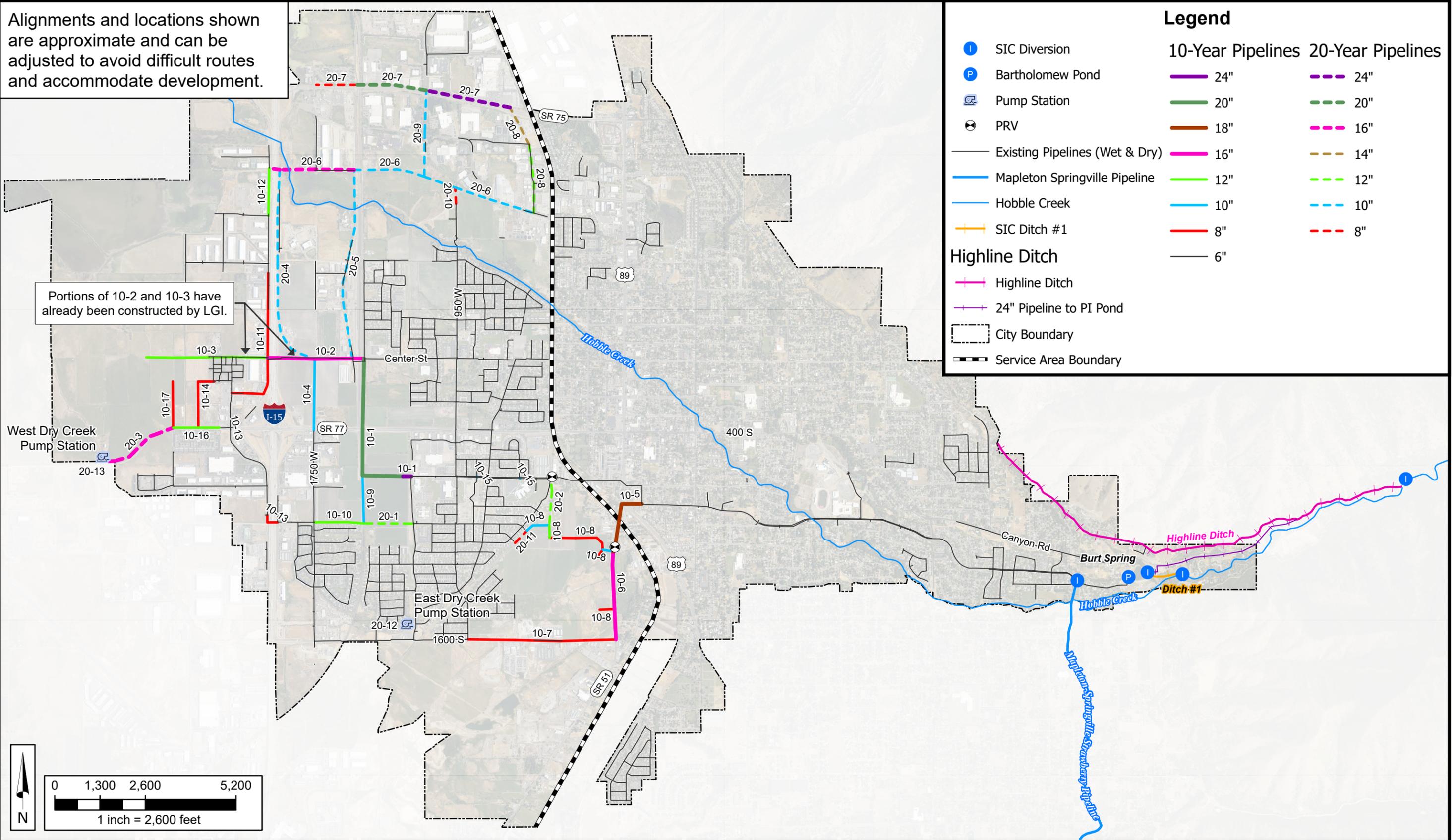
Information from the Pressurized Irrigation System Master Plan



Date: 1/9/2026 Document Path: H:\Projects\260 - Springville City\61-63 - 2025 Master Plans\61.100 - 2025 PI System Master Plan\GIS\ArcGIS Pro Projects\Springville PI MP GIS 2025.aprx

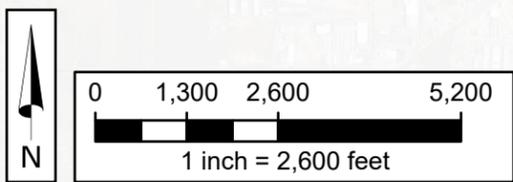
Alignments and locations shown are approximate and can be adjusted to avoid difficult routes and accommodate development.

Portions of 10-2 and 10-3 have already been constructed by LGI.



Legend

	SIC Diversion		10-Year Pipelines 24"		20-Year Pipelines 24"
	Bartholomew Pond		10-Year Pipelines 20"		20-Year Pipelines 20"
	Pump Station		10-Year Pipelines 18"		20-Year Pipelines 16"
	PRV		10-Year Pipelines 16"		20-Year Pipelines 14"
	Existing Pipelines (Wet & Dry)		10-Year Pipelines 12"		20-Year Pipelines 12"
	Mapleton Springville Pipeline		10-Year Pipelines 10"		20-Year Pipelines 10"
	Hobble Creek		10-Year Pipelines 8"		20-Year Pipelines 8"
	SIC Ditch #1		10-Year Pipelines 6"		
	Highline Ditch				
	24" Pipeline to PI Pond				
	City Boundary				
	Service Area Boundary				



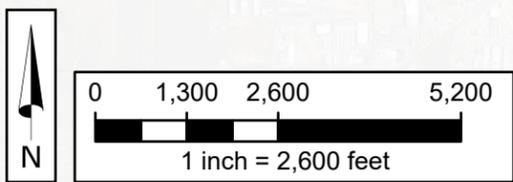
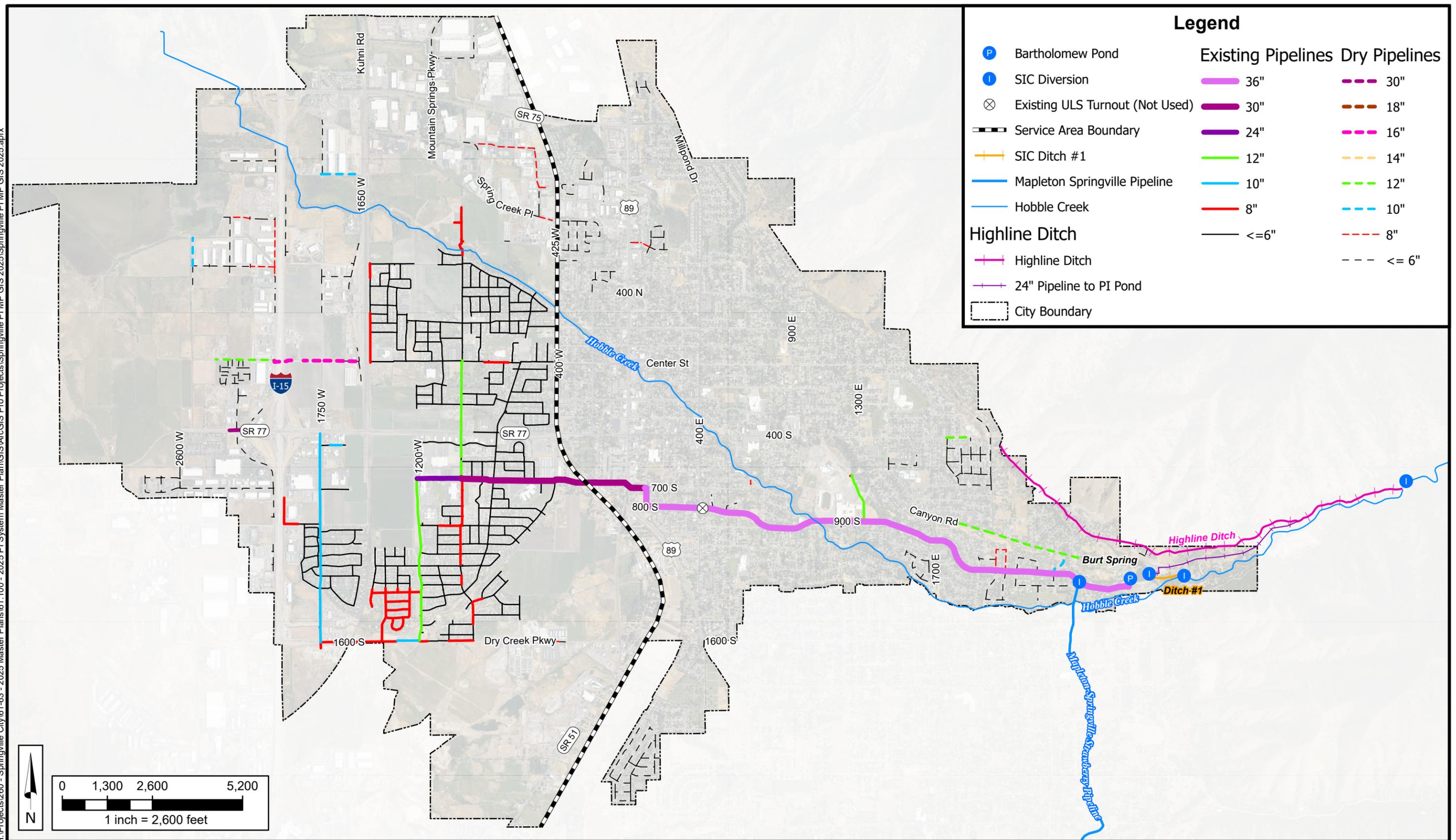
SPRINGVILLE CITY PRESSURIZED IRRIGATION SYSTEM MASTER PLAN

CAPITAL FACILITIES PLAN

**FIGURE
7-1**



Date: 10/30/2025
 Document Path: H:\Projects\260 - Springville City\61-63 - 2025 Master Plans\61.100 - 2025 PI System Master Plan\GIS\ArcGIS Pro Projects\Springville PI MP GIS 2025.aprx



**SPRINGVILLE CITY
 PRESSURIZED IRRIGATION SYSTEM MASTER PLAN**

EXISTING SYSTEM

**FIGURE
 1-2**



APPENDIX B

Cost of Existing Infrastructure

Sources:

City Records

2024 Pressurized Irrigation Impact Fee Analysis
Hansen, Allen & Luce

PI Project Payment History

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

Sub-Total \$ 10,103,606
 CUWCD Grant \$ 9,000,000
City Expense \$ 1,103,606

NOTE:

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

APPENDIX C

Estimated Future Project Costs



Springville City Pressurized Irrigation Water Master Plan - Capital Facility Plan Project Cost Estimates
 Springville City
 by Hansen, Allen & Luce, Inc.

AAACE Class: 5

Project 10-2 and 10-3 have been or are currently under construction. The costs shown for these projects reflect the bid or reimbursement agreement amounts provided by the City.
 10-2: Bid document - Lakeside-Landing Offsite PI Improvements by Landmark Excavating
 10-3: Reimbursement agreement - Center Street pressurized irrigation water system improvements

Scenario	Project ID	Item Type	Location/Description	Diameter	Quantity	Rounded Quantity	Unit	Unit Cost	Base Cost	Contingency (20%)	Engineering (10%)	Project Total Cost	Project Total Cost Rounded	Impact Fee Eligible Cost	Impact Fee Eligible Cost Rounded	% Impact Fee Eligible		
PI Project 10-1																		
10-Year	10-1	Pipe	20-inch diameter pipe	20	4507	4510	LF	\$ 440	\$ 1,984,400	\$ 396,880	\$ 198,440	\$ 2,579,720	\$ 2,580,000	\$ 2,579,720	\$ 2,580,000	100%		
10-Year	10-1	Pipe	24-inch diameter pipe	24	241	250	LF	\$ 510	\$ 127,500	\$ 25,500	\$ 12,750	\$ 165,750	\$ 166,000	\$ 165,750	\$ 166,000	100%		
10-Year	10-1	Bore-20	Bore 20-inch diameter pipe across SR77/400 S (180')	20	180	180	LF	\$ 4,800	\$ 864,000	\$ 172,800	\$ 86,400	\$ 1,123,200	\$ 1,124,000	\$ 1,123,200	\$ 1,124,000	100%		
10-Year	10-1	Bore-20	Bore 20-inch diameter pipe across (2) canals (40')	20	80	80	LF	\$ 4,800	\$ 384,000	\$ 76,800	\$ 38,400	\$ 499,200	\$ 500,000	\$ 499,200	\$ 500,000	100%		
												PI Project 10-1 Total	\$ 4,370,000	10-1 Total	\$ 4,370,000	100%		
PI Project 10-2 (Lakeside Offsite PI, under construction)																		
10-Year	10-2	Pipe	16-inch along Center St from 1500 W to 2000 W	16	(-)	(-)	(-)	(-)		Bid Cost	Contingency (10%)	Engineering (5%)	Total	Rounded				
												\$ 1,973,978	\$ 197,398	\$ 98,699	\$ 2,270,075	\$ 2,271,000	\$ 2,271,000	100%
												PI Project 10-2 Total	\$ 2,271,000	10-2 Total	\$ 2,271,000	100%		
PI Project 10-3 (LGI Center Street Offsite PI, West of I-15, portion constructed)																		
10-Year	10-3	Pipe	12-inch along Center St (constructed)	12	1160	1160	LF	(-)	(-)	(-)	(-)	\$ 72,945	\$ 73,000	\$ 72,945	\$ 73,000	100%		
												PI Project 10-3 Subtotal	\$ 73,000	10-3 Subtotal	\$ 73,000	100%		
10-Year	10-3	Pipe	12-inch diameter pipe	12	1916	1920	LF	\$ 320	\$ 614,400	\$ 122,880	\$ 61,440	\$ 798,720	\$ 799,000	\$ 774,720	\$ 775,000	22%		
10-Year	10-3	Bore-12	Bore 12-inch diameter pipe across (2) canals (40')	12	80	80	LF	\$ 3,000	\$ 240,000	\$ 48,000	\$ 24,000	\$ 312,000	\$ 312,000	\$ 104,000	\$ 104,000	33%		
												PI Project 10-3 Subtotal	\$ 1,130,000	10-3 Subtotal	\$ 280,000	25%		
												PI Project 10-3 Total	\$ 1,193,000		\$ 353,000			
10-Year	10-4	Pipe	10-inch diameter pipe	10	2049	2050	LF	\$ 290	\$ 594,500	\$ 118,900	\$ 59,450	\$ 772,850	\$ 773,000	\$ 106,600	\$ 107,000	14%		
10-Year	10-4	Bore-10	Bore 10-inch diameter pipe across SR77 (180')	10	180	180	LF	\$ 2,400	\$ 432,000	\$ 86,400	\$ 43,200	\$ 561,600	\$ 562,000	\$ 93,600	\$ 94,000	17%		
10-Year	10-4	Bore-10	Bore 10-inch diameter pipe across canal (40')	10	40	40	LF	\$ 2,400	\$ 96,000	\$ 19,200	\$ 9,600	\$ 124,800	\$ 125,000	\$ 20,800	\$ 21,000	17%		
												PI Project 10-4 Total	\$ 1,460,000	10-4 Total	\$ 230,000	15%		
PI Project 10-5																		
10-Year	10-5	Pipe	18-inch diameter pipe	18	1971	1980	LF	\$ 400	\$ 792,000	\$ 158,400	\$ 79,200	\$ 1,029,600	\$ 1,030,000	\$ 1,029,600	\$ 1,030,000	100%		
10-Year	10-5	PRV-18	PRV to 18" pipe on 1000 S State St.	18	1	1	Each	\$ 400,000	\$ 400,000	\$ 80,000	\$ 40,000	\$ 520,000	\$ 520,000	\$ 520,000	\$ 520,000	100%		
10-Year	10-5	Bore-18	Bore 18-inch diameter pipe across US 89 (300')	18	300	300	LF	\$ 4,200	\$ 1,260,000	\$ 252,000	\$ 126,000	\$ 1,638,000	\$ 1,638,000	\$ 1,638,000	\$ 1,638,000	100%		
10-Year	10-5	Bore-18	Bore 18-inch diameter pipe across railroad (50')	18	50	50	LF	\$ 4,200	\$ 210,000	\$ 42,000	\$ 21,000	\$ 273,000	\$ 273,000	\$ 273,000	\$ 273,000	100%		
												PI Project 10-5 Total	\$ 3,470,000	10-5 Total	\$ 3,470,000	100%		
PI Project 10-6																		
10-Year	10-6	Pipe	16-inch diameter pipe	16	2516	2520	LF	\$ 370	\$ 932,400	\$ 186,480	\$ 93,240	\$ 1,212,120	\$ 1,213,000	\$ 1,212,120	\$ 1,213,000	100%		
10-Year	10-6	Bore-16	Bore 16-inch diameter pipe across Dry Creek (40')	16	40	40	LF	\$ 4,200	\$ 168,000	\$ 33,600	\$ 16,800	\$ 218,400	\$ 219,000	\$ 219,000	\$ 219,000	100%		
												PI Project 10-6 Total	\$ 1,440,000	10-6 Total	\$ 1,440,000	100%		
PI Project 10-7																		
10-Year	10-7	Pipe	8-inch diameter pipe	8	4245	4250	LF	\$ 270	\$ 1,147,500	\$ 229,500	\$ 114,750	\$ 1,491,750	\$ 1,492,000	\$ 1,491,750	\$ 1,492,000	100%		
10-Year	10-7	Bore-8	Bore 8-inch diameter pipe across SR51 (150')	8	150	150	LF	\$ 2,000	\$ 300,000	\$ 60,000	\$ 30,000	\$ 390,000	\$ 390,000	\$ 390,000	\$ 390,000	100%		
												PI Project 10-7 Total	\$ 1,890,000	10-7 Total	\$ 1,890,000	100%		
PI Project 10-8																		
10-Year	10-8	Pipe	8-inch diameter pipe	8	2464	2470	LF	\$ 270	\$ 666,900	\$ 133,380	\$ 66,690	\$ 866,970	\$ 867,000	\$ 64,220	\$ 65,000	7%		
10-Year	10-8	Pipe	10-inch diameter pipe	10	1006	1010	LF	\$ 290	\$ 292,900	\$ 58,580	\$ 29,290	\$ 380,770	\$ 381,000	\$ 52,520	\$ 53,000	14%		
10-Year	10-8	Pipe	12-inch diameter pipe	12	361	370	LF	\$ 320	\$ 118,400	\$ 23,680	\$ 11,840	\$ 153,920	\$ 154,000	\$ 36,670	\$ 37,000	22%		
10-Year	10-8	Bore-12	Bore 12-inch diameter pipe across canal (40')	12	40	40	LF	\$ 3,000	\$ 120,000	\$ 24,000	\$ 12,000	\$ 156,000	\$ 156,000	\$ 52,000	\$ 52,000	33%		
												PI Project 10-8 Total	\$ 1,560,000	10-8 Total	\$ 210,000	13%		
PI Project 10-9																		
10-Year	10-9	Pipe	10-inch diameter pipe	10	1375	1380	LF	\$ 290	\$ 400,200	\$ 80,040	\$ 40,020	\$ 520,260	\$ 521,000	\$ 71,760	\$ 72,000	14%		
												PI Project 10-9 Total	\$ 530,000	10-9 Total	\$ 80,000	14%		
PI Project 10-10																		
10-Year	10-10	Pipe	12-inch diameter pipe	12	1435	1440	LF	\$ 320	\$ 460,800	\$ 92,160	\$ 46,080	\$ 599,040	\$ 600,000	\$ 131,040	\$ 132,000	22%		
10-Year	10-10	Bore-12	Bore 12-inch diameter pipe across railroad (70')	12	70	70	LF	\$ 3,000	\$ 210,000	\$ 42,000	\$ 21,000	\$ 273,000	\$ 273,000	\$ 91,000	\$ 91,000	33%		
												PI Project 10-10 Total	\$ 880,000	10-10 Total	\$ 230,000	25%		
PI Project 10-11																		
10-Year	10-11	Pipe	8-inch diameter pipe	8	4403	4410	LF	\$ 270	\$ 1,190,700	\$ 238,140	\$ 119,070	\$ 1,547,910	\$ 1,548,000	\$ 1,547,910	\$ 1,548,000	100%		
10-Year	10-11	Bore-8	Bore 8-inch diameter pipe across canal structure (20')	8	1	1	LF	\$ 2,000	\$ 2,000	\$ 400	\$ 200	\$ 2,600	\$ 3,000	\$ 2,600	\$ 3,000	100%		
												PI Project 10-11 Total	\$ 1,560,000	10-11 Total	\$ 1,560,000	100%		
PI Project 10-12																		
10-Year	10-12	Pipe	12-inch diameter pipe	12	1365	1370	LF	\$ 320	\$ 438,400	\$ 87,680	\$ 43,840	\$ 569,920	\$ 570,000	\$ 569,920	\$ 570,000	100%		
												PI Project 10-12 Total	\$ 570,000	10-12 Total	\$ 570,000	100%		
PI Project 10-13																		
10-Year	10-13	Pipe	8-inch diameter pipe	8	502	510	LF	\$ 270	\$ 137,700	\$ 27,540	\$ 13,770	\$ 179,010	\$ 180,000	\$ 179,010	\$ 180,000	100%		
10-Year	10-13	Pipe	6-inch diameter pipe	6	73	80	LF	\$ 250	\$ 20,000	\$ 4,000	\$ 2,000	\$ 26,000	\$ 26,000	\$ 26,000	\$ 26,000	100%		
10-Year	10-13	Bore-8	Bore 8-inch diameter pipe across I-15 (300')	8	300	300	LF	\$ 2,000	\$ 600,000	\$ 120,000	\$ 60,000	\$ 780,000	\$ 780,000	\$ 780,000	\$ 780,000	100%		
												PI Project 10-13 Total	\$ 990,000	10-13 Total	\$ 990,000	100%		
PI Project 10-14																		
10-Year	10-14	Pipe	8-inch diameter pipe	8	1793	1800	Each	\$ 270	\$ 486,000	\$ 97,200	\$ 48,600	\$ 631,800	\$ 632,000	\$ 46,800	\$ 47,000	7%		
												PI Project 10-14 Total	\$ 640,000	10-14 Total	\$ 50,000	7%		
PI Project 10-15																		
10-Year	10-15	Pipe	10-inch diameter pipe	10	62	70	LF	\$ 290	\$ 20,300	\$ 4,060	\$ 2,030	\$ 26,390	\$ 27,000	\$ 26,390	\$ 27,000	100%		
10-Year	10-15	PRV-30	PRV to 30" pipe on 400 W 700 S	30	1	1	Each	\$ 400,000	\$ 400,000	\$ 80,000	\$ 40,000	\$ 520,000	\$ 520,000	\$ 520,000	\$ 520,000	100%		
												PI Project 10-15 Total	\$ 550,000	10-15 Total	\$ 550,000	100%		
PI Project 10-16																		
10-Year	10-16	Pipe	12-inch diameter pipe	12	1323	1330	LF	\$ 320	\$ 425,600	\$ 85,120	\$ 42,560	\$ 553,280	\$ 554,000	\$ 121,030	\$ 122,000	22%		
10-Year	10-16	Bore-12	Bore 12-inch diameter pipe across canal (40')	12	40	40	LF	\$ 3,000	\$ 120,000	\$ 24,000	\$ 12,000	\$ 156,000	\$ 156,000	\$ 52,000	\$ 52,000	33%		
												PI Project 10-16 Total	\$ 710,000	10-16 Total	\$ 180,000	24%		
PI Project 10-17																		
10-Year	10-17	Pipe	8-inch diameter pipe	8	1327	1330	LF	\$ 270	\$ 359,100	\$ 71,820	\$ 35,910	\$ 466,830	\$ 467,000	\$ 34,580	\$ 35,000	7%		
10-Year	10-17	Bore-8	Bore 8-inch diameter pipe across canal (40')	8	40	40	LF	\$ 2,000	\$ 80,000	\$ 16,000	\$ 8,000	\$ 104,000	\$ 104,000	\$ -	\$ -	0%		
												PI Project 10-17 Total	\$ 580,000	10-17 Total	\$ 40,000	6%		



STAFF REPORT

DATE: February 25, 2026

TO: Honorable Mayor and City Council

FROM: Tyson Bartlett, Water Superintendent, Public Works

SUBJECT: **ADOPTION OF THE DRINKING WATER MASTER PLAN AND CAPITAL FACILITY PLAN, IMPACT FEE FACILITY PLAN, IMPACT FEE ANALYSIS AND DRINKING WATER IMPACT FEE ORDINANCE #XX-2026**

RECOMMENDED MOTION:

Motion to approve and adopt the 2026 Springville City Drinking Water Master Plan and Capital Facility Plan, Impact Fee Facilities Plan (IFFP), and Impact Fee Analysis (IFA) prepared by Hansen, Allen & Luce, Inc.; and adopt Ordinance No. XX-2026 enacting the updated Drinking Water Impact Fees.

EXECUTIVE SUMMARY

Springville City retained Hansen, Allen & Luce, Inc. (HAL) to complete the 2026 update to the City's Drinking Water Master Plan (Master Plan), Impact Fee Facilities Plan (IFFP), and Impact Fee Analysis (IFA). The Master Plan is updated every five to seven years, while the IFFP and IFA are updated annually to ensure compliance with Utah's Impact Fees Act and to reflect current construction costs and growth projections.

The 2026 update incorporates revised population and land use forecasts, updated infrastructure modeling, refined capital improvement phasing, and updated construction cost estimates. Additionally, the update confirms the system's level of service standards and ensures they are being achieved. Capital project costs identified in the Master Plan were incorporated into the IFFP, and the IFA recalculates the proportionate share impact fees attributable to new growth.

The Master Plan, IFFP, and IFA were presented to the Utility Board on December 10, 2025; the Planning Commission on January 13, 2026; and the City Council during a work session on February 3, 2026. Both the Utility Board and Planning Commission recommended approval of the proposed plans and adoption of the maximum allowable impact fee supported by the IFA.



Staff recommends adoption of the 2026 Master Plan, IFFP, IFA, and Ordinance No. XX-2026 establishing the updated impact fees as follows:

- **Indoor Drinking Water Impact Fee:** \$1,266 per Equivalent Residential Unit (ERU)
- **Outdoor Pressurized Irrigation Impact Fee:** \$20,953 per irrigated acre (\$0.4810 per irrigated square foot) based on the typical irrigated area of various lot sizes shown in the chart below:

Proposed OUTDOOR Use Impact Fee by Single Family Residential Lot

Minimum Lot Size (ft ²)	Maximum Lot Size (ft ²)	Irrigated Area (acres)	Infrastructure	Planning	Total
0	2,000	0.03	\$600	\$29	\$629
2,001	4,000	0.03	\$600	\$29	\$629
4,001	6,000	0.06	\$1,200	\$57	\$1,257
6,001	8,000	0.09	\$1,800	\$86	\$1,886
8,001	10,890	0.11	\$2,200	\$105	\$2,305
10,891	21,780	0.15	\$3,000	\$143	\$3,143
≥ 21,780		0.35	\$7,001	\$333	\$7,334

FOCUS OF ACTION:

The purpose of this action is to:

1. Adopt the 2026 Drinking Water Master Plan as the City’s long-range planning document for water system infrastructure.
2. Adopt the Impact Fee Facilities Plan (IFFP) identifying growth-related capital facilities.
3. Adopt the Impact Fee Analysis (IFA) establishing the legally defensible maximum impact fees.
4. Enact Ordinance No. XX-2026 updating the City’s Drinking Water Impact Fee Schedule.

Adoption ensures that growth pays its proportionate share of water system capital improvements and that the City remains compliant with state law.

BACKGROUND:

Springville City’s drinking water system must reliably serve existing residents while accommodating continued residential and commercial growth. The Master Plan evaluates:

- Water rights and supply capacity



- Well production capacity
- Storage requirements
- Transmission and distribution infrastructure
- Fire flow compliance
- Projected buildout demands

The adopted Level of Service (LOS) for the drinking water system is outlined as follows:

- Indoor Source Capacity: 260 gpd/ERC (Peak Day)
- Indoor Source Volume: 0.30 ac-ft/ERC (Annual Demand)
- Indoor Storage Capacity: 230 Gallons/ERC
- Outdoor Source Capacity: 12,240 gpd/irr-ac (Peak Day)
- Outdoor Source Volume: 4.0 ac-ft/irr-ac (Annual Demand)
- Outdoor Storage Capacity: 6,120 Gallons/irr-ac
- Distribution Capacity: 50 psi minimum during peak day demand conditions and 30 psi minimum during peak instantaneous conditions

The Impact Fee Facilities Plan (IFFP) identifies those capital improvements required to serve future development. The Impact Fee Analysis (IFA) calculates the maximum allowable fee that may be assessed to new development based on proportionate share methodology.

The 2026 update reflects:

- Updated growth and buildout assumptions
- Revised demand modeling
- Updated capital construction costs
- Refined Equivalent Residential Unit (ERU) calculations
- Pressurized irrigation system planning updates

These updates ensure technical accuracy, financial sustainability, and legal defensibility.

DISCUSSION:

Master Plan Update - The 2026 Master Plan identifies infrastructure required to maintain adopted Levels of Service as growth occurs. Key improvements include:

- Additional well capacity and source redundancy
- Storage expansion to meet peak day and fire flow requirements





- Transmission main upsizing in growth corridors
- Distribution system looping and pressure zone balancing

Capital cost estimates were updated to reflect current construction pricing and anticipated escalation.

Impact Fee Facilities Plan (IFFP) - The IFFP includes only those facilities required to serve new growth. Replacement of aging infrastructure and correction of existing deficiencies are excluded and remain the responsibility of existing ratepayers.

Eligible project costs are allocated to growth based on projected demand increases.

Impact Fee Analysis (IFA) -The IFA calculates maximum allowable fees using:\

- Projected growth demand
- ERU methodology for indoor culinary use
- Irrigated acreage methodology for outdoor use
- Proportionate share allocation
- Statutory compliance under Utah Impact Fees Act

Impact Fee Calculation Summary - The proposed fee is based on:

- \$5,615,303.93 in impact-fee-eligible prior City investment.
- \$6,268,109.04 in impact-fee-eligible future capital projects over the next 10 years.
- Growth of 4,452 ERC's over 10 years.

Total Proposed Impact Fee

Component	Indoor (per ERC)	Outdoor (per irr-ac)
Source	\$308.66	\$14,530.77
Storage	\$495.63	\$10,832.95
Distribution ¹	\$412.69	\$-
Planning ²	\$48.58	\$-
Total	\$1,266	\$25,364

Indoor Culinary Impact Fee = \$1,266 per Equivalent Residential Unit (ERU)



This fee represents growth’s proportionate share of source capacity, storage, and transmission improvements required to meet indoor potable demand.

Outdoor Watering Impact Fee - Irrigated Area Methodology

Outdoor demand is assessed based on estimated irrigated area associated with typical residential lot sizes. The following table establishes the standard irrigated acreage assumptions for single-family residential development irrigating from the drinking water system:

Proposed OUTDOOR Use Impact Fee by Single Family Residential Lot

Minimum Lot Size (ft ²)	Maximum Lot Size (ft ²)	Irrigated Area (acres)	Infrastructure	Planning	Total
0	2,000	0.03	\$600	\$29	\$629
2,001	4,000	0.03	\$600	\$29	\$629
4,001	6,000	0.06	\$1,200	\$57	\$1,257
6,001	8,000	0.09	\$1,800	\$86	\$1,886
8,001	10,890	0.11	\$2,200	\$105	\$2,305
10,891	21,780	0.15	\$3,000	\$143	\$3,143
≥ 21,780		0.35	\$7,001	\$333	\$7,334

This standardized schedule provides consistency, predictability, and proportional allocation of outdoor irrigation demand.

East Side vs. West Side Outdoor Fee Calculation - The IFA calculated the outdoor watering component of the impact fee based on the typical irrigated area for various lot sizes. The east side of town does not have pressurized irrigation, and the outdoor watering is supplied using the culinary water system. The Drinking Water IFA calculated the east side outdoor fee to be:

East Side (no secondary irrigation; culinary system supplies outdoor demand):

- \$25,364 per irrigated acre
- \$0.5823 per irrigated square foot

The west side of town has a separate pressurized irrigation system that supplies outdoor watering demand. The Pressurized Irrigation IFA calculated the east side outdoor fee to be:

West Side (served by Pressurized Irrigation system):



- \$20,953 per irrigated acre
- \$0.4810 per irrigated square foot

The higher east side rate reflects the increased capital burden on the culinary system when it must serve irrigation demand. To maintain equity and administrative simplicity, staff recommends applying the west side pressurized irrigation rate citywide, including the east side.

This approach avoids geographic disparities in fee assessments, simplifies administration and implementation, maintains predictability for the development community, and minimizes policy confusion.

ALTERNATIVES:

- 1. Adopt the Plans and Maximum Allowable Fees (Staff Recommendation)**
 - Growth fully funds its proportionate share.
 - Minimizes subsidy from existing ratepayers.
- 2. Adopt Different Rates for East and West Sides**
 - Maximizes fee recovery.
 - Introduces geographic disparity and administrative complexity.
- 3. Adopt a Lower Fee Citywide**
 - Reduces development costs.
 - Shifts infrastructure costs to existing ratepayers.
- 4. Delay Adoption**
 - Maintains current fee schedule.
 - Risks under-collection relative to updated capital costs.

FISCAL IMPACT:

Adoption of the updated impact fees will:

- Align fee revenue with documented growth-related capital improvements.
- Provide funding for wells, storage, transmission mains, and irrigation infrastructure required to serve new development.
- Reduce reliance on water rate revenue or bonding to fund growth-related capacity.

Uniform Outdoor Rate

Applying the lower west side outdoor watering rate citywide instead of the higher calculated east side rate results in an estimated potential impact fee revenue reduction of approximately \$45,000 to \$50,000 total.



This impact is limited due to the minimal remaining developable land on the east side of the City. Staff believes the benefits of uniformity and administrative simplicity outweigh the relatively small revenue difference.

Impact fee revenues will be restricted to eligible capital projects identified in the IFFP in accordance with state law.

STAFF RECOMMENDATIONS:

Staff recommends that the City Council:

1. Adopt the 2026 Drinking Water Master Plan.
2. Adopt the 2026 Impact Fee Facilities Plan and Impact Fee Analysis.
3. Adopt Ordinance No. XX-2026 enacting the updated Drinking Water Impact Fees as follows:
 - o **\$1,266 per ERU (Indoor Culinary Water)**
 - o **\$20,953 per irrigated acre (\$0.4810 per irrigated square foot) for Outdoor Watering (applied citywide)**

Respectfully,

Tyson Bartlett, Water Superintendent, Public Works



Exhibit A - MP



Exhibit B - IFFP, IFA



ORDINANCE #__-2026

AN ORDINANCE ADOPTING THE SPRINGVILLE CITY CULINARY WATER IMPACT FEE FACILITIES PLAN AND THE UPDATED CULINARY WATER IMPACT FEE ANALYSIS AND ENACTING CULINARY WATER UPDATED IMPACT FEES.

WHEREAS, Springville City (the “City”) has legal authority pursuant to Title 11, Chapter 36a of the Utah Code known as the “Impact Fee Act” (the “Act”) to impose development impact fees as a condition of development approval, which impact fees are used to defray capital infrastructure costs attributable to new development activity; and

WHEREAS, the City has historically assessed impact fees as a condition of development approval in order to appropriately assign capital infrastructure costs to development in an equitable and proportionate manner; and

WHEREAS, on September 22nd, 2025, pursuant to the Act, the City properly noticed its intent to update its Drinking Water Impact Fee Facilities Plan (the “IFFP”) and to amend its Drinking Water Impact Fee (the “Impact Fee”) based on an updated Drinking Water Impact Fee Analysis (the “IFA”); and

WHEREAS, Springville City historically referred to drinking water as culinary water and considers these terms interchangeable as they apply to the Master Plan, the IFFP, the IFP and the Impact Fee; and

WHEREAS, the City has reviewed and evaluated the City’s culinary water service area for the culinary water system, which consists of the entire area within the Springville municipal boundary as shown in the Master Plan, and has determined that it is in the City’s best interest to establish the said service area for the purpose of imposing the Impact Fees; and

WHEREAS, pursuant to the requirements of Sections 11-36a-301 - 304 of the Act, Hansen, Allen & Luce Engineers has updated the IFFP and IFA, entitled “Drinking Water Impact Fee Facility Plan and Impact Fee Analysis,” dated February 2026, which Hansen, Allen & Luce Engineers has properly certified pursuant to the requirements of Section 11-36a-306 of the Act; and

WHEREAS, Hansen, Allen & Luce Engineers has also calculated for the Impact Fees as set forth in the IFFP and the IFA and pursuant to the requirements of Sections 11-36a-305 of the Act; and

WHEREAS, on January 13, 2026, the Springville Planning Commission held a properly noticed public hearing regarding the IFFP, the IFA, and this Impact Fee Ordinance and recommended approving the documents to the City Council; and

WHEREAS, on February 20, 2026, pursuant to Section 11-36a-502 of the Act, a full copy of the updated IFFP, the IFA, and this Ordinance, along with an executive summary of the IFFP and the IFA that was designed to be understood by a lay person, were made available to the public at the Springville City Public Library, posted on the City's Website, and

WHEREAS, on March 3, 2026, the Springville City Council held a public hearing regarding the updated IFFP, the IFA, and this Ordinance; and

WHEREAS, the Springville City Council does now desire to hereby approve and adopt the updated IFFP, and the IFA and to formally enact and amend Culinary Water Impact Fees pursuant thereto and pursuant to the requirements of Sections 11-36a-401 through 11-36a-403 of the Act.

NOW, THEREFORE, BE IT ORDAINED by the City Council of Springville, Utah:

SECTION 1: Adoption.

The IFFP and the IFA are attached hereto and approved, adopted and incorporated as part of this Ordinance. The Impact Fees for the culinary water system as set forth in the IFA are hereby approved and adopted, and at the time the Impact Fees become effective pursuant to this Ordinance, the fees will replace all previously adopted culinary water impact fees.

SECTION 2: Service Area.

The service area established in the IFFP and the IFA and for which Culinary Water Impact Fees are established and imposed is the entirety of the area within Springville City's municipal boundaries (the "Service Area"). The Service Area is established based upon sound planning and engineering principles for the City's water system services.

SECTION 3: Level of Service.

The existing and proposed level of service provided by the City's water system shall remain the same as it was before this Ordinance and is hereby again adopted as the level of service to be provided throughout the City. The existing and proposed level of service is fully defined in the Master Plan, the IFFP, the IFA, and the Impact Fee Summary of the IFA and IFFP and include the following:

- a. Water Rights - The level of service for water rights is based on a yearly average usage per an equivalent residential connection ("ERC"), with an indoor annual usage of 0.3 acre-feet and outdoor (per irrigated acres) annual usage of 4.0 acre-feet. (Water rights or Water Shares are tendered as a requirement of new development and are therefore not included as a cost under the IFA.)
- b. Source - The level of service for water source is based on the peak usage per ERC, with an indoor use of 260 gallons per day and an outdoor (per irrigated acre) use at 8.5 gallons per minute.

- c. Storage - The level of service for water storage is based on four components: 230 gallons per ERC for indoor use, 6,120 per irrigated acre for outdoor use, total fire storage of 1,320,000 gallons, and 420,000 gallons of emergency storage.

SECTION 4: Impact Fee Analysis and Impact Fee Calculations.

As found in the IFA, the Culinary Water Impact Fee calculation is based on the following:

1. Elements. In calculating the Culinary Water Impact Fee, the City has included those costs allowed, including debt service, if any, that are found under Section 11-36a-305 of the Act.
2. Proportionate Share Analysis. Included within the IFA is a proportionate share analysis as required by Section 11-36a-304 of the Act.
3. Formula. The Impact Fee is based upon the Act’s required proportionate share analysis in determining the total project costs to maintain the City’s current culinary water system level of service for new development activity that will occur during the next six (6) to ten (10) years.
4. Impact Fees. Impact fees were calculated for two types of use: (1) Indoor use and (2) Outdoor (irrigation) use. The outdoor fee only applies to customers irrigating from the drinking water system. Customers who irrigate from the pressurized irrigation system will pay a separate impact fee for pressurized irrigation water service.

The Drinking Water Impact Fee for new development is based on indoor and outdoor water use. The formulas and schedules for calculating both components are provided below. For properties located within the Pressurized Irrigation Water Service Area, as defined in the Pressurized Irrigation Water Impact Fee Facilities Plan, the Drinking Water Impact Fee will not include an outdoor water use component.

Impact Fee for Indoor Water Use - All Uses

As outlined in the Impact Fee Analysis (IFA), the indoor portion of the Drinking Water Impact Fee is determined by the size of the water meter serving the new development. Table 3-15 of the IFA (shown below) provides the fee schedule for indoor use based on meter size.

**Table 3-15
Springville City Drinking Water
Indoor Impact Fee Based on Meter Size**

Water Meter Size	ERC	Impact Fee
¾" or 1"	1	\$1,266
1 ½ "	3.33	\$4,214
2"	5.33	\$6,745
3"	10.00	\$12,660
4"	16.67	\$21,104

For other sizes of meters are needed to serve a development, the impact fee will be based on the formula and analysis found in the IFA on page 3-10 and other pages as applicable.

To calculate the total Impact Fee, the indoor impact fee component for the Drinking Water Impact Fee must be combined with the outdoor water use impact cost, which is determined based on lot size.

Impact Fee for Outdoor Water Use -Single Family Residential

The cost for outdoor water use of a single family residential lot is calculated according to the lot size being developed. Table 3-9 of the IFA (shown below) provides the applicable impact fee amounts for outdoor water use.

**Table 3-14
Proposed Impact Fee Per Typical Single Family Residential Unit
Irrigating from Drinking Water System**

Lot Size Min (sq ft)	Lot Size Max (sq ft)	Irrigated Area (acres)	Indoor	Outdoor	Indoor and Outdoor
0	2,000	0.03	\$1,266	\$761	\$2,027
2,001	4,000	0.03	\$1,266	\$761	\$2,027
4,001	6,000	0.06	\$1,266	\$1,522	\$2,788
6,001	8,000	0.09	\$1,266	\$2,283	\$3,549
8,001	10,890	0.11	\$1,266	\$2,790	\$4,056
10,891	21,780	0.15	\$1,266	\$3,805	\$5,071
≥ 21,780		0.35	\$1,266	\$8,877	\$10,143

1. No future pipeline projects were upsized to account for irrigated acreage because they occur within the service area of the PI system.

As shown above, the cost of providing outdoor water service for new development increases as lot size increases. These outdoor water use amounts for impact fees are higher than the outdoor impact fee amounts identified in the Pressurized Irrigation Water IFA. As a result, new development located within the Pressurized Irrigation Water Service Area is required to pay a lower total water-related impact fee than development located outside of that service area.

To ensure that water-related impact fees are applied consistently to properties both inside and outside the Pressurized Irrigation Water Service Area, the City will adopt the Drinking Water Impact Fee with a modification. Specifically, the outdoor water use component in the Drinking Water Impact Fee (as shown in the IFA) will be replaced with the lower outdoor impact fee amount used in the Pressurized Irrigation Water Impact Fee.

The Table 3-9 below is part of the Pressurized Irrigation Water IFA. As shown, the “Total” amounts in the table show the total amounts new development in the pressurized irrigation water service area pays for outside water use.

**Table 3-9
Total Proposed Impact Fee by Single Family Residential Lot Size
(Pressurized Irrigation)**

Minimum Lot Size (ft ²)	Maximum Lot Size (ft ²)	Irrigated Area (acres)	Infrastructure	Planning	Total
0	2,000	0.03	\$600	\$29	\$629
2,001	4,000	0.03	\$600	\$29	\$629
4,001	6,000	0.06	\$1,200	\$57	\$1,257
6,001	8,000	0.09	\$1,800	\$86	\$1,886
8,001	10,890	0.11	\$2,200	\$105	\$2,305
10,891	21,780	0.15	\$3,000	\$143	\$3,143
≥ 21,780		0.35	\$7,001	\$333	\$7,334

Applying the above outdoor water use amounts to the Drinking Water Impact Fee to ¾-inch and one-inch water meter sizes amounts to the following Drinking Water Impact Fee amounts:

**Total Proposed Drinking Water Fee by Single Family Lot Size
Indoor + Outdoor Use**

Minimum Lot Size (sq ft)	Maximum Lot Size (sq ft)	Total Drinking Water Impact Fee
0	2,000	\$1,866
2,001	4,000	\$1,866
4,001	6,000	\$2,466
6,001	8,000	\$3,066
8,001	10.89	\$3,466
10,891	21,780	\$4,266
≥21,780		\$8,267

Impact Fee for Outdoor Water Use - Multi-Family and Non-Residential

The cost for outdoor water use of a multi-family and non-residential use is calculated per irrigated area based Pressurized Irrigation Impact Fee and the formula below:

**Table 3-8
Total Proposed Impact Fee
(Pressurized Irrigation)**

Component	Per Irrigated Acre	Per Square Foot
Infrastructure	\$20,003	\$0.4592
Planning	\$950	\$0.0218
Total	\$20,953	\$0.4810

Outdoor Impact fee = (irrigated area, acres) * (\$20,953 per irrigated acre) or
Outdoor Impact fee = (irrigated area, square foot) * (\$0.4810 per irrigated square foot)

For example, a nonresidential customer anticipated to have .10 acres of irrigated property would have an impact fee calculated as follows:

*Outdoor Impact fee = (.10 acres) * (\$20,953 per irrigated acre) = \$2,095*

When a larger water meter size than a ¾-inch and one-inch line, the impact fee will increase based on the meter size. Formula would be to add the meter size amount from Table 3-15 below to the lot size amount for outside use as shown Table 3-9 above from the Pressurized Irrigation Water IFA.

A more detailed analysis of the impact fee schedule and formula is found in the attached IFA.

5. Non-standard Impact Fees. The City reserves the right under the Act to assess an adjusted impact fee that more closely matches the true impact that the land use will have upon the culinary water system. This adjustment could result in a different impact fee if evidence suggests a particular user will create a different impact than what is standard for its category.
6. Impact Fee Adjustments.
 - a. The City Council is authorized to adjust the standard impact fee at the time the fee is charged to:
 - i. respond to:
 1. unusual circumstances in specific cases; or
 2. a request of a prompt and individualized impact fee review for the development activity of the state, a school district, or a charter school and an offset or credit for a public facility for which an impact fee has or will be collected, and
 - ii. ensure that the impact fees are imposed fairly.
 - b. The impact fee may be adjusted for a particular development based on studies or data provided by a developer after review by the City's Impact Fee Administrator and approval by the City Council.
7. Credits and Reimbursements.
 - a. A developer, including a school district or a charter school, shall receive a credit against or proportionate reimbursement of an impact fee from the City if the developer:
 - i. dedicates land for a system improvement,
 - ii. builds and dedicates some or all of a system improvement, or
 - iii. dedicates a public facility that the City and the developer agree will reduce the need for a system improvement.
 - b. The City shall require a credit against the impact fee for any dedication of land for, improvement to, or new construction of, any system improvements provided by the developer if the facilities:

- i. are system improvements, or
 - ii. A. are dedicated to the public, and
- B. offset the need for an identified system improvement.

SECTION 5: Assessment.

The Impact Fee shall be charged for all new service connections where no existing water service has been provided by the City or whenever a customer desires to increase the size of an existing water service. In the latter instance, the Impact Fee shall be based on the difference in service capacity between the new and existing service. The Impact Fee shall be charged throughout the Service Area for all classes of service.

SECTION 6: Expenditure of Impact Fees.

The City may extend impact fees only for a system improvement identified in the IFFP and for the specific public facility type for which the fee was collected. Impact fees will be expended on a first-in-first-out basis. Impact fees collected pursuant to this Ordinance shall be expended or encumbered for a permissible use within six (6) years of their receipt. The City may hold the fees for longer than six (6) years if it identifies, in writing, an extraordinary and compelling reason why the fees should be held longer than six (6) years and an absolute date by which the fees will be expended.

SECTION 7: Refunds.

The City shall refund any impact fee paid by a developer, plus interest earned, when:

1. the developer does not proceed with the development activity and has filed a written request for a refund;
2. the fee has not been spent or encumbered; and
3. no impact has resulted.

An impact that would preclude a developer from a refund from the City may include any impact reasonably identified by the City, including but not limited to, the City having sized facilities and/or paid for, installed and/or caused the installation of facilities based, in whole or in part, upon the developer's planned development activity even though that capacity may, at some future time, be utilized by another development.

SECTION 8: Impact Fee Challenges.

A person or entity that has standing to challenge an impact fee may appeal the impact fee pursuant to Title 14, Chapter 5 of the Springville City Code. The procedures and time limitations for challenging

an impact fee, including procedures for mediation and/or arbitration, shall be as set forth in Sections 11-36a-702 through 705 of the Act. The applicable remedies for an impact fee challenge shall be limited to those set forth in Section 11-36a-701 of the Act.

SECTION 9: Accounting of Impact Fees.

The City shall follow all of the accounting and reporting requirements found in Section 11-36a-601 of the Act.

SECTION 10: Severability.

If any portion or provision of this Ordinance shall be declared invalid for any reason, such decision shall not affect the remaining portions of this Ordinance that shall remain in full force and effect. For this purpose, the provisions of this Enactment are declared to be severable.

SECTION 11: Effective Date.

This Ordinance will become effective 90 days after its approval.

ADOPTED by the City Council of Springville, Utah, this 03rd day of March 2026.

SPRINGVILLE CITY

Matt Packard, Mayor

ATTEST:

Kim Crane, City Recorder



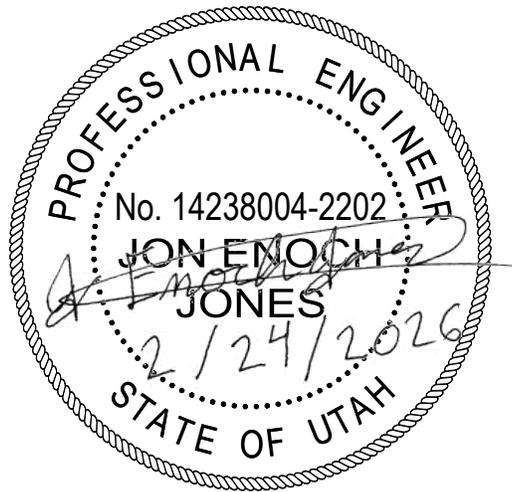
SPRINGVILLE CITY

**DRINKING WATER MASTER PLAN AND
CAPITAL FACILITY PLAN**

SPRINGVILLE CITY

DRINKING WATER MASTER PLAN AND CAPITAL FACILITY PLAN

(HAL Project No.: 260.62.100)



J. Enoch Jones, P.E.
Project Engineer

Recommended by: 
Katie Gibson Jacobsen, P.E., Project Manager



February 2026

TABLE OF CONTENTS

TABLE OF CONTENTS i

LIST OF TABLES.....iii

LIST OF FIGURESiii

GLOSSARY OF TECHNICAL TERMSiv

ABBREVIATIONS AND UNITS v

CHAPTER 1 INTRODUCTION **1-1**

 PURPOSE AND SCOPE 1-1

 BACKGROUND..... 1-1

 MASTER PLANNING METHODOLOGY 1-2

 LEVEL OF SERVICE (LOS) 1-4

 DESIGN AND PERFORMANCE CRITERIA 1-4

CHAPTER 2 SYSTEM GROWTH..... **2-1**

 EXISTING CONNECTIONS..... 2-1

 EXISTING IRRIGATED ACREAGE 2-2

 FUTURE CONNECTIONS..... 2-4

 FUTURE IRRIGATED ACREAGE 2-5

CHAPTER 3 WATER SOURCES **3-1**

 EXISTING WATER SOURCES 3-1

 PUMP STATIONS 3-2

 EXISTING WATER SOURCE REQUIREMENTS 3-2

 Existing Peak Day Demand..... 3-2

 Existing Average Yearly Demand 3-4

 FUTURE WATER SOURCE REQUIREMENTS..... 3-5

 Future Peak Day Demand..... 3-6

 Future Average Yearly Demand 3-7

 FUTURE WATER SOURCES AND RECOMMENDATIONS..... 3-9

CHAPTER 4 WATER STORAGE **4-1**

 EXISTING WATER STORAGE..... 4-1

 EXISTING WATER STORAGE REQUIREMENTS 4-2

 Equalization Storage 4-2

 Fire Suppression Storage..... 4-2

 Emergency Storage 4-4

 FUTURE WATER STORAGE REQUIREMENTS 4-5

 Equalization Storage 4-5

 Fire Suppression Storage..... 4-6

 Emergency Storage 4-6

 EXISTING AND FUTURE WATER STORAGE RECOMMENDATIONS 4-7

CHAPTER 5 WATER DISTRIBUTION **5-1**

 HYDRAULIC MODEL 5-1

 Development..... 5-1

 Model Components 5-1

 ANALYSIS METHODOLOGY 5-3

 Existing Peak Day Conditions 5-3

 Existing High Pressure Conditions 5-3

Existing Peak Instantaneous Conditions	5-4
Existing Peak Day plus Fire Flow Conditions	5-4
Locations Requiring Fire Flow Greater Than 2,000 gpm	5-6
Summary of Recommended Projects	5-7
Replacement.....	5-8
FUTURE (2070) WATER DISTRIBUTION SYSTEM	5-8
2070 Peak Day Conditions.....	5-8
2070 Peak Instantaneous Conditions.....	5-9
2070 Peak Day plus Fire Flow Conditions.....	5-9
WATER DISTRIBUTION SYSTEM RECOMMENDATIONS	5-9
Fire Suppression Flow	5-10
CHAPTER 6 WATER RIGHTS	6-1
EXISTING WATER RIGHTS.....	6-1
CHAPTER 7 CAPITAL FACILITY PLAN.....	7-1
GENERAL	7-1
METHODOLOGY	7-1
FUTURE WATER SOURCE	7-1
FUTURE WATER STORAGE.....	7-2
FUTURE TRANSMISSION PIPING.....	7-2
MASTER PLANNING	7-2
PRECISION OF COST ESTIMATES	7-3
SYSTEM IMPROVEMENT PROJECTS	7-3
ADDITIONAL PROJECTS THROUGH 2070	7-8
SUMMARY OF COSTS	7-8
REFERENCES	R-1
APPENDIX A	
Water System Data and Calculations	
APPENDIX B	
Calibration Data	
APPENDIX C	
Available Fire Flow	
APPENDIX D	
Unit Costs	
APPENDIX E	
Future Growth Projections	
APPENDIX F	
Checklist for Hydraulic Model Design Elements Report	

LIST OF TABLES

NO.	TITLE	PAGE
Table 1-1:	System Level of Services	1-4
Table 1-2:	System Design Criteria.....	1-5
Table 2-1:	Existing ERCs by Pressure Zone	2-1
Table 2-2:	Existing ERCs by Customer Type	2-2
Table 2-3:	Existing Irrigated Acreage	2-3
Table 2-4:	Summary of Planned Drinking Water System Service Area Alterations.....	2-3
Table 2-5:	Development Densities	2-4
Table 2-6:	2070 ERCs.....	2-5
Table 2-7:	Irrigated Acreage by Lot Size	2-6
Table 2-8:	2070 Irrigated Acreage.....	2-6
Table 3-1:	Existing Drinking Water Sources	3-1
Table 3-2:	Springville City Pump Stations	3-2
Table 3-3:	Existing Peak Day Demand.....	3-3
Table 3-4:	Existing Source Requirements by Pressure Zone	3-3
Table 3-5:	Existing Average Yearly Demand.....	3-4
Table 3-6:	Existing Average Yearly Demand Requirements by Pressure Zone	3-5
Table 3-7:	2070 Peak Day Demand	3-6
Table 3-8:	2070 Source Requirements by Pressure Zone.....	3-7
Table 3-9:	2070 Average Yearly Demand	3-8
Table 3-10:	2070 Average Yearly Demand Requirements by Pressure Zone.....	3-8
Table 4-1:	Existing Storage Tanks	4-1
Table 4-2:	Existing Drinking Water Equalization Requirements.....	4-2
Table 4-3:	Existing Fire Suppression Storage by Tank Group	4-4
Table 4-4:	Existing Storage Requirements	4-5
Table 4-5:	2070 Drinking Water Equalization Requirements	4-6
Table 4-6:	2070 Storage Requirements	4-7
Table 4-7:	Approximate Timeline for Additional Storage.....	4-7
Table 4-8:	Transmission Line Distance to Service Zones.....	4-8
Table 5-2:	High Pressure Conditions.....	5-4
Table 5-3:	Projects to Resolve Low Fire Flow	5-6
Table 5-4:	Projects to Resolve Low Fire Flow	5-7
Table 5-5:	Fire Flow Projects Summary	5-7
Table 5-6:	Replacement Program for All Existing Pipes	5-8
Table 6-1:	Existing Drinking Water System Municipal Water Rights	6-1
Table 6-2:	Potential Drinking Water System Municipal Water Rights.....	6-2
Table 7-1:	Recommended 10-Year and 20-Year Projects	7-5
Table 7-2:	Summary of Costs.....	7-8

LIST OF FIGURES

NO.	TITLE	PAGE
1-1	Springville Historic and Projected Population.....	1-2
1-2	Existing Drinking Water System.....	1-3
4-1	Drinking Water Master Plan Map and Capital Facilities Plan	4-9
5-1	Summary of Pipe Length by Diameter	5-2
5-2	Fire Flow Projects.....	5-5

GLOSSARY OF TECHNICAL TERMS

Average Daily Flow: The average yearly demand volume expressed in a flow rate.

Average Yearly Demand: The volume of water used during an entire year.

Buildout: When the development density reaches maximum allowed by planned development.

Culinary Water: Water of sufficient quality for human consumption. Also referred to as Drinking or Potable water.

Demand: Required water flow rate or volume.

Distribution System: The network of pipes, valves and appurtenances contained within a water system.

Drinking Water: Water of sufficient quality for human consumption. Also referred to as culinary or Potable water.

Dynamic Pressure: The pressure exerted by water within the pipelines and other water system appurtenances when water is flowing through the system.

Equivalent Residential Connection (ERC): A measure used in comparing water demand from non-residential connections to residential connections.

Fire Flow Requirements: The rate of water delivery required to extinguish a particular fire. Usually it is given in rate of flow (gallons per minute) for a specific period of time (hours).

Head: A measure of the pressure in a distribution system that is exerted by the water. Head represents the height of the free water surface (or pressure reduction valve setting) above any point in the hydraulic system.

Head loss: The amount of pressure lost in a distribution system under dynamic conditions due to the wall roughness and other physical characteristics of pipes in the system.

Level of service (LOS): The selected level to which the water system will be designed

Peak Day: The day(s) of the year in which a maximum amount of water is used in a 24-hour period.

Peak Day Demand: The average daily flow required to meet the needs imposed on a water system during the peak day(s) of the year.

Peak Instantaneous Demand: The flow required to meet the needs imposed on a water system during maximum flow on a peak day.

Pressure Reducing Valve (PRV): A valve used to reduce excessive pressure in a water distribution system.

Pressure Zone: The area within a distribution system in which water pressure is maintained within specified limits.

Service Area: Typically the area within the boundaries of the entity or entities that participate in the ownership, planning, design, construction, operation and maintenance of a water system.

Static Pressure: The pressure exerted by water within the pipelines and other water system appurtenances when water is not flowing through the system, i.e., during periods of little or no water use.

Storage Reservoir: A facility used to store, contain and protect Drinking water until it is needed by the customers of a water system. Also referred to as a Storage Tank.

Transmission Pipeline: A pipeline that transfers water from a source to a reservoir or from a reservoir to a distribution system.

ABBREVIATIONS AND UNITS

ac	acre [area]
ac-ft	acre-foot (1 ac-ft = 325,851 gal) [volume]
CIP	Capital Improvement Plan
CFP	Capital Facilities Plan
DDW	Utah Division of Drinking Water
DIP	Ductile Iron Pipe
DWR	Utah Division of Water Rights
EPA	U.S. Environmental Protection Agency
EPANET	EPA hydraulic network modeling software
ERC	Equivalent Residential Connection
ft	foot [length]
ft/s	feet per second [velocity]
gal	gallon [volume]
gpd	gallons per day [flow rate]
gpm	gallons per minute [flow rate]
HAL	Hansen, Allen & Luce, Inc.
hr	hour [time]
IFA	Impact Fee Analysis
IFC	International Fire Code
IFFP	Impact Fee Facilities Plan
in.	inch [length]
irr-ac	irrigated acre
kgal	thousand gallons [volume]
MG	million gallons [volume]
MGD	million gallons per day [flow rate]
mi	mile [length]
psi	pounds per square inch [pressure]
s	second [time]
SCADA	Supervisory Control And Data Acquisition
yr	year[time]

CHAPTER 1 INTRODUCTION

PURPOSE AND SCOPE

The purpose of this master plan is to provide direction to the City of Springville regarding decisions that will be made now and well into the future to provide an adequate drinking water system for its customers at the most reasonable cost. Recommendations are based on demand data, growth projections, standards of the Utah Division of Drinking Water (DDW), city zoning, General Plan land uses, known planned developments, and standard engineering practices. The planning horizon for the master plan is approximately 2070. Buildout occurs beyond 2070 and refers to the time period when all parcels are developed within the annexation declaration boundary according to the current General Plan. The service area considered in this master plan is the entire City of Springville, as well as all areas serviced outside City limits, including Kelly's Grove and Grindstone subdivision, and all customers along the Left Fork Hobbie Creek Canyon Road between Rotary Park and Bartholomew Tank. Canyon customers include the Holiday Hills and Hobbie Creek Haven private water systems supplied by Springville City.

The master plan is a study of the City's drinking water system and customer water use. The following topics are addressed herein: growth projections, source requirements, storage requirements, and distribution system requirements. Operational parameters for the City's drinking water system were reviewed and optimized based on stability, ease of use, and cost. Based on this study, needed capital improvements have been identified and conceptual-level cost estimates for the recommended improvements have been provided. This master plan includes a Capital Facility Plan (CFP) to identify the drinking water facilities that are required to meet the demands placed on the system by future development for the 10-year and 20-year planning period.

The results of the study are limited by the accuracy of growth projections, data provided by the City, and other assumptions used in preparing the study. It is expected that the City will review and update this master plan every 5–10 years as new information about development, system performance, or water use becomes available. This master plan updates the previous plan completed by the City of Springville and adopted in August 2020.

BACKGROUND

Springville was originally settled in 1850 and had an estimated population of 36,500 in 2024 (provided by the City). It is located in central Utah County and has an area of 14.4 square miles. As a result of its location along the I-15 corridor and in the rapidly growing Provo-Orem metropolitan area, Springville is experiencing rapid growth and is expected to grow into the future. Growth rates were determined based on future population estimates produced by Mountainland Association of Governments (MAG) and average annual growth rates produced by Kem C. Gardner. See population estimates in Figure 1-1. Data for this figure is shown in Appendix A as Table A-1. By mid-2024, the City provided water service to approximately 11,400 residential units via approximately 10,130 connections.

The City's existing drinking water system includes seven wells, five springs, nine tanks, two pump stations, eleven pressure zones, and about 221 miles of pipe with diameters of 4 to 30 inches. Existing facilities are shown on Figure 1-2. The City recognizes that its continued growth necessitates proactively planning additional drinking water facilities to maintain the current level of service for indoor water use.

The City also maintains a pressurized irrigation (PI) water system for outdoor use in the newer, western portion of the City, approximately west of 400 West. The eastern boundary of the area served by the PI system is shown on Figure 1-2. The drinking water system supplies both indoor and outdoor water needs for areas east of 400 West, as well as for some customers located within the PI system area who have not yet connected to the PI system. The pressurized irrigation water system is addressed in a separate master plan. The findings and conclusions in this master plan are dependent on the PI system being constructed per its separate master plan.

In 2020, the City prepared a Capital Facilities Plan, with an Impact Fee Facilities Plan (IFFP) and Impact Fee Analysis (IFA) following in 2024 for its drinking water system. This master plan will provide the bases for updating those studies and providing a basic full system layout design to guide new development.

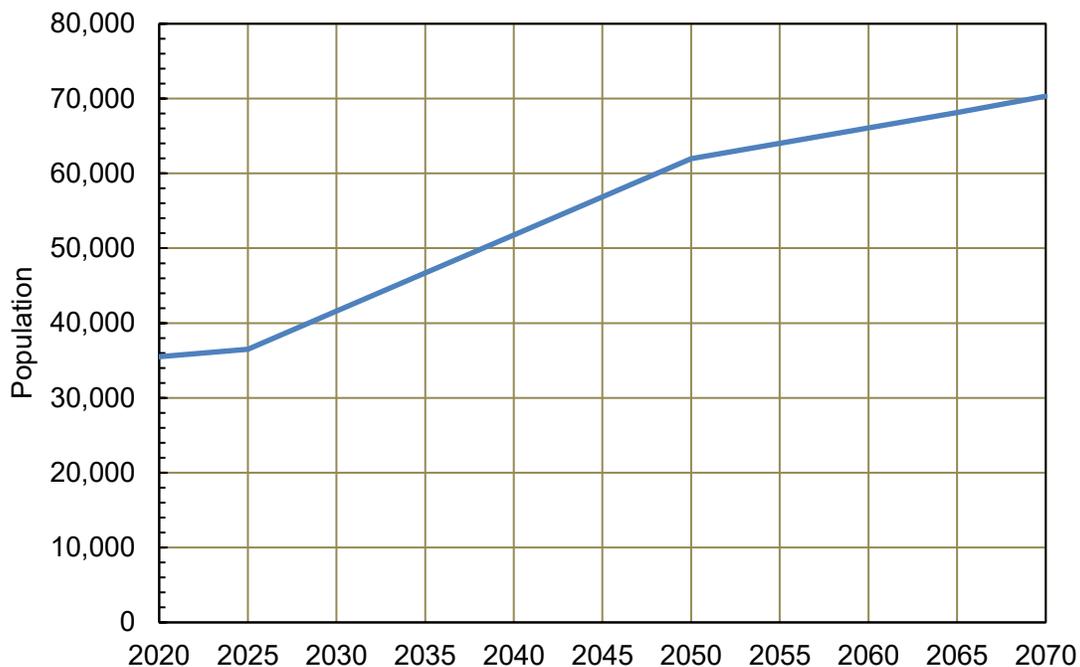
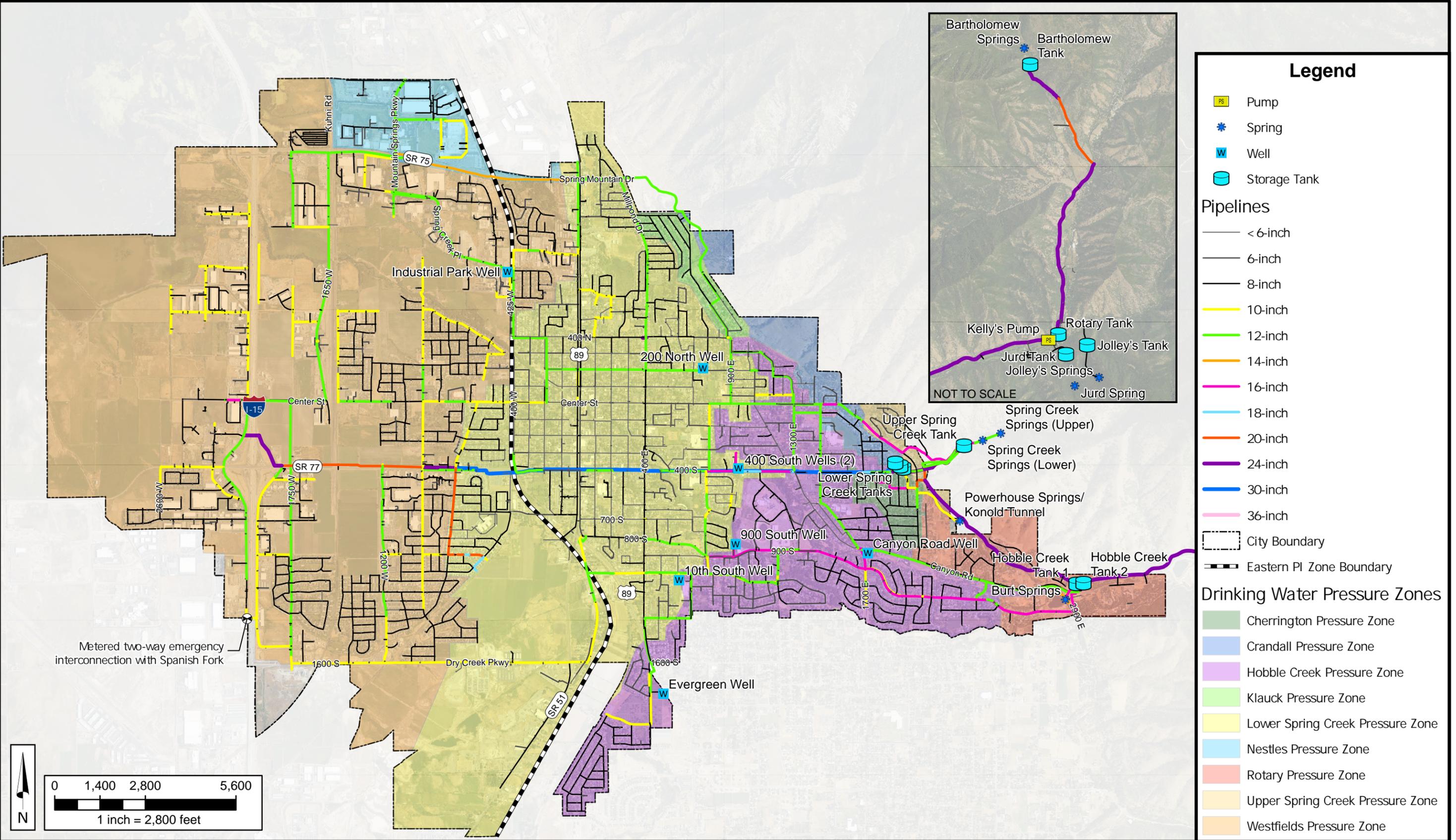


Figure 1-1: Springville Projected Population

MASTER PLANNING METHODOLOGY

Drinking water systems consist of water sources, storage facilities, distribution pipes, pump stations, valves, and other components. Design and operation of the individual components must be coordinated so that they operate efficiently under a range of demands and conditions. The system must be capable of responding to daily and seasonal variations in demand while simultaneously providing sufficient capacity for firefighting and other emergency situations.

Identifying present and future water system needs is essential in the management and planning of a water system. For this study, existing water demands are based on billing data and the level of service established by the City. Future water demands were predicted using this level of service, current zoning and densities provided by the City, and future estimated population growth. Computer models of the City’s drinking water system were prepared to simulate the performance of facilities under existing and future conditions. System improvement recommendations were prepared from the analysis and are presented in this report.



Legend

- Pump
- Spring
- Well
- Storage Tank

Pipelines

- < 6-inch
- 6-inch
- 8-inch
- 10-inch
- 12-inch
- 14-inch
- 16-inch
- 18-inch
- 20-inch
- 24-inch
- 30-inch
- 36-inch

- City Boundary
- Eastern PI Zone Boundary

Drinking Water Pressure Zones

- Cherrington Pressure Zone
- Crandall Pressure Zone
- Hobbles Creek Pressure Zone
- Klauck Pressure Zone
- Lower Spring Creek Pressure Zone
- Nestles Pressure Zone
- Rotary Pressure Zone
- Upper Spring Creek Pressure Zone
- Westfields Pressure Zone

**SPRINGVILLE CITY
 DRINKING WATER SYSTEM MASTER PLAN**

EXISTING SYSTEM



The development of impact fees requires growth projections over the next ten years. In addition to impact fee projects, this report will also highlight anticipated projects required in the next 10 to 20 years in the “Capital Facilities Plan” section of this report. The master planning period covered in this report continues through 2070, when City population is projected to approach the current planning population of 70,000.

This report follows the DDW requirements of Rule R309-510 (“Facility Design and Operation: Minimum Sizing Requirements”) and Rule R309-105 (“Administration: General Responsibilities of Public Water Systems”) of the Utah Administrative Code. The report addresses sources, storage, distribution, minimum pressures, hydraulic modeling, capital improvements, funding, and other topics pertinent to Springville’s drinking water system.

LEVEL OF SERVICE (LOS)

One Equivalent Residential Connection (ERC) is equal to the average indoor water usage of a typical single family residence in the City. The level of service is the reliable flow or volume the system is designed to provide under normal operating conditions and is usually quantified in terms of flow or volume per ERC for indoor usage and flow or volume per irrigated acre for outdoor usage. HAL analyzed production and billing data provided by Springville City for the previous three years. Once water production and demand patterns were well understood, HAL and the City met to establish a level of service that is based on this data and incorporates appropriate safety factors. A summary of the level of service selected by the City is included in Table 1-1. These values are expected to meet the requirements of the DDW.

Table 1-1: System Level of Service

Criteria	Indoor Level of Service (ERC)	Outdoor Level of Service (irr-ac)
Average Yearly Demand	0.3 ac-ft/ERC	4.0 ac-ft/irr-ac
Peak Day Demand	260 gpd/ERC = 0.18 gpm/ERC	12,240 gpd/irr-ac = 8.5 gpm/irr-ac
Peak Instantaneous Demand	1.5 Peaking Factor = 0.27 gpm/ERC	1.5 Peaking Factor = 12.8 gpm/irr-ac
Storage	230 gal/ERC	6,120 gal/irr-ac

Additional information on level of service calculations for outdoor use is included in the pressurized irrigation system master plan, which is based on the customers in the PI system service zone using the PI system for outdoor watering.

DESIGN AND PERFORMANCE CRITERIA

Summaries of the key design criteria and demand requirements for the drinking water system are included in Table 1-2, with additional details in Table A-2 in Appendix A. The design criteria were used in evaluating system performance and recommending future improvements based on the 2070 planning horizon. Criteria development is described in later chapters.

Table 1-2: System Design Criteria

		Criteria	Existing Requirements	Estimated Future Requirements (2070)	
ERCs		Calculated from past water use and projected growth	20,794	35,572	
Irrigated Acreage		Calculated from past water use and projected growth	1,209	1,057	
Source	Peak Day Demand	Section R309-510-7/LOS	14,030 gpm	15,410 gpm	
	Average Yearly Demand	Section R309-510-7/LOS	11,070 ac-ft	14,900 ac-ft	
Storage	Equalization	Section R309-501-8/LOS	12.18 MG	14.65 MG	
	Emergency	City Preference	2.02 MG	2.02 MG	
	Fire Suppression	IFC/Fire Marshal	1.32 MG	1.32 MG	
	Total	-	15.52 MG	17.99 MG	
Distribution	Peak Instantaneous Flow		1.5x Peak Day Demand	21,050 gpm	23,120 gpm
	Minimum Peak Day Fire Flow	Residential (East of 400 W)¹	IFC/ Fire Marshal	1,000 gpm @ 20psi	1,000 gpm @ 20psi
		Residential (West of 400 W)¹	IFC/ Fire Marshal	1,500 gpm @ 20psi	1,500 gpm @ 20psi
		Non-Residential	IFC/ Fire Marshal	2,000 gpm @ 20 psi	2,000 gpm @ 20 psi
	Maximum Operating Pressure		LOS	110 psi	110 psi
	Minimum Pressure	Peak Day	Section R309-510-9/LOS	50 psi	50 psi
		Peak Instantaneous	Section R309-510-9	30 psi	30 psi

1 – The minimum fire flow requirement is 1,000 gpm east of 400 West/Highway 89/Highway 51, and 1,500 gpm west of this boundary. The boundary coincides with the eastern boundary of the PI service zone, as shown on Figure 1-2.

CHAPTER 2 SYSTEM GROWTH

EXISTING CONNECTIONS

Indoor water demands are expressed in terms of equivalent residential connections (ERCs), which for planning purposes are the same as equivalent residential units (ERUs). The use of ERCs is a standard engineering practice to describe the entire system in a common unit of measurement. One ERC is equal to the average demand of an average residential connection. Non-residential demands are converted to ERCs for planning purposes. For example, a commercial building requiring six times as much water as a typical residential connection is assigned an ERC of 6. The entire water demand then can be described with a single ERC count.

HAL analyzed the City's water use data from May 2021 to April 2024 along with discussion with the City and determined that the existing system serves 20,794 ERCs for indoor usage. An extended-period hydraulic model was updated with current water use and pipe information to represent existing conditions. A breakdown of the existing ERCs by pressure zone is shown in Table 2-1.

Table 2-1: Existing ERCs by Pressure Zone

Zone	ERCs
Bartholomew	56
Kelly/Jurd	167
Rotary	202
Cherrington	186
Hobble Creek	2,388
Lower Spring Creek	6,346
Westfields	6,081
Upper Spring Creek	51
Crandall	125
Klauck	218
Nestlé	4,974
Total	20,794

These existing ERCs are shown by customer type in Table 2-2.

Table 2-2: Existing ERCs by Customer Type

Customer Type	ERCs
City Owned	471
Government/Church	498
Commercial	3,586
Residential	11,397
Industrial (Nestlé)	4,842
Total	20,794

EXISTING IRRIGATED ACREAGE

Outdoor water demands were estimated based on usage per irrigated acre (irr-ac). Existing irrigated areas were identified using a combination of water use data and remote sensing analysis. The analysis utilized imagery from the National Agricultural Imagery Program (NAIP), available through the Utah Geospatial Resource Center (UGRC), to identify areas of healthy vegetation. Water demand and storage requirements were then determined in accordance with the level of service established by the City.

The Springville City drinking water system provides water for outdoor irrigation in a portion of the system. The area of the City generally west of 400 West, Highway 51, and Highway 89 is master-planned to be served by a separate pressurized irrigation (PI) system. The eastern boundary of the PI system is shown on Figure 1-2. A portion of the City near the mouth of Hobbie Creek Canyon is irrigated by the Highline Canal but is planned to be added to the drinking water system. Additionally, the outdoor irrigation for a portion of Plat A near the City center (the area bounded by 400 North, 400 East, 400 South, and 400 West) is served by a separate irrigation system fed by Hobbie Creek, but is planned to be added to the drinking water system. The remainder of the irrigated acreage in the City (generally east of 400 West, Highway 51, and Highway 89) is served by the drinking water system. The total area served by the PI system and drinking water system are shown in Table 2-3 below. Table 2-4 lists the area for Plat A and Highline Canal and the area that is within the PI system service boundary but still supplied by the drinking water system.

A portion of the PI system has been constructed and is in use and is addressed in a separate master plan. The PI system will be expanded as development occurs. Some portions of the existing and planned PI service area are currently supplied by the drinking water system because PI infrastructure is not yet available or other factors are preventing customers from connecting to the existing PI network. This includes some customers adjacent to the active PI system (“wet PI pipe”) and customers adjacent to PI pipelines that are not yet active (“dry PI pipe”). Currently these connections are assumed to be borrowing capacity in the drinking water system because capacity for these connections is accounted for in the PI system. As the City develops, it is assumed that customers within the PI service area will be served by the PI system.

Table 2-3: Existing Irrigated Acreage

Pressure Zone	Total Irrigated Acreage	Served by Drinking Water System	Served by PI System
Bartholomew	5	5	
Kelly/Jurd	13	13	
Rotary	80	80 ¹	
Cherrington	34	34	
Hobble Creek	356	356	
Lower Spring Creek	471	384 ²	87
Westfields	522	247 ³	275
Upper Spring Creek	7	7	
Crandall	16	16	
Klauck	28	28	
Nestlé	39	39 ⁴	
Total	1,571	1,209	362

1. Includes the Highline Canal service area.
2. Includes approximately 211 irrigated acres within the PI system service zone.
3. Includes approximately 12 irrigated acres within the PI system service zone.
4. Includes approximately 37 irrigated acres within the PI system service zone.

Table 2-4: Summary of Planned Drinking Water System Service Area Alterations

Name	Irrigated Acres	Description
Wet PI Pipe	122	Customers with access to the PI system but who have not connected and are still served by the drinking water system
Dry PI Pipe	138	Areas with PI piping installed that has not yet been connected to the PI system.
Plat A	25	Area in the Lower Spring Creek pressure zone that is currently irrigated by a separate irrigation system but planned to be connected to the drinking water system.
Highline Canal	35	Area in the Rotary pressure zone that is currently irrigated by a separate irrigation system but planned to be connected to the drinking water system.

It is recommended that all existing and future customers in the PI system service zone use the PI system for outdoor watering. This will require many existing customers to make connections to the PI system. The City may explore opportunities to provide hardship funding to assist customers in making these connections. This could include the use of grants to reimburse the City.

FUTURE CONNECTIONS

Future ERCs were calculated based on existing land use patterns, current zoning and General Plan land use designations, and densities allowed by City code or anticipated by planners.

The City has committed to serve approximately 850 ERCs that are not yet connected to the system. These ERCs have been accounted for in the future growth areas of this report.

The area of the City generally east of 400 West and S.R. 51, and north of Hobble Creek, has a relatively small amount of undeveloped land remaining. A substantial portion of existing development in this area is built at a lower density than is allowed by City zoning ordinances. It was assumed that existing land uses would remain similar in the future. Excessively steep areas above the Bonneville Shoreline Trail were assumed to remain undeveloped indefinitely.

The City's General Plan land use classifications were used to determine densities and allocate demands across the City. As these classifications were prepared in 2011, updates to these classifications were made by HAL based on community plans for large developments, city zoning, and nearby development. City code does not specify a development density in units per acre for most zoning types or General Plan land use designations. For all commercial and industrial areas of the City, HAL evaluated the existing development density in ERCs per acre. Future commercial and industrial areas were assumed to have a development density similar to existing areas. Density of residential areas was determined in consultation with City staff. The above analysis of density resulted in the following development densities for future planning, shown in Table 2-5.

Table 2-5: Development Densities

Land Use	ERC Density Per Acre
Agriculture (Placeholder for Future Residential/Mixed Use)	10
Commercial	5
Industrial Manufacturing	3
Low Density Residential	3
Medium Density Residential	10
Medium High Density Residential	15
Medium Low Density Residential	5
Mixed Use	5

The Nestlé USA campus was excluded from the analysis of industrial density because of its very high water use. It was assumed that it is not representative of future industrial development in Springville. Usage for the campus was assumed to stay at existing volumes and flow rates in the future.

Increases to the existing water usage and ERCs (other than for Nestlé) were projected at the growth rates shown in Figure 1-1, resulting in the projected ERCs shown in Table A-1 in Appendix A. In 2070 (the planning horizon or terminus of this master planning period), 35,572 ERCs are expected. This is an increase of 14,778 ERCs beyond the existing 20,794 ERCs. The estimate is

based on current zoning and General Plan land use maps (shown in Appendix E), on plans for known future developments which HAL has reviewed, and on the development densities shown above. Springville is projected to reach full development after 2070. Although actual 2070 conditions may be different if zoning and density change significantly, the basic system layout plan developed by this study will help guide the construction of a responsible system. A breakdown of the existing and expected 2070 ERCs by pressure zone is shown in Table 2-6.

Table 2-6: Existing and Future ERCs

Zone	Existing ERCs	2070 ERCs
Bartholomew	56	75
Kelly/Jurd	167	180
Rotary	202	238
Cherrington	186	187
Hobble Creek	2,388	2,469
Lower Spring Creek	6,346	8,787
Westfields	6,081	18,227
Upper Spring Creek	51	51
Crandall	125	135
Klauck	218	249
Nestlé	4,974	4,974
Total	20,794	35,572

The majority of the anticipated growth is associated with large undeveloped parcels on the western side of the City. They are zoned for a mix of single-family houses and higher-density planned communities. From expected locations and densities of new development, HAL prepared an extended-period hydraulic model and engineering calculations to analyze 2070 conditions.

The City will continue to review individual developments through the Development Review Committee (DRC) process, including analyzing water source, storage, and transmission requirements for any usage that does not fit the typical requirements. Developments located in areas where the water system is not well connected should be analyzed individually to determine necessary pipe sizing in the development.

FUTURE IRRIGATED ACREAGE

Future irrigated acreage was calculated based on actual usage on existing land use types, projected land uses, and their associated proportions of irrigated acreage. Irrigated area based on lot size is shown in Table 2-7.

Table 2-7: Irrigated Acreage by Lot Size

Lot Size Min (sq ft)	Lot Size Max (sq ft)	Irrigated Area		Annual Volume ¹ (ac-ft)
		(sq ft)	(acre)	
0	2,000	1,000	0.03	0.09
2,000	3,999	1,100	0.03	0.10
4,000	5,999	2,500	0.06	0.23
6,000	7,999	3,600	0.09	0.33
8,000	10,889	4,400	0.11	0.40
10,990	21,779	6,300	0.15	0.58
≥ 21,780		14,900	0.35	1.37

1. Irrigated areas incorporate green space/common space into each lot.
2. Annual volume calculated based on an outdoor level of service of 4 ac-ft per irrigated acre.

Estimated 2070 irrigated acreage is shown in Table 2-8.

Table 2-8: 2070 Irrigated Acreage

Zone	Total Irrigated Acreage	Served by Drinking Water System ¹	Served by PI System
Bartholomew	7	7	
Kelly/Jurd	14	14	
Rotary	85	85	
Cherrington	34	34	
Hobble Creek	364	364	
Lower Spring Creek	668	421	247
Westfields	1,120	74	1,046
Upper Spring Creek	7	7	
Crandall	18	18	
Klauck	32	32	
Nestlé ¹	40	2	38
Total	2,388	1,057	1,331

1. Includes Plat A and the Highline Canal. Excludes areas within the PI service area.

Only the irrigated acreage served by the drinking water system will be considered in this master plan. The irrigated acreage in the master-planned PI service area is addressed in a separate master plan. The findings and conclusions of this master plan are dependent on the PI system being constructed as shown in the PI master plan.

CHAPTER 3 WATER SOURCES

EXISTING WATER SOURCES

The Springville City drinking water system is supplied by seven drinking water wells and five springs, shown on Figure 1-2. For planning purposes, the City has requested that the analysis consider the lowest summer flows over the past five years as the reliable supply for springs to add an extra measure of safety and plan for future drought. These flows are included in Table 3-1. Well capacity has not been observed to significantly decrease during drought periods, so typical observed flows are shown from the wells.

Table 3-1: Existing Drinking Water Sources

Source	Zone	Flow Rate (gpm)	Annual Source Capacity ¹ (ac-ft)
Bartholomew Springs	Rotary	1,000	1,060
Jurd Springs ²	Jurd	n/a	n/a
Spring Canyon Springs	Upper Spring Creek	620	1,080
Konold Springs	Lower Spring Creek	160	230
Burt Springs	Hobble Creek	760	220
200 North Well	Lower Spring Creek	2,400	2,770
400 South Well #1	Lower Spring Creek	3,000	3,460
400 South Well #2	Lower Spring Creek	3,900	4,490
900 South Well	Hobble Creek	3,000	3,460
1000 South Well	Hobble Creek	550	630
Canyon Road Well	Hobble Creek	1,500	1,730
Evergreen Well ³	Hobble Creek	350	400
Total Source Capacity		17,240 gpm	19,530 ac-ft
With Largest Well Out of Service		13,340 gpm	15,040 ac-ft

1. Annual well capacity assumes about 75% of the year-round flow at the given flow rate. Actual volume may be limited by demand or hydrologic constraints.
2. Jurd Springs is located near the Grindstone subdivision and Jurd tank, but the source is discharged directly into Hobble Creek. Flows are not metered.
3. Evergreen Well is not currently used but could be reintroduced into the system if needed. It could also be transferred to the pressurized irrigation system.

A summary of the water rights owned by Springville is included in Chapter 6. Existing water right capacity for the drinking water system is approximately 15,831 acre feet. Thus, water rights available exceed water available in the case shown in Table 3-1 with the largest well out of service.

PUMP STATIONS

Pump stations allow the City to supply water to zones that do not have their own sources and to supply zones from lower head zones. Springville has two pump stations whose service zones and pump capacity are summarized in Table 3-2.

Table 3-2: Springville City Pump Stations

Name	From	To	Total Capacity
Kelly's	Rotary Zone	Kelly Zone Jurd Tank	200 gpm
Spring Creek Pumpback	Lower Spring Creek Tank	Upper Spring Creek Tank	3,300 gpm
		Rotary Tank	

EXISTING WATER SOURCE REQUIREMENTS

According to DDW standards (Section R309-510-7), water sources must be able to meet the expected water demand for two conditions:

1. Sources must be able to provide an adequate supply of water for the peak day demand (flow requirement).
2. Sources must be able to produce one year's supply of water, or the average yearly demand (volume requirement).

Because the pressurized irrigation system only provides water for a portion of the city's outdoor use, both indoor demand and outdoor demand are included in the drinking water system for areas not served by the PI system.

Outdoor demand is calculated based on the estimated irrigated area using the irrigation areas shown in Table 2.5.

Peak day and average yearly demand are calculated using the level of service criteria shown in Table 1-1 of this report. The level of service was established based on the DDW standard for minimum source and storage sizing, including computing the demand from an analysis of three years of actual water use data with an added factor of safety.

Existing Peak Day Demand

Peak day demand is the water demand on the day of the year with the highest water use. It is used to determine required source capacity under existing and future conditions. Based on the requirements shown in Table 1-1, the total peak day drinking water demand is 14,030 gpm (20.2 MGD). Table 3-3 summarizes the indoor and outdoor components of this demand.

Table 3-3: Existing Peak Day Demand

Indoor Connections (ERCs)	Peak Day Demand (gpm/ERC)	Indoor Peak Day Demand (gpm)	Irrigated Acres ¹	Peak Day Outdoor Demand (gpm/ irr-ac)	Peak Outdoor Demand (gpm)	Total Peak Day Demand (gpm)
20,794	0.18	3,750	1,209	8.5	10,280	14,030

1. Includes 260 acres that are planned to be served by the PI system.

A breakdown of the existing peak day demand by pressure zone is shown in Table 3-4.

Table 3-4: Existing Source Requirements by Pressure Zone

Zone	ERCs	Irrigated Acres ¹	Demand (gpm)
Bartholomew	56	5	50
Kelly/Jurd	167	13	140
Rotary	202	80	710
Cherrington	186	34	320
Hobble Creek	2,388	356	3,460
Lower Spring Creek	6,346	384	4,410
Westfields	6,081	247	3,200
Upper Spring Creek	51	7	70
Crandall	125	16	160
Klauck	218	28	280
Nestlé	4,974	39	1,230
Total	20,794	1,209	14,030
Total Supply Available			17,240
With Largest Well Out of Service			13,340

1. Includes 260 acres that are planned to be served by the PI system.

Not all sources are available to all pressure zones in the City. A mass balance matching sources to pressure zones is included in Appendix A as Table A-3. If all sources are in service, the mass balance shows that the existing sources can supply the existing peak day demand for each zone, with approximately 3,210 gpm capacity remaining in the system. With all the irrigated area planned to be supplied by the PI system removed from the drinking water system, the capacity remaining in the system is 5,420 gpm.

The City desires a level of redundancy that will allow the system to have sufficient source even if any of the wells are out of service. With existing usage (including customers planning to transition

to the PI system) and with the largest well (3,900 gpm) out of service, the system would have a capacity deficit of 690 gpm. During a non-drought year, some additional capacity is likely available from the springs. However, to achieve full redundancy, an additional source should be added to the system. If all irrigated area planned to be served by the PI system were removed from the drinking water system, there would be 1,520 gpm excess capacity remaining in the system with the largest well out of service. The city plans to transition these customers to the PI system as soon as practicable, but this effort could still take 5 to 20 years, and some customers may have challenges transitioning systems. In addition, some Springville Irrigation Company (SIC) customers using SIC facilities to irrigate outdoor areas (garden tickets) are likely to be added to the drinking water system in the next 5 to 10 years. These garden ticket users could require as much as 400 gpm for peak day flows. It is recommended to add another source to the system to provide full redundancy for the existing system and these potential new uses.

It is also recommended that the City provide backup power for primary water sources sufficient to meet indoor water needs, including the springs and 400 South Well #2. A portable generator could be used to operate spring chlorinators during outages. A permanent generator could be considered at 400 South Well #2.

Each pressure zone will experience different impacts if a source is out of service. Table A-4 in Appendix A shows which sources are available to each zone. This table can be used to evaluate the effect of the loss of each source.

Existing Average Yearly Demand

Average yearly demand is the volume of water used during an entire year and is used to ensure the sources can supply enough volume to meet demand under existing and future conditions.

Based on the requirements shown in Table 1-1, the total existing average yearly demand is 11,070 acre-feet. Table 3-5 summarizes the indoor and outdoor components of this demand.

Table 3-5: Existing Average Yearly Demand

Indoor Connections (ERCs)	Average Yearly Indoor Demand LOS (ac-ft/ ERC)	Average Yearly Indoor Demand (ac-ft)	Irrigated Acres ¹	Average Yearly Outdoor Demand LOS (ac-ft/irr-ac)	Average Yearly Outdoor Demand (ac-ft)	Total Average Yearly Demand (ac-ft)
20,794	0.3	6,240	1,209	4.0	4,830	11,070

1. Includes 260 acres that are planned to be served by the PI system.

A breakdown of the existing average yearly demand by pressure zone is shown in Table 3-6.

Table 3-6: Existing Average Yearly Demand Requirements by Pressure Zone

Zone	ERCs	Irrigated Acres¹	Demand (acre-feet)
Bartholomew	56	5	40
Kelly/Jurd	167	13	100
Rotary	202	80	380
Cherrington	186	34	190
Hobble Creek	2,388	356	2,140
Lower Spring Creek	6,346	384	3,440
Westfields	6,081	247	2,810
Upper Spring Creek	51	7	40
Crandall	125	16	100
Klauck	218	28	180
Nestlé	4,974	39	1,650
Total	20,794	1,209	11,070
Total Yearly Supply Available (ac-ft)			19,530
With Largest Well Out of Service			15,040

1. Includes 260 acres that are planned to be served by the PI system.

The current yearly supply available is sufficient to meet existing average yearly demand even with the largest well out of service.

FUTURE WATER SOURCE REQUIREMENTS

Future water source requirements were evaluated based on the same criteria as discussed above for existing water source requirements:

1. Sources must be able to provide an adequate supply of water for the peak day demand (flow requirement).
2. Sources must be able to produce one year's supply of water, or the average yearly demand (volume requirement).

The same conditions were used to evaluate the future source requirements as were used for the existing:

1. Peak day and average yearly demand are calculated using the level of service criteria shown in Table 1-1 of this report.
2. The level of service was set based on the DDW standard for minimum source and storage sizing, including computing the demand from an analysis of three years of actual water use data with an added factor of safety.
3. For all future development scenarios, the pressurized irrigation system is assumed to provide all outdoor demand for any areas within the PI service boundary.

As discussed in Chapter 2 of this report, this master plan covers the planning period through 2070, when the City is projected to reach 35,572 ERCs and approximately 70,000 population. The majority of this growth will occur in the Lower Spring Creek and Westfields pressure zones, with relatively little growth occurring in the areas east of 400 West. The majority of future development is located within the PI service zone boundary, resulting in very little increase in the outdoor irrigated acreage served by the drinking water system.

The City will likely continue to expand beyond the projected 2070 level of development as areas continue to fill in and redevelopment occurs. Detailed analysis of development beyond 2070 is beyond the scope of this master plan.

Future Peak Day Demand

Following the methodology described for existing conditions and estimating 35,572 ERCs in 2070, the peak day source requirement is projected to be 15,410 gpm (22.2 MGD). See Table 3-7.

Table 3-7: 2070 Peak Day Demand

Indoor Connections (ERCs)	Peak Day Demand (gpm/ERC)	Indoor Peak Day Demand (gpm)	Irrigated Acres ¹	Peak Day Outdoor Demand (gpm/irr-ac)	Peak Outdoor Demand (gpm)	Total Peak Day Demand (gpm)
35,572	0.18	6,420	1,057	8.5	8,990	15,410

1. Excludes areas planned to be served by the PI system.

A breakdown of the 2070 peak day demand by pressure zone is shown in Table 3-8.

Table 3-8: 2070 Source Requirements by Pressure Zone

Zone	ERCs	Irrigated Acres¹	Demand (gpm)
Bartholomew	75	7	70
Kelly/Jurd	180	14	150
Rotary	238	84	760
Cherrington	187	34	320
Hobble Creek	2,469	364	3,540
Lower Spring Creek	8,787	421	5,170
Westfields	18,227	74	3,920
Upper Spring Creek	51	7	70
Crandall	135	18	180
Klauck	249	32	320
Nestlé ¹	4,974	2	910
Total	35,572	1,057	15,410
Total Supply Available			17,240
With Largest Well Out of Service			13,340

1. Excludes areas planned to be served by the PI system.

Under 2070 conditions, if all sources are in service there is a projected source capacity excess of 1,830 gpm based on the capacity of all the existing sources, including the Evergreen Well and 400 South Well #2. This capacity is sufficient to meet the requirements stated herein if all sources are in service but is not sufficient to provide redundancy if one of the City’s wells pumping larger than 1,830 gpm is out of service. Evergreen Well could potentially be transferred to the pressurized irrigation system. An additional well or increased flow from an existing source is required to provide this redundancy. It is unlikely that existing sources can reliably provide this much additional flow, so an additional well is recommended to provide this redundancy. As discussed previously, SIC users transitioning to the drinking water system are likely to increase the peak day demand of the system.

As with existing conditions, not all sources are available to all pressure zones in the City. The general pattern of the source mass balance shown as Table A-3 in Appendix A for existing conditions will continue to function for 2070 conditions, with 400 South Well #2 being used to provide source capacity for the Lower Spring Creek and Westfields zones. Similarly, Table A-4 in Appendix A will still apply for future conditions and can be used to evaluate the effect of the loss of each source.

Future Average Yearly Demand

Following the methodology described for existing conditions and estimating 35,572 ERCs in 2070, the average yearly source requirement is projected to be 14,900 ac-ft. See Table 3-9.

Table 3-9: 2070 Average Yearly Demand

Indoor Connections (ERCs)	Average Yearly Indoor Demand (ac-ft/ ERC)	Average Indoor Yearly Demand (ac-ft)	Irrigated Acres ¹	Average Yearly Outdoor Demand (ac-ft/ irr-ac)	Average Yearly Outdoor Demand ¹ (ac-ft)	Total Average Yearly Demand (ac-ft)
35,572	0.3	10,670	1,102	4.0	4,410	14,900

1. Excludes areas planned to be served by the PI system.

A breakdown of the 2070 average yearly demand by pressure zone is shown in Table 3-10.

Table 3-10: 2070 Average Yearly Demand Requirements by Pressure Zone

Zone	ERCs	Irrigated Acres ¹	Demand (acre-feet)
Bartholomew	75	7	50
Kelly/Jurd	180	14	110
Rotary	238	84	410
Cherrington	187	34	190
Hobble Creek	2,469	364	2,200
Lower Spring Creek	8,787	421	4,320
Westfields	18,227	74	5,770
Upper Spring Creek	51	7	40
Crandall	135	18	110
Klauck	249	32	200
Nestlé	4,974	2	1,500
Total	35,572	1,057	14,900
Total Yearly Supply Available (ac-ft)			19,530
With Largest Well Out of Service			15,040

1. Excludes areas planned to be served by the PI system.

The current yearly supply available is sufficient to meet anticipated future average yearly demand. However, the City is encouraged to keep acquiring water rights at levels required in City Code and to develop sources to provide redundancy. The City currently has a metered two-way emergency interconnection with Spanish Fork. Additional emergency interconnections with Mapleton and Provo could also provide redundancy.

FUTURE WATER SOURCES AND RECOMMENDATIONS

The City plans to continue to use spring sources to the maximum extent possible, including redeveloping springs as needed. The City is considering moving water rights to Bartholomew Springs to allow the City to fully utilize the flow from Bartholomew Springs when it is available in high water years. If this effort is successful, this will reduce the need for future wells in high water years. It is recommended that the City continue to pursue the transfer of water rights to Bartholomew Springs.

The City's existing source capacity with all sources in service is sufficient to meet the peak day demand and annual volume requirements discussed herein, but with little redundancy. If the largest well is out of service, the City may not have sufficient source capacity to meet the peak day demand. Additionally, Evergreen Well could be transferred from the drinking water system to the pressurized irrigation system, and some SIC users could transition outdoor watering to the drinking water system. An additional source is recommended to meet existing needs with redundancy. As source demand increases over time, an additional source to provide redundancy will become increasingly critical. Additionally, older wells can reduce production or stop producing over time due to a variety of reasons including biofouling and chemical encrusting. It is recommended that an additional well be added to the system within the next five years. A recommended potential location is near the existing 900 South Well. Budgeting for and development of additional wells should continue to be pursued to replace wells as they age. It is recommended that the City install permanent generators at new or rehabilitated wells.

One or more wells in the Westfields zone may be beneficial, allowing the city to avoid pumping water higher than necessary and wasting energy as the water flows through PRVs to the Westfields zone. However, past experience suggests that well production decreases moving westward in Springville. If a good producing well can be located in the Westfields zone, it would be beneficial as a peaking source on high demand days.

It is recommended that the City pursue installing metered two-way emergency interconnections with Mapleton and Provo, to provide redundancy and increase fire flow in the far reaches of the system (discussed in Chapter 5.)

CHAPTER 4 WATER STORAGE

EXISTING WATER STORAGE

The City's existing drinking water system includes nine concrete storage facilities with a total capacity of **15.57 MG**. Their locations are shown on Figure 1-2. Table 4-1 presents a listing of the names and select attributes of the City water storage tanks. Tanks are grouped into four service areas, and volume for fire suppression and emergency storage is distributed among the four tank groups. Fire suppression storage is balanced among the tanks so that the maximum fire flow is available at any point in the city from a tank in the same pressure zone or upstream.

Table 4-1: Existing Storage Tanks

Tank Name	Diameter (ft)	Nominal Volume (MG)	Base/Outlet Elevation	Emergency Storage Volume (gallons)	Fire Suppression Volume (gallons)	Lowest Level of Equalization Volume (Elevation)	Overflow Elevation
Bartholomew	118	1.5	6219.2	400,000	240,000	7.8 (6,227.0)	6238.2
Jurd Springs	50	0.25	5262.0	20,000	120,000	9.5 (5,271.5)	5282.0
Rotary	135	2.0	5091.9	300,000	300,000	5.6 (5,097.5)	5114.4
Upper Spring Creek	135	2.0	5111.1	100,000	270,000	3.5 (5,114.6)	5132.6
Lower Spring Creek 1	110	1.0	4804.8	0	0	0 (4,804.8)	4818.9
Lower Spring Creek 2	124	2.0	4794.3	430,000	60,000	5.5 (4,799.7)	4817.3
Lower Spring Creek 3	150	3.0	4794.0	670,000	90,000	5.8 (4,799.7)	4817.2
Hobble Creek 1	140	2.0	4878.2	0	0	0 (4878.2)	4898.2
Hobble Creek 2	140	2.0	4874.2	50,000	120,000	3.0 (4877.2)	4898.0
Total		15.75		2,020,000	1,320,000		

EXISTING WATER STORAGE REQUIREMENTS

According to DDW standards outlined in Section R309-510-8, storage tanks must be able to provide: 1) equalization storage volume to make up the difference between source and demand; 2) fire suppression storage to supply water for firefighting; and 3) emergency storage, if deemed necessary. Each of the requirements is addressed below. Because the pressurized irrigation system only provides water for a portion of the City's outdoor use, both indoor demand and outdoor demand are included for customers not connected to the PI system.

Equalization Storage

As shown in Table 1-1, Springville has planned for a level of service of 230 gpd/ERC of equalization storage for indoor use and 6,120 gpd/irr-ac of equalization storage for outdoor use, with irrigated acreage as shown in Table 2-8. With 20,794 ERCs and 1,209 irrigated acres under existing conditions, Springville needs 12.18 MG of equalization storage in its existing drinking water system. Table 4-2 lists the equalization storage requirement by pressure zone.

Table 4-2: Existing Drinking Water Equalization Requirements

Pressure Zone	ERCs	Irrigated Acres	Equalization (MG)
Bartholomew	56	5	0.04
Kelly/Jurd	167	13	0.12
Rotary	202	80 ¹	0.54
Cherrington	186	34	0.25
Hobble Creek	2,388	356	2.73
Lower Spring Creek	6,346	384 ²	3.81
Westfields	6,081	247 ³	2.91
Upper Spring Creek	51	7	0.05
Crandall	125	16	0.13
Klauck	218	28	0.22
Nestlé	4,974	39 ⁴	1.38
Total	20,794	1,209	12.18

1. Includes the Highline Canal service area.
2. Includes approximately 211 irrigated acres within the PI system service zone.
3. Includes approximately 12 irrigated acres within the PI system service zone.
4. Includes approximately 37 irrigated acres within the PI system service zone.

Fire Suppression Storage

Fire suppression storage is required for water systems that provide water for firefighting (Subsection R309-510-8(3)). The local fire authority determines the need for fire suppression storage. Springville's Fire Chief and Fire Marshal have consulted with City Engineering staff and

have provided fire flow rate and duration requirements based on the International Fire Code (IFC). The contact information for the Springville Fire department is as follows:

Fire Marshal: Scott Nagle
Phone: 801-491-5602
Address: 75 West Center Street, Springville, Utah

Storage was allocated to each tank according to requirements for fire suppression flow during peak day conditions, considering that fire flow may be supplied by storage in upstream zones. Fire suppression storage was determined based on the following assumptions:

- Typical residential fire flow east of 400 West/Highway 89/Highway 51 (boundary shown on Figure 1-2) – 1,000 gpm for 2 hours (0.12 MG)
- Typical residential fire flow west of 400 West/Highway 89/Highway 51 (boundary shown on Figure 1-2) – 1,500 gpm for 2 hours (0.18 MG)
- Non-Residential Fire Flow – minimum 2,000 gpm for 2 hours (0.24 MG), and can increase depending on building size, building type, and sprinkling system

Some buildings may require approved sprinkling systems to reduce their fire flow requirement to the flow rates available. All new buildings should be constructed to meet these requirements.

Table 4-3 summarizes the fire suppression storage assumed in each storage facility. As described in the Source chapter of this report, one tank group can supply multiple pressure zones in the City. The table shows which pressure zones are directly supplied by which tank and which tank groups are downstream. For example, the Rotary tank and Hobble Creek tank group are located downstream of the Bartholomew tank, so it is assumed that fire requirements in the Hobble Creek pressure zone can be met by a combination of fire storage from all these tanks. In a fire situation, water will be pulled from multiple tanks as the system demands increase. As future storage tanks are constructed, additional fire storage can be provided in those tanks to provide fire storage closer to locations of potential fire demand.

The Upper Spring Creek, Crandall, Klauck, Rotary, and Cherrington pressure zones contain only residential zoning, and storage for these zones is based on the residential fire flow requirements above, as well as storage needed for other zones downstream. Most large buildings in the City include fire sprinkler systems and will not require flows larger than 2,000 gpm. Storage for the Hobble Creek, Nestlé, and Westfields pressure zones is based on a 2,000 gpm fire suppression requirement. The largest fire flow requirement in the Lower Spring Creek pressure zone is 5,000 gpm, and storage for this zone was provided to meet this higher flow rate.

The distribution system evaluation in commercial and industrial areas is generally based on the 2,000 gpm non-residential requirement noted above, except at specific locations where larger required fire flows have been identified. The distribution system is discussed in Chapter 5 of this report.

Table 4-3: Existing Fire Suppression Storage by Tank Group

Tank	Pressure Zones Supplied	Other Tank Groups Downstream	Fire Suppression Storage (MG)
Bartholomew	Bartholomew	All	0.24
Jurd Springs	Kelly's, Jurd	None	0.12
Rotary	Rotary, Cherrington	Hobble Creek, Lower Spring Creek	0.30
Upper Spring Creek	Upper Spring Creek, Crandall, Klauck	Lower Spring Creek	0.27
Lower Spring Creek 1 ²	Lower Spring Creek, Nestlé ¹ , Westfields	None	0.15
Lower Spring Creek 2 ²			
Lower Spring Creek 3 ²			
Hobble Creek 1	Hobble	None	0.24
Hobble Creek 2			
Total			1.32 MG

1. Fire storage for the Nestlé zone is provided in the Upper Spring Creek, Hobble, Rotary, and Bartholomew tanks via interconnects to the Lower Spring Creek zone.
2. Fire storage for the Lower Spring Creek and Westfields zones is provided in the Upper Spring Creek, Bartholomew, Rotary, Hobble Creek, and Lower Spring Creek tanks, totaling 1.2 MG (5,000 gpm for 4 hours).

Emergency Storage

While there are no specific DDW requirements for emergency storage (Subsection R309-510-8(4)), most water systems maintain emergency storage to mitigate risks, provide system reliability, and protect public health and welfare. Emergency storage may be used in case of pipeline failures, equipment failures, power outages, source contamination, and natural disasters.

Springville has planned for a total of approximately 2,000,000 gallons between all the tanks within the City in both existing and future conditions. As future storage tanks are constructed, additional emergency storage can be provided in those tanks to provide emergency storage closer to locations of potential need.

Total Storage

A total of 15.52 MG equalization, fire suppression, and emergency storage is required, as shown in Table 4-4.

Table 4-4: Existing Storage Requirements

Component	Volume (MG)
Equalization ¹	12.18
Fire Suppression	1.32
Emergency	2.02
Total	15.52

1. Includes the Highline Canal service area and 260 acres that are planned to be served by the PI system.

The current tanks have a capacity of 15.75 MG, and there is considered to be **no additional storage required** to meet current requirements. Similar to the source mass balance shown in Chapter 3 of this report, not all storage tanks are able to serve all pressure zones in the City. An existing storage mass balance is included as Table A-5 in Appendix A. If all the irrigated area planned to be served by the PI system were removed from the drinking water system, there would be 1.82 MG excess capacity remaining in the storage tanks.

FUTURE WATER STORAGE REQUIREMENTS

As described previously in this report, all area within the PI service zone boundary is assumed to be serviced by the PI system for outdoor watering in all future scenarios. The future requirements cover the planning period through 2070, which primarily occurs in the Lower Spring Creek and Westfields pressure zones, with scattered development in other pressure zones. The City will likely continue to expand beyond the projected 2070 level of development. Detailed analysis of storage for this development is beyond the scope of this master plan.

Equalization Storage

Following the methodology described for existing conditions, and calculating 35,572 ERCs in 2070, the projected indoor equalization storage requirement per the standards shown in Table 1-1 is 8.18 MG. The projected equalization storage requirement for outdoor use is 6.47 MG, for a total of 14.65 MG of storage. Table 4-6 lists the equalization storage requirement by pressure zone.

Table 4-5: 2070 Drinking Water Equalization Requirements

Zone	ERCs	Irrigated Acres¹	Equalization (MG)
Bartholomew	75	7	0.06
Kelly/Jurd	180	14	0.13
Rotary	238	84	0.57
Cherrington	187	34	0.25
Hobble Creek	2,469	364	2.80
Lower Spring Creek	8,787	421	4.60
Westfields	18,227	74	4.65
Upper Spring Creek	51	7	0.05
Crandall	135	18	0.14
Klauck	249	32	0.25
Nestlé	4,974	2	1.16
Total	35,572	1,057	14.65

1. Excludes areas planned to be served by the PI system.

Fire Suppression Storage

Fire suppression storage is assumed to remain similar to current conditions, as shown in Table 4-3. Volumes may be shifted among tanks, as long as the tank can supply the zones indicated. Up to 1 MG volume for fire suppression can be provided in each new tank, even if other tanks can provide fire flow, so that fire suppression is available close to the area of need.

Emergency Storage

It is recommended that new tanks provide 500,000 gallons or more emergency storage in each tank.

Total Storage

A total of 17.99 MG equalization, fire suppression, and emergency storage is required in 2070, as shown in Table 4-7.

Table 4-6: 2070 Storage Requirements

Component	Volume (MG)
Equalization	14.65
Fire Suppression	1.32
Emergency	2.02
Total	17.99

1. Excludes areas planned to be served by the PI system.

As described in the existing storage section of this report, not all storage tanks are available to serve all pressure zones in the city. A mass balance for 2070 storage requirements is included in Appendix A as Table A-6.

The mass balance shows that 2.24 MG additional storage (beyond existing) is required to meet 2070 requirements. Additional storage could be provided to add fire suppression and emergency volumes closer to areas of need as described previously in this chapter.

EXISTING AND FUTURE WATER STORAGE RECOMMENDATIONS

The City currently requires 15.52 MG of drinking water storage. All the irrigated area within the PI system service area is planned to be irrigated by the PI system. This will lower the existing storage requirement to 10.59 MG. The City will need a total of 17.99 MG of drinking water storage in 2070. A total of 15.75 MG storage has already been constructed. An additional 2.24 MG of storage is needed to meet 2070 requirements. Potential locations for future drinking water storage tanks are shown on the Figure 4-1, Drinking Water Master Plan Map and Capital Facilities Plan, located at the end of this chapter. Table 4-8 gives the approximate years additional storage will be needed assuming all the irrigated area planned to be served by the PI system is moved off the drinking water system. Additional storage may be needed sooner if development occurs faster than assumed for this Master Plan.

Table 4-7: Approximate Timeline for Additional Storage

Volume of Storage	Approximate Year Additional Storage is Needed
Existing Storage	2036
Additional 3.0 MG Beyond Existing	2070

As development increase in the Westfields zone, the next tank recommended is a 3+ MG tank located at or near Evergreen Cemetery or Big Hollow Park, due to its proximity to the Westfields zone and new development in the south portion of the city. The tank may need to be larger than 3 MG to account for post-2070 development that is not part of the scope of this master plan.

POTENTIAL LOCATIONS FOR THE NEXT STORAGE TANK

A tank for the Westfields zone would need to be located at elevation 4680 or higher to allow the tank to be buried while maintaining 50 psi or higher in the Westfields zone. The Westfields zone currently operates at a pressure of 75 psi or higher, so a tank at the following locations would require a reduction in pressure in the zone. The following locations were evaluated:

Child Park/Nebo School District Property/Springville Junior High – 200 South 1470 East

A tank at one of these locations would require 12,500 feet of transmission piping to reach the Westfields zone via 400 South. The tank could be buried and Child Park restored on top of the tank to maintain park space. The Nebo School District property west of the intersection of 300 South 1470 East is slightly higher in elevation and would allow slightly higher pressures in the Westfields zone. A third option would be to locate the tank in the hill east of Springville Junior High. This would allow still higher pressures in the Westfields zone.

There is already a major transmission line into the Westfields zone on 400 South. Adding a transmission line for the tank on 400 South would reduce usage of the existing 400 South transmission line. It is possible that one of the existing transmission lines could be used to supply the Westfields zone from this tank.

The tank is 3,600 feet away from the 400 South wells and 4,500 feet from the 200 North well. The tank could be filled from either of these sources, with a new transmission line from the well to the tank, or a new source could be located near the tank.

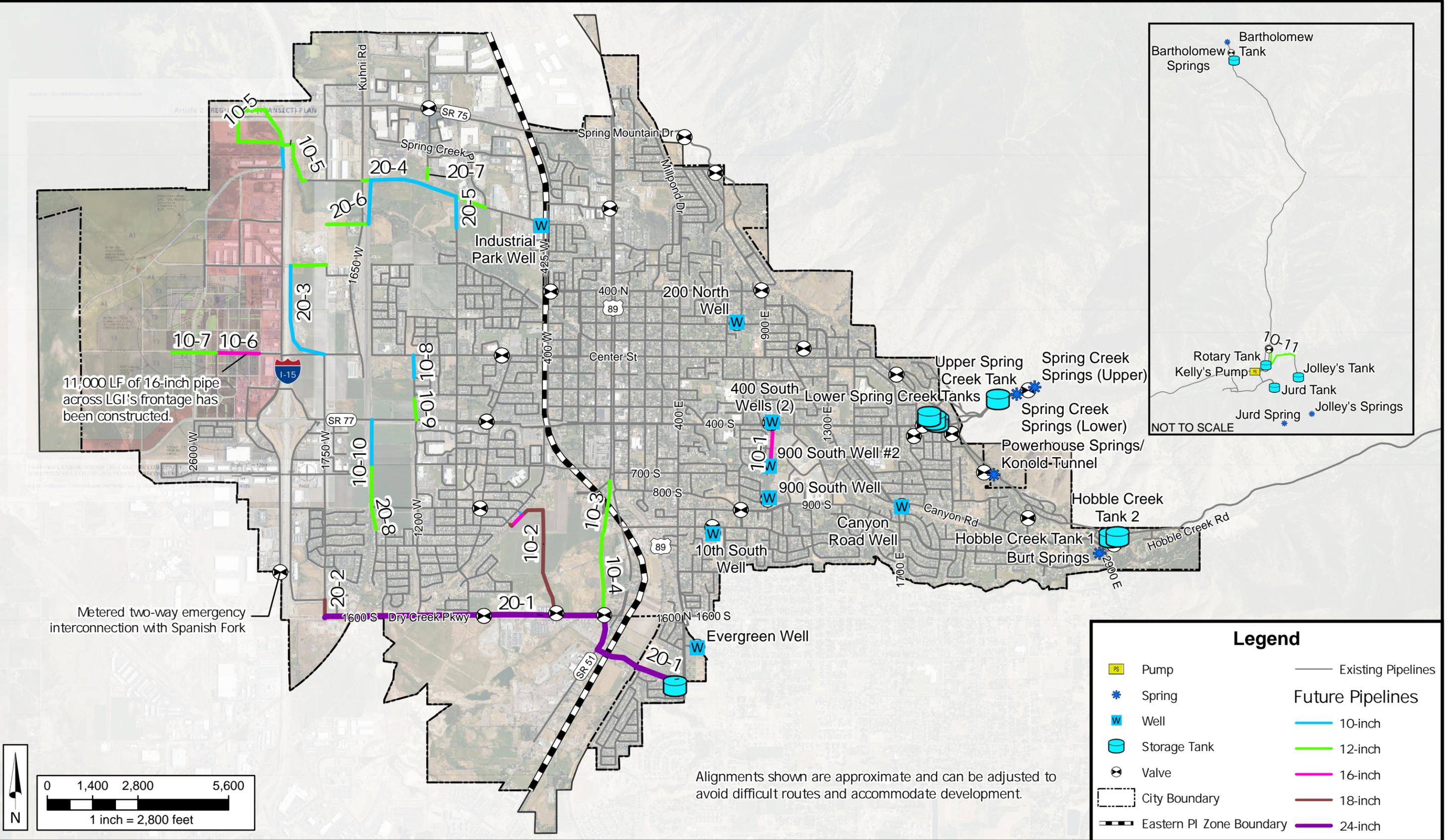
Evergreen Cemetery/Big Hollow Park – 400 East 2000 South

A tank in the eastern portion of the city-owned property at the cemetery would provide sufficient pressure in the Westfields zone. Big Hollow Park, located just south of the cemetery near 400 East Evergreen Road, is another possible tank location. Either location would require about 12,000 feet transmission piping to reach 1750 West in the Westfields zone via Evergreen Road and 1600 South.

The tank could be partially filled from the existing Evergreen well, but customers supplied from this well have experienced aesthetic concerns. Another source should be used to fill the tank, or to dilute water from the Evergreen well. It is likely that a new well drilled near the existing well would experience the same concerns. The tank site is 5,300 feet away from the existing 1000 South well, which is low producing, and about 8,500 feet from the 900 South well, which has a higher production rate. It is assumed that another well can be drilled near the 900 South well and that source from the Lower Spring Creek zone can be used to supply the tank along with Evergreen well.

Table 4-8: Transmission Line Distance to Service Zones

Tank Location		Distance to Westfields Zone (ft)
Child Park/Nebo/Springville Junior High	200-300 South 1470 East	12,500
Evergreen Cemetery/Big Hollow Park	400 East 2000 South	12,600



**SPRINGVILLE CITY
DRINKING WATER SYSTEM MASTER PLAN**

CAPITAL FACILITY PROJECTS

**FIGURE
4-1**

CHAPTER 5 WATER DISTRIBUTION

HYDRAULIC MODEL

Development

A computer model of the City's drinking water distribution system was developed to analyze the performance of the existing and future distribution system and to prepare solutions for existing facilities not meeting the distribution system requirements. The model was developed with the software InfoWater Pro 2026.1 (Innovyze, 2025). InfoWater simulates the hydraulic behavior of pipe networks. Sources, pipes, tanks, valves, controls, and other data used to develop the model were obtained from GIS data of the city's drinking water system and other updated information supplied by the City.

HAL developed models for two phases of drinking water system development. The first phase was a model representing the existing system (existing model). This model was used to calibrate the model and identify deficiencies in the existing system. Calibration was performed by comparing model results to system information gathered by City personnel. Calibration data is included in Appendix B.

The second phase was a model representing future conditions and the improvements necessary to accommodate growth. The future model represents the level of growth projected to be reached by 2070 (Planning Horizon model) and includes 35,572 ERCs and 1,102 irrigated acres.

Model Components

The two basic elements of the model are pipes and nodes. A pipe is described by its inside diameter, length, minor friction loss factors, and a roughness value associated with friction head losses. A pipe can contain elbows, bends, valves, pumps, and other operational elements. Nodes are the endpoints of a pipe and can be categorized as junction nodes or boundary nodes. A junction node is a point where two or more pipes meet, where a change in pipe diameter occurs, or where flow is added (source) or removed (demand). A boundary node is a point where the hydraulic grade is known (a reservoir, tank, or PRV). Other components include tanks, reservoirs, pumps, valves, and controls.

The model is not an exact replica of the actual water system. Pipeline locations used in the model are approximate and not every pipeline may be included in the model, although efforts were made to make the model as complete and accurate as possible. Moreover, it is not necessary to include all of the distribution system pipes in the model to accurately simulate its performance. The model includes all known distribution system pipes of all sizes, as well as all sources, storage facilities, pump stations, pressure reducing valves, control valves, controls, and settings.

Pipe Network

The pipe network layout originated from GIS data provided by the City. Elevation information was obtained from the GIS data provided by the City. Smaller 8-inch and 10-inch pipes are generally PVC. Hazen-Williams roughness coefficients for pipes in this model ranged from 130 - 150, which is typical for these pipe materials in modeling software (Rossman 2000, 31).

The existing water system contains approximately 221 miles of pipe with diameters of 4 inches to 30 inches. Figure 5-1 presents a summary of pipe length by diameter.

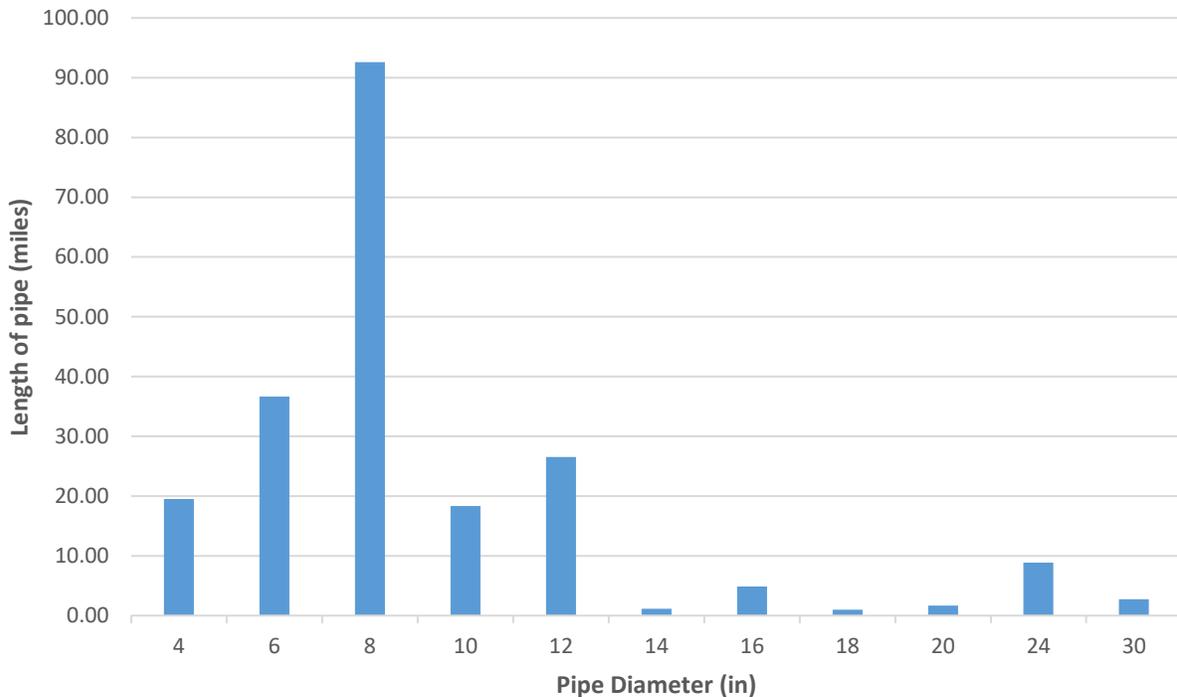


Figure 5-1: Summary of Pipe Length by Diameter

Water Demands

Water demands were allocated in the model based on billed usage and billing locations. Peak month demand was determined for each billing location and linked to the geocoded physical locations for each customer. The geocoded demands were then assigned to the closest model node. With the proper spatial distribution, demands were scaled to reach the peak day demand determined in Chapter 3. For the 2070 model, future demands were estimated according to current zoning and densities and the established level of service, as described previously in this report. Future demands were assigned to new nodes representing the expected location of new development in each pressure zone.

The pattern of water demand over a 24-hour period is called the diurnal curve or daily demand curve. The diurnal curve for this master plan was taken from a system optimization study done in 2014 and is the same diurnal curve used in the City’s 2018 Drinking Water Master Plan. This curve was validated using current SCADA data. The diurnal curve for this study has a peaking factor of 1.5. The diurnal curve was input into the model to simulate changes in the water system throughout the day.

In summary, the spatial distribution of demands followed geocoded water use data, the flow and volume of demands followed the level of service standards described in Chapter 1, and the temporal pattern of demand followed a diurnal curve developed from SCADA data.

Water Sources and Storage Tanks

The sources of water in the model are the wells and springs. A well is represented by a reservoir and pump. A spring is represented by a reservoir and a flow control valve, or a reservoir and a pump in cases where that is more appropriate. Tank location, height, diameter, and volume are

represented in the model. The extended-period model predicts water levels in the tanks as they fill from sources and as they empty to meet demand in the system.

ANALYSIS METHODOLOGY

HAL used extended-period and steady-state modeling to analyze the performance of the water system with current and projected future demands. An extended-period model represents system behavior over a period of time: tanks filling and draining, pumps turning on or off, pressures fluctuating, and flows shifting in response to demands. A steady-state model represents a snapshot of system performance. The peak day extended period model was used to set system conditions for the steady-state model, calibrate zone to zone water transfers, analyze system controls and the performance of the system over time, and to analyze system recommendations for performance over time. The steady-state model was used for analyzing the peak day plus fire flow conditions.

Two operating conditions were analyzed with the extended period model: peak day conditions and peak instantaneous conditions. Peak day plus fire flow conditions were analyzed using a static model. Each of these conditions is a worst-case situation so the performance of the distribution system may be analyzed for compliance with DDW standards and City preferences.

Existing Peak Day Conditions

The DDW requires that a minimum pressure of 40 psi must be maintained during peak day demand (Subsection R309-105-9(2)). Springville City's designated level of service indicates that 50 psi should be maintained. Peak day demand was evaluated at the level of service of 0.18 gpm/ERC for indoor use and 8.5 gpm/irr-ac for outdoor use, as shown in Table 1-1. This amounts to an existing peak day demand of 14,320 gpm. The hydraulic model indicates that the system is capable of providing at least 40 psi at nearly every point of connection in the system at this level of demand. The paragraphs below describe all locations not meeting Springville's current designated level of service.

Peak Day Pressure < 50 psi

Canyon Road, 2175 East to 2900 East – These points of connection are at the top of the Hobble Creek pressure zone. Each point achieves 29-34 psi. Peak Day pressure meets State Code R309-105-9(1) which requires points of connection constructed before 2007 to achieve a minimum of 20 psi. While pressures meet requirements, customers could be served from the northern Rotary Zone line in Canyon Road to provide higher pressures.

Spring Oaks Drive – Points of connection on the highest switchback in the Spring Oaks subdivision achieve a minimum of 48 psi. No projects are recommended to improve pressure, though possible improvements are discussed in the fire flow section below.

Existing High Pressure Conditions

Some areas in the system experience high pressures, which are greatest during the lowest demand times. The lower (typically downhill/westerly) portions of several zones experience pressures over 110 psi during typical operating conditions, as shown in Table 5-2. None of these locations exceed the DDW maximum pressure of 150 psi.

Table 5-2: High Pressure Conditions

Pressure Zone	Maximum Pressure
Hobble	125 psi
Upper Spring Creek	140 psi
Nestlé	133 psi
Lower Spring Creek	124 psi

The City should continue to require individual PRVs for each new customer connection, particularly in these areas. No pressure changes are recommended for the zones experiencing high pressures, because this would reduce pressures in the upper portions of those zones to levels below the minimum desired. No capital projects are recommended to mitigate high pressures.

Existing Peak Instantaneous Conditions

A minimum pressure of 30 psi must be maintained during peak instantaneous demand (Subsection R309-105-9(2)). Peak instantaneous demand was defined based on SCADA data for the peak day demand in Springville. The highest peaking factor present on the peak day was 1.5, resulting in a peak instantaneous demand of 21,050 gpm. The hydraulic model indicates that the system is capable of providing at least 30 psi at every point of connection in the system at this level of demand. There are no existing deficiencies in the system for this demand condition.

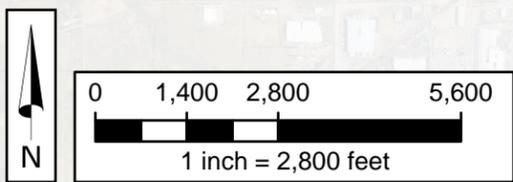
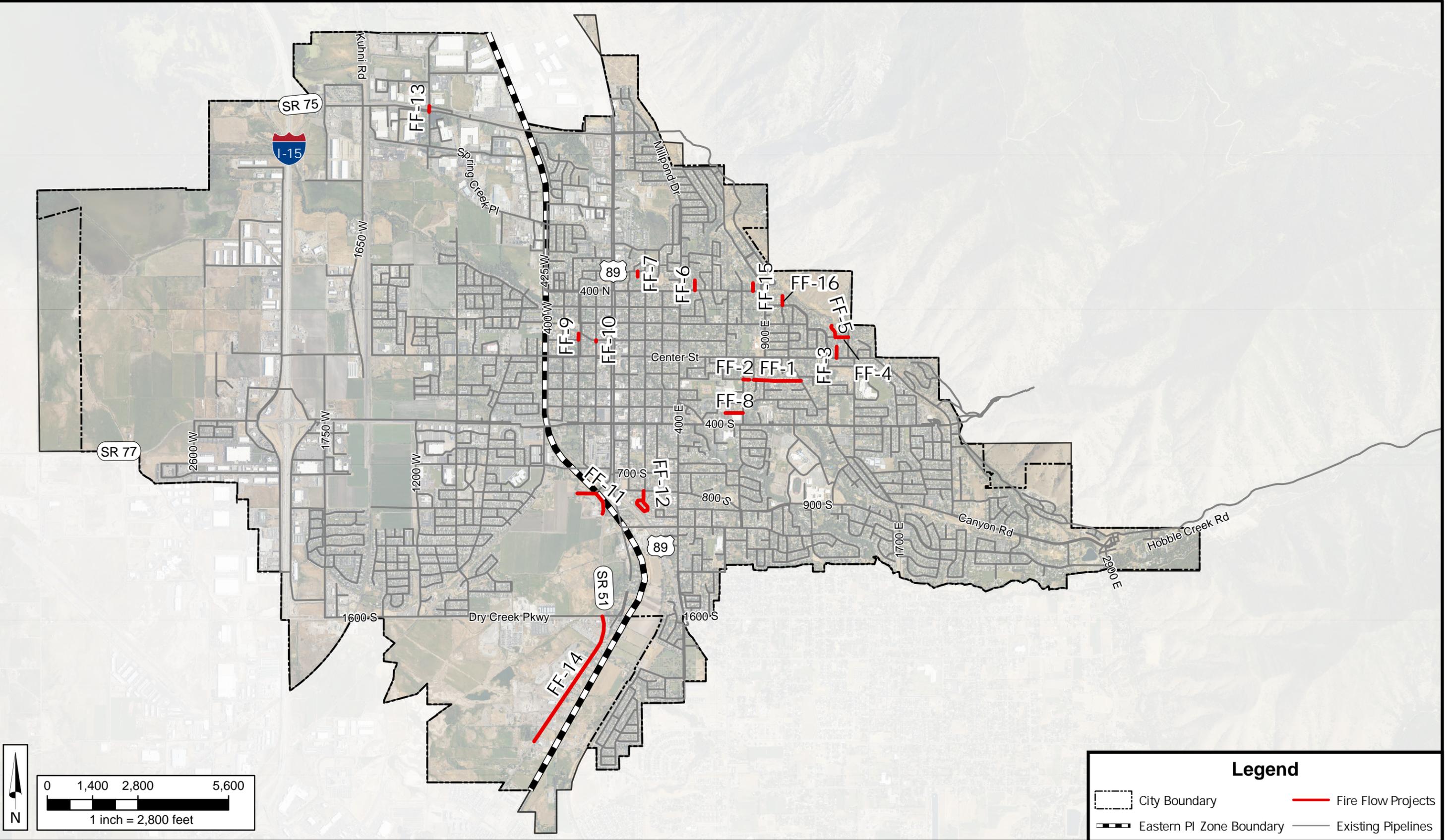
Existing Peak Day plus Fire Flow Conditions

A minimum pressure of 20 psi must be maintained while delivering fire flow to a particular location within the system and supplying the peak day demand to the entire system (Subsection R309-105-9(2)). As specified by the Springville Fire Marshal, a minimum fire flow of 1,000 gpm is required for all fire hydrants in residential areas east of 400 West, and 1,500 gpm is required for all residential areas west of 400 West. A fire flow of 2,000 gpm is required for all commercial and industrial areas.

The Available Fire Flow map in Appendix C shows fire flow available at nodes throughout the entire system. Identifying every pipe which is not capable of supplying the required fire flow is beyond the scope of this study. The computer analysis should not replace physical fire flow tests at fire hydrants as the primary method of determining fire flow capacity. The following locations did not meet the desired flows.

Residential <1,000 or 1,500 gpm; Non-Residential < 2,000 gpm

Locations throughout the City experiencing fire flows below desired level of service (less than 1,000 for residential areas east of 400 West, less than 1,500 gpm for residential areas west of 400 West, or less than 2,000 gpm for commercial/industrial areas) are shown on the Available Fire Flow map. The majority of these are cul-de-sacs or long dead-end lines with 4-inch or 6-inch pipe sizes. Projects to increase fire flow at these locations are shown in Table 5-3 and numbered on Figure 5-2. The costs for projects shown as alternates are not included in table totals.



**SPRINGVILLE CITY
DRINKING WATER SYSTEM MASTER PLAN**

FIRE FLOW PROJECTS

**Table 5-3: Projects to Resolve Low Fire Flow
Residential East of 400 West < 1,000 gpm
Residential West of 400 West < 1,500 gpm
Non-Residential < 2,000 gpm**

Location	Description	Solution	Length	Cost	
Projects 1 or 2 mitigate several locations between 800 East and 1300 East, from Center Street to 400 South					
FF-1	100 South, 860 East to Canyon Avenue	4-inch line	Upsize to 8-inch	1500	\$ 530,000
Project 2 is an alternative to Project 1. Costs for project 2 are not included in the total.					
FF-2	100 South 800 East	4-inch line	Add check valve to allow flow from lower zone during fire.	Valve	\$30,000
FF-3	1360 East, Center Street to 90 North	4-inch cul-de-sac	Upsize to 8-inch if hydrant is installed	360	\$130,000
FF-4	130 North, 1350 East to 1440 East	4-inch line	Upsize to 8-inch	400	\$150,000
FF-5	1350 East, 130 North to 220 North	4-inch cul-de-sac	Upsize to 8-inch if hydrant is installed	410	\$150,000
FF-6	500 East, 400 North to 450 North	4-inch cul-de-sac	Upsize to 8-inch if hydrant is installed	310	\$110,000
FF-7	150 East, 500 North to 530 North	4-inch line	Upsize to 8-inch if hydrant is installed	170	\$60,000
FF-8	330 South (Chase Lane), 700 East to 800 East	4-inch dead end	Upsize to 8-inch if hydrant is installed	550	\$200,000
Projects 9-10 increase flow to hydrants where higher flow is available nearby. However, it is ideal to upgrade every hydrant so the fire department can use any hydrant.					
FF-9	200 West, 100 North to fire hydrant	4-inch line	Upsize to 8-inch	200	\$80,000
FF-10	100 West, 100 North to fire hydrant	4-inch line	Upsize to 8-inch	50	\$20,000
FF-11	800 South and 50 West	No hydrants on lines	Upsize to 8-inch if hydrants are installed	1290	\$460,000
FF-12	Artistic Circle	4-inch lines	Upsize to 8-inch	1370	\$490,000
FF-15	850 E, 400 N to 450 N	4-inch line	Upsize to 8-inch if hydrant is installed.	260	\$100,000
FF-16	1040 E, 300 N to 400 N	4-inch cul-de-sac	Upsize to 8-inch if hydrant is installed.	290	\$110,000
Cost for Fire Flow Projects (Up to 1,000 gpm or 1,500 gpm required for residential and 2,000 gpm for non-residential)			\$2,620,000		

Locations Requiring Fire Flow Greater Than 2,000 gpm

The City fire marshal has identified selected buildings in each pressure zone requiring the largest fire flows. This does not include an exhaustive analysis of all large buildings in the City but is intended to be representative of maximum needs in each area. Required flows range from 1,500 gpm for relatively smaller buildings with sprinkler systems to 5,000 gpm for large warehouse or

industrial buildings. This includes a reduction of 75% for buildings with approved fire sprinkler systems. The locations that did not meet the desired fire flow are shown in Table 5-4 along with a discussion of possible projects to meet the desired flow.

Table 5-4: Projects to Resolve Low Fire Flow Locations Requiring > 2,000 gpm

Location		Required Flow (gpm)	Available Flow (gpm)	Solution	Length	Cost
FF-13	1400 North Mountain Springs Parkway	2,000	1,750	Add PRV or check valve from Westfields Zone to Nestlé	PRV	\$390,000
	A small area within the Nestlé pressure zone does not achieve a fire flow of 2,000 gpm. The remainder of the required flow can be met by installing a PRV or check valve from the Westfields zone to the Nestlé zone at 1400 North Mountain Springs Parkway. This project provides a minimum of 2,000 gpm level at all locations in the Nestlé pressure zone. Future buildings must be constructed to meet available flows. An individual analysis can be performed for new buildings to determine the fire flow available at each location.					
FF-14	1990 South State, Intermountain Lift	5,000	1,400	12-inch loop from end of dead end back to 1600 South	4,510	\$2,070,000
	The transmission line on 1600 South is a 10-inch line, which limits flow in the pipe to less than 5,000 gpm. To achieve maximum flows, the 8-inch pipe on SR-51 should be upsized to a 12-inch. Additionally, flow will increase as development provides additional connectivity in the area. Other solutions would likely be more feasible and include compartmentalizing buildings, adding fire sprinklers, or constructing a private tank and pump. However, it is cautioned that other buildings on SR-51 also require high fire flows and must be considered. An emergency/fire flow interconnection with Spanish Fork City at the south City limit of SR-51 would benefit all development along SR-51.					
Cost for Fire Flow Projects (Locations requiring >2,000 gpm)				\$2,460,000		

Summary of Recommended Projects

Table 5-5 is a summary of costs for recommended projects to mitigate existing fire flow deficiencies in the drinking water system.

Table 5-5: Fire Flow Projects Summary

Project Type	Cost
Fire to 1,500-2,000 gpm	\$2,620,000
Fire > 2,000 gpm	\$2,460,000
Total Cost for Fire Flow Projects	\$5,080,000

Emergency interconnections with Mapleton City and Spanish Fork City would help increase fire flows in some areas of the City system, and would provide benefit to all three cities. No costs for these interconnections were included in the recommended projects.

Replacement

In addition to completing projects to resolve deficiencies, the City should continue replacing aging pipes throughout the city on a regular basis. Table 5-6 shows the cost of all pipes in the city (not including pipes previously recommended for replacement), and the cost to replace all of them over its service life.

Table 5-6: Replacement Program for All Existing Pipes

Pipe Diameter (inches)	Length of Pipe (feet)	Cost
4	102,000	\$28,440,000
6	181,000	\$50,620,000
8	444,000	\$124,440,000
10	98,000	\$30,690,000
12	144,000	\$47,900,000
14	6,000	\$2,120,000
16	24,000	\$9,660,000
18	5,000	\$2,160,000
20	15,000	\$6,800,000
24	47,000	\$25,350,000
30	14,000	\$10,060,000
Subtotal		\$338,980,000
Contingency (20%) & Engineering (10%)		\$101,690,000
Total Cost for Replacement of All Existing Pipes		\$440,670,000
Annual Cost for Replacement of All Pipes Over Service Life		\$4,900,000

FUTURE (2070) WATER DISTRIBUTION SYSTEM

2070 Peak Day Conditions

A minimum pressure of 40 psi must be maintained at all connections during peak day demand (Subsection R309-105-9(2)). Future peak day demand is discussed in Chapter 3 of this report. With 35,572 ERCs projected, the system's 2070 peak day demand is estimated at 15,790 gpm. Hydraulic modeling indicated that the future system can meet this requirement with the future pipelines shown on the Master Plan Map, Figure 4-1. Alignments shown are approximate and can be adjusted to avoid difficult routes and accommodate development.

The majority of growth in the city is occurring in the western portion of the city. The deficiencies listed above for the existing system are primarily east of 400 West and will not be affected by

future growth. The areas of lower than desired pressure listed above for the existing system will persist if the suggested projects are not constructed.

2070 Peak Instantaneous Conditions

Peak instantaneous demands were calculated in a similar manner to existing conditions. The peak day to peak instantaneous peaking factor is 1.5 and the total peak instantaneous demand is 23,120 gpm. Hydraulic modeling indicated that the future system can meet this requirement with the future pipelines shown on the Figure 4-1. As with the 2070 peak day conditions, the existing areas of lower than desired pressure during peak instantaneous conditions will persist if the suggested projects are not constructed.

2070 Peak Day plus Fire Flow Conditions

A minimum pressure of 20 psi must be maintained while delivering fire flow to a particular location within the system and supplying the peak day demand to the entire system (Subsection R309-105-9(2)). The same fire requirements of 1,000 – 1,500 gpm for residential areas and 2,000 gpm for commercial areas are used for future conditions. Hydraulic modeling indicated that new areas of the future system can meet the future fire flow requirements with the 2070 pipelines shown on Figure 4-1. All of the fire flow deficiencies listed above for existing residential areas are located in areas that will experience little growth in the future. These deficiencies will persist if the suggested projects are not constructed.

WATER DISTRIBUTION SYSTEM RECOMMENDATIONS

The model output primarily consists of the computed pressures at nodes and flow rates through pipes. The model also provides additional data related to pipeline flow velocity and head loss to help evaluate the performance of the various components of the distribution system. Due to the large number of pipes and nodes in the model, it is impractical to prepare a figure which illustrates pipe numbers and node numbers.

Recommendations for distribution improvement projects were based on the modeling, as outlined above, guidance provided by Springville personnel, and the 2014 Drinking Water System Optimization Analysis. HAL still recommends implementing the distribution and operational recommendations given in the 2014 Analysis, including:

- Pump the future 900 South well into the Lower Spring Creek zone
- Set PRVs connecting Hobble Creek and Lower Spring Creek zones so that no flow is allowed through during normal operating conditions

In addition to these recommendations, it is also recommended that the city avoid using Canyon Road Well to fill Lower Spring Creek tanks via the 4th South valve. With the new 400 South Well #2 capacity added to the system, it will be more efficient to fill the tanks from the 400 South wells. If the City desires to continue filling the tanks via the 4th South valve, a pressure sustaining valve should be installed to prevent pressures in the Hobble Creek zone from dropping too low during tank filling operations.

The I-15 freeway corridor is a major bottleneck for transmission lines. There are currently three transmission lines under I-15. The system functions well with these lines, but level of service would be compromised if one of the transmission lines was out of service. A fourth transmission line under I-15 for redundancy is recommended in the northerly part of the city, near 1000 to 1400 North.

Major future distribution projects associated with providing transmission capacity to and from future storage tanks and sources may be required depending on the locations chosen for tanks and sources. It is expected that these projects may change somewhat as compared to current projections depending on the availability of land and other considerations that may affect the final locations of the proposed storage tanks.

Additional localized transmission pipelines are expected to be installed as the City develops. The locations and lengths of these transmission pipelines will vary depending on the final location of future streets and the majority will be minimum sized pipes constructed by developers (8-inch in residential zones and 10-inch in non-residential zones). Anticipated future pipes larger than the minimum required size have been located following proposed road alignments and pipes expected to be needed within 20 years are illustrated on the Drinking Water Master Plan Map, Figure 4-1. The City will continue to review individual developments through the Development Review Committee (DRC) process, including analyzing transmission line size requirements, particularly for developments located in areas where the water system is not well connected. Pipe sizes in these developments may need to be increased for initial service, even if the ultimate size requirement (when developments are well connected) is smaller.

Fire Suppression Flow

As discussed in the storage and water distribution chapters of this report, minimum available fire flow typically ranges from 1,000 gpm to 2,000 gpm, though higher flows are available in many locations. A site-specific analysis of available fire flow should be performed for each new development early during the development review process. New buildings should be constructed with appropriate materials or approved fire sprinkler systems so that their fire flow requirement does not exceed the available flow.

CHAPTER 6 WATER RIGHTS

EXISTING WATER RIGHTS

Springville City currently owns water rights designated for municipal use in the drinking water system. Table 6-1 is a summary of the drinking water rights owned by the City with assumed flow and volume capacities.

Table 6-1: Existing Drinking Water System Municipal Water Rights

Water Right Number(s)	Flow (gpm)	Volume (ac-ft)	Source
51-111 (a26443) Includes 51-6666, 51-6990, 51-7242	198	103	City Wells
51-1455 (a28365) Includes 51-1486, 51-1493	4,937	7,964*	City Wells
51-2530 (a29656) Includes 51-3679	2,703	144	City Wells
51-2780 (a28366)	1,346	439	City Wells
51-5450 (a40919)	1,333	14#	City Wells
51-6970 (a28367) Includes 51-1024, 51-1025, 51-1088	1,472	1,746	City Wells
51-8641	35	33	City Wells
51-8793 (a43986)	9	14	City Wells
51-5329	1,300	2,069**	Burt Springs
51-5330	180	290*	Konold Springs
51-5520	662	1,068##	Bartholomew Springs
51-6027	1,200	1,947***	Spring Creek Canyon Springs
Total	15,375	15,831	

* Potential volume if sources are able to produce designated flow rate year-round. Actual volume may be limited by either source capacity (i.e. a spring may not be able to produce the designated flow rate year round) or by demand.

** W.U.C. indicates that 8 cfs is diverted 24 hours for 5 days out of each 8-1/3 days from April 1 to October 31. This would equal 128.45 days with an estimated volume of 2,038.24 ac-ft.

Springville Irrigation Company water right used by Springville City based on City ownership of 267 shares. Each share equals 4 ac-ft resulting in an annual volume of 1,068 ac-ft.

*** 10-year average yield of the spring from 1999 – 2009

Springville City has a total of 15,831 ac-ft of water rights available for use in its drinking water system. Compared to the existing level of service water requirement of 11,070 ac-ft, the City currently owns a surplus of 4,761 ac-ft in municipal water rights.

By 2070, the City will require a minimum of 14,900 ac-ft of water rights to meet requirements for the drinking water system. Compared to the existing water rights available, the City currently owns a surplus of 931 ac-ft; however, buildout requirements for the City could be significantly higher than the predicted 2070 requirements. Similar to other components of the water system, water rights should have redundancy. Typically, some water rights cannot be used as planned or do not yield the allowed flow, and the City will need to acquire more than the minimum rights calculated in order to have the usable flow and volume required. Table 6-2 is a summary of unapproved change applications that propose converting water from City owned irrigation shares to drinking water municipal water rights in the City wells. If these water rights are approved the City would have additional redundancy recommended for the predicted 2070 requirements. However, it is recommended that the City commission a groundwater capacity study to determine the physically available flow and volume of the water rights the City owns. Other studies in southern Utah Valley have indicated that the physical capacity can be lower than the allowable water right flow or volume. It is also recommended that the City pursue opportunities to move the diversion point for Springville Irrigation Company Hobble Creek water rights to Bartholomew Springs where the water can be used in the drinking water system.

Table 6-2: Potential Drinking Water System Municipal Water Rights

Water Right Number	Flow * (gpm)	Volume (ac-ft)	Irrigation Company	Proposed Source
51-8368 (a35091)	800	834	Springville	City Wells
51-8369 (a35092)	300	322	Mill Pond	City Wells
51-8366 (a35086)	200	205	Wood Springs	City Wells
51-8367 (a35088)	100	24	Coffman Springs	City Wells
51-5790 (a44540)	2,400	2,471	Springville	City Wells
51-8791 (a43637)	400	357	Mill Pond	City Wells
51-8792 (a44541)	200	211	Wood Springs	City Wells
Total	4,400	4,424		

* Flow assumption based on existing well water rights.

CHAPTER 7 CAPITAL FACILITY PLAN

GENERAL

The purpose of this section is to identify the drinking water facilities that are required, for the 20-year planning period, to meet the demands placed on the system by future development. Projects required to meet existing level of service criteria, including desired fire flow, are not included in this section. Proposed facility capacities were sized to adequately meet the 20-year growth projections and were compared to current master planned facilities. A detailed design analysis will need to be provided before construction of the facilities to ensure that the location and sizing is appropriate for the actual growth that has taken place since this capital facility plan (CFP) was developed. Specific projects with costs are presented at the end of this chapter.

METHODOLOGY

The future water demands were added incrementally by year to the facility analysis. For facilities reaching capacity at any time within 20 years, a solution was identified that will accommodate growth for the 20-year planning period. A hydraulic model was developed for the purpose of assessing the system operation and capacity with future demands added to the system. The model was used to identify problem areas in the system and to identify the most efficient way to make improvements to transmission pipelines, sources, pumps, and storage facilities. The future system was evaluated in the same manner as the existing system, by modeling (1) Peak Instantaneous Demands and (2) Peak Day Demands plus fire flow conditions.

Currently, some customers in the pressurized irrigation service area are borrowing capacity from the drinking water system for their outdoor watering. Customers adjacent to active and dry portions of the PI system should all be connected to the PI system within 20 years. The drinking water system CFP was analyzed assuming that all customers in the PI service area have connected to the PI system within 20 years and no capacity from the drinking water system is used for outdoor watering in the PI service area.

FUTURE WATER SOURCE

Future growth projections indicate that the City will require additional drinking water sources to meet future demands, for redundancy, and to replace aging wells. The following source project is prioritized to meet the source requirements for future growth:

- Move water rights to Bartholomew Springs to allow the City to utilize the full flow available

If efforts to transfer water rights to Bartholomew Springs are unsuccessful or insufficient redundancy is provided through a transfer, the following source project is selected as an alternative to meet source requirements for future growth:

- 900 South well, with 200 North or other suitable location as an alternate

It is recommended that the City continue to budget for well development to replace aging wells. It is also recommended that the City provide backup power for each source, using a portable generator or permanent generators installed at each site.

FUTURE WATER STORAGE

The future 20-year growth projection requires approximately 3 MG additional storage in one or more tanks to supply storage for future growth. One 3+ MG tank is recommended. A 3 MG tank is anticipated to meet future demands through 2070.

The new tank may be located to serve the Westfields zone, with associated transmission piping to a source and to the service zone. It is recommended that the tank be located at the following location:

- Evergreen Cemetery/Big Hollow Park, 400 East 2000 South (3 MG+)

A different location may be required for the tank due to constraints at the chosen sites. Additional investigation should be performed to determine the suitability of the site for the new tank. As discussed in the Storage section of this report, other tank locations are possible to fulfill necessary storage requirements.

FUTURE TRANSMISSION PIPING

A significant portion of the major transmission lines in the growth areas of the City (west of 400 West) are already constructed. A few additional transmission lines would need to be constructed to allow for future growth in these areas. Recommended projects are listed in Table 7-1.

The majority of the waterline projects in the growth areas will be constructed by developers. Only lines larger than 8 inches in residential zones or larger than 10 inches in non-residential zones are included. See Figure 4-1 for future transmission lines.

MASTER PLANNING

Throughout the master planning process, the three main components of the City's water system (source, storage, and distribution) were analyzed to determine the system's ability to meet existing demands and also the anticipated future demands. This section of the report will specifically detail development over the next 20 years. System deficiencies identified in the master planning process and described previously in this report were presented and discussed in an alternatives workshop with City staff. After the workshop, HAL studied the feasibility of the solution alternatives and developed conceptual costs.

One important method of paying for system improvements is through impact fees. Impact fees are collected from new development and should only be used to pay for system improvements related to new development. For this reason, it is important to identify which projects are related to resolving existing deficiencies, and which projects are related to providing anticipated future capacity for new development.

PRECISION OF COST ESTIMATES

When considering cost estimates, there are several levels or degrees of precision, depending on the purpose of the estimate and the percentage of detailed design that has been completed. The following levels of precision are typical:

<u>Type of Estimate</u>	<u>Precision</u>
Master Planning	-50% to +100%
Preliminary Design	±30%
Final Design or Bid	±10%

For example, at the master planning level (or conceptual or feasibility design level), if a project is estimated to cost \$1,000,000, then the precision or reliability of the cost estimate would typically be expected to range between approximately \$500,000 and \$2,000,000. While this may seem very imprecise, the purpose of master planning is to develop general sizing, location, cost, and scheduling information on a number of individual projects that may be designed and constructed over a period of many years. Master planning also typically includes the selection of common design criteria to help ensure uniformity and compatibility among future individual projects. Details such as the exact capacity of individual projects, the level of redundancy, the location of facilities, the alignment and depth of pipelines, the extent of utility conflicts, the cost of land and easements, the construction methodology, the types of equipment and material to be used, the time of construction, interest and inflation rates, permitting requirements, etc., are typically developed during the more detailed levels of design.

At the preliminary or 10% design level, some of the aforementioned information will have been developed. Major design decisions such as the size of facilities, selection of facility sites, pipeline alignments and depths, and the selection of the types of equipment and material to be used during construction will typically have been made. At this level of design the precision of the cost estimate for a \$1,000,000 project would typically be expected to range between approximately \$700,000 and \$1,300,000.

After the project has been completely designed, and is ready to bid, all design plans and technical specifications will have been completed and nearly all of the significant details about the project should be known. At this level of design, the precision of the cost estimate for the same \$1,000,000 project would typically be expected to range between approximately \$900,000 and \$1,100,000.

SYSTEM IMPROVEMENT PROJECTS

As discussed in previous chapters, source, storage and distribution system capacity expansion will be needed to meet the demands of future growth. The City's Drinking Water Master Plan Map and Capital Facilities Plan, Figure 4-1 includes recommended projects over the period from existing conditions through 20 years into the future. The recommended projects that are expected to be needed through 2045 are presented in Table 7-1.

Cost estimates have been prepared for the recommended projects and are included in Table 7-1. Unit costs for the construction cost estimates are based on conceptual level engineering and are shown in the unit costs table in Appendix D. Sources used to estimate construction costs include:

1. "Means Heavy Construction Cost Data, 2025"
2. Price quotes from equipment suppliers
3. Recent construction bids for similar work
4. Springville City records of past project bids/costs

All costs are presented in 2025 dollars. Costs shown below include 20% for contingency and 10% for design. Recent price and economic trends indicate that future costs are difficult to predict with certainty. Engineering cost estimates provided in this study should be regarded as conceptual level for use as a planning guide. Only during final design can a definitive and more accurate estimate be provided for each project.

Table 7-1: Recommended 10-Year and 20-Year Projects

Type	Map ID ¹	Recommended Project	Total Cost ³	% Impact Fee Eligible	Impact Fee Eligible Cost
Growth Projects, 0-10 Year Phasing (2025-2035)					
Source	10-1	Drill and develop 4,000 gpm well at 900 S Install 1,300 LF 16-inch PVC pipe	\$8,430,000	100%	\$8,430,000
Transmission	10-2	400 West, 900 South to 1600 South 70 LF 10-inch PVC pipe, 560 LF 16-inch PVC pipe and 4,010 LF 18-inch PVC pipe bored under railroad [cost includes boring]	\$3,450,000	100%	\$3,450,000
Transmission	10-3	State Street, 700 South to 1060 South 1,690 LF 12-inch PVC pipe across UDOT ROW [cost includes boring]	\$780,000	100%	\$780,000
Transmission	10-4	State Street, 1600 South 2,520 LF 12-inch PVC pipe across UDOT ROW	\$1,160,000	100%	\$1,160,000
Transmission	10-5	West of I-15, 1000 North to 1400 North 700 LF 10-inch PVC pipe and 6,060 LF 12- inch PVC pipe bored under I-15 [cost includes boring]	\$4,150,000	12%	\$510,000
Transmission	10-6	Center Street, 2250 West to 2400 West 490 LF 16-inch PVC pipe	\$236,000	22%	\$51,000
		Center Street, 2100 West to 2250 West (LGI frontage) 1,100 LF 16-inch PVC pipe ⁴	\$107,670	-	\$107,670 (100%)
Transmission	10-7	Center Street, 2400 West to 2700 W 1,370 LF 12-inch PVC pipe bored under canal [cost includes boring]	\$730,000	12%	\$90,000

Type	Map ID ¹	Recommended Project	Total Cost ³	% Impact Fee Eligible	Impact Fee Eligible Cost
Transmission	10-8	1200 West, Center Street to 100 South 700 LF 10-inch PVC pipe bored under canal [cost includes boring]	\$390,000	10%	\$39,000
Transmission	10-9	1200 West, 200 South to 400 South 650 LF 12-inch PVC pipe	\$280,000	16%	\$50,000
Transmission	10-10	1500 West, 400 South to 900 South 1,380 LF 10-inch PVC pipe and 1,320 LF 12- inch PVC pipe bored under canal [cost includes boring]	\$1,200,000	12%	\$150,000
Transmission	10-11	Transmission to Jolley Tank 3,520 LF 12-inch PVC pipe	\$1,470,000	0%	\$0
Total Cost, Growth Projects, 0-10 Year Phasing (2025-2035)			\$22,390,000	66%	14,820,000
Growth Projects, 10-20 Year Phasing (2035-2045)					
Storage	20-1	Big Hollow Park Site – 3 MG tank 2 pressure sustaining valves	\$8,840,000	100%	\$8,840,000
Transmission		Big Hollow Park to Westfields zone 160 LF 16-inch PVC pipe and 12,610 LF 24- inch PVC pipe bored under railroad [cost includes boring]	\$10,000,000	100%	\$10,000,000
Transmission	20-2	1750 West, 1600 South to 1450 S 550 LF 18-inch PVC pipe bored under canal [cost includes boring]	\$510,000	100%	\$510,000
Transmission	20-3	1950 West/ Wavetronix Drive, Center Street to Wavetronix Drive; 1950 West to 1750 West 3,410 LF 10-inch PVC pipe and 1,120 LF 12- inch PVC pipe	\$1,760,000	2%	\$50,000

Type	Map ID ¹	Recommended Project	Total Cost ³	% Impact Fee Eligible	Impact Fee Eligible Cost
Transmission	20-4	1000 North, 1650 West to Spring Creek Road 2,720 LF 10-inch PVC pipe and 1,230 LF 12-inch PVC pipe bored under railroad and canal [cost includes boring]	\$2,870,000	11%	\$320,000
Transmission	20-5	950 West, 800 North to 1000 North 990 LF 10-inch PVC pipe	\$380,000	0%	\$0
Transmission	20-6	1650 West/ 750 North, 1000 North to 750 North; 1650 West to 1750 West 1,360 LF 10-inch PVC pipe and 1,300 LF 12-inch PVC pipe bored under railroad	\$2,230,000	13%	\$290,000
Transmission	20-7	1100 West, 1150 North to 1000 N 320 LF 12-inch PVC pipe bored under canal	\$290,000	15%	\$50,000
Transmission	20-8	1500 West, 900 South to 1025 South 710 LF 12-inch PVC pipe	\$300,000	16%	\$50,000
Total Cost, Growth Projects, 10-20 Year Phasing (2035-2045)			\$27,180,000	74%	\$20,110,000
Total Cost, Growth Projects, 0-20 Year Phasing (2025-2045)			\$49,570,000	70%	\$34,930,000

1. The Map ID corresponds to the project number on the Master Plan Map and Capital Facilities Plan, Figure 4-1.
2. Costs include 20% for contingency and 10% for design.
3. All costs were rounded consistently for presentation. The impact fee eligible percentages were calculated from unrounded values and totals may not sum exactly due to rounding.
4. This cost is for the impact fee eligible cost of upsizing pipe that has been constructed in Center Street by LGI. Cost information was provided by the City.

ADDITIONAL PROJECTS THROUGH 2070

If source, storage, and transmission projects are constructed as shown in the 0-20 year phasing, no additional source or storage projects are anticipated to be required through 2070.

SUMMARY OF COSTS

Table 7-2 includes projects shown in Table 7-1 and is a summary of project costs attributed to future growth through 2070. This cost represents a best estimate for total cost in 2025 dollars to the City to maintain the desired level of service while accommodating future growth through 2070 conditions. This table does not include any financing costs associated with funding options.

Table 7-2: Summary of Costs

Project Type	Cost
Source	\$7,800,000
Storage	\$8,840,000
Transmission	\$32,930,000
Total	\$49,570,000

REFERENCES

- Drinking Water System Operating Requirements*, R309-105 *Utah Administrative Code* (2019). <http://www.rules.utah.gov/publicat/code/r309/r309-105.htm>.
- Facility Design and Operation: Minimum Sizing Requirements*, R309-510 *Utah Administrative Code* (2015). <http://www.rules.utah.gov/publicat/code/r309/r309-510.htm>.
- Kem C. Gardner Policy Institute (2022). *State and County Projections 2020-2060*. University of Utah. <https://d36oiwf74r1rap.cloudfront.net/wp-content/uploads/Gardner-Policy-Institute-State-and-County-Projections-2020-2060-Data.xlsx>
- Impact Fees Act § 11-36a Utah Code Annotated* (2025). <http://le.utah.gov/UtahCode/section.jsp?code=11-36a>.
- Mountainland Association of Governments. (2019). *Small area population projections 2019*. <https://magutah.gov/static/files/data/demographics/MAG%20Small%20Area%20Population%20Projections%202019.pdf>
- Springville City, 2011. "Springville City General Plan: Chapter 2 – Land Use and Population". Springville, Utah.
- U.S. Environmental Protection Agency. (2020). *EPANET 2.2*. <https://www.epa.gov/water-research/epanet>
- Utah Division of Drinking Water. (2025). *Drinking Water Laws and Rules*. Utah Department of Environmental Quality. Retrieved November 3, 2025, from <https://deq.utah.gov/drinking-water/laws-and-rules>.
- Utah Division of Water Rights. (n.d). Public Water Supplier Information: Springville City Water Department (Culinary). Retrieved November 3, 2025, from https://waterrights.utah.gov/asp_apps/viewEditPWS/pwsView.asp?SYSTEM_ID=1343.

APPENDIX A

Water System Data and Calculations



**Table A-1
Growth Projections and Projected ERCs**

Year	Projected ERCs				Annual ERC Growth
	Residential	Other	Nestlé	Total	
2025	11,397	4,555	4,842	20,794	0.6%
2026	11,699	4,676	4,842	21,216	2.6%
2027	12,008	4,799	4,842	21,650	2.6%
2028	12,326	4,926	4,842	22,095	2.6%
2029	12,652	5,057	4,842	22,551	2.6%
2030	12,987	5,191	4,842	23,020	2.6%
2031	13,291	5,312	4,842	23,445	2.3%
2032	13,601	5,436	4,842	23,880	2.3%
2033	13,919	5,563	4,842	24,324	2.3%
2034	14,245	5,693	4,842	24,780	2.3%
2035	14,578	5,826	4,842	25,246	2.3%
2036	14,883	5,948	4,842	25,673	2.1%
2037	15,194	6,073	4,842	26,109	2.1%
2038	15,512	6,200	4,842	26,554	2.1%
2039	15,837	6,329	4,842	27,008	2.1%
2040	16,168	6,462	4,842	27,472	2.1%
2041	16,461	6,579	4,842	27,882	1.8%
2042	16,759	6,698	4,842	28,299	1.8%
2043	17,063	6,819	4,842	28,724	1.8%
2044	17,372	6,943	4,842	29,157	1.8%
2045	17,687	7,069	4,842	29,598	1.8%
2046	18,007	7,197	4,842	30,046	1.8%
2047	18,334	7,327	4,842	30,503	1.8%
2048	18,666	7,460	4,842	30,968	1.8%
2049	19,004	7,595	4,842	31,442	1.8%
2050	19,349	7,733	4,842	31,924	1.8%
2051	19,471	7,782	4,842	32,095	0.6%
2052	19,595	7,831	4,842	32,268	0.6%
2053	19,719	7,881	4,842	32,442	0.6%
2054	19,844	7,931	4,842	32,617	0.6%
2055	19,970	7,981	4,842	32,793	0.6%
2056	20,096	8,032	4,842	32,970	0.6%
2057	20,224	8,083	4,842	33,148	0.6%
2058	20,352	8,134	4,842	33,328	0.6%
2059	20,481	8,186	4,842	33,508	0.6%
2060	20,611	8,237	4,842	33,690	0.6%
2061	20,741	8,290	4,842	33,873	0.6%
2062	20,873	8,342	4,842	34,057	0.6%
2063	21,005	8,395	4,842	34,242	0.6%
2064	21,138	8,448	4,842	34,429	0.6%
2065	21,272	8,502	4,842	34,616	0.6%
2066	21,407	8,556	4,842	34,805	0.6%
2067	21,543	8,610	4,842	34,995	0.6%
2068	21,679	8,665	4,842	35,186	0.6%
2069	21,817	8,719	4,842	35,378	0.6%
2070	21,955	8,775	4,842	35,572	0.6%

**Table A-3
Existing System Source Mass Balance by Pressure Zone**

Pressure Zone	ERCs	Irrigated Acres	Indoor Peak Day Source Required Flow (gpm)	Outdoor Peak Day Source Required Flow (gpm)	Total Peak Day Source Required Flow (gpm)	Source and Available Flow (ac-ft)										
						Bartholomew Springs	Burt Springs	Konold Springs	Spring Creek Springs	200 North Well	400 South Well #1	400 South Well #2	900 South Well	Canyon Road Well	1000 South Well	Evergreen Well
						1000	760	160	620	2400	3000	3900	3000	1500	550	350
Cherrington Pressure Zone	186	34	34	289	323	250	0	0	0	0	0	72	0	0	0	0
Crandall Pressure Zone	125	16	23	136	159	0	0	0	16	0	0	142	0	0	0	0
Hobble Creek Pressure Zone	2388	356	431	3026	3457	0	760	0	0	0	0	0	2129	568	0	0
Klauck Pressure Zone	218	28	39	238	277	0	0	0	28	0	0	249	0	0	0	0
Nestles Pressure Zone	4974	39	898	332	1230	0	0	0	126	0	0	0	871	233	0	0
Rotary Pressure Zone*	202	80	36	680	716	556	0	0	0	0	0	160	0	0	0	0
Upper Spring Creek Pressure Zone	51	7	9	60	69	0	0	0	7	0	0	62	0	0	0	0
Westfields Pressure Zone	6081	247	1098	2100	3197	0	0	67	0	1072	1341	717	0	0	0	0
Lower Spring Creek Pressure Zone**	6346	384	1146	3264	4410	0	0	93	442	1328	1659	888	0	0	0	0
Kelly/Jurd	167	13	30	111	141	141	0	0	0	0	0	0	0	0	0	0
Bartholomew	56	5	10	43	53	53	0	0	0	0	0	0	0	0	0	0
Total	20794	1209	3754	10277	14,031	1000	760	160	620	2400	3000	2290	3000	801	0	0
Remaining in Source (ac-ft)					3,209	0	0	0	0	0	0	1610	0	699	550	350

* Includes Highline Canal

** Does not include Plat A

Legend	Most Preferred	Next Preferred	Least Preferred	Not Connected
---------------	----------------	----------------	-----------------	---------------

Future System Source Mass Balance by Pressure Zone

Pressure Zone	ERCs	Irrigated Acres	Indoor Peak Day Source Required Flow (gpm)	Outdoor Peak Day Source Required Flow (gpm)	Total Peak Day Source Required Flow (gpm)	Source and Available Flow for Lowest Month on Record (ac-ft)										
						Bartholomew Springs	Burt Springs	Konold Springs	Spring Creek Springs	200 North Well	400 South Well #1	400 South Well #2	900 South Well	Canyon Road Well	1000 South Well	Evergreen Well
						1000	760	160	620	2400	3000	3900	3000	1500	550	350
Cherrington Pressure Zone	187	34	34	289	323	232	0	0	0	0	0	91	0	0	0	0
Crandall Pressure Zone	135	18	24	153	177	0	0	0	17	0	0	161	0	0	0	0
Hobble Creek Pressure Zone	2469	364	446	3094	3540	0	760	0	0	0	0	0	2311	469	0	0
Klauck Pressure Zone	249	32	45	272	317	0	0	0	30	0	0	287	0	0	0	0
Nestles Pressure Zone	4974	2	898	17	915	0	0	0	87	0	0	0	689	140	0	0
Rotary Pressure Zone*	238	84	43	714	757	544	0	0	0	0	0	213	0	0	0	0
Upper Spring Creek Pressure Zone	51	7	9	60	69	0	0	0	6	0	0	62	0	0	0	0
Westfields Pressure Zone**	18227	74	3291	629	3920	0	0	69	0	1094	1368	1389	0	0	0	0
Lower Spring Creek Pressure Zone	8787	421	1587	3580	5167	0	0	91	480	1306	1632	1658	0	0	0	0
Kelly/Jurd	180	14	33	119	152	152	0	0	0	0	0	0	0	0	0	0
Bartholomew	75	7	14	60	73	73	0	0	0	0	0	0	0	0	0	0
Total	35572	1057	6423	8986	15409	1000	760	160	620	2400	3000	3861	3000	608	0	0
Remaining in Source (gpm)						0	0	0	0	0	0	39	0	892	550	350

* Includes Highline Canal

** Includes Plat A

Legend	Most Preferred	Next Preferred	Least Preferred	Not Connected
---------------	----------------	----------------	-----------------	---------------

**Table A-4
Existing System Storage Mass Balance by Pressure Zone**

Pressure Zone	ERCs	Irrigated Acres	Indoor Required Equalization Storage (MG)	Outdoor Required Equalization Storage (MG)	Total Required Equalization Storage (MG)	Tank and Capacity (MG)								
						Bartholomew	Rotary	Jurd	Hobble Creek 1	Hobble Creek 2	Upper Spring Creek	Lower Spring Creek 1	Lower Spring Creek 2	Lower Spring Creek 3
						1.5	2	0.25	2	2	2	1	2	3
Cherrington Pressure Zone	186	34	0.04	0.21	0.25	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crandall Pressure Zone	125	16	0.03	0.10	0.13	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00
Hobble Creek Pressure Zone	2388	356	0.55	2.18	2.73	0.00	0.00	0.00	2.00	0.73	0.00	0.00	0.00	0.00
Klauck Pressure Zone	218	28	0.05	0.17	0.22	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00
Nestles Pressure Zone	4974	39	1.14	0.24	1.38	0.00	0.29	0.00	0.00	0.25	0.00	0.17	0.26	0.41
Rotary Pressure Zone*	202	80	0.05	0.49	0.54	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Spring Creek Pressure Zone	51	7	0.01	0.04	0.05	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00
Westfields Pressure Zone	6081	247	1.40	1.51	2.91	0.01	0.57	0.00	0.00	0.00	0.62	0.36	0.55	0.80
Lower Spring Creek Pressure Zone**	6346	384	1.46	2.35	3.81	0.01	0.55	0.00	0.00	0.68	0.60	0.47	0.72	0.77
Kelly/Jurd	167	13	0.04	0.08	0.12	0.01	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
Bartholomew	56	5	0.01	0.03	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Equalization Total (MG)	20794	1209	4.78	7.40	12.18	0.86	1.40	0.11	2.00	1.66	1.63	1.00	1.54	1.98
Fire Suppression Total (MG)						0.24	0.30	0.12	0.00	0.24	0.27	0.00	0.06	0.09
Emergency Total (MG)						0.40	0.30	0.02	0.00	0.10	0.10	0.00	0.40	0.70
Remaining in Tank (MG)						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23

* Includes Highline Canal

** Does not include Plat A

Legend	Most Preferred	Next Preferred	Least Preferred	Not Connected
---------------	----------------	----------------	-----------------	---------------

Future System Storage Mass Balance by Pressure Zone

Pressure Zone	ERCs	Irrigated Acres	Indoor Required Equalization Storage (MG)	Outdoor Required Equalization Storage (MG)	Total Required Equalization Storage (MG)	Tank and Capacity (MG)								
						Bartholomew	Rotary	Jurd	Hobble Creek 1	Hobble Creek 2	Upper Spring Creek	Lower Spring Creek 1	Lower Spring Creek 2	Lower Spring Creek 3
						1.5	2	0.25	2	2	2	1	2	3
Cherrington Pressure Zone	187	34	0.04	0.21	0.25	0.24	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crandall Pressure Zone	135	18	0.03	0.11	0.14	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00
Hobble Creek Pressure Zone	2469	364	0.57	2.23	2.80	0.00	0.00	0.00	2.00	0.80	0.00	0.00	0.00	0.00
Klauck Pressure Zone	249	32	0.06	0.20	0.25	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00
Nestles Pressure Zone	4974	2	1.14	0.01	1.16	0.00	0.16	0.00	0.00	0.17	0.00	0.11	0.17	0.27
Rotary Pressure Zone*	238	84	0.05	0.51	0.57	0.55	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Spring Creek Pressure Zone	51	7	0.01	0.04	0.05	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00
Westfields Pressure Zone**	18227	74	4.19	0.45	4.65	0.00	0.67	0.00	0.00	0.00	0.66	0.45	0.69	1.08
Lower Spring Creek Pressure Zone	8787	421	2.02	2.58	4.60	0.00	0.53	0.00	0.00	0.69	0.52	0.44	0.68	0.86
Kelly/Jurd	180	14	0.04	0.09	0.13	0.00	0.02	0.11	0.00	0.00	0.00	0.00	0.00	0.00
Bartholomew	75	7	0.02	0.04	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Equalization Total (MG)	35572	1057	8.18	6.47	14.65	0.86	1.40	0.11	2.00	1.66	1.63	1.00	1.54	2.21
Fire Suppression Total (MG)						0.24	0.30	0.12	0.00	0.24	0.27	0.00	0.06	0.09
Emergency Total (MG)						0.40	0.30	0.02	0.00	0.10	0.10	0.00	0.40	0.70
Remaining in Tank (MG)						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* Includes Highline Canal

** Includes Plat A

Legend	Most Preferred	Next Preferred	Least Preferred	Not Connected
---------------	----------------	----------------	-----------------	---------------

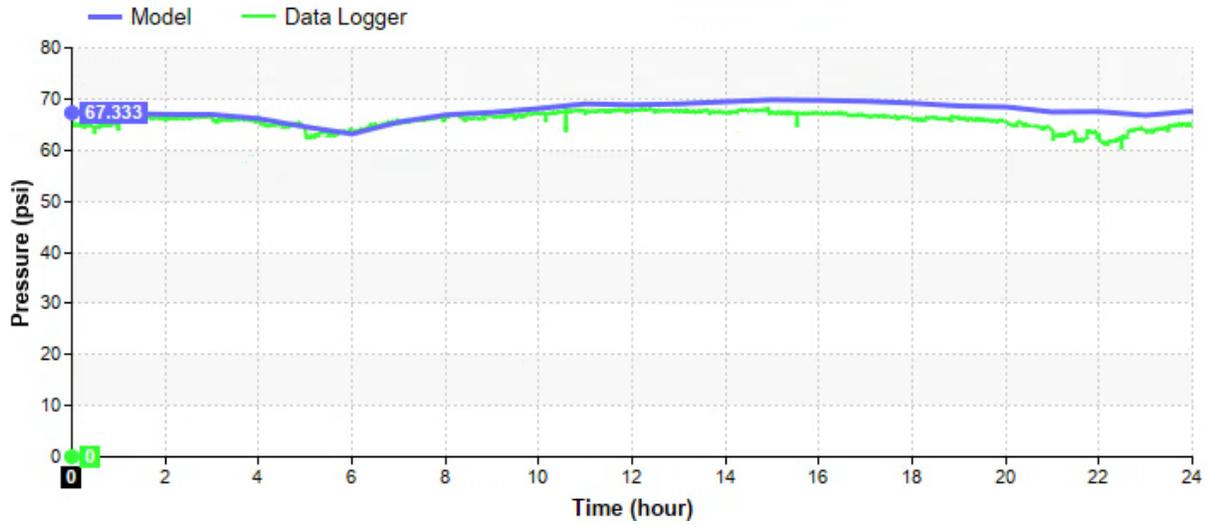
APPENDIX B

Calibration Data

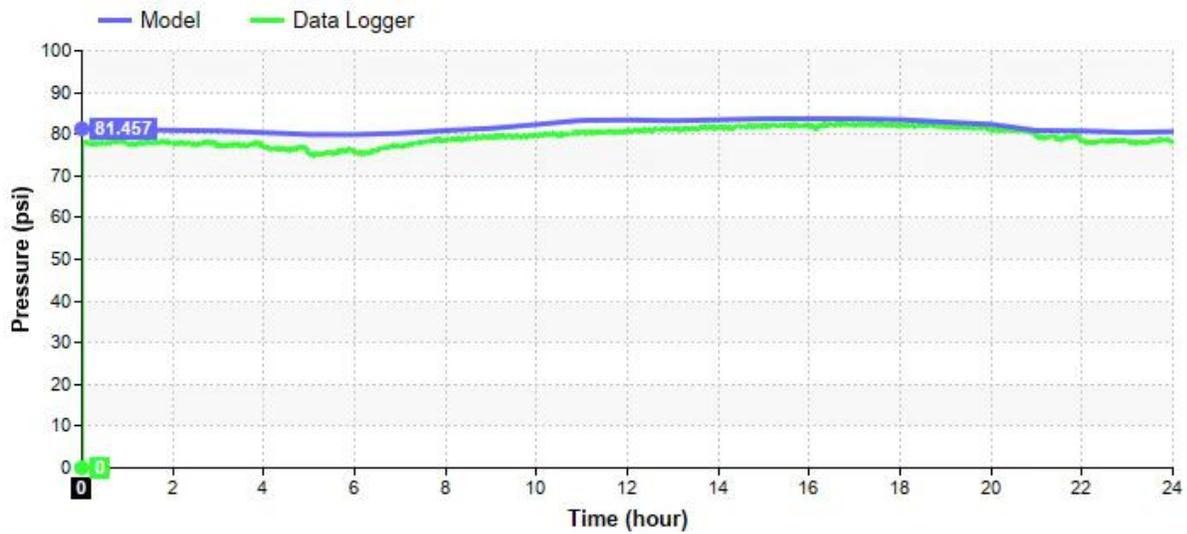


Pressure Logger Calibration Charts

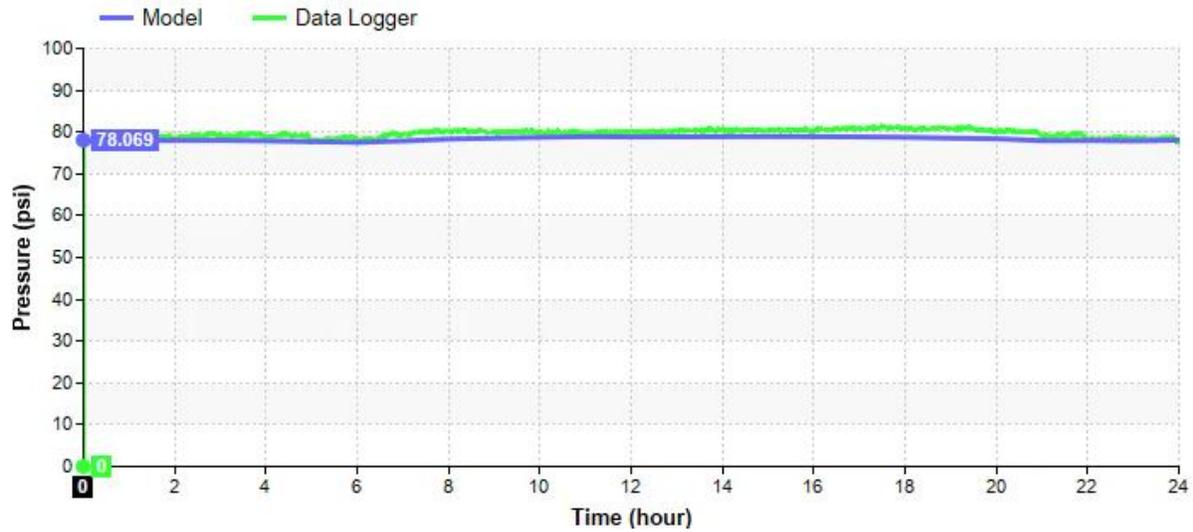
700 S Houtz



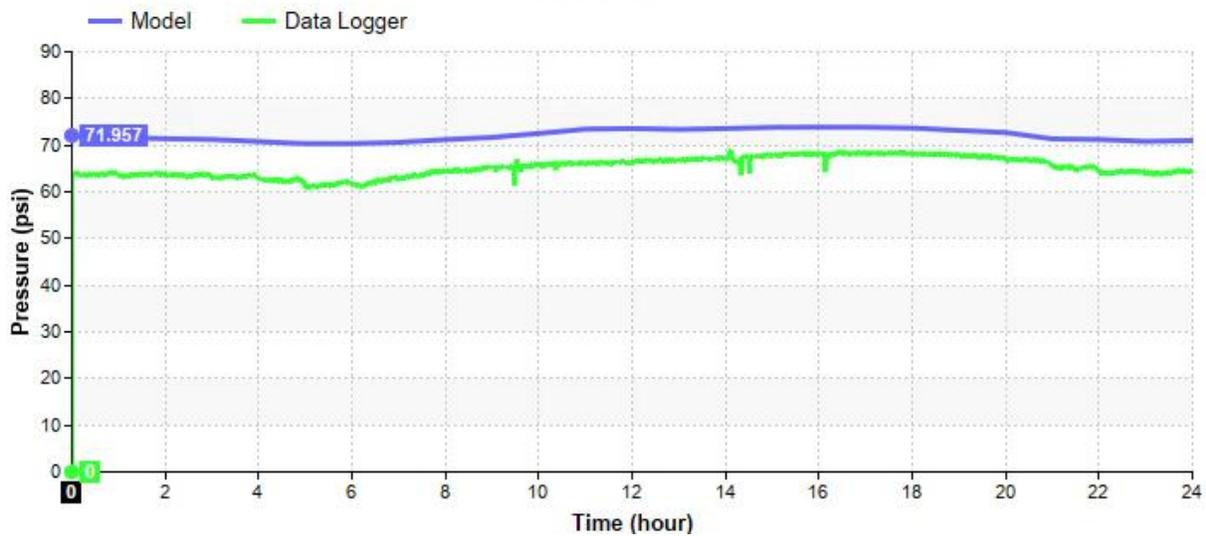
763 S 475 E



Flowserve South

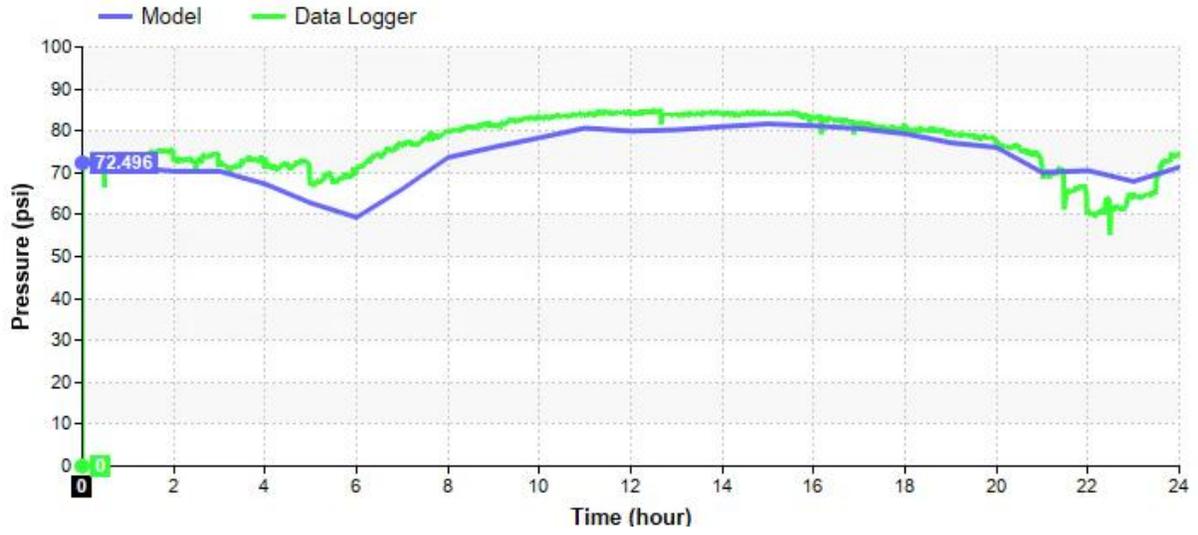


859 E 750 S



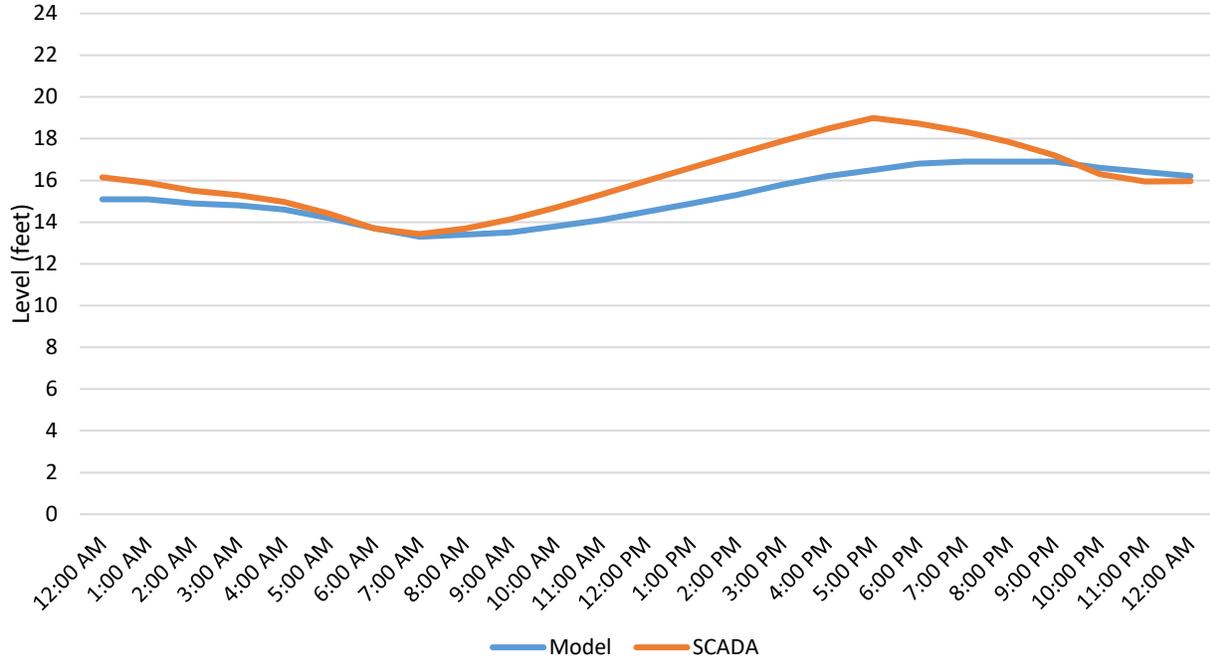
Notes on 859 E 750 S: Tank levels were checked, and Lower Spring Creek Tanks were functioning at the correct levels. PRVs from Hobble Creek Zone to Lower Spring Creek Zone were also checked. PRVs either have no flows or periods of very small flows. Pumps were checked as well. Only a small increase in pressure when the 4th South well turned on. Elevations were also verified and seem reasonable. The data logger at 763 S and 475 E is just a few blocks away and seems to match much better, so likely there is a localized issue that is causing the difference between the model and the data logger.

193 E 2650 S (Santa Fe Dr)

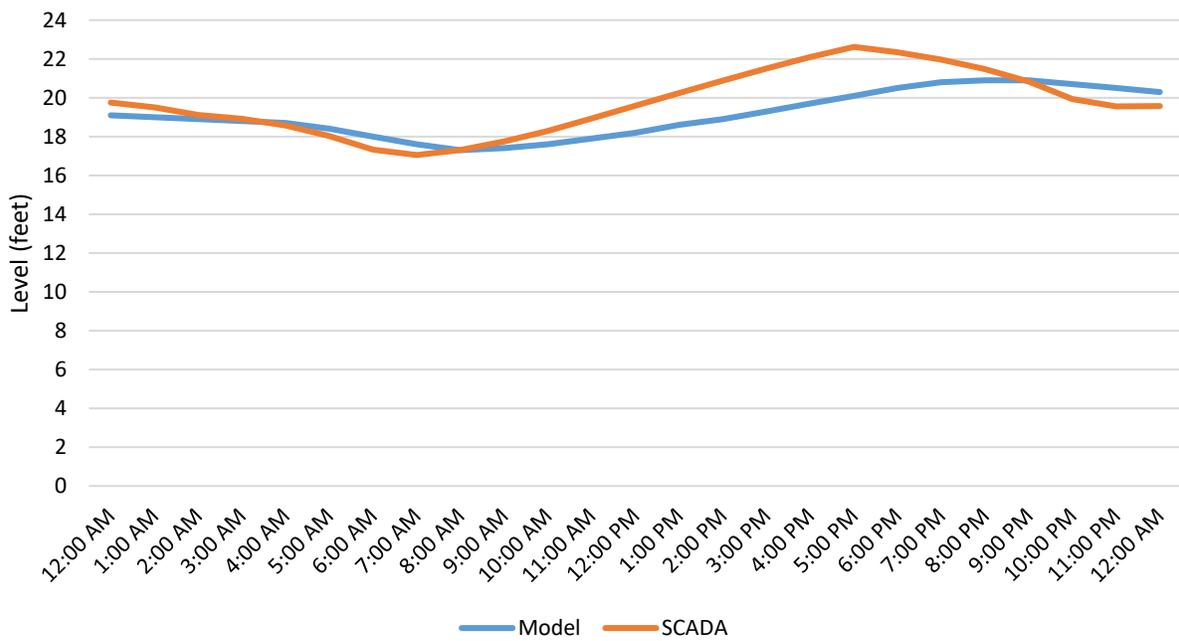


Tank Calibration Charts

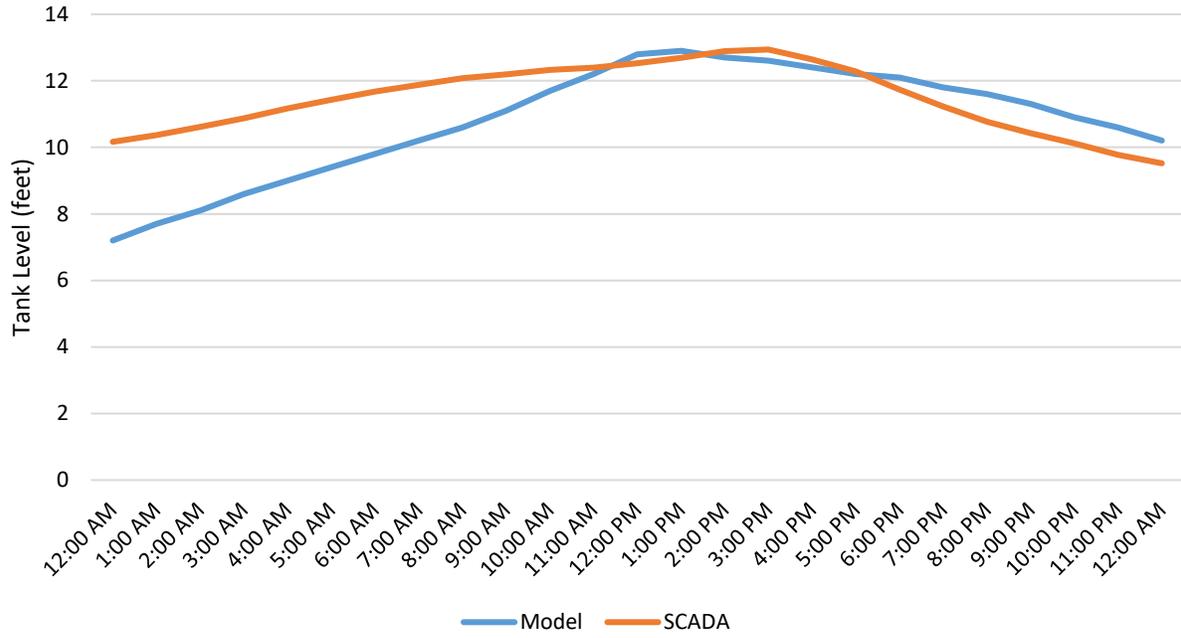
Hobble Creek Tank West



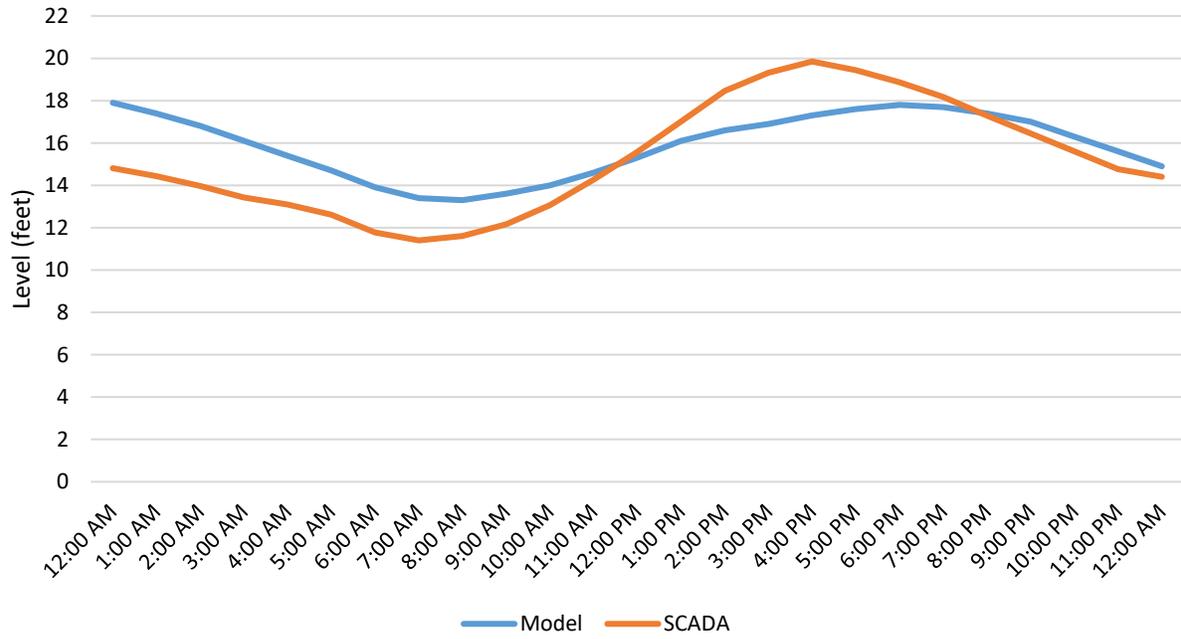
Hobble Creek Tank East



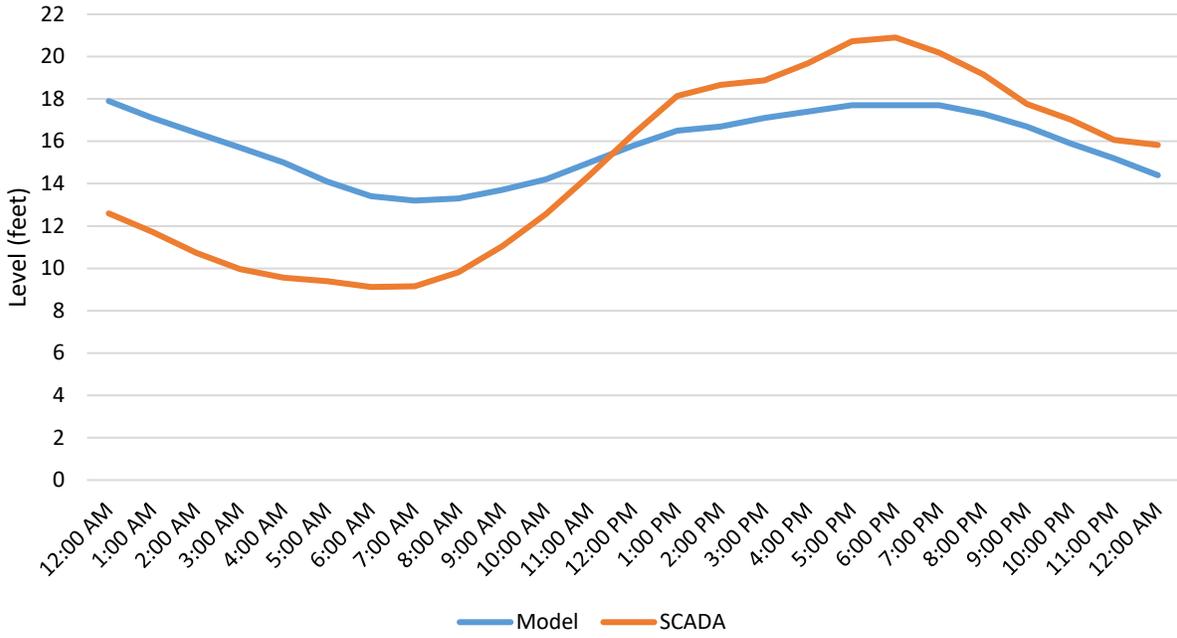
Jurd Tank



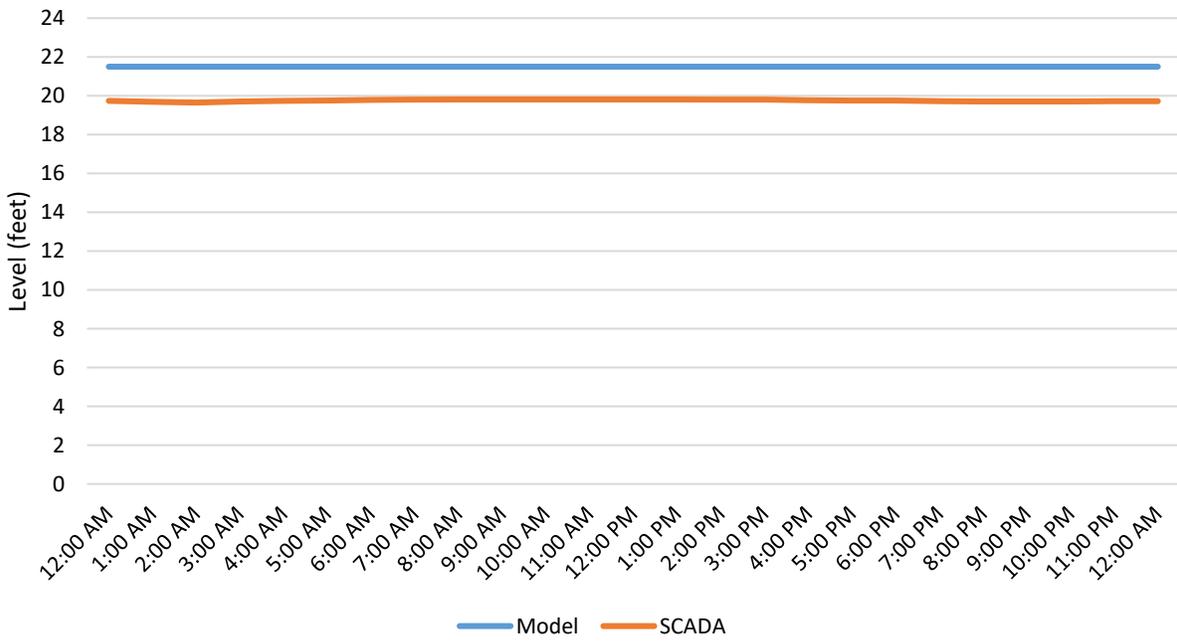
Lower Spring Creek Tank #2



Lower Spring Creek Tank #3

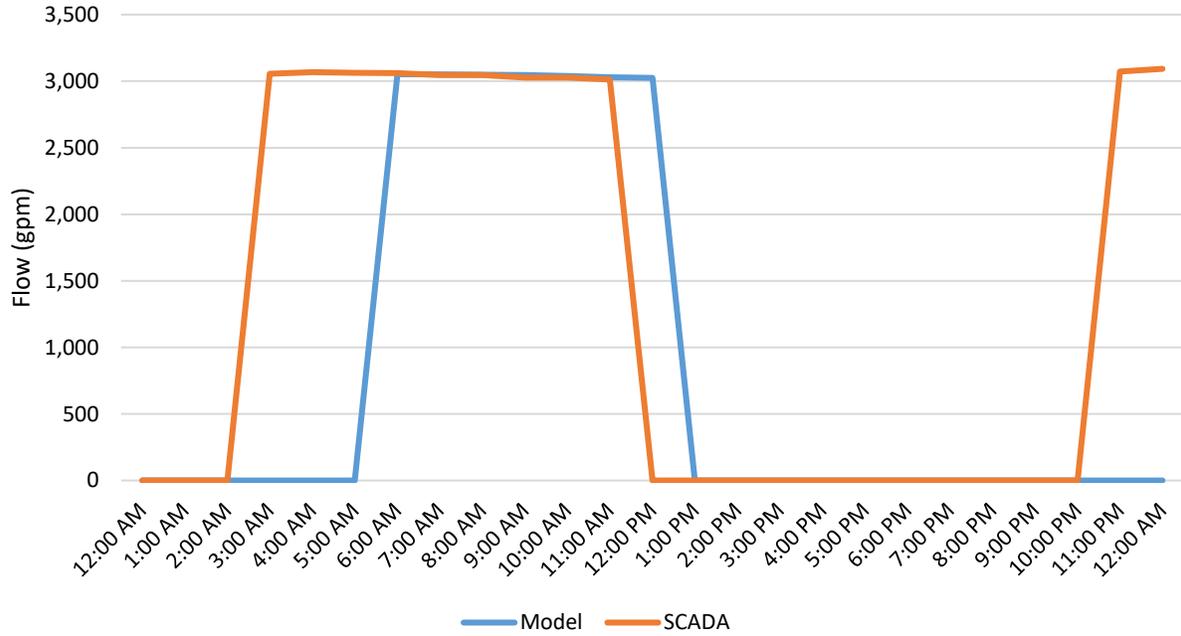


Upper Spring Creek Tank

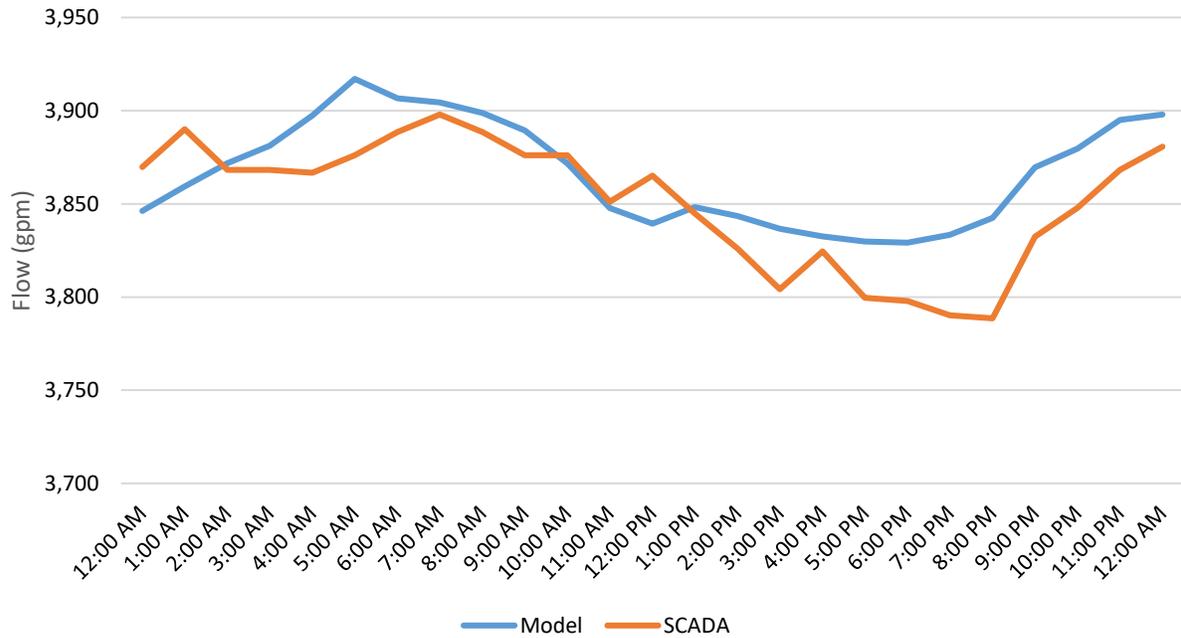


Well Calibration Charts

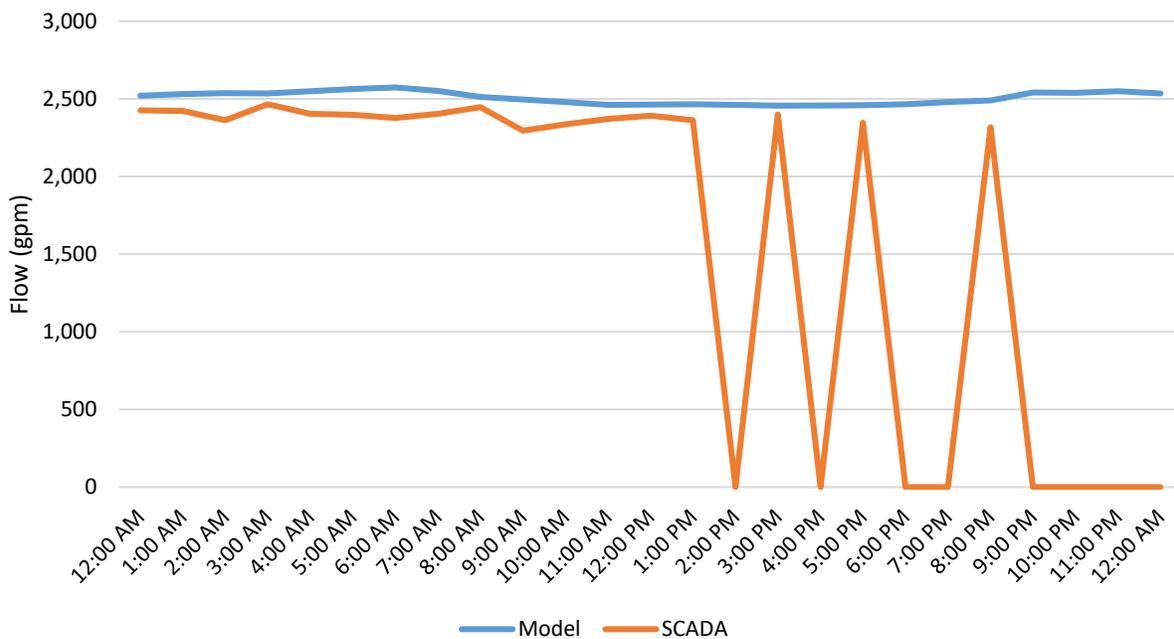
400 South Well



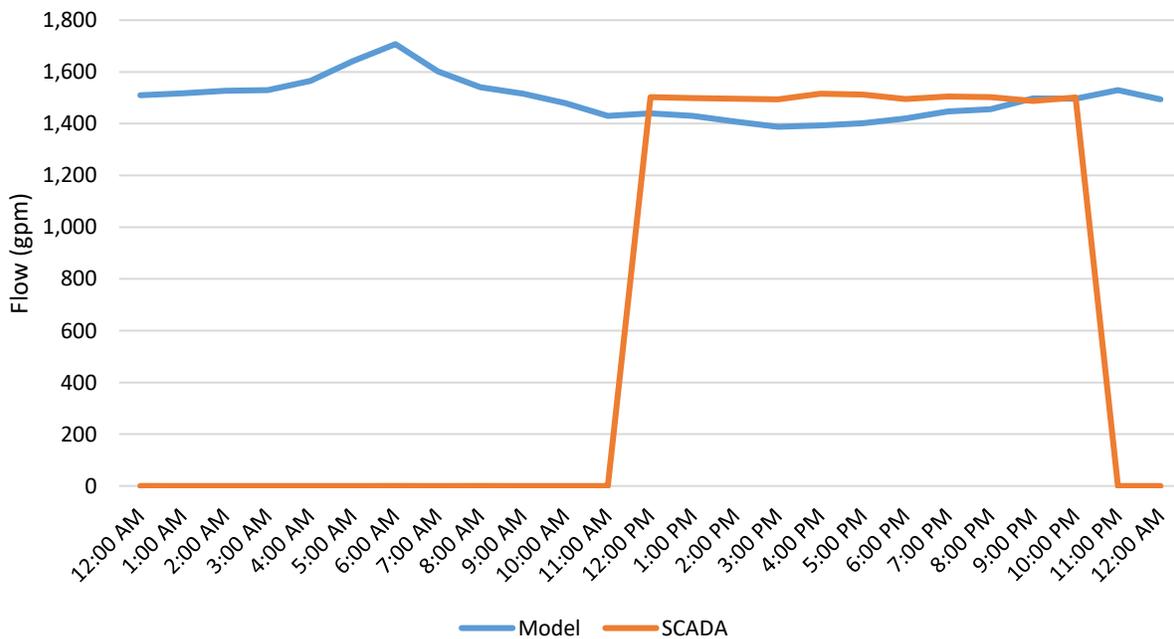
400 South Well #2



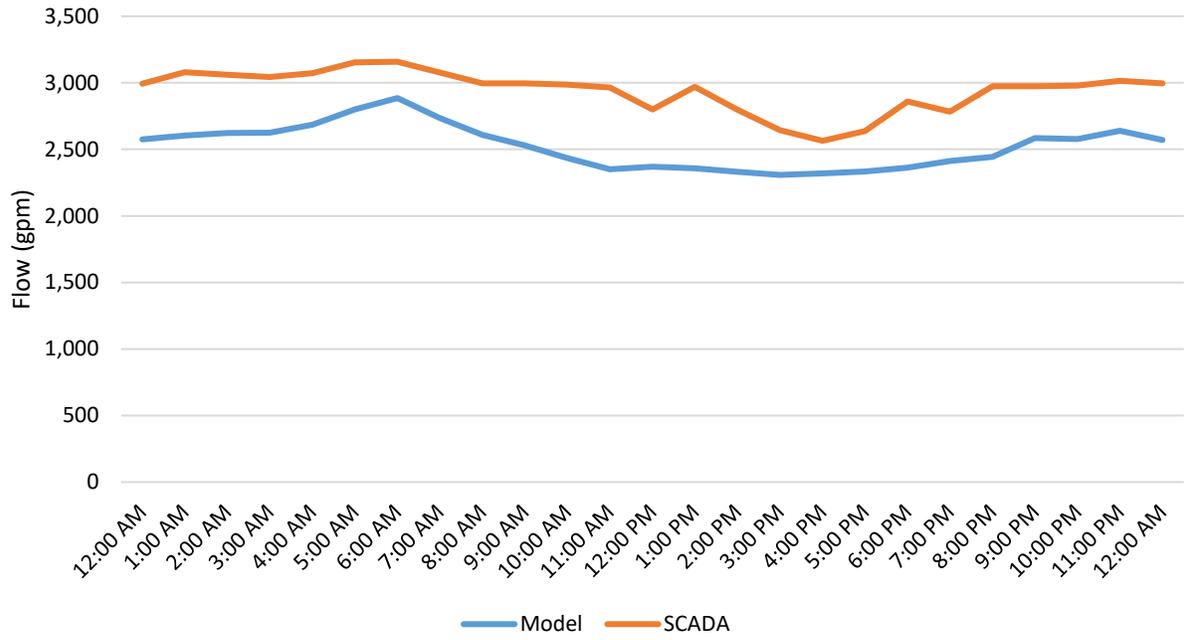
200 North Well



Canyon Road Well



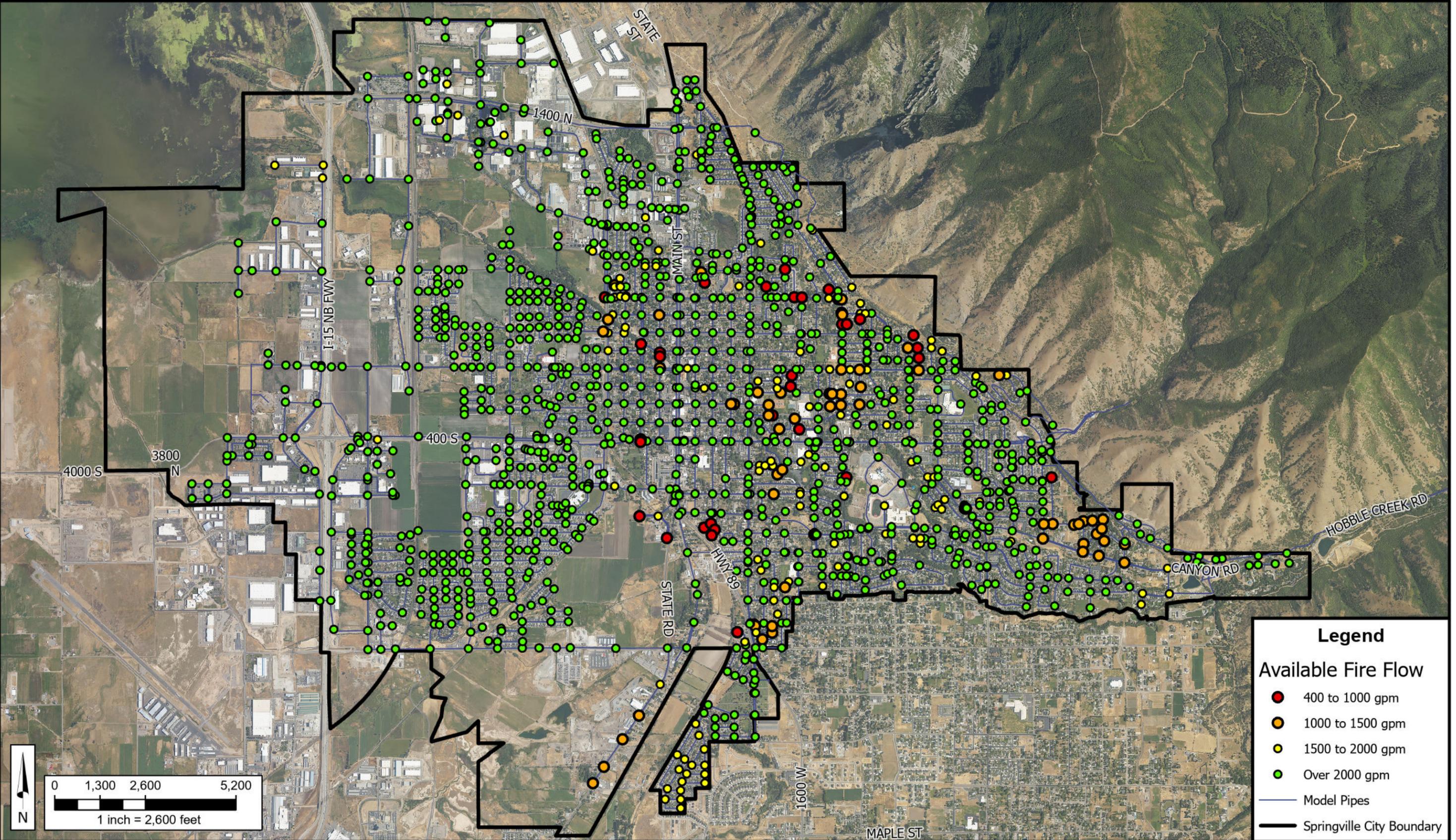
900 South Well



APPENDIX C

Available Fire Flow





Legend

Available Fire Flow

- 400 to 1000 gpm
- 1000 to 1500 gpm
- 1500 to 2000 gpm
- Over 2000 gpm
- Model Pipes
- Springville City Boundary

APPENDIX D

Unit Costs



Springville City Drinking Water Master Plan - Capital Facility Plan Project Cost Estimates

Springville City
by Hansen, Allen & Luce, Inc.

AACE Class: 5

Parts of Project 10-6 have already been constructed. The costs shown for these projects reflect the bid or reimbursement agreement amounts provided by the City.
10-6: Reimbursement agreement - Center Street culinary water lines

Scenario	Project ID	Item Type	Location/Description	Diameter	Quantity	Rounded Quantity	Units	Unit Cost	Base Cost	Contingency (20%)	Engineering (10%)	Project Total Cost	Project Total Cost Rounded	Impact Fee Eligible Cost	Impact Fee Eligible Cost Rounded	% Impact Fee Eligible
DW Project 10-1																
10-Year	10-1	Pipe	16-inch diameter pipe		1290	1300	LF	\$ 370	\$ 481,000	\$ 96,200	\$ 48,100	\$ 625,300	\$ 626,000	\$ 625,300	\$ 626,000	100%
10-Year	10-1	Well	New well on 9th S		1	1	LF	\$ 3,000,000	\$ 3,000,000	\$ 600,000	\$ 300,000	\$ 3,900,000	\$ 3,900,000	\$ 3,900,000	\$ 3,900,000	100%
10-Year	10-1	Well House	Well House for new well on 9th S		1	1	LF	\$ 3,000,000	\$ 3,000,000	\$ 600,000	\$ 300,000	\$ 3,900,000	\$ 3,900,000	\$ 3,900,000	\$ 3,900,000	100%
												DW Project 10-1 Total	\$ 8,430,000	10-1 Total	\$ 8,430,000	100%
DW Project 10-2																
10-Year	10-2	Pipe	10-inch diameter pipe		64	70	LF	\$ 290	\$ 20,300	\$ 4,060	\$ 2,030	\$ 26,390	\$ 27,000	\$ 26,390	\$ 27,000	100%
10-Year	10-2	Pipe	16-inch diameter pipe		559	560	LF	\$ 370	\$ 207,200	\$ 41,440	\$ 20,720	\$ 269,360	\$ 270,000	\$ 269,360	\$ 270,000	100%
10-Year	10-2	Pipe	18-inch diameter pipe		4007	4010	LF	\$ 400	\$ 1,604,000	\$ 320,800	\$ 160,400	\$ 2,085,200	\$ 2,086,000	\$ 2,085,200	\$ 2,086,000	100%
10-Year	10-2	Bore-10	Bore (2) 10-inch diameter pipes across railroad (100')		200	200	LF	\$ 2,400	\$ 480,000	\$ 96,000	\$ 48,000	\$ 624,000	\$ 624,000	\$ 624,000	\$ 624,000	100%
10-Year	10-2	Bore-18	Bore 18-inch diameter pipe across (2) canals (40')		80	80	LF	\$ 4,200	\$ 336,000	\$ 67,200	\$ 33,600	\$ 436,800	\$ 437,000	\$ 436,800	\$ 437,000	100%
												DW Project 10-2 Total	\$ 3,450,000	10-2 Total	\$ 3,450,000	100%
DW Project 10-3																
10-Year	10-3	Pipe	12-inch diameter pipe		1683	1690	LF	\$ 320	\$ 540,800	\$ 108,160	\$ 54,080	\$ 703,040	\$ 704,000	\$ 703,040	\$ 704,000	100%
10-Year	10-3	UDOT	UDOT ROW (SR 51)		1	1	LS	10% project	\$ 54,080	\$ 10,816	\$ 5,408	\$ 70,304	\$ 71,000	\$ 70,304	\$ 71,000	100%
												DW Project 10-3 Total	\$ 780,000	10-3 Total	\$ 780,000	100%
DW Project 10-4																
10-Year	10-4	Pipe	12-inch diameter pipe		2517	2520	LF	\$ 320	\$ 806,400	\$ 161,280	\$ 80,640	\$ 1,048,320	\$ 1,049,000	\$ 1,048,320	\$ 1,049,000	100%
10-Year	10-4	UDOT	UDOT ROW (SR 51)		1	1	LS	10% project	\$ 80,640	\$ 16,128	\$ 8,064	\$ 104,832	\$ 105,000	\$ 104,832	\$ 105,000	100%
												DW Project 10-4 Total	\$ 1,160,000	10-4 Total	\$ 1,160,000	100%
DW Project 10-5																
10-Year	10-5	Pipe	10-inch diameter pipe		696	700	LF	\$ 290	\$ 203,000	\$ 40,600	\$ 20,300	\$ 263,900	\$ 264,000	\$ -	\$ -	0%
10-Year	10-5	Pipe	12-inch diameter pipe		6060	6060	LF	\$ 320	\$ 1,939,200	\$ 387,840	\$ 193,920	\$ 2,520,960	\$ 2,521,000	\$ 236,340	\$ 237,000	9%
10-Year	10-5	Bore-12	Bore 12-inch diameter pipe under I-15 (350')		350	350	LF	\$ 3,000	\$ 1,050,000	\$ 210,000	\$ 105,000	\$ 1,365,000	\$ 1,365,000	\$ 273,000	\$ 273,000	20%
												DW Project 10-5 Total	\$ 4,150,000	10-5 Total	\$ 510,000	12%
DW Project 10-6 (Center Street culinary water lines, portion constructed)																
10-Year	10-6	Pipe	16-inch diameter pipe (constructed)		1100	(-)	(-)	(-)	(-)	(-)	(-)	\$ 107,670	\$ 108,000	\$ 107,670	\$ 108,000	100%
10-Year	10-6	Pipe	16-inch diameter pipe		489	490	LF	\$ 370	\$ 181,300	\$ 36,260	\$ 18,130	\$ 235,690	\$ 236,000	\$ 50,960	\$ 51,000	22%
												DW Project 10-6 Total	\$ 350,000	10-6 Total	\$ 160,000	46%
															\$ 60,000	
DW Project 10-7																
10-Year	10-7	Pipe	12-inch diameter pipe		1365	1370	LF	\$ 320	\$ 438,400	\$ 87,680	\$ 43,840	\$ 569,920	\$ 570,000	\$ 53,430	\$ 54,000	9%
10-Year	10-7	Bore-12	Bore 12-inch diameter pipe across canal (40')		40	40	LF	\$ 3,000	\$ 120,000	\$ 24,000	\$ 12,000	\$ 156,000	\$ 156,000	\$ 31,200	\$ 32,000	20%
												DW Project 10-7 Total	\$ 730,000	10-7 Total	\$ 90,000	12%
DW Project 10-8																
10-Year	10-8	Pipe	10-inch diameter pipe		699	700	LF	\$ 290	\$ 203,000	\$ 40,600	\$ 20,300	\$ 263,900	\$ 264,000	\$ 18,200	\$ 19,000	7%
10-Year	10-8	Bore-10	Bore 10-inch diameter pipe across canal (40')		40	40	LF	\$ 2,400	\$ 96,000	\$ 19,200	\$ 9,600	\$ 124,800	\$ 125,000	\$ 20,800	\$ 21,000	17%
												DW Project 10-8 Total	\$ 390,000	10-8 Total	\$ 40,000	10%
DW Project 10-9																
10-Year	10-9	Pipe	12-inch diameter pipe		642	650	LF	\$ 320	\$ 208,000	\$ 41,600	\$ 20,800	\$ 270,400	\$ 271,000	\$ 42,250	\$ 43,000	16%
												DW Project 10-9 Total	\$ 280,000	10-9 Total	\$ 50,000	16%
DW Project 10-10																
10-Year	10-10	Pipe	10-inch diameter pipe		1380	1380	LF	\$ 290	\$ 400,200	\$ 80,040	\$ 40,020	\$ 520,260	\$ 521,000	\$ 35,880	\$ 36,000	7%
10-Year	10-10	Pipe	12-inch diameter pipe		1315	1320	LF	\$ 320	\$ 422,400	\$ 84,480	\$ 42,240	\$ 549,120	\$ 550,000	\$ 85,800	\$ 86,000	16%
10-Year	10-10	Bore-10	Bore 10-inch diameter pipe across canal (40')		40	40	LF	\$ 2,400	\$ 96,000	\$ 19,200	\$ 9,600	\$ 124,800	\$ 125,000	\$ 20,800	\$ 21,000	17%
												DW Project 10-10 Total	\$ 1,200,000	10-10 Total	\$ 150,000	12%
DW Project 10-11																
10-Year	10-11	Pipe	12-inch diameter pipe		3520	3520	LF	\$ 320	\$ 1,126,400	\$ 225,280	\$ 112,640	\$ 1,464,320	\$ 1,465,000	\$ -	\$ -	0%
												DW Project 10-11 Total	\$ 1,470,000	10-11 Total	\$ -	0%
DW Project 20-1																
20-Year	20-1	Pipe	16-inch diameter pipe		152	160	LF	\$ 370	\$ 59,200	\$ 11,840	\$ 5,920	\$ 76,960	\$ 77,000	\$ 76,960	\$ 77,000	100%
20-Year	20-1	Pipe	24-inch diameter pipe		12607	12610	LF	\$ 510	\$ 6,431,100	\$ 1,286,220	\$ 643,110	\$ 8,360,430	\$ 8,361,000	\$ 8,360,430	\$ 8,361,000	100%
20-Year	20-1	Tank	3 MG Tank		3	3	MG	\$ 2,000,000	\$ 6,000,000	\$ 1,200,000	\$ 600,000	\$ 7,800,000	\$ 7,800,000	\$ 7,800,000	\$ 7,800,000	100%
20-Year	20-1	PSV-16	16-inch pressure sustaining valve		1	1	LF	\$ 400,000	\$ 400,000	\$ 80,000	\$ 40,000	\$ 520,000	\$ 520,000	\$ 520,000	\$ 520,000	100%
20-Year	20-1	PSV-16	16-inch pressure sustaining valve		1	1	LF	\$ 400,000	\$ 400,000	\$ 80,000	\$ 40,000	\$ 520,000	\$ 520,000	\$ 520,000	\$ 520,000	100%
20-Year	20-1	Bore-24	Bore 24-inch diameter pipe across (2) railroads (100')		200	200	LF	\$ 6,000	\$ 1,200,000	\$ 240,000	\$ 120,000	\$ 1,560,000	\$ 1,560,000	\$ 1,560,000	\$ 1,560,000	100%
												DW Project 20-1 Total	\$ 18,840,000	20-1 Total	\$ 18,840,000	100%
DW Project 20-2																
20-Year	20-2	Pipe	18-inch diameter pipe		544	550	LF	\$ 400	\$ 220,000	\$ 44,000	\$ 22,000	\$ 286,000	\$ 286,000	\$ 286,000	\$ 286,000	100%
20-Year	20-2	Bore-18	Bore 18-inch diameter pipe across canal (40')		40	40	LF	\$ 4,200	\$ 168,000	\$ 33,600	\$ 16,800	\$ 218,400	\$ 219,000	\$ 218,400	\$ 219,000	100%
												DW Project 20-2 Total	\$ 510,000	20-2 Total	\$ 510,000	100%
DW Project 20-3																
20-Year	20-3	Pipe	10-inch diameter pipe		3407	3410	LF	\$ 290	\$ 988,900	\$ 197,780	\$ 98,890	\$ 1,285,570	\$ 1,286,000	\$ -	\$ -	0%
20-Year	20-3	Pipe	12-inch diameter pipe		1112	1120	LF	\$ 320	\$ 358,400	\$ 71,680	\$ 35,840	\$ 465,920	\$ 466,000	\$ 43,680	\$ 44,000	9%
												DW Project 20-3 Total	\$ 1,760,000	20-3 Total	\$ 50,000	2%
DW Project 20-4																
20-Year	20-4	Pipe	10-inch diameter pipe		2714	2720	LF	\$ 290	\$ 788,800	\$ 157,760	\$ 78,880	\$ 1,025,440	\$ 1,026,000	\$ -	\$ -	0%
20-Year	20-4	Pipe	12-inch diameter pipe		1229	1230	LF	\$ 320	\$ 393,600	\$ 78,720	\$ 39,360	\$ 511,680	\$ 512,000	\$ 47,970	\$ 48,000	9%
20-Year	20-4	Bore-12	Bore 12-inch diameter pipe across railroad (300')		300	300	LF	\$ 3,000	\$ 900,000	\$ 180,000	\$ 90,000	\$ 1,170,000	\$ 1,170,000	\$ 234,000	\$ 234,000	20%
20-Year	20-4	Bore-12	Bore 12-inch diameter pipe across canal (40')		40	40	LF	\$ 3,000	\$ 120,000	\$ 24,000	\$ 12,000	\$ 156,000	\$ 156,000	\$ 31,200	\$ 32,000	20%
												DW Project 20-4 Total	\$ 2,870,000	20-4 Total	\$ 320,000	11%

Springville City Drinking Water Master Plan - Capital Facility Plan Project Cost Estimates

Springville City
by Hansen, Allen & Luce, Inc.

DRAFT

AACE Class: 5

Parts of Project 10-6 have already been constructed. The costs shown for these projects reflect the bid or reimbursement agreement amounts provided by the City.
10-6: Reimbursement agreement - Center Street culinary water lines

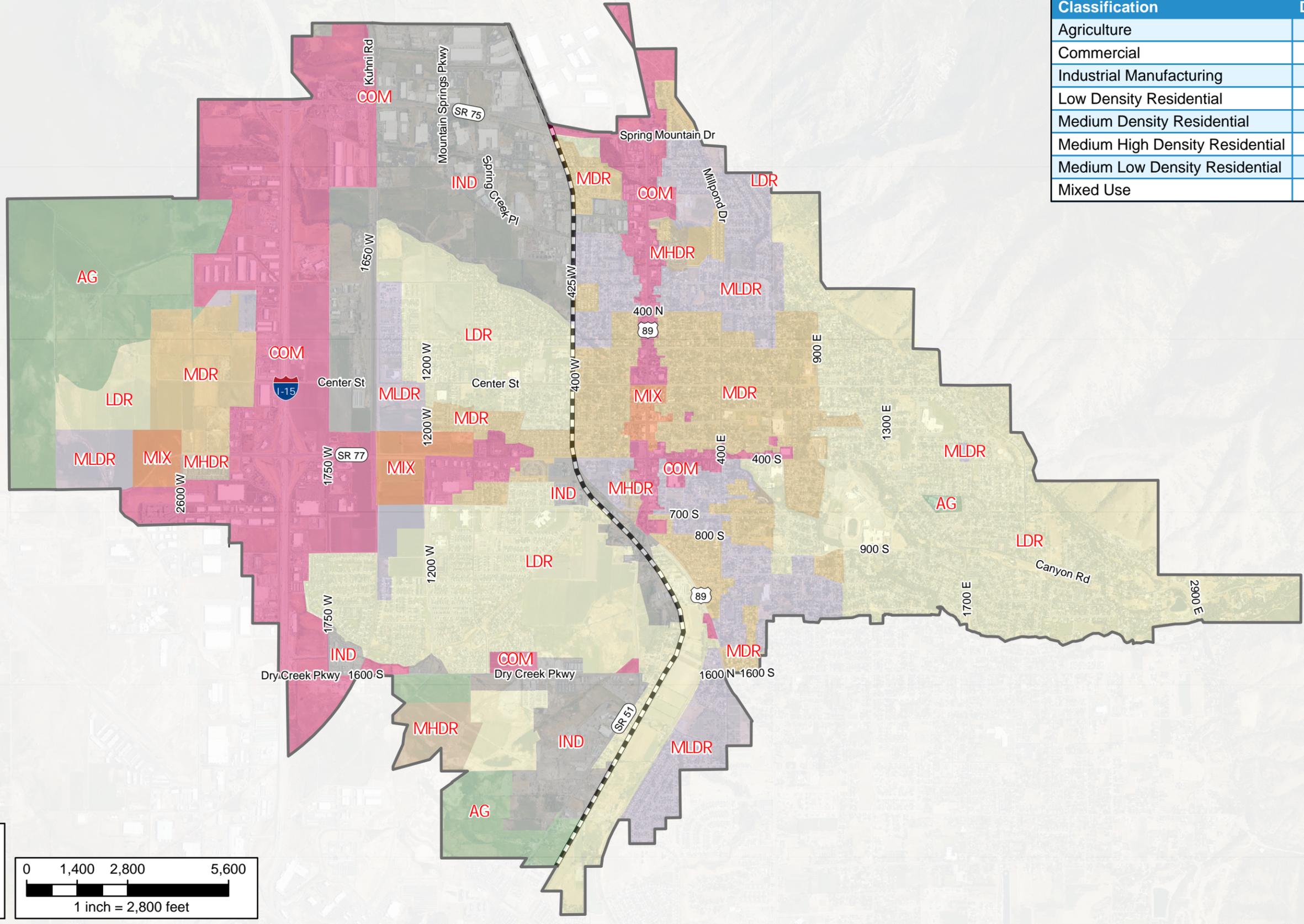
Scenario	Project ID	Item Type	Location/Description	Diameter	Quantity	Rounded Quantity	Units	Unit Cost	Base Cost	Contingency (20%)	Engineering (10%)	Project Total Cost	Project Total Cost Rounded	Impact Fee Eligible Cost	Impact Fee Eligible Cost Rounded	% Impact Fee Eligible
DW Project 20-5																
20-Year	20-5	Pipe	10-inch diameter pipe	10	982	990	LF	\$ 290	\$ 287,100	\$ 57,420	\$ 28,710	\$ 373,230	\$ 374,000	\$ -	\$ -	0%
DW Project 20-5 Total													\$ 380,000	20-5 Total	\$ -	0%
DW Project 20-6																
20-Year	20-6	Pipe	10-inch diameter pipe	10	1352	1360	LF	\$ 290	\$ 394,400	\$ 78,880	\$ 39,440	\$ 512,720	\$ 513,000	\$ -	\$ -	0%
20-Year	20-6	Pipe	12-inch diameter pipe	12	1297	1300	LF	\$ 320	\$ 416,000	\$ 83,200	\$ 41,600	\$ 540,800	\$ 541,000	\$ 50,700	\$ 51,000	9%
20-Year	20-6	Bore-12	Bore 12-inch diameter pipe across railroad (300')	12	300	300	LF	\$ 3,000	\$ 900,000	\$ 180,000	\$ 90,000	\$ 1,170,000	\$ 1,170,000	\$ 234,000	\$ 234,000	20%
DW Project 20-6 Total													\$ 2,230,000	20-6 Total	\$ 290,000	13%
DW Project 20-7																
20-Year	20-7	Pipe	12-inch diameter pipe	12	318	320	LF	\$ 320	\$ 102,400	\$ 20,480	\$ 10,240	\$ 133,120	\$ 134,000	\$ 12,480	\$ 13,000	9%
20-Year	20-7	Bore-12	Bore 12-inch diameter pipe across canal (40')	12	40	40	LF	\$ 3,000	\$ 120,000	\$ 24,000	\$ 12,000	\$ 156,000	\$ 156,000	\$ 31,200	\$ 32,000	20%
DW Project 20-7 Total													\$ 290,000	20-7 Total	\$ 50,000	15%
DW Project 20-8																
20-Year	20-8	Pipe	12-inch diameter pipe	12	705	710	LF	\$ 320	\$ 227,200	\$ 45,440	\$ 22,720	\$ 295,360	\$ 296,000	\$ 46,150	\$ 47,000	16%
DW Project 20-8 Total													\$ 300,000	20-8 Total	\$ 50,000	16%
Totals															Impact Fee Eligible	
10-Year													\$ 22,390,000	10-Year	\$ 14,820,000	66%
20-Year													\$ 27,180,000	20-Year	\$ 20,110,000	74%
Total													\$ 49,570,000	Total	\$ 34,930,000	70%

APPENDIX E

Future Growth Projections

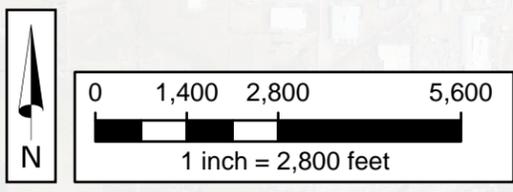


Classification	Density (ERC/Acre)	Irrigation Factor
Agriculture	10	30%
Commercial	5	15%
Industrial Manufacturing	3	10%
Low Density Residential	3	37%
Medium Density Residential	10	40%
Medium High Density Residential	15	34%
Medium Low Density Residential	5	38%
Mixed Use	5	39%



Legend

- Annexation Boundary
- Eastern PI Zone Boundary
- Agricultural
- Commercial
- Industrial Manufacturing
- Low Density Residential
- Medium Density Residential
- Medium High Density Residential
- Medium Low Density Residential
- Mixed Use



SPRINGVILLE CITY DRINKING WATER SYSTEM MASTER PLAN

FUTURE GROWTH PROJECTIONS

APPENDIX F

Checklist for Hydraulic Model Design Elements Report



Hydraulic Analysis Certification for DDW Project

This portion of the Hydraulic Analysis Certification must be completed and sealed by a Professional Engineer. It certifies that the project's hydraulic modeling and analysis comply with Utah Administrative Rules R309. Note: This certification is not required on a project that is only installing water lines up to and including 16 inches in diameter and if the system has approved standards per R309-500-7(1).

PE in charge of Hydraulic Model of this Project _____

State of Utah P.E. License No. _____

Signature _____

Date _____

I hereby certify that the hydraulic modeling analysis for:

Project Name _____

Hydraulic Modeling Software and Version Used _____

Water System Name _____

Water System Number _____

DDW File Number _____

meets all requirements as set forth in *R309-511 (Hydraulic Modeling Rule)* and complies with the provisions thereof, as well as the sizing requirements of *R309-510*, and the minimum water pressures of *R309-105-9*. Where applicable the proposed additions to the distribution system will not cause the pressures at any new or existing connections to be less than those specified in *R309-105-9*. The model is sufficiently calibrated and accurate to represent the conditions within this water system. The velocities in the model are not excessive and are within industry standards.

This portion of the Hydraulic Analysis Certification must be completed by the P.E. designated to oversee the system's hydraulic model.

P.E. Designated to Oversee System's Hydraulic Model _____

Signature concurring with incorporation of this project's hydraulic model into system's master hydraulic model _____

Date _____

HYDRAULIC MODEL DESIGN ELEMENTS & SYSTEM CAPACITY EXPANSION REPORT

HYDRAULIC ANALYSIS CERTIFICATION

I hereby certify that the hydraulic modeling analysis for:

Springville City Drinking Water Master Plan and Capital Improvement Plan

(Project Name or Description)

Springville City Water Department (Culinary)
(Water System Name)

25005
(Water System Number)

(DDW File Number, If Available)

Meets all requirements as set forth in *R309-511 (Hydraulic Modeling Requirements)* and complies with the provisions thereof, as well as the sizing requirements of *R309-510*, and the minimum water pressures of *R309-105-9*. Where applicable the proposed additions to the distribution system will not cause the pressures at any new or existing connections to be less than those specified in *R309-105-9*. The model is sufficiently calibrated and accurate to represent the conditions within this water system. The velocities in the model are not excessive and are within industry standards. The hydraulic modeling method is [e.g., use of computer software or hand calculations], and the computer software used was [software name and version].

Signature _____

Print Name _____

State of Utah P.E. License No. _____

Date _____

APPENDIX

CHECKLIST FOR HYDRAULIC MODEL DESIGN ELEMENTS REPORT

The hydraulic model checklist below identifies the components included in the Hydraulic Model Design Elements Report for

Springville City Drinking Water Master Plan and Capital Improvement Plan
(Project Name or Description)

25005
(Water System Number)

Springville City Water Department (Culinary)
(Water System Name)

November 4, 2025
(Date)

The checkmarks and/or P.E. initials after each item indicate the conditions supporting P.E. Certification of this Report.

1. The Report contains:

(a) A listing of sources including: the source name, the source type (i.e., well, spring, reservoir, stream etc.) for both existing sources and additional sources identified as needed for system expansion, the minimum reliable flow of the source in gallons per minute, the status of the water right and the flow capacity of the water right. [R309-110-4 "Master Plan" definition] _____

(b) A listing of storage facilities including: the storage tank name, the type of material (i.e., steel, concrete etc.), the diameter, the total volume in gallons, and the elevation of the overflow, the lowest level (elevation) of the equalization volume, the fire suppression volume, and the emergency volume or the outlet. [R309-110-4 "Master Plan" definition] _____

(c) A listing of pump stations including: the pump station name and the pumping capacity in gallons per minute. Under this requirement one does not need to list well pump stations as they are provided in requirement (a) above. [R309-110-4 "Master Plan" definition] _____

(d) A listing of the various pipeline sizes within the distribution system with their associated pipe materials and, if readily available, the approximate length of pipe in each size and material category. A schematic of the distribution piping showing

node points, elevations, length and size of lines, pressure zones, demands, and coefficients used for the hydraulic analysis required by (h) below will suffice.

[R309-110-4 "Master Plan" definition] _____

(e) A listing by customer type (i.e., single family residence, 40 unit condominium complex, elementary school, junior high school, high school, hospital, post office, industry, commercial etc.) along with an assessment of their associated number of ERCs. [R309-110-4 "Master Plan" definition] _____

(f) The number of connections along with their associated ERC value that the public drinking water system is committed to serve, but has not yet physically connected to the infrastructure. [R309-110-4 "Master Plan" definition] _____

(g) A description of the nature and extent of the area currently served by the water system and a plan of action to control addition of new service connections or expansion of the public drinking water system to serve new development(s). The plan shall include current number of service connections and water usage as well as land use projections and forecasts of future water usage. [R309-110-4 "Master Plan" definition] _____

(h) A hydraulic analysis of the existing distribution system along with any proposed distribution system expansion identified in (g) above. [R309-110-4 "Master Plan" definition] _____

(i) A description of potential alternatives to manage system growth, including interconnections with other existing public drinking water systems, developer responsibilities and requirements, water rights issues, source and storage capacity issues and distribution issues. [R309-110-4 "Master Plan" definition] _____

2. At least 80% of the total pipe lengths in the distribution system affected by the proposed project are included in the model. [R309-511-5(1)] _____

3. 100% of the flow in the distribution system affected by the proposed project is included in the model. If customer usage in the system is metered, water demand allocations in the model account for at least 80% of the flow delivered by the distribution system affected by the proposed project. [R309-511-5(2)] _____

4. All 8-inch diameter and larger pipes are included in the model. Pipes smaller than 8-inch diameter are also included if they connect pressure zones, storage facilities, major demand areas, pumps, and control valves, or if they are known or expected to be significant conveyers of water such as fire suppression demand. [R309-511-5(3)] _____

5. All pipes serving areas at higher elevations, dead ends, remote areas of a distribution system, and areas with known under-sized pipelines are included in the model. [R309-511-5(4)] _____

6. All storage facilities and accompanying controls or settings applied to govern the open/closed status of the facility for standard operations are included in the model. [R309-511-5(5)] _____

7. Any applicable pump stations, drivers (constant or variable speed), and accompanying controls and settings applied to govern their on/off/speed status for various operating conditions and drivers are included in the model. [R309-511-5(6)] _____

8. Any control valves or other system features that could significantly affect the flow of water through the distribution system (i.e. interconnections with other systems, pressure reducing valves between pressure zones) for various operating conditions are included in the model. [R309-511-5(7)] _____

9. Imposed peak day and peak instantaneous demands to the water system's facilities are included in the model. The Hydraulic Model Design Elements Report explains which of the Rule-recognized standards for peak day and peak instantaneous demands are implemented in the model (i.e., (i) peak day and peak instantaneous demand values per R309-510, *Minimum Sizing Requirements*, (ii) reduced peak day and peak instantaneous demand values approved by the Director per R309-510-5, *Reduction of Sizing Requirements*, or (iii) peak day and peak instantaneous demand values expected by the water system in excess of the values in R309-510, *Minimum Sizing Requirements*). The Hydraulic Model Design Elements Report explains the multiple model simulations to account for the varying water demand conditions, or it clearly explains why such simulations are not included in the model. The Hydraulic Model Design Elements Report explains the extended period simulations in the model needed to evaluate changes in operating conditions over time, or it clearly explains (e.g., in the context of the water system, the extent of anticipated fire event, or the nature of the new expansion) why such simulations are not included in the model. [R309-511-5(8) & R309-511-6(1)(b)] _____

10. The hydraulic model incorporates the appropriate demand requirements as specified in R309-510, *Minimum Sizing Requirements*, and R309-511, *Hydraulic Modeling Requirements*, in the evaluation of various operating conditions of the public drinking water system. The Report includes:
 - the methodology used for calculating demand and allocating it to the model;
 - a summary of pipe length by diameter;

- a hydraulic schematic of the distribution piping showing pressure zones, general pipe connectivity between facilities and pressure zones, storage, elevation, and sources; and
- a list or ranges of values of friction coefficient used in the hydraulic model according to pipe material and condition in the system. In accordance with Rule stipulation, all coefficients of friction used in the hydraulic analysis are consistent with standard practices.

[R309-511-7(4)]

11. The Hydraulic Model Design Elements Report documents the calibration methodology used for the hydraulic model and quantitative summary of the calibration results (i.e., comparison tables or graphs). The hydraulic model is sufficiently accurate to represent conditions likely to be experienced in the water delivery system. The model is calibrated to adequately represent the actual field conditions using field measurements and observations. [R309-511-4(2)(b), R309-511-5(9), R309-511-6(1)(e) & R309-511-7(7)]

12. The Hydraulic Model Design Elements Report includes a statement regarding whether fire hydrants exist within the system. Where fire hydrants are connected to the distribution system, the model incorporates required fire suppression flow standards. The statement that appears in the Report also identifies the local fire authority's name, address, and contact information, as well as the standards for fire flow and duration explicitly adopted from R309-510-9(4), *Fireflow*, or alternatively established by the local fire suppression agency, pursuant to R309-510-9(4), *Fireflow*. The Hydraulic Model Design Elements Report explains if a steady-state model was deemed sufficient for residential fire suppression demand, or acknowledges that significant fire suppression demand warrants extended model simulations and explains the run time used in the simulations for the period of the anticipated fire event. [R309-511-5(10) & R309-511-7(5)]

13. If the public drinking water system provides water for outdoor use, the Report describes the criteria used to estimate this demand. If the irrigation demand map in R309-510-7(3), *Irrigation Use*, is not used, the report provides justification for the alternative demands used in the model. If the irrigation demands are based on the map in R309-510-7(3), *Irrigation Use*, the Report identifies the irrigation zone number, a statement and/or map of how the irrigated acreage is spatially distributed, and the total estimated irrigated acreage. The indicated irrigation demands are used in the model simulations in accordance with Rule stipulation. The model accounts for outdoor water use, such as irrigation, if the drinking water system supplies water for outdoor use. [R309-511-5(11) & R309-511-7(1)]

14. The Report states the total number of connections served by the water system including existing connections and anticipated new connections served by the water system after completion of the construction of the project. [R309-511-7(2)]

15. The Report states the total number of equivalent residential connections (ERC) including both existing connections as well as anticipated new connections associated with the project. In accordance with Rule stipulation, the number of ERC's includes high as well as low volume water users. In accordance with Rule stipulation, the determination of the equivalent residential connections is based on flow requirements using the anticipated demand as outlined in *R309-510, Minimum Sizing Requirements*, or is based on alternative sources of information that are deemed acceptable by the Director. *[R309-511-7(3)]* _____
16. The Report identifies the locations of the lowest pressures within the distribution system, and areas identified by the hydraulic model as not meeting each scenario of the minimum pressure requirements in *R309-105-9, Minimum Water Pressure*. *[R309-511-7(6)]* _____
17. The Hydraulic Model Design Elements Report identifies the hydraulic modeling method, and if computer software was used, the Report identifies the software name and version used. *[R309-511-6(1)(f)]* _____
18. For community water system models, the community water system management has been provided with a copy of input and output data for the hydraulic model with the simulation that shows the worst case results in terms of water system pressure and flow. *[R309-511-6(2)(c)]* _____
19. The hydraulic model predicts that new construction will not result in any service connection within the new expansion area not meeting the minimum distribution system pressures as specified in *R309-105-9, Minimum Water Pressure*. *[R309-511-6(1)(c)]* _____
20. The hydraulic model predicts that new construction will not decrease the pressures within the existing water system such that the minimum pressures as specified in *R309-105-9, Minimum Water Pressure* are not met. *[R309-511-6(1)(d)]* _____
21. The velocities in the model are not excessive and are within industry standards. _____

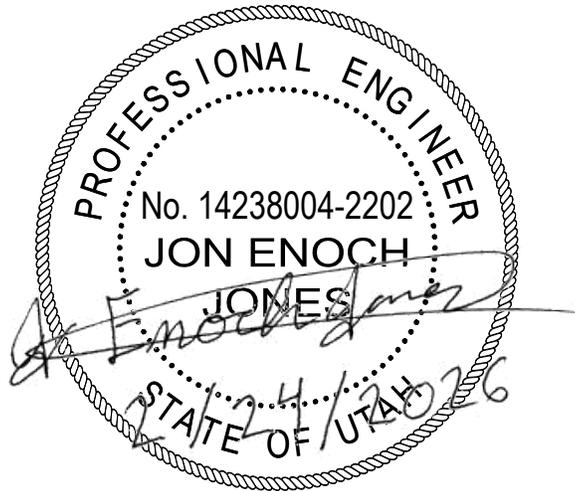


**DRINKING WATER SYSTEM
IMPACT FEE FACILITY PLAN AND
IMPACT FEE ANALYSIS**

(HAL Project No.: 260.62.100)

SPRINGVILLE CITY
DRINKING WATER
IMPACT FEE FACILITY PLAN AND
IMPACT FEE ANALYSIS

(HAL Project No.:260.62.200)



J. Enoch Jones, P.E.

Project Engineer



FEBRUARY 2026

IMPACT FEE CERTIFICATION

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

IFFP Certification

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

1. includes only the costs of public facilities that are:
 - a. allowed under the Impact Fees Act; and
 - b. actually incurred; or
 - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
 - a. costs of operation and maintenance of public facilities;
 - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents;
 - c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement; and
3. complies in each and every relevant respect with the Impact Fees Act.

HANSEN, ALLEN & LUCE, INC.

IFA Certification

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

1. includes only the costs of public facilities that are:
 - a. allowed under the Impact Fees Act; and
 - b. actually incurred; or
 - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. does not include:
 - a. costs of operation and maintenance of public facilities;
 - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents;
 - c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement;
 - d. costs with grants or other alternate sources of payment; and
3. complies in each and every relevant respect with the Impact Fees Act.

HANSEN, ALLEN & LUCE, INC.

TABLE OF CONTENTS

Page No

IMPACT FEE SUMMARYiv

SECTION 1 – INTRODUCTION

1.1 Background1-1
1.2 Purpose1-1
1.3 Impact Fee Collection1-1
1.4 Master Planning1-2

SECTION 2 – SYSTEM DEMAND AND CAPACITY

2.1 General2-1
2.2 Existing Equivalent Residential Connections and Irrigated Acreage2-1
2.3 Level of Service2-1
2.4 Methodology Used to Determine Existing System Capacity2-2
2.5 Water Source & Remaining Capacity2-2
2.6 Storage Facilities & Remaining Capacity2-4
2.7 Distribution System2-5

SECTION 3 – IMPACT FEE FACILITY PLAN AND ANALYSIS

3.1 General 3-1
3.2 Growth Projections 3-1
3.3 Cost of Existing and Future Drinking Water Facilities3-2
3.4 Impact Fee Unit Calculation3-5
3.5 Total Impact Fee Calculation3-9
3.6 Revenue Options3-11

Appendix A: Information from the Drinking Water Master Plan

Appendix B: Cost of Existing Infrastructure

Appendix C: Estimated Future Project Costs

LIST OF FIGURES

Figure 3-1: Areas of Projected Growth After 3-1

LIST OF TABLES

Table S-1: Proposed Impact Fee by Component.....	v
Table 2-1: Demand on and Capacity of Existing Drinking Water Sources	2-3
Table 2-2: Summary of Source Demand and Capacity	2-3
Table 2-3: Demand on and Capacity of Existing Water Storage	2-4
Table 3-1: Growth Projections over Next 10 Years	3-1
Table 3-2: Type and Cost of Existing Facilities	3-2
Table 3-3: Impact Fee Eligible Cost of Existing Facilities	3-3
Table 3-4: Estimated Impact Fee-Eligible Cost of Future Facilities	3-4
Table 3-5: Source Impact Fee Unit Calculation.....	3-5
Table 3-6: Source Cost by Time Period	3-5
Table 3-7: Storage Impact Fee Unit Calculation.....	3-6
Table 3-8: Storage Cost by Time Period	3-6
Table 3-9: Distribution Impact Fee Unit Calculation	3-7
Table 3-10: Distribution Cost by Time Period.....	3-7
Table 3-11: Planning Component of Impact Fee.....	3-8
Table 3-12: Planning Cost by Time Period.....	3-8
Table 3-13: Total Proposed Impact Fee.....	3-9
Table 3-14: Proposed Impact Fee per Typical Residential Unit.....	3-9
Table 3-15: Springville City Drinking Water Indoor Impact Fee Based on Meter Size	3-10
Table 3-16: Facility Cost by Time Period	3-10

IMPACT FEE SUMMARY

The impact fees for the Springville drinking water system were last updated in 2024. The Drinking Water System Master Plan has recently been updated in 2025. Construction costs continue to rise due to a number of factors, including material shortages, labor shortages, and supply chain constraints. To incorporate the master plan update and account for rising construction costs, Springville City commissioned this impact fee update.

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

The impact fee **service area** is the current Springville City municipal boundary, and future areas anticipated to be annexed into the city.

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

1.1 Water Supply

- Peak Day Indoor Source Capacity: 260 gallons per day per equivalent residential connection (gpd/ERC)
- Indoor Source Volume: 0.30 acre-feet/ERC (Annual Demand)
- Indoor Storage Capacity: 230 Gallons/ERC
- Peak Day Outdoor Source Capacity: 12,240 gallons per day per irrigated acre
- Outdoor Source Volume: 4.0 acre-feet per irrigated acre (Annual Demand)
- Distribution Capacity: 50 pounds per square inch (psi) minimum pressure during peak day demand conditions and 30 psi minimum pressure during peak instantaneous conditions

1.2 Fire Suppression

- Minimum Fire Flow: 1,000 gpm for 2 hours, east of 400 W (120,000 gallons fire suppression storage); 1,500 gpm for 2 hours, west of 400 W (180,000 gallons fire suppression storage); 2,000 gpm at 20 psi for 2 hours, nonresidential connections (240,000 gallons fire suppression storage)
- Minimum Pressure: 20 psi residual during peak day + fire flow event

The existing system served about 20,794 equivalent residential connections at the end of 2025. Projected **growth** adds 4,452 equivalent residential connections in the next 10 years for a total of 25,246 equivalent residential connections.

The costs calculated for the capacity required for growth in the next 10 years come from the new projects required entirely to provide capacity for new development and cost records from existing infrastructure with capacity remaining.

The **drinking water impact fee** is calculated based on the estimated cost of projects required to support future growth. These costs were added together and divided by the number of equivalent residential connections (ERCs) that are projected to be added within the next 10 years.

Components of the proposed impact fee are presented in Table S-1.

**Table S-1
Proposed Impact Fee by Component**

Component	Per Typical Residential Connection (Indoor Use)	Per Irrigated Acre
Source	\$309	\$14,531
Storage	\$496	\$10,833
Distribution	\$413	\$0
Planning	\$49	\$0
Total	\$1,266	\$25,364

SECTION 1 INTRODUCTION

1.1 Background

Springville is located in central Utah County, alongside I-15 and on the southern end of the Provo-Orem metropolitan area. Springville had an estimated population of 36,500 in 2024 as reported by the City. The primary drinking water sources for Springville are springs in Hobbie Creek Canyon and wells in the City.

1.2 Purpose

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

The impact fees for the Springville drinking water system were last updated in 2024. Since that time, the Drinking Water System Master Plan has been updated and construction costs have risen due to a number of factors, including material shortages, labor shortages, and supply chain constraints. To incorporate the master plan update and account for rising construction costs, Springville City commissioned this impact fee update.

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. The Drinking Water Master Plan that was prepared in 2025 was also used to support this analysis. Information from the master plan was updated to characterize existing conditions. The Master Plan identified several growth-related projects needed within the 10-year planning window. Therefore, the calculated impact fee is based on excess capacity and documented historic costs, as well as future capital projects.

1.3 Impact Fee Collection

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

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

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

1.4 Master Planning

A Drinking Water System Master Plan was prepared in 2025 and is incorporated by reference into this analysis. The master plan for the City's drinking water system is more comprehensive than the IFFP and IFA. It provides the basis for the IFFP and IFA and identifies all capital facilities required for the drinking water system inside the 20-year planning range, including maintenance, repair, replacement, and growth-related projects. This updated IFFP and IFA is also based on updated information on actual growth that has occurred since the last report was completed.

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

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

SECTION 2 SYSTEM DEMAND AND CAPACITY

2.1 General

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

Springville's existing drinking water system is comprised of a pipe network, water storage facilities, and water sources. These facilities are found within 9 pressure zones. Figure 1-2 from the City's Drinking Water Master Plan illustrates the existing water system (at the time the master plan was published) and its service area and is included for reference in Appendix A.

2.2 Existing Equivalent Residential Connections and Irrigated Acreage

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

Springville operates a separate pressurized irrigation system that serves some customers on the west side of the City. Customers who are not served by the pressurized irrigation system irrigate from the drinking water system. In these areas, the City considers outdoor water demand in terms of irrigated acres. As impact fees are assessed, the planned irrigated area of the parcel should be determined and multiplied by the impact fee unit cost per irrigated acre.

The City assigns non-residential development an ERC value based on meter size or peak day water consumption.

At the end of 2025, the City was estimated to have 20,794 ERCs and 974 irrigated acres that will always be served exclusively by the drinking water system.

2.3 Level of Service

The City has established a level of service for the Drinking Water System. It establishes the sizing criteria for the City's distribution (pipelines), source, and storage facilities. Details regarding the level of service are included in the Drinking Water System Master Plan. The level of service standards are shown below:

Level of Service

- Indoor Source Capacity: 260 gpd/ERC (Peak Day)
- Indoor Source Volume: 0.30 ac-ft/ERC (Annual Demand)
- Indoor Storage Capacity: 230 Gallons/ERC
- Outdoor Source Capacity: 12,240 gpd/irr-ac (Peak Day)
- Outdoor Source Volume: 4.0 ac-ft/irr-ac (Annual Demand)
- Outdoor Storage Capacity: 6,120 Gallons/irr-ac
- Distribution Capacity: 50 psi minimum during peak day demand conditions and 30 psi minimum during peak instantaneous conditions

Fire Suppression

- Minimum Fire Flow: 1,000 gpm for 2 hours, east of 400 W (120,000 gallons fire suppression storage); 1,500 gpm for 2 hours, west of 400 W (180,000 gallons fire suppression storage); 2,000 gpm at 20 psi for 2 hours, nonresidential connections (240,000 gallons fire suppression storage)
- Minimum Pressure: 20 psi residual during peak day + fire flow event

2.4 Methodology Used to Determine Existing System Capacity

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

2.5 Water Source & Remaining Capacity

Springville's sources of drinking water are springs in Hobble Creek Canyon and wells in the City. Table 2-1 summarizes the information of each source and all sources total remaining capacity.

**Table 2-1
Demand on and Capacity of Existing Drinking Water Sources**

Source^{1, 2}	Available Flow (gpm)	Annual Volume (ac-ft)	Existing Demand (ERCs)	Existing Demand (irr-ac)³	Existing Demand (gpm)⁴	Remaining Capacity (gpm)
Bartholomew Springs	1000	1060	-	-	-	-
Spring Canyon Springs	620	1,080				
Konold Springs	160	230				
Burt Springs	760	220				
200 North Well	2,400	2,770				
400 South Well #1	3,000	3,460				
400 South Well #2	3,900	4,490				
900 South Well	3,000	3,460				
1000 South Well	550	630				
Canyon Road Well	1,500	1,730				
Evergreen Well	350	400				
TOTAL	17,240	19,530	20,794	974	12,033	5,207

1. Well Capacity assumes about half of the year-round flow at the given flow rate which matches the current drinking water right diversion capacity. Actual volume may be limited by demand or hydrologic constraints.
2. Spring capacity is based on average summer flow for each year from 2016 through 2024, using the lowest of those averages.
3. Existing irrigated acres are based on the intended number served by the drinking water system.
4. Peak day demand is calculated based on a level of service basis to reflect historic peak day demands. It assumes that all irrigated area intended to be served by the PI system is served by the PI system.

Because water sources have periods of time when they are not operational, Springville should plan to meet peak day demands with the largest water source (400 South Well #2) out of production. Table 2-2 shows a comparison of the available source and the system demand for peak day and average year, considering redundancy.

**Table 2-2
Summary of Source Demand and Capacity**

Demand Scenario	Demand	Capacity Considering Redundancy	Remaining Capacity
Peak Day (gpm)	12,033	13,340	1,307
Average Yearly (ac-ft/yr)	10,134	15,040	4,906

2.6 Storage Facilities & Remaining Capacity

Springville currently operates nine concrete water storage tanks totaling 15.75 MG. Table 2-3 shows the demand and capacity of each tank. Demands were calculated by applying the level of service to the ERCs served by each tank. The fire flow storage requirements were provided by the Fire Chief as per IFC.

**Table 2-3
Demand on and Capacity of Existing Drinking Water Storage**

Tank	Capacity (MG)	Existing Equalization Demand (MG)	Fire Storage (MG)	Emergency Storage (MG)	Existing Storage Demand (MG)	Remaining Capacity (MG)
Bartholomew	1.5	-	0.24	0.4	-	-
Jurg Springs	0.25		0.12	0.02		
Rotary	2.0		0.3	0.3		
Upper Spring Creek	2.0		0.27	0.1		
Lower Spring Creek 1	1.0		0	0		
Lower Spring Creek 2	2.0		0.06	0.4		
Lower Spring Creek 3	3.0		0.09	0.7		
Hobble Creek 1	2.0		0	0		
Hobble Creek 2	2.0		0.24	0.1		
Totals	15.75	10.74	1.32	2.02	14.08	1.67

2.7 Distribution System

Pipe diameters range from 4 inches to 36 inches, with the majority being 8 inches in diameter. The function of the larger pipes in the system is to fill the storage tanks and meet peak day and fire flow demands. Smaller pipes facilitate local distribution. Figure 1-2 of the Drinking Water Master Plan (included in Appendix A) illustrates the existing distribution pipelines (at the time the master plan was published). A hydraulic model was used to identify areas with existing deficiencies and pipes required for future growth. Costs to fix deficiencies are not impact fee-eligible and are not considered in this report. The model was also used to identify pipes required for future growth. These projects are impact fee-eligible and are discussed further in Chapter 3.

SECTION 3 IMPACT FEE FACILITY PLAN AND ANALYSIS

3.1 General

This section relies on the data presented in the previous sections to calculate a proposed impact fee based on the cost of projects needed to support projected growth.

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

3.2 Growth Projections

The development of impact fees requires growth projections over the next ten years. Growth projections for Springville were made by incorporating the growth rate presented in the Master Plan. Total growth projections for the City through 2035 are summarized in Table 3-1. Most growth in the City is expected to occur where separate pressurized irrigation service is available, though some infill in eastern Springville will result in additional acreage irrigated from the drinking water system.

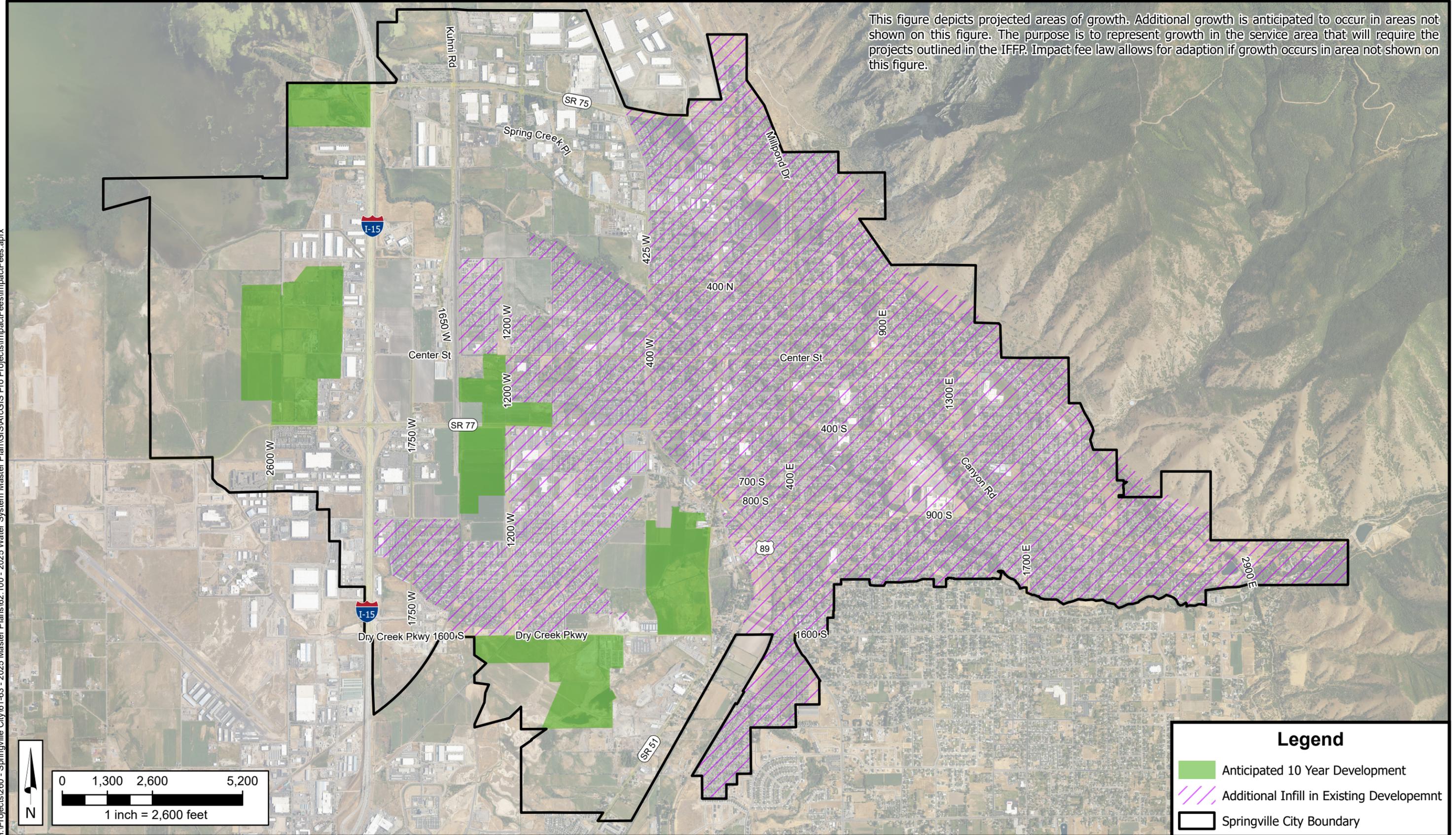
**Table 3-1
Growth Projections Over Next 10 Years**

Year	ERCs	Irrigated Acres¹
2025	20,794	974
2026	21,216	976
2027	21,650	979
2028	22,095	981
2029	22,551	984
2030	23,020	986
2031	23,445	989
2032	23,880	991
2033	24,324	994
2034	24,780	996
2035	25,246	999
10-year Difference	4,452	25

1. Served exclusively by drinking water system

The existing system served about 20,794 ERCs and 974 irrigated acres in 2025. Projected growth adds 4,452 ERCs and 25 irrigated acres in the next 10 years for a total of 25,246 ERCs and 999 irrigated acres. See Figure 3-1 for areas of projected growth.

This figure depicts projected areas of growth. Additional growth is anticipated to occur in areas not shown on this figure. The purpose is to represent growth in the service area that will require the projects outlined in the IFFP. Impact fee law allows for adaption if growth occurs in area not shown on this figure.



Legend

- Anticipated 10 Year Development
- Additional Infill in Existing Development
- Springville City Boundary

Date: 10/30/2025 Document Path: H:\Projects\260 - Springville City\61-63 - 2025 Master Plans\62.100 - 2025 Water System Master Plan\GIS\ArcGIS Pro Projects\ImpactFees\ImpactFees.aprx



**SPRINGVILLE CITY
DRINKING WATER IFFP AND IFA**

PROJECTED 10-YEAR GROWTH AREAS

3.3 Cost of Existing and Future Drinking Water Facilities

Future growth can be served either by excess capacity in existing facilities or by constructing new facilities. The proposed impact fee will be based on both existing capacity and the projected cost of future construction projects.

Costs attributable to existing facilities are shown in Table 3-2. Costs were obtained from City records.

**Table 3-2
Type and Cost of Existing Facilities**

Project	Source	Distribution	Storage	Total
2008 bond improvements	\$0.00	\$2,317,205.10	\$0.00	\$2,317,205.10
400 S pipeline	\$0.00	\$1,383,929.57	\$0.00	\$1,383,929.57
Water line upsizing	\$0.00	\$311,685.03	\$0.00	\$311,685.03
1200 W pipeline	\$0.00	\$64,346.50	\$0.00	\$64,346.50
Lower Spring Creek Tank #3	\$0.00	\$0.00	\$5,310,269.00	\$5,310,269.00
400 South Well #2	\$1,914,941.20	\$0.00	\$0.00	\$1,914,941.20
Total	\$1,914,941.20	\$4,077,166.20	\$5,310,269.00	\$11,302,376.40

1. Records of costs for existing infrastructure can be found in Appendix B.

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

Unit costs for the construction cost estimates are based on conceptual level engineering. Sources used to estimate construction costs include:

1. "Means Heavy Construction Cost Data, 2025"
2. Price quotes from equipment suppliers
3. Recent construction bids for similar work

All costs are presented in 2025 dollars.

Master plan projects are a high-level representation of the infrastructure the City will need to construct to address existing deficiencies or meet future growth needs. However, due to the many unknown factors at this stage of design (such as alignment and depth of pipes, utility conflicts, the cost of land and easements, construction methodology, types of equipment and material to be used, interest and inflation rates, permitting requirements, etc.), there is a significant level of uncertainty in estimated costs. Master plan-level cost estimates can typically

be expected to be accurate within +/- 50% of their actual cost. Prices have been exceptionally volatile from 2020 to 2025 due to supply chain and labor market issues, further complicating attempts to estimate future construction costs.

While detailed cost estimates for all projects are beyond the scope of this study, the intent of planning-level cost estimates is to present reasonable projections of expected project costs. This results in a computed impact fee that is reasonable and fair to both the City and the developer. This is consistent with impact fee law, which requires that the fee must be "roughly proportionate and reasonably related" to the impact caused by new development.

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

Project	Total Cost	% To Growth	Eligible Source Cost	Eligible Distribution Cost	Eligible Storage Cost	Total Eligible Cost
2008 bond improvements	\$2,317,205.10	49.5% ¹	\$0.00	\$1,146,753.94	\$0.00	\$1,146,753.94
400 S pipeline	\$1,383,929.57	49.5% ¹	\$0.00	\$684,888.31	\$0.00	\$684,888.31
Water line upsizing	\$311,685.03	49.5% ¹	\$0.00	\$154,248.77	\$0.00	\$154,248.77
1200 W pipeline	\$64,346.50	49.5% ¹	\$0.00	\$31,844.23	\$0.00	\$31,844.23
Lower Spring Creek Tank #3	\$5,310,269.00	55.7%	\$0.00	\$0.00	\$2,956,049.74	\$2,956,049.74
400 South Well #2	\$1,914,941.20	33.5%	\$641,518.94	\$0.00	\$0.00	\$641,518.94
Total	\$11,302,376.40	-	\$641,518.94	\$2,017,735.25	\$2,956,049.74	\$5,615,303.93

1. Capacity remaining in existing system distribution facilities was conservatively estimated as the difference between the existing ERC count (20,794) and the projected ERC count at distribution system full capacity (41,167).

Future facilities needed to support growth are shown in Table 3-4 and on Figure 4-1 in the Drinking Water Master Plan (which has been included in Appendix A for reference). Estimates for future project costs have been included in Appendix C.

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

**Table 3-4
Estimated Impact Fee-Eligible Cost of Future Facilities**

Project	Map ID ¹	Total Cost	Percent Eligible for Impact Fee ^{2,3}	Eligible Source Cost	Eligible Distribution Cost	Eligible Storage Cost	Total Eligible Cost	Associated Capacity Added	Cost for Development Within 10 Years ³
<ul style="list-style-type: none"> Drill and develop 4,000 gpm well at 900 S Install 1,300 LF 16-inch PVC pipe 	10-1	\$8,430,000.00	100%	\$8,430,000	\$0	\$0	\$8,430,000.00	4,000 gpm	\$1,095,851.51
<ul style="list-style-type: none"> 400 West, 900 South to 1600 South 70 LF 10-inch PVC pipe, 560 LF 16-inch PVC pipe and 4,010 LF 18-inch PVC pipe bored under railroad [cost includes boring] 	10-2	\$3,450,000.00	100%	\$0	\$3,450,000.00	\$0	\$3,450,000.00	20,373 ERCs	\$753,880.38
<ul style="list-style-type: none"> State Street, 700 South to 1060 South 1,690 LF 12-inch PVC pipe across UDOT ROW 	10-3	\$780,000.00	100%	\$0	\$780,000.00	\$0	\$780,000.00	20,373 ERCs	\$170,442.52
<ul style="list-style-type: none"> State Street, 1600 South 870 LF 12-inch PVC pipe across UDOT ROW 	10-4	\$1,160,000.00	100%	\$0	\$1,160,000.00	\$0	\$1,160,000.00	20,373 ERCs	\$253,478.62
<ul style="list-style-type: none"> West of I-15, 1000 North to 1400 North 700 LF 10-inch PVC pipe and 6,060 LF 12-inch PVC pipe bored under I-15 [cost includes boring] 	10-5	\$4,150,000.00	12%	\$0	\$510,000.00	\$0	\$510,000.00	20,373 ERCs	\$111,443.19
<ul style="list-style-type: none"> Center Street, 2250 West to 2400 West 490 LF 16-inch PVC pipe 	10-6	\$350,000.00	46%	\$0	\$160,000.00	\$0	\$160,000.00	20,373 ERCs	\$34,962.57
<ul style="list-style-type: none"> Center Street, 2400 West to 2700 W 1,370 LF 12-inch PVC pipe bored under canal [cost includes boring] 	10-7	\$730,000.00	12%	\$0	\$90,000.00	\$0	\$90,000.00	20,373 ERCs	\$19,666.44
<ul style="list-style-type: none"> 1200 West, Center Street to 100 South 700 LF 10-inch PVC pipe bored under canal [cost includes boring] 	10-8	\$390,000.00	10%	\$0	\$40,000.00	\$0	\$40,000.00	20,373 ERCs	\$8,740.64
<ul style="list-style-type: none"> 1200 West, 200 South to 400 South 650 LF 12-inch PVC pipe 	10-9	\$280,000.00	16%	\$0	\$50,000.00	\$0	\$50,000.00	20,373 ERCs	\$10,925.80
<ul style="list-style-type: none"> 1500 West, 400 South to 900 South 1,380 LF 10-inch PVC pipe and 1,320 LF 12-inch PVC pipe bored under canal [cost includes boring] 	10-10	\$1,200,000.00	12%	\$0	\$150,000.00	\$0	\$150,000.00	20,373 ERCs	\$32,777.41
TOTAL		\$20,920,000.00	-	\$8,430,000	\$6,390,000.00	\$0	\$14,820,000.00	-	\$2,492,169.08

1. Refer to Figure 4-1 in the City's Drinking Water Master Plan for the project and its corresponding ID number. This figure has been included in Appendix A for reference.

2. In cases where the City is expected to upsize a developer-installed pipe, only the portion attributable to the upsize is considered impact fee eligible.

3. Future costs for development within 10 years were calculated for the ERCs within 10 years by assigning a proportionate share of the impact fee eligible costs to the ERCs within 10 years. Refer to Tables 3-6 and 3-10.

3.4 Impact Fee Unit Calculation

The impact fee unit of measure for the drinking water system is an ERC. The fees per ERC for the source, storage, distribution, and planning components of the impact fee are calculated as shown in this section.

Source

Projected growth in the system will require the construction of an additional well. The source impact fee was calculated considering the estimated cost and estimated capacity of a future well. See Table 3-5.

**Table 3-5
Source Impact Fee Unit Calculation**

	Existing ¹	Future ²	Total
Eligible Cost	\$641,518.94	\$8,430,000.00	\$9,071,518.94
Capacity (gpm)	1,307	4,000	5,307
Source impact (per gpm)³			\$1,709.50
Source impact (per ERC)⁴			\$308.66
Source impact (per irr-ac)⁵			\$14,530.77

1. See Tables 3-2 and 3-3
2. See Table 3-4
3. Calculated as the sum of existing and future eligible costs divided by the sum of existing and future eligible capacity
4. Calculated at a proposed level of service of 260 gpd/ERC or 0.18 gpm/ERC
5. Calculated at a proposed level of service of 8.5 gpm/irr-ac

Expected source costs by time period are listed in Table 3-6. Source facilities are expected to support growth for more than 10 years. The portion of their costs attributable to growth outside of the 10-year planning window is not impact fee-eligible.

**Table 3-6
Source Cost by Time Period**

Time Period	ERCs served	Irr-ac Served	Buy-in Cost	Growth Cost	Total Cost
Existing	20,794	974	\$1,273,422.26	\$0.00	\$1,273,422.26
Next 10 years	4,452	25	\$641,518.94	\$1,095,851.51	\$1,737,370.45
Beyond 10 years	15,921	140	\$0.00	\$7,334,148.49	\$7,334,148.49
Total	41,167	1,139	\$1,914,941.20	\$8,430,000.00	\$10,344,941.20

Storage

An additional storage tank with a capacity of 3.0 MG was recently constructed. It was constructed to provide the system additional capacity to accommodate future growth. The storage impact fee was calculated as shown in Table 3-7.

**Table 3-7
Storage Impact Fee Unit Calculation**

	Existing¹	Future²	Total
Eligible Cost	\$2,956,049.74	\$0	\$2,956,049.74
Capacity (gal)	1,670,000	0	1,670,000
Storage impact (per gal)³			\$1.77
Storage impact (per ERC)⁴			\$495.63
Storage impact (per irr-ac)⁵			\$10,832.95

1. See Table 3-2 and 3-3
2. See Table 3-4
3. Calculated as the sum of existing and future eligible costs divided by the sum of existing and future eligible capacity
4. Calculated at the proposed level of service of 230 gal/ERC plus 50 gallons of emergency storage per ERC, which was computed by dividing the total emergency storage needs at full capacity, totaling 2.02 MG as specified in the Master Plan, by the total projected number of ERCs at system full capacity (41,167).
5. Calculated at the proposed level of service of 6,120 gal/irr-ac

Expected storage costs by time period are listed in Table 3-8. Storage facilities are expected to support growth for more than 10 years. The portion of their costs attributable to growth outside of the 10-year planning window is not impact fee-eligible.

**Table 3-8
Storage Cost by Time Period**

Time Period	ERCs served	Irr-ac Served	Buy-in Cost	Growth Cost	Total Cost
Existing	20,794	974	\$2,354,219.26	\$0.00	\$2,354,219.26
Next 10 years	4,452	25	\$2,477,261.21	\$0.00	\$2,477,261.21
Beyond 10 years	15,921	140	\$478,788.54	\$0.00	\$478,788.54
Total	41,167	1,139	\$5,310,269.00	\$0.00	\$5,310,269.00

Distribution

The planned future distribution projects occur in areas that are served by the pressurized irrigation system. These areas are expected to impose minimal irrigation demands on the drinking water system. For that reason, a separate distribution fee for irrigated acreage has not been calculated. Future acreage irrigated by the drinking water system is assumed to be served from existing pipes.

Distribution pipes installed during the next 10 years will have capacity to serve future users who connect to the system beyond the next 10 years. The portion of capacity reserved for users beyond 10 years is not impact fee eligible. The impact fee unit cost for distribution was calculated as shown in Table 3-9.

**Table 3-9
Distribution Impact Fee Calculation**

	Existing¹	Future²	Total
Eligible Cost	\$2,017,735.25	\$6,390,000.00	\$8,407,735.25
Capacity (ERCs) ³	20,373	20,373	20,373
Distribution Impact (per ERC)⁴			\$412.69

1. See Table 3-2 and 3-3
2. See Table 3-4
3. Distribution infrastructure is sized to accommodate future users through the full annexation boundary being developed. A remaining capacity of 20,373 ERCs was calculated as the projected number of ERCs at this time (41,167) minus ERCs existing in the year 2025 (20,794).
4. Calculated as the sum of existing and future eligible costs divided by the sum of existing and future eligible capacity.

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

**Table 3-10
Distribution Cost by Time Period**

Time Period	ERCs served	Buy-in Cost	Growth Cost	Total Cost
Existing	20,794	\$2,059,430.95	\$0.00	\$2,059,430.95
Next 10 years	4,452	\$440,907.54	\$1,396,317.57	\$1,837,225.11
Beyond 10 years	15,921	\$1,576,827.71	\$4,993,682.43	\$6,570,510.14
Total	41,167	\$4,077,166.20	\$6,390,000.00	\$10,467,166.20

Planning

Planning services are also needed to support growth. The City updates their master plans approximately every 5 years and their impact fee studies are anticipated to be updated every year. The yearly cost to update the impact fee studies is anticipated to be half the cost of the 2025 IFFP and IFA. Considering this schedule, and the cost of the most recent impact fee updates, a planning impact fee was calculated as shown in Table 3-11.

**Table 3-11
Planning Component of Impact Fee**

Planning Document	Cost	% of Plan Associated with Growth¹	Cost Associated with Growth	ERCs Served²	Cost per ERC
2025 Water Master Plan	\$121,209.00	60%	\$72,725.40	2,226	\$32.67
2025 IFFP and IFA	\$13,608.00	100%	\$13,608.00	856	\$15.90
Total	\$134,817.00	-	\$86,333.40	-	\$48.58

1. Percentages to growth for the master plan was based on a review of the scope of the plan and associated fees for tasks associated with the existing system and future growth. The IFFP and IFA are 100% associated with growth.
2. ERCs served was defined as the amount of ERCs expected to develop during the 5-year life of the master plan and the 1-year life of the IFFP and IFA, respectively.

Table 3-12 shows expected planning costs by time period.

**Table 3-12
Planning Cost by Time Period**

Time Period	ERCs Served	Buy-in Cost	Growth Cost	Total Cost
Existing	20,794	\$0.00	\$0.00	\$0.00
Next 10 Years	4,452	\$134,817.00	\$81,435.27	\$216,252.27
Beyond 10 Years	15,921	\$0.00	\$0.00	\$0.00
Total	41,167	\$134,817.00	\$81,435.27	\$216,252.27

3.5 Total Impact Fee Calculation

Impact fees were calculated for two types of use: (1) Indoor use, and (2) Outdoor (irrigation) use. The outdoor fee only applies to customers irrigating from the drinking water system. Customers who irrigate from the pressurized irrigation system will pay a separate impact fee for pressurized irrigation water service.

Table 3-13 is a summary of the components of the impact fee for each type of use.

**Table 3-13
Total Proposed Impact Fee**

Component	Indoor (per ERC)	Outdoor (per irr-ac)
Source	\$308.66	\$14,530.77
Storage	\$495.63	\$10,832.95
Distribution ¹	\$412.69	\$-
Planning ²	\$48.58	\$-
Total	\$1,266	\$25,364

1. No future pipeline projects were upsized to account for irrigated acreage due to fire flow being the controlling influence.
2. Planning costs for irrigated acreage are associated with indoor uses and captured in the indoor portion of the fee.

Table 3-14 is a summary of the total proposed impact fee for a typical single family residential unit that irrigates from the drinking water system based on the lot sizes as shown in Table 2-7 of the Master Plan.

**Table 3-14
Proposed Impact Fee Per Typical Single Family Residential Unit
Irrigating from Drinking Water System**

Lot Size Min (sq ft)	Lot Size Max (sq ft)	Irrigated Area (acres)	Indoor	Outdoor	Indoor and Outdoor
0	2,000	0.03	\$1,266	\$761	\$2,027
2,001	4,000	0.03	\$1,266	\$761	\$2,027
4,001	6,000	0.06	\$1,266	\$1,522	\$2,788
6,001	8,000	0.09	\$1,266	\$2,283	\$3,549
8,001	10,890	0.11	\$1,266	\$2,790	\$4,056
10,891	21,780	0.15	\$1,266	\$3,805	\$5,071
≥ 21,780		0.35	\$1,266	\$8,877	\$10,143

1. No future pipeline projects were upsized to account for irrigated acreage because they occur within the service area of the PI system.

Table 3-15 shows the recommended indoor impact fee by meter size. For meter sizes shown in the table, the fee scales proportionately according to the ERC capacity of the meter. The ERC count for each meter size is calculated based on American Water Works Association (AWWA) rated capacity for each meter size (AWWA M22). This represents an equitable distribution of potential to use the City’s drinking water system.

**Table 3-15
Springville City Drinking Water
Indoor Impact Fee Based on Meter Size**

Water Meter Size	ERC	Impact Fee
¾” or 1”	1	\$1,266
1 ½ “	3.33	\$4,214
2”	5.33	\$6,745
3”	10.00	\$12,660
4”	16.67	\$21,104

Users requiring larger meters will individually be assessed an ERC capacity and impact fee based on anticipated peak day water consumption in gallons per day as shown in the following calculation method. This method may also be used when the values listed in Table 3-15 may not lead to an equitable result:

$$\text{Impact fee} = (\text{water consumption, gpd}) / (260 \text{ gpd/ERC}) * (\$1,266 \text{ per ERC})$$

For example, a nonresidential customer anticipated to consume 2,000 gpd on the peak day would have an impact fee calculated as follows:

$$\text{Impact fee} = (2,000 \text{ gpd}) / (260 \text{ gpd/ERC}) * (\$1,266 \text{ per ERC}) = \$9,738$$

The outdoor component of the impact fee for development types other than single family development irrigating from the drinking water system is calculated by multiplying the outdoor impact fee per irrigated acre from Table 3-13 by the irrigated area of the development as follows:

$$\text{Impact fee} = (\text{irrigated area, acres}) * (\$25,364 \text{ per irrigated acre})$$

Table 3-16 is a summary of the existing and future facility costs by Drinking Water System component and by time period. Costs attributed to the next 10 years will support projected growth inside of the 10-year impact fee planning period and are impact fee-eligible. Costs attributed to beyond 10 years are not impact fee-eligible.

**Table 3-16
Facility Cost by Time Period**

	Existing	Next 10 Years	Beyond 10 Years	Total
Source	\$1,273,422.26	\$1,737,370.45	\$7,334,148.49	\$10,344,941.20
Storage	\$2,354,219.26	\$2,477,261.21	\$478,788.54	\$5,310,269.00
Distribution	\$2,059,430.95	\$1,837,225.11	\$6,570,510.14	\$10,467,166.20
Planning	\$0.00	\$216,252.27	\$0.00	\$216,252.27
Total Cost	\$5,687,072.47	\$6,268,109.04	\$14,383,447.16	\$26,338,628.67

3.6 Revenue Options

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

General Obligation Bonds through Property Taxes

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

Revenue Bonds

This form of debt financing is also available to the City for utility related capital improvements. Unlike G.O. bonds, revenue bonds are not backed by the City as a whole, but constitute a lien against the water service charge revenues of a Water Utility. Revenue bonds present a greater risk to the investor than do G.O. bonds, since repayment of debt depends on an adequate revenue stream, legally defensible rate structure /and sound fiscal management by the issuing jurisdiction. Due to this increased risk, revenue bonds generally require a higher interest rate

than G.O. bonds, although currently interest rates are at historic lows. This type of debt also has very specific coverage requirements in the form of a reserve fund specifying an amount, usually expressed in terms of average or maximum debt service due in any future year. This debt service is required to be held as a cash reserve for annual debt service payment to the benefit of bondholders. Typically, voter approval is not required when issuing revenue bonds. For growth related projects this type of revenue places an unfair burden on existing residents as they had previously paid for their level of service.

State/Federal Grants and Loans

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

It is also important to assess likely trends regarding federal / state assistance in infrastructure financing. Future trends indicate that grants will be replaced by loans through a public works revolving fund. Local governments can expect to access these revolving funds or public works trust funds by demonstrating both the need for and the ability to repay the borrowed monies, with interest. As with the revenue bonds discussed earlier, the ability of infrastructure programs to wisely manage their own finances will be a key element in evaluating whether many secondary funding sources, such as federal/state loans, will be available to the City.

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

User Fees

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

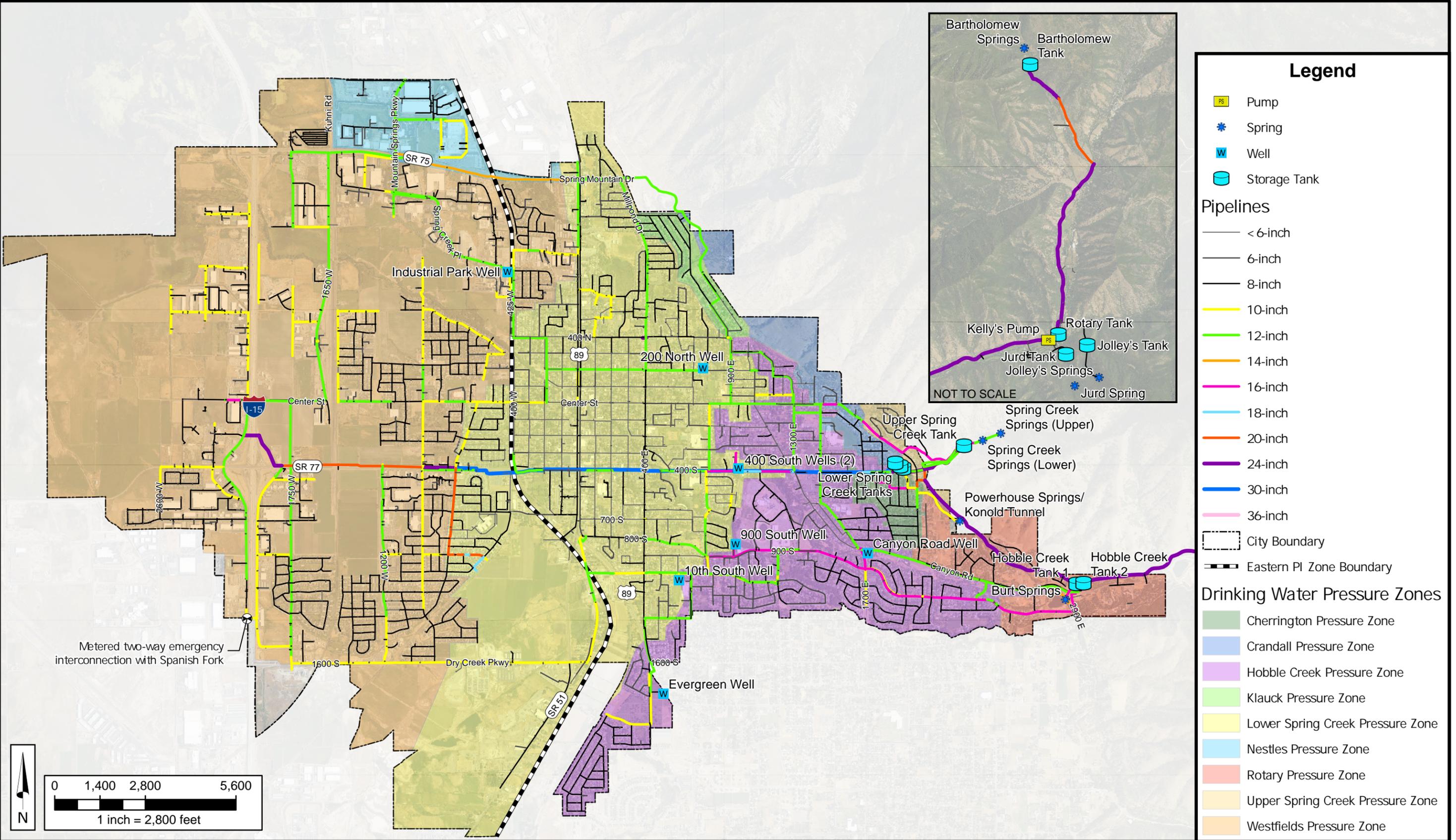
Impact Fees

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

APPENDIX A

Information from the Drinking Water System Master Plan





Legend

- Pump
- Spring
- Well
- Storage Tank

Pipelines

- < 6-inch
- 6-inch
- 8-inch
- 10-inch
- 12-inch
- 14-inch
- 16-inch
- 18-inch
- 20-inch
- 24-inch
- 30-inch
- 36-inch

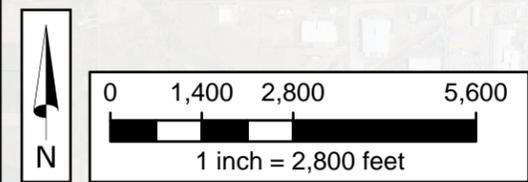
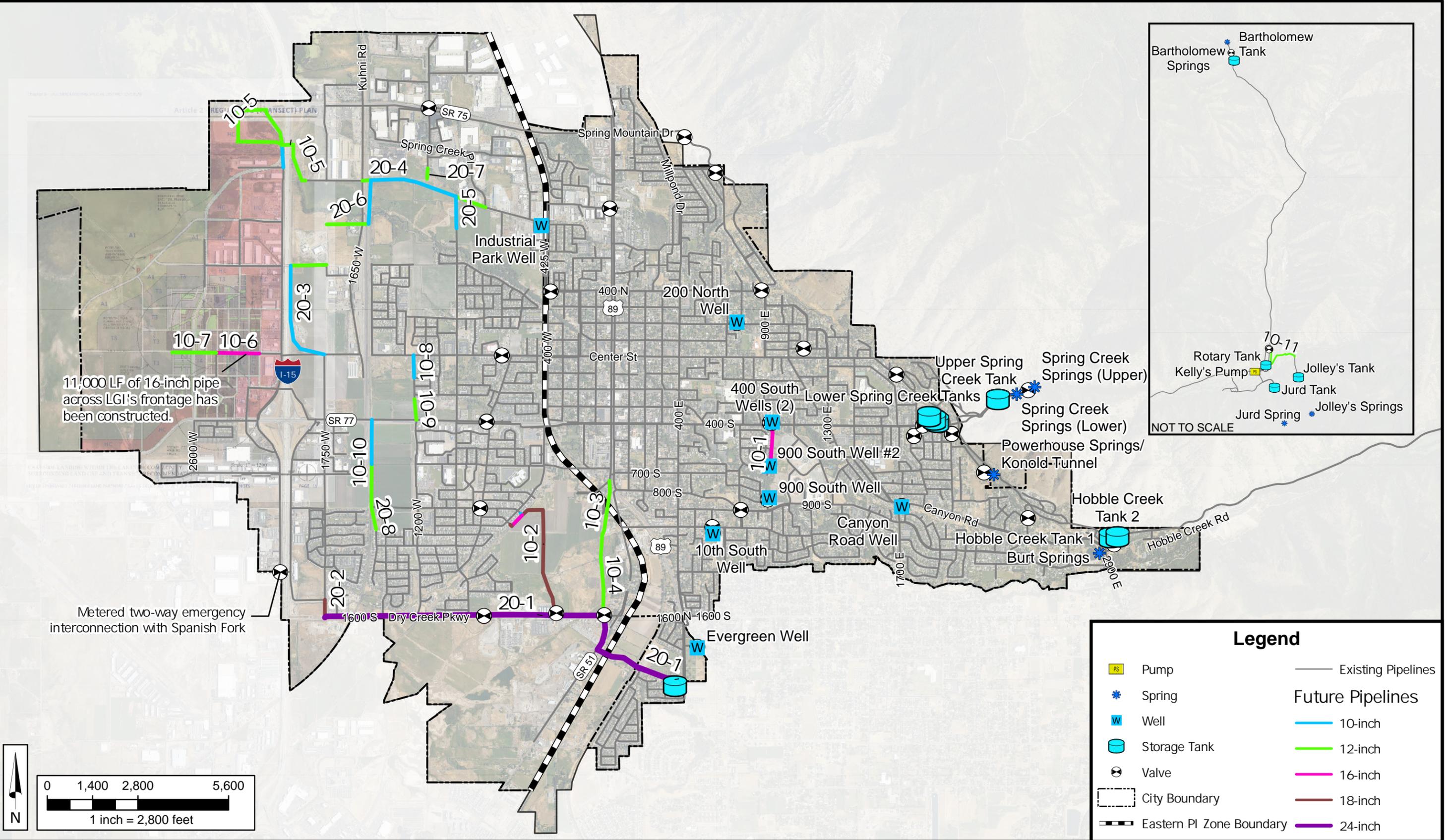
- City Boundary
- Eastern PI Zone Boundary

Drinking Water Pressure Zones

- Cherrington Pressure Zone
- Crandall Pressure Zone
- Hobbles Creek Pressure Zone
- Klauck Pressure Zone
- Lower Spring Creek Pressure Zone
- Nestles Pressure Zone
- Rotary Pressure Zone
- Upper Spring Creek Pressure Zone
- Westfields Pressure Zone

**SPRINGVILLE CITY
 DRINKING WATER SYSTEM MASTER PLAN**

EXISTING SYSTEM



**SPRINGVILLE CITY
 DRINKING WATER SYSTEM MASTER PLAN**

CAPITAL FACILITY PROJECTS

**FIGURE
 4-1**

APPENDIX B

Cost of Existing Infrastructure

Sources:

City Records

2024 Drinking Water Impact Fee Analysis
Hansen, Allen & Luce

Project	2018 Impact Fee Report	2018-2019	2019-2020	2020-2021	2021-2022	2022 - 2023	Totals
2008 bond improvements	\$ 2,317,205.10						\$ 2,317,205.10
400 S pipeline	\$ 1,383,929.57						\$ 1,383,929.57
Water line upsizing	\$ 261,340.70		\$ 50,344.33				\$ 311,685.03
1200 W pipeline	\$ 64,346.50						\$ 64,346.50
Lower Spring Creek Tank #3				\$ 10,269.18	\$ 1,054,100.99	\$ 4,245,898.83	\$ 5,310,269.00
400 S Well #2		\$ 771,463.00	\$ 1,143,478.20				\$ 1,914,941.20
Totals	\$ 4,026,821.87	\$ -	\$ 50,344.33	\$ 10,269.18	\$ 1,054,100.99	\$ 4,245,898.83	\$ 9,387,435.20

APPENDIX C

Estimated Future Project Costs

Springville City Drinking Water Master Plan - Capital Facility Plan Project Cost Estimates

Springville City
by Hansen, Allen & Luce, Inc.

AACE Class: 5

Parts of Project 10-6 have already been constructed. The costs shown for these projects reflect the bid or reimbursement agreement amounts provided by the City.
10-6: Reimbursement agreement - Center Street culinary water lines

Scenario	Project ID	Item Type	Location/Description	Diameter	Quantity	Rounded Quantity	Units	Unit Cost	Base Cost	Contingency (20%)	Engineering (10%)	Project Total Cost	Project Total Cost Rounded	Impact Fee Eligible Cost	Impact Fee Eligible Cost Rounded	% Impact Fee Eligible
DW Project 10-1																
10-Year	10-1	Pipe	16-inch diameter pipe		16	1290	LF	\$ 370	\$ 481,000	\$ 96,200	\$ 48,100	\$ 625,300	\$ 626,000	\$ 625,300	\$ 626,000	100%
10-Year	10-1	Well	New well on 9th S			1	LF	\$ 3,000,000	\$ 3,000,000	\$ 600,000	\$ 300,000	\$ 3,900,000	\$ 3,900,000	\$ 3,900,000	\$ 3,900,000	100%
10-Year	10-1	Well House	Well House for new well on 9th S			1	LF	\$ 3,000,000	\$ 3,000,000	\$ 600,000	\$ 300,000	\$ 3,900,000	\$ 3,900,000	\$ 3,900,000	\$ 3,900,000	100%
												DW Project 10-1 Total	\$ 8,430,000	10-1 Total	\$ 8,430,000	100%
DW Project 10-2																
10-Year	10-2	Pipe	10-inch diameter pipe		10	64	LF	\$ 290	\$ 20,300	\$ 4,060	\$ 2,030	\$ 26,390	\$ 27,000	\$ 26,390	\$ 27,000	100%
10-Year	10-2	Pipe	16-inch diameter pipe		16	559	LF	\$ 370	\$ 207,200	\$ 41,440	\$ 20,720	\$ 269,360	\$ 270,000	\$ 269,360	\$ 270,000	100%
10-Year	10-2	Pipe	18-inch diameter pipe		18	4007	LF	\$ 400	\$ 1,604,000	\$ 320,800	\$ 160,400	\$ 2,085,200	\$ 2,086,000	\$ 2,085,200	\$ 2,086,000	100%
10-Year	10-2	Bore-10	Bore (2) 10-inch diameter pipes across railroad (100')		10	200	LF	\$ 2,400	\$ 480,000	\$ 96,000	\$ 48,000	\$ 624,000	\$ 624,000	\$ 624,000	\$ 624,000	100%
10-Year	10-2	Bore-18	Bore 18-inch diameter pipe across (2) canals (40')		18	80	LF	\$ 4,200	\$ 336,000	\$ 67,200	\$ 33,600	\$ 436,800	\$ 437,000	\$ 436,800	\$ 437,000	100%
												DW Project 10-2 Total	\$ 3,450,000	10-2 Total	\$ 3,450,000	100%
DW Project 10-3																
10-Year	10-3	Pipe	12-inch diameter pipe		12	1683	LF	\$ 320	\$ 540,800	\$ 108,160	\$ 54,080	\$ 703,040	\$ 704,000	\$ 703,040	\$ 704,000	100%
10-Year	10-3	UDOT	UDOT ROW (SR 51)			1	LS	10% project	\$ 54,080	\$ 10,816	\$ 5,408	\$ 70,304	\$ 71,000	\$ 70,304	\$ 71,000	100%
												DW Project 10-3 Total	\$ 780,000	10-3 Total	\$ 780,000	100%
DW Project 10-4																
10-Year	10-4	Pipe	12-inch diameter pipe		12	2517	LF	\$ 320	\$ 806,400	\$ 161,280	\$ 80,640	\$ 1,048,320	\$ 1,049,000	\$ 1,048,320	\$ 1,049,000	100%
10-Year	10-4	UDOT	UDOT ROW (SR 51)			1	LS	10% project	\$ 80,640	\$ 16,128	\$ 8,064	\$ 104,832	\$ 105,000	\$ 104,832	\$ 105,000	100%
												DW Project 10-4 Total	\$ 1,160,000	10-4 Total	\$ 1,160,000	100%
DW Project 10-5																
10-Year	10-5	Pipe	10-inch diameter pipe		10	696	LF	\$ 290	\$ 203,000	\$ 40,600	\$ 20,300	\$ 263,900	\$ 264,000	\$ -	\$ -	0%
10-Year	10-5	Pipe	12-inch diameter pipe		12	6060	LF	\$ 320	\$ 1,939,200	\$ 387,840	\$ 193,920	\$ 2,520,960	\$ 2,521,000	\$ 236,340	\$ 237,000	9%
10-Year	10-5	Bore-12	Bore 12-inch diameter pipe under I-15 (350')		12	350	LF	\$ 3,000	\$ 1,050,000	\$ 210,000	\$ 105,000	\$ 1,365,000	\$ 1,365,000	\$ 273,000	\$ 273,000	20%
												DW Project 10-5 Total	\$ 4,150,000	10-5 Total	\$ 510,000	12%
DW Project 10-6 (Center Street culinary water lines, portion constructed)																
10-Year	10-6	Pipe	16-inch diameter pipe (constructed)		16	1100	(-)	(-)	(-)	(-)	(-)	\$ 107,670	\$ 108,000	\$ 107,670	\$ 108,000	100%
10-Year	10-6	Pipe	16-inch diameter pipe		16	489	LF	\$ 370	\$ 181,300	\$ 36,260	\$ 18,130	\$ 235,690	\$ 236,000	\$ 50,960	\$ 51,000	22%
												DW Project 10-6 Total	\$ 350,000	10-6 Total	\$ 160,000	46%
															\$ 60,000	
DW Project 10-7																
10-Year	10-7	Pipe	12-inch diameter pipe		12	1365	LF	\$ 320	\$ 438,400	\$ 87,680	\$ 43,840	\$ 569,920	\$ 570,000	\$ 53,430	\$ 54,000	9%
10-Year	10-7	Bore-12	Bore 12-inch diameter pipe across canal (40')		12	40	LF	\$ 3,000	\$ 120,000	\$ 24,000	\$ 12,000	\$ 156,000	\$ 156,000	\$ 31,200	\$ 32,000	20%
												DW Project 10-7 Total	\$ 730,000	10-7 Total	\$ 90,000	12%
DW Project 10-8																
10-Year	10-8	Pipe	10-inch diameter pipe		10	699	LF	\$ 290	\$ 203,000	\$ 40,600	\$ 20,300	\$ 263,900	\$ 264,000	\$ 18,200	\$ 19,000	7%
10-Year	10-8	Bore-10	Bore 10-inch diameter pipe across canal (40')		10	40	LF	\$ 2,400	\$ 96,000	\$ 19,200	\$ 9,600	\$ 124,800	\$ 125,000	\$ 20,800	\$ 21,000	17%
												DW Project 10-8 Total	\$ 390,000	10-8 Total	\$ 40,000	10%
DW Project 10-9																
10-Year	10-9	Pipe	12-inch diameter pipe		12	642	LF	\$ 320	\$ 208,000	\$ 41,600	\$ 20,800	\$ 270,400	\$ 271,000	\$ 42,250	\$ 43,000	16%
												DW Project 10-9 Total	\$ 280,000	10-9 Total	\$ 50,000	16%
DW Project 10-10																
10-Year	10-10	Pipe	10-inch diameter pipe		10	1380	LF	\$ 290	\$ 400,200	\$ 80,040	\$ 40,020	\$ 520,260	\$ 521,000	\$ 35,880	\$ 36,000	7%
10-Year	10-10	Pipe	12-inch diameter pipe		12	1315	LF	\$ 320	\$ 422,400	\$ 84,480	\$ 42,240	\$ 549,120	\$ 550,000	\$ 85,800	\$ 86,000	16%
10-Year	10-10	Bore-10	Bore 10-inch diameter pipe across canal (40')		10	40	LF	\$ 2,400	\$ 96,000	\$ 19,200	\$ 9,600	\$ 124,800	\$ 125,000	\$ 20,800	\$ 21,000	17%
												DW Project 10-10 Total	\$ 1,200,000	10-10 Total	\$ 150,000	12%
DW Project 10-11																
10-Year	10-11	Pipe	12-inch diameter pipe		12	3520	LF	\$ 320	\$ 1,126,400	\$ 225,280	\$ 112,640	\$ 1,464,320	\$ 1,465,000	\$ -	\$ -	0%
												DW Project 10-11 Total	\$ 1,470,000	10-11 Total	\$ -	0%