ORDINANCE 2025-16

AN ORDINANCE OF THE SOUTH WEBER CITY COUNCIL ADOPTING THE SANITARY SEWER CAPITAL FACILITIES AND IMPACT FEE FACILITIES PLANS

WHEREAS, it is best practice for a municipality to analyze status and growth of its infrastructure on a regular basis and ensure it meets state design standards; and

WHEREAS, the sewer system was last reviewed in 2017 and needed to be updated reflecting current condition and anticipated growth; and

WHEREAS, Jones and Associates has done extensive research and prepared a comprehensive report which has been reviewed and found ready to present to the Council;

NOW, THEREFORE, BE IT ORDAINED by the City Council of South Weber City, State of Utah:

Section 1. Adoption: The Sanitary Sewer Capital Facilities Plan (CFP) and Impact Fee Facilities Plan (IFFP) in **Exhibit 1** is hereby adopted.

Section 2. General Repealer. Ordinances in conflict with this ordinance are hereby repealed to the extent of such conflict.

Section 3. Effective Date. This ordinance will take effect 90 days after passage.

PASSED AND ADOPTED by the City Council of South Weber, Davis County, on the 26th day of August 2025.

MAYOR: Rod Westbroek

ATTEST: City Recorder, Lisa Smith

Roll call vote is as follows:		
Council Member Halverson	FOR	AGAINST
Council Member Petty	FOR	AGAINST
Council Member Dills	FOR	AGAINST
Council Member Davis	FOR	AGAINST
Council Member Winsor	FOR	AGAINST

CERTIFICATE OF POSTING

I hereby certify that Ordinance 2025-16 was passed and adopted on the 12th day of August 2025 and that complete copies of the ordinance were posted in the following locations within the City this 13th day of August 2025.

1. South Weber City Hall, 1600 E. South Weber Drive (Exhibits available upon request)
2. City Website www.southwebercity.com
3. Utah Public Notice Website Utah.gov/pmn

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Lisa Smith, City Recorder

ORD 2025-16 EXHIBIT 1

South Weber City Corporation

Sanitary Sewer Capital Facilities Plan and Impact Fee Facilities Plan

Prepared: August 2025
Adopted: TBD

SOUTH WEBER city

Prepared by
JONES & ASSOCIATES
Consulting Engineers

JONES & ASSOCIATES
Consulting Engineers

SANITARY SEWER
CAPITAL FACILITIES PLAN AND
IMPACT FEE FACILITIES PLAN

for

SOUTH WEBER CITY

August 12, 2025

Prepared by

JONES & ASSOCIATES
Consulting Engineers

6080 Fashion Point Drive
South Ogden, Utah 84403
801-476-9767

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CFP	Capital Facilities Plan
CWSID	Central Weber Sewer Improvement District
DWQ	Division of Water Quality
d/D	(flow) depth to (pipe) Diameter ratio
ERU	Equivalent Residential Unit
GIS	Geographic Information System
gpcpd	gallons per capita per day
gpd	gallons per day
gpm	gallons per minute
IFA	Impact Fee Analysis
IFFP	Impact Fee Facilities Plan
lf	linear foot or linear feet
SSA	(Autodesk®) Storm and Sanitary Analysis
UAC	Utah Administrative Code
UDEQ	Utah Department of Environmental Quality

1.0 EXECUTIVE SUMMARY

The sanitary sewer collection system for South Weber City (the City) was analyzed to check for compliance with regulations listed in Utah Administrative Code (UAC) R317-3-2. A model of the existing system was created using available data to review the efficiency of the system and identify deficiencies. After analyzing the existing system, the future flows were added using population projections and the City's developable ground and equivalent residential units (ERUs) (see Appendix A, Exhibit 3) to identify areas where deficiencies are likely to occur and additional capacity would be needed for new growth and development.

The model results of the existing sewer system show there is adequate capacity to convey the wastewater flows and that no surcharging occurs. Despite having sufficient capacity, a few pipe segments were identified in various areas that were at or slightly exceeded the maximum recommended depth-to-diameter (d/D) ratio. Regular inspection of these pipe segments is suggested to ensure they are working properly, especially as additional connections are made to the system upstream of these locations.

The future sewer system was modeled to reflect the maximum build-out scenario of South Weber City, which is anticipated to occur around 2039 for residential development and 2069 for non-residential development. Assuming ERUs increase at the same rate as the population, it is estimated the City will add an additional 1,326 ERUs before reaching build-out. Model results showed the existing sewer system has sufficient capacity to convey all future wastewater flows. However, the existing pipe segments that nearly exceeded or did exceed the recommended d/D ratio remain a consideration. The sewer line configuration along the extension of Old Fort Road as shown in this report should be followed.

Overall, no projects were identified for either the existing or future system at this time. The Impact Fee Facilities Plan contain a project eligible for repayment due to its excess capacity.

2.0 INTRODUCTION

2.1 Background

In August 2017, a Sanitary Sewer Capital Facilities Plan (CFP) and Impact Fee Facilities Plan (IFFP) was completed for South Weber City. The previous plan was completed using sewer flow rates and peak factors as provided in UAC R317-3-2. Since the completion of that plan, the City purchased a sewer meter to collect flow data throughout the sewer system in select locations. That sewer flow data was provided to Jones and Associates Consulting Engineers (J&A) for use in updating the previous CFP and IFFP to reflect the existing conditions and incorporate any new changes in the system.

Since the completion of the previous plan, J&A has met with South Weber City to review all improvements made and discuss the overall functionality of the system. As a result of continued growth and development in the area, future projects have been identified to accommodate land use development in accordance with the current General Plan (adopted 11-10-2020).

2.2 Land Use and Service Area

South Weber City is located in northeast Davis County at the mouth of Weber Canyon. It is bounded by the Weber River to the north and Layton City to the south. US Highway 89 and Interstate 84 are the two major transportation corridors that pass through the City. Land use is primarily residential with some agriculture and commercial uses. The City's vision for future land use remains primarily residential, with complementary locations identified for commercial uses.

The City provides sanitary sewer collection service within the current city boundaries and may potentially serve the areas identified for future annexation. Future needs have been estimated based on the anticipated land uses shown in the current Projected Land Use Map in the General Plan (adopted 11-10-2020). It is understood that the service boundary and/or the proposed land use densities could change, depending upon development and other changes that may be approved hereafter. Changes in land use and annexation areas may affect the projects and recommendations contained in this report. This report should be updated on a regular basis.

2.3 System Overview

In the 1990's, South Weber City converted from septic systems to a sanitary sewer collection system. In comparison to other cities, the City's system is relatively young.

The sanitary sewer system generally flows from the southeast to the northwest through collection lines and trunk lines. The City operates one lift station located on Cottonwood Drive, which collects wastewater from nearby residents and lifts the wastewater into the Central Weber Sewer Improvement District (CWSID) trunk line. A schematic of the existing sewer system can be found in Appendix A, Exhibit 2, while a summary of the City's collection system components is shown below in Table 1.

Table 1. Sanitary Sewer Collection System Summary

Component	Size	Quantity (feet)	Quantity (miles)
Manhole	4-ft & 5-ft diameter	*921	-
Pipe	**2-inch	1,501	0.28
Pipe	6-inch	385	0.07
Pipe	8-inch	176,183	33.37
Pipe	10-inch	12,915	2.45
Pipe	12-inch	4,363	0.83
Pipe	15-inch	7,941	1.50
Pipe	18-inch	1,757	0.33
Pipe	21-inch	2,707	0.51
	Total	**207,752**	**39.35**

**The quantity is for each manhole and not in feet.*
***Pressurized sewer line.*

All the City's wastewater eventually flows into the CWSID trunk line, which crosses Interstate 84 from Uintah City near the Posse Grounds, runs west along Old Fort Road, then continues northwestwardly, generally following Interstate 84. The City's wastewater is treated at the CWSID wastewater treatment plant. **No modeling or analysis of CWSID's pipe network through the city is included in this report.**

CWSID charges a utility fee to the communities whose wastewater is treated at their facility. This fee is passed on to City residents and shows up separately on the utility bill. CWSID also charges a sanitary sewer impact fee, which is separate from the impact fee charged by the City. **Neither CWSID's utility fee nor impact fee are associated with or included in this report.**

3.0 ERU AND POPULATION ESTIMATES

3.1 Introduction

To provide accurate results, master planning requires that all units (residential, commercial, etc.) contributing wastewater flows be counted. Using recent aerial imagery from a Geographic Information System (GIS), all existing units were counted. Any units recently constructed or abandoned were also identified and accounted for in determining the total. The total number of units counted and their corresponding locations are provided in Table 2.

Table 2. Existing Units (Residential, Commercial, Industrial)

Location	Number of Units
6650 South 480 West, West Leg	73
1150 East Old Fort Road, East Leg	579
Raymond at Harper, South Leg	48
1900 East South Weber Drive, South Leg	602
1900 East South Weber Drive, East Leg	307
2325 East 8100 South, South Leg	326
Other Locations	493
Total	**2,428**

3.2 Equivalent Residential Units (ERUs)

An Equivalent Residential Unit (ERU) is the discharge into the system that is equivalent to one (1) single family residential unit. This can be measured as persons per ERU or as a flow, measured in gallons per day per ERU. The ERU formula used for this study is as follows (for details on this calculation, see Sections 3.4 and 4.3):

$$1\ ERU = \ 3.52\ persons = 245\ gallons/day$$

Large sewer system users may discharge the equivalent of multiple ERUs into the system. The Weber Basin Job Corps, for example, was estimated to have 240 full-time residents in 2023 (Donors Choose, 2023). At 3.52 persons/ERU, it can be assumed that the Job Corps is the equivalent of about 68 ERUs:

$$240\ persons\ \div \frac{3.52\ persons}{ERU} \approx 68\ ERUs$$

3.3 Population and Growth Estimates

The growth rate in South Weber City since 1880 has been very sporadic, bouncing between growth and decline. However, starting around 1960, the growth rate remained positive and started to create a trend. From 1990 to the present, the City has seen more consistent growth. The population data provided by the U.S. Census from 1960 to 2020 is shown in Table 3.

Table 3. Population Growth (1960 – 2020)

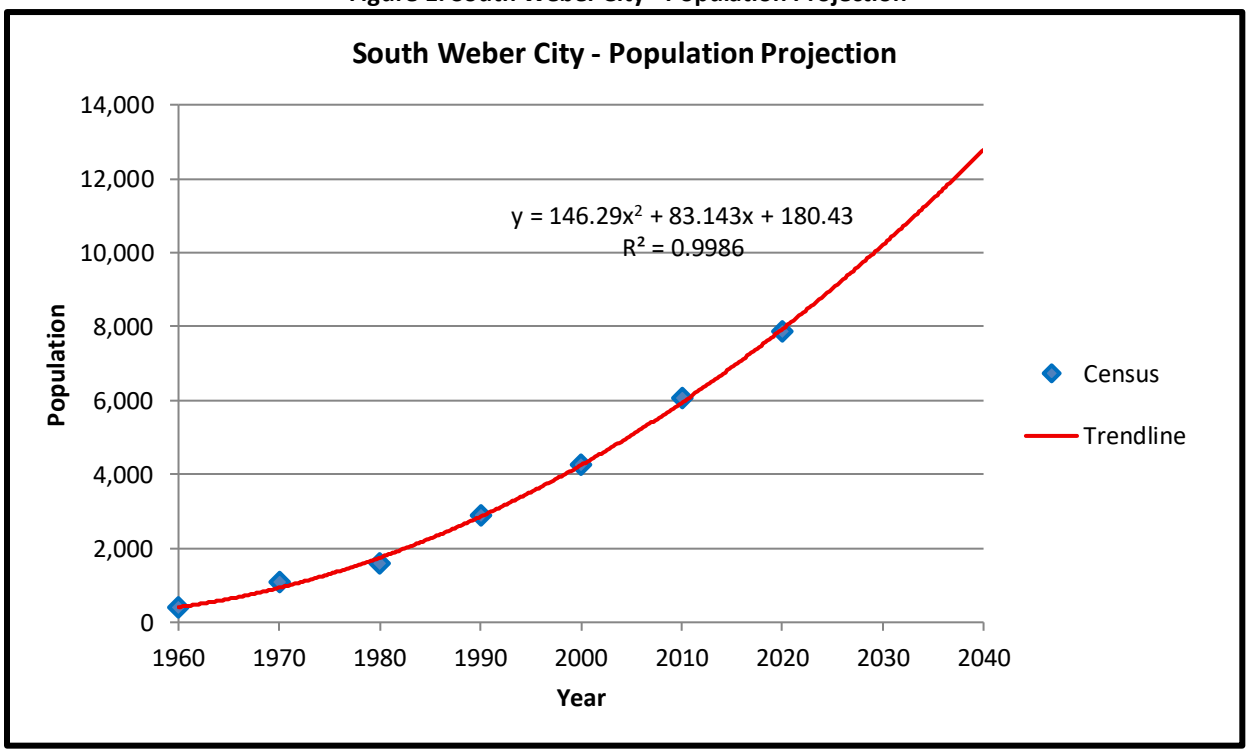
Year	Population	Annual Growth Rate
1960	382	-
1970	1,073	4.68%
1980	1,575	8.18%
1990	2,863	4.88%
2000	4,260	4.20%
2010	6,051	3.00%
2020	7,873	5.66%

The above data were plotted, and a trendline was best-fit to the data. The regression (best fit) equation of the trendline was determined to be:

$$y = 146.29x^2 + 83.143x + 180.43$$

The R^2 value of a trendline represents how close the equation fits the data, with a value of 1.000 representing a perfect fit. This equation has an associated R^2 value of 0.9986; therefore, this trendline is a very good fit. Using this trendline equation, population projections through 2040 were calculated. These projections are shown below in Figure 1.

Figure 1. South Weber City - Population Projection



Beginning with the year 2030, the population growth was projected in 10-year increments through 2060 using the regression equation and calculating annual growth rate in each 10-year period, as shown in Table 4.

Table 4. Population Projection (2030 – 2060)

Year	Population	Annual Growth Rate
2030	10,208	2.98%
2040	12,778	2.52%
2050	15,641	2.24%
2060	18,796	2.02%

3.4 Residential ERUs

Using available data, it was estimated in 2025 that there are 2,566 residential ERUs. This value includes various types of residential units (apartment buildings, townhomes, single family homes, etc.). The associated population estimate for that ERU value is 9,033. Table 5 provides an accounting of the existing residential ERUs in 2025 for South Weber City. An additional reference can be found in Appendix A, Exhibit 4.

Table 5. Existing Residential ERUs (2025)

Location	ERUs
Cambridge Crossing Apartments	60.00
Cottonwood Estates	83.00
Peterson Farms Assisted Living	13.95
Riverside RV Resort	57.60
Weber Basin Job Corps	68.18
Other Residential Dwelling Units	2,283.27
Total	**2,566.00**

Using the information and data discussed above, the existing residential ERUs used for this study were determined as follows:

$$\frac{2025\ population}{2025\ residential\ units} = \frac{9{,}033\ persons}{2{,}566\ residential\ units} = 3.52\ persons/ERU$$

The analysis from Developable Grounds & ERUs (Appendix A, Exhibit 3) estimates an additional 965 residential ERUs in the system, resulting in a total build-out of 3,531 ERUs. Assuming each home has 3.52 people, the build-out population of South Weber City is projected to be 12,429 people.

$$Residential\ Buildout = 2{,}566\ existing + 965\ future = 3{,}531\ ERUs$$

3.5 Non-Residential ERUs

Flow data was collected from March 2023 through February 2024 for notable water users in the area. To be conservative in determining the number of ERUs, the culinary water usage in the City was used for all calculations (see Section 4.3). By referencing the culinary water usage data, it is assumed that all inflows in the system equal the outflows.

The corresponding number of ERUs for each non-residential unit was determined over the 12-month period showing an estimated 256 non-residential ERUs in 2025 (see Table 6). The associated flow data can be found in Appendix B.

Table 6. Non-Residential ERUs (2025)

Location	ERUs
Burly Burger	9.16
Elementary School	5.29
Family Activity Center	1.03
Highmark Charter School	32.16
K-2 School	2.94
Maverik	9.24
Morty's Car Wash	61.81
Other Non-Residential Units	134.37
TOTAL	**256.00**

**Values were calculated using 0.17 gpm/ERU (see Section 4.3)*

For non-residential ERUs, the Developable Ground & ERUs analysis (Appendix A, Exhibit 3) estimates an additional 361 ERUs in the system, resulting in a total build-out of 617 ERUs. The location and corresponding number of non-residential ERUs can be referenced in Appendix A, Exhibit 3.

$$Non - Residential\ Buildout = 256\ existing + 361\ future = 617\ ERUs$$

The number of non-residential customers will vary greatly and is difficult to estimate; however, a best estimate using existing data was made for the purposes of this study. Where data could not be obtained, certain assumptions were made based on the data that was available.

3.6 Total ERUs

Once Residential and Non-residential ERUs have been assessed, they can be added together, thus assessing the needs of the system as a whole, regardless of actual land use. The total ERUs anticipated are as follows:

$$Total\ Buildout = 2{,}822\ existing + 1{,}326\ future = 4{,}148\ ERUs$$

To assess in which year build-out will occur for residential and non-residential (independent of each other), the growth rate equation listed in Section 3.3 was used along with the future ERUs of each. This assessment indicates that build-out will occur as follows:

Total Build-out

- Residential: Addition of 965 ERUs by 2039 (3,531 total residential ERUs)
- Non-Residential: Addition of 361 ERUs by 2069 (617 total non-residential ERUs)

Table 7 summarizes existing, projected, and total ERUs along with the corresponding population totals and associated years.

Table 7. Population and ERU Projections

Year	Population Projection	Annual Growth Rate	Projected Residential ERUs	Projected Non-Residential ERUs	Projected Total ERUs
2020	7,867*	-	2,253*	206*	2,460*
2025	9,033	2.57%	2,566	256	2,822
2030	10,208	2.42%	2,900	290	3,190
2039	12,429	2.18%	3,531	355	3,886
2040	12,429	2.16%	3,531	363	3,894
2050	12,429	1.95%	3,531	444	3,975
2060	12,429	1.78%	3,531	534	4,065
2069	12,429	1.65%	3,531	617	4,148

**Value based on available data*

It should be noted that although it is not shown or calculated this way, it is anticipated that the population growth rate will begin to slow down as developable ground becomes scarcer and more difficult to develop. We therefore recommend that this report be updated regularly.

3.7 South Bench

Exhibit 3 (Developable Ground & ERUs) found in Appendix A graphically shows an area adjacent to the southeastern boundary of the city, located in unincorporated county and referred to as the "South Bench." This area is included on the city's Annexation Policy Map and is shown as "Open Lands" on the Projected Land Use Map. It is assumed at this point that this ground will remain undeveloped. However, to better understand the potential impact that development of this ground could have on the sewer system, a cross section of residential land uses was assumed and 260 ERU's estimated for this ground. These ERU's are not included in the Projected ERUs shown above in Table 7.

4.0 ANALYSIS INFORMATION

4.1 Analysis Background and Data

Jones & Associates keeps and maintains a GIS database for South Weber City. Any update or change in the sewer system is accounted for in the GIS database to accurately reflect the existing sewer system. The database, with all updated information, can be accessed at any time. This up-to-date database is useful to City personnel when information is needed regarding the sewer system and to engineers when performing studies and designing projects.

The existing information in the GIS database was imported into Autodesk® Storm and Sanitary Analysis 2023 (SSA) to model the existing sewer system. Flow data gathered at various locations throughout the City since 2017 was provided to J&A for use in calibrating the SSA model. The model also contains most of the pipe sizes, lengths, and structure elevations throughout the City. Where information was unknown or could not be determined, certain assumptions were made based on available or surrounding data to provide the most accurate and probable scenarios. Total ERUs contributing to the sewer system were determined based on a count of property lots at select locations in the City, as described in Section 3.

Five (5) modeling scenarios were developed and evaluated for the Capital Facilities Plan:

1. **Existing** – This model of the existing sewer collection system was used to identify deficiencies in the collection system under current conditions.
2. **Existing Corrected** – This model contained corrections to the existing system and was used to establish a baseline for future conditions.
3. **Future** – Adding the future ERU flows to the Existing Corrected model identified where capacity problems will occur based on future development.
4. **Future Corrected** – The Future Corrected model contained corrections to the Future model and was used to verify that the proposed projects will adequately address the future needs of the City.
5. **Future (South Bench)** – Adding the future ERU flows from the South Bench area to the future ERUs elsewhere throughout the city.

4.2 Design Flow Regulations – Utah Administrative Code R317-3-2

Utah Administrative Code (UAC) R317-3-2 describes how sewer systems need to be designed for an average flow of 100 gpcpd and a peak flow of 400 gpcpd. Based on these standards, it can be concluded that lateral and collector sewer lines should be designed with a peaking factor of four (4). Interceptor and outfall sewer lines, needing to be designed for 250 gpcpd, will require a peaking factor of two-and-a-half (2.5).

In accordance with the regulations included in “section c” of UAC R317-3-2, flow data collected by the City from 2017 to 2023 was reviewed for use in the SSA model. The data was collected at various locations throughout the City to determine the flow rate per ERU and peaking factor.

4.3 Flows Used in Analysis

To accurately model the SSA model results for the existing sewer system, flow data from 2017 to 2023 was reviewed, and for each respective location where flow data was gathered, the average flow rate per ERU was determined. The flow rates identified as most indicative of the existing sewer system were then selected for use in the SSA model. This flow rate was then multiplied by the number of ERUs needed and assigned to individual junctions (manholes) in the SSA model to reflect the existing conditions observed.

Flow data from 2017 to 2020 showed consistent results that were to be expected in the sewer system. However, in 2021, the flow data increased significantly, and the recorded values did not seem reasonable. After reviewing all data, it was decided that flow data from 2017 to 2020 best reflected the average flow rate per ERU.

The flow results used to determine the average flow rate per ERU were recorded at 2325 East 8100 South (South Leg) and 1900 East South Weber Drive (South Leg). These two locations were used because they are predominantly comprised of residential ERUs and therefore provide the most accurate representation of a single ERU. Table 8 shows the average flow data from the two locations between 2017 and 2020.

Table 8. Average Flow Per Residential ERU

Location	Total ERUs	Average Flow (gpm)	Weighted Average Flow (gpm)	Average Flow Per ERU (gpm)	Average Flow Per ERU (gpd)
1900 East South Weber Drive, East Leg	602	105	109	0.12	173
2325 East 8100 South, South Leg	326	116			

**Calculations have been made under the assumption that 1 ERU = 3.52 persons*

The average flow per ERU was determined using a weighted average based on the average flow measured and total number of ERUs recorded. The average flow per ERU was calculated to be 0.12 gpm (173 gpd), which results in each person using an average flow of about 49 gpd. To adhere to the requirements in UAC R317-3-2 in designing sewer systems for an average flow of 100 gpcpd, it would require a rate of 352 gpd/ERU (3.52 persons/ERU x 100 gpcpd). The average flow results are provided in Table ***8***8.

Jones & Associates was also tasked with completing South Weber's Culinary Water CFP. To check if results were comparable between the sewer and culinary systems, flow measurements were compared from both systems. At the time of analysis, preliminary flow results showed that South Weber's culinary system was flowing at a rate of about 245 gpd/ERU (0.17 gpm/ERU).

In reviewing the flow measurements from the culinary and sewer systems, it was determined that using a higher average flow rate per ERU would be most beneficial in analyzing the sewer system. Therefore, it was determined to use 245 gpd/ERU to complete the analysis. This increases the average flow per person from 49 gpd to approximately 70 gpd, helping to better identify areas of concern or deficiencies needing to be fixed.

The existing flow data for non-residential ERUs was acquired where possible. Like a residential ERU, a non-residential ERU is also assumed to use an average flow value of 0.17 gpm (245 gpd) per ERU. Using the same average flow rate for residential and non-residential ERUs will help to determine how much wastewater is contributed from each one.

4.4 Peaking Factors and Time Patterns

UAC R317-3-2 describes how sewer systems need to be designed for an average flow of 100 gpcpd and a design flow of 400 gpcpd (see Section 4.2). While the rules do not define a lateral, collector, interceptor (trunk line), or outfall line, it is generally accepted that a lateral is classified as the service line from the dwelling, that the lateral connects into collector lines, and that collector lines come together in the trunk line. An "outfall" is typically defined as the discharge for a wastewater treatment plant. For South Weber City, the outfall would be located where the City's trunk lines discharge into CWSID's sewer line.

Although uncommon, significant flows do occur. An example of such flows would be the "Super Bowl Sunday half-time flush" and holidays such as Christmas and Thanksgiving. Any significant flow events that are unaccounted for can be accommodated by the additional pipe capacity that will be provided by meeting the recommended ratio of flow depth to pipe diameter (d/D).

The recommended d/D for pipes less than 15-inches in diameter is 0.50. For pipes 15-inches or larger in diameter, the recommended d/D is 0.70 (ASCE/WEF, 2007). A depth-to-diameter ratio of 0.70 is the equivalent of approximately 82% of flow capacity.

The peaking factors were determined for residential and non-residential units using an average flow rate of 245 gpd/ERU to reflect the City's flow data. The data supports that South Weber City is discharging less than the expected average flow rate of 352 gpd/ERU (see Section 4.3). In comparison to the State's requirements, the values used in this analysis assume that wastewater discharge is approximately 70% of the average design flow rate.

The flow rates used in the analysis were referenced in determining the peak factors for the City. According to data recorded from December 2020, results show that residential wastewater discharge had the greatest peak around 8:00 a.m. in the morning and another slightly lesser peak at 9:00 p.m. each night. The average flow rate from December 2020 was calculated to be 141 gpm. Flow results are provided in Table 9.

Table 9. Average Flow for Residential ERUs – December 2020

Time (A.M.)	Average Flow (gpm)	Time (P.M.)	Average Flow (gpm)
12 AM	154	12 PM	145
1 AM	87	1 PM	132
2 AM	80	2 PM	124
3 AM	78	3 PM	106
4 AM	72	4 PM	118
5 AM	69	5 PM	118
6 AM	88	6 PM	142
7 AM	152	7 PM	167
8 AM	228	8 PM	184
9 AM	226	9 PM	212
10 AM	159	10 PM	204
11 AM	162	11 PM	188

The weighted average flow rate of 109 gpm (see Table 8) was compared to the average flow data in December 2020 to determine the residential time patterns and peak factors. The results, which were included in the SSA model, are shown in Table 10. The graphical representation of the results can be referred to in Figure 2.

For commercial and industrial users in the City, the same concept was applied. While the discharge for commercial and industrial use varies based on the business type, a generalized trend was created to represent a standard 8:00 a.m. to 5:00 p.m. business. The time patterns (also included in the SSA model) were created by comparing the same data as described above for the residential flows. The results are provided in Table 11, and a graphical representation is shown in Figure 3.

Table 10. Residential Time Pattern

Time	Average Flow Multiplier	Peak Flow Multiplier
12 AM	1.42	1.36
1 AM	0.80	0.77
2 AM	0.73	0.70
3 AM	0.72	0.69
4 AM	0.66	0.64
5 AM	0.64	0.61
6 AM	0.81	0.78
7 AM	1.39	1.34
8 AM	2.09	2.01
9 AM	2.07	1.99
10 AM	1.46	1.41
11 AM	1.48	1.42
12 PM	1.33	1.28
1 PM	1.21	1.16
2 PM	1.14	1.09
3 PM	0.97	0.93
4 PM	1.08	1.04
5 PM	1.08	1.04
6 PM	1.30	1.25
7 PM	1.53	1.47
8 PM	1.69	1.62
9 PM	1.94	1.86
10 PM	1.87	1.80
11 PM	1.73	1.66
Average	**1.30**	**1.25**

Table 11. Commercial Time Pattern

Time	Average Flow Multiplier	Peak Flow Multiplier
12 AM	0.14	0.13
1 AM	0.14	0.13
2 AM	0.14	0.13
3 AM	0.14	0.13
4 AM	0.14	0.13
5 AM	0.14	0.13
6 AM	0.14	0.13
7 AM	0.99	0.90
8 AM	1.69	1.55
9 AM	2.82	2.58
10 AM	2.82	2.58
11 AM	2.82	2.58
12 PM	2.82	2.58
1 PM	2.82	2.58
2 PM	2.82	2.58
3 PM	2.82	2.58
4 PM	2.82	2.58
5 PM	2.82	2.58
6 PM	2.12	1.93
7 PM	1.41	1.29
8 PM	0.71	0.64
9 PM	0.28	0.26
10 PM	0.14	0.13
11 PM	0.14	0.13
Average	**1.41**	**1.29**

Figure 2. Residential Time Pattern

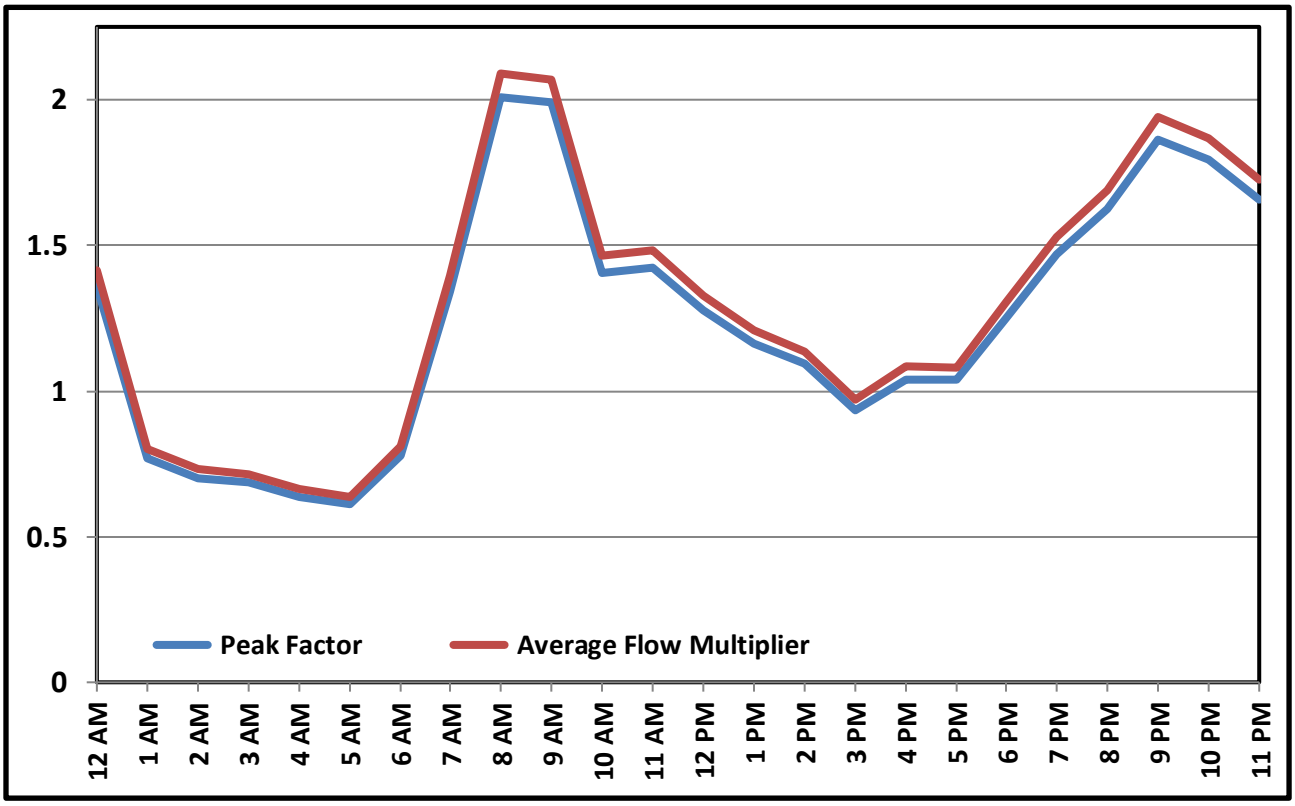
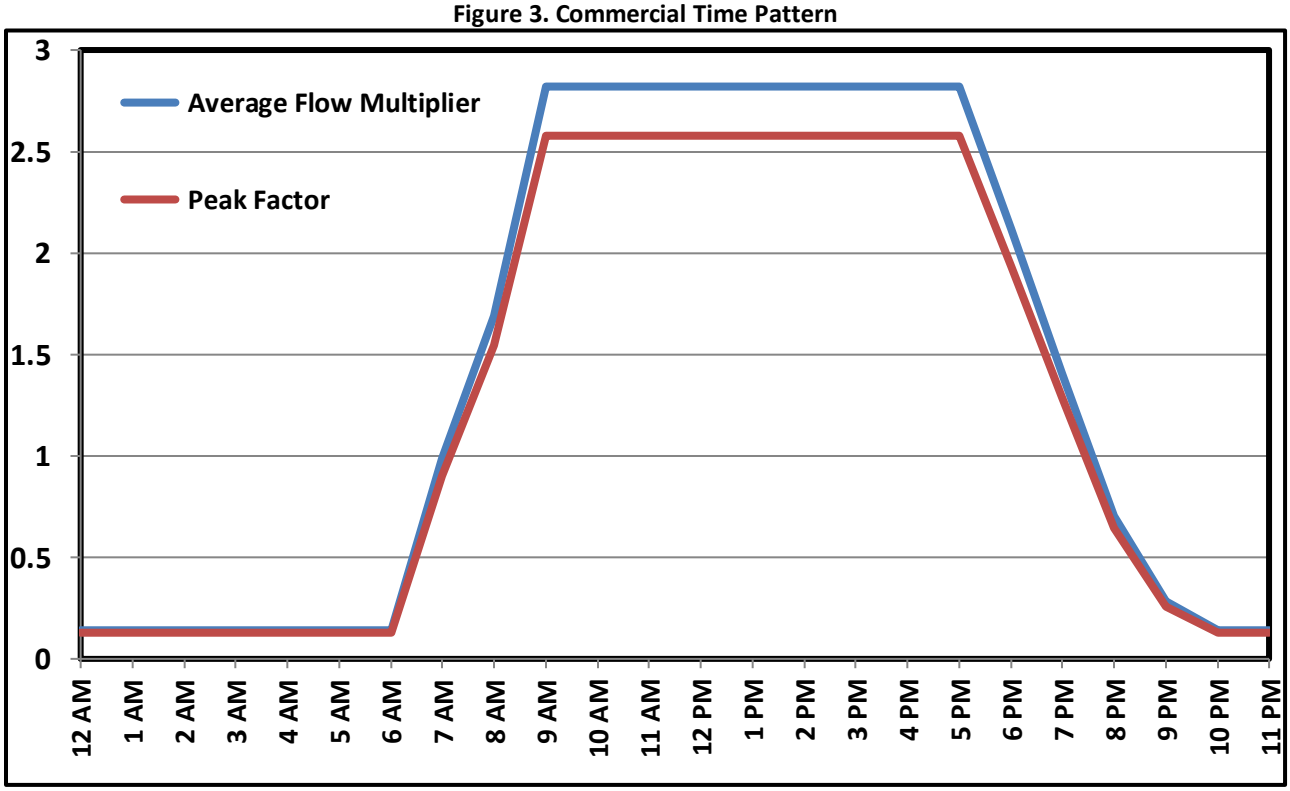


Figure 3. Commercial Time Pattern



4.5 Considerations for Sewer Model Data

The flows used in this analysis were determined using the sewer flow data collected in the City. Due to various factors, the flows used in this analysis may vary from the actual system. Reasons that could cause variance in the results include the following:

1. Flow data from 2021 to the present was inconsistent and showed values that did not seem reasonable. Therefore, flow data from that time was not used in the SSA model.
2. To best represent a single residential ERU, flow data from only two locations were analyzed (see Table 8). The locations were chosen because there were few non-residential ERUs in the area and most accurately represent residential wastewater flows being contributed to the system.
3. The average flow per ERU was determined to be 173 gpd/ERU, which is noticeably lower than the State's design standard for 352 gpd/ERU (see Section 4.3). The sewer flow data was compared to the culinary data, and it was determined it would be most beneficial to use the value from the culinary data in the analysis, which was 245 gpd/ERU.
4. South Weber City's sewer collection system is relatively new and seems to be in good working condition. Therefore, inflow and infiltration should be relatively low and reduce potential problems or deficiencies. However, as the system continues to age, it is likely that more infiltration will occur and could result in additional flows that could impact the system.

To update the results of the SSA model in upcoming years, recent sewer flow data collected throughout the City can be reviewed and adjusted to reflect the existing conditions.

5.0 EXISTING COLLECTION SYSTEM

5.1 Existing System Model, Analysis, and Results

The GIS database for the existing sewer system was imported into an SSA model for analysis. The GIS database includes information for existing pipe segments (length, diameter, slope, etc.) and manholes (rim elevation, inlet and outlet elevations, etc.). Although most of the sewer system's data has been gathered, there are locations where it could not be obtained or could not be determined. As a result, assumptions were made in those locations to reflect the existing conditions as accurately as possible.

All property units were counted in South Weber City, with each home or business allocated as an individual ERU. Each ERU was assigned to the nearest pipe segment and associated downstream node (manhole) receiving the wastewater flows. For example, if a cul-de-sac contains seven (7) homes, then seven (7) ERUs were assigned to the downstream node receiving the flows from those homes. ERUs were generally grouped; therefore, not all nodes contained inflows. The number of ERUs was multiplied by the average flow per ERU (245 gpd or 0.17 gpm/ERU) and added to the model as an "external inflow" for the corresponding node (manhole).

The time patterns described in Section 4 were then applied to each of the external inflows. Intuitively, the residential time pattern was applied to inflows that contained homes. The commercial time pattern was applied to inflows containing businesses and industries. The SSA model was then run for a simulation time of four (4) days to determine where existing deficiencies occur.

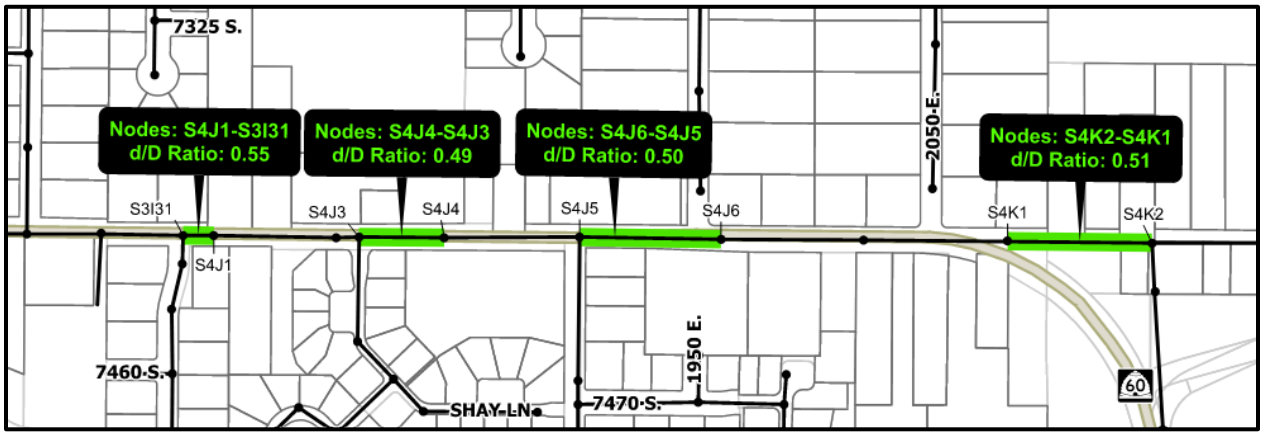
The SSA model provided results for the existing sewer system. Based on the model, it was determined the system had sufficient capacity. No significant deficiencies were identified.

5.2 Watch Area

Although no significant deficiencies were found, one area is recommended for regular inspection and monitoring.

South Weber Drive – The sewer line along South Weber Drive is a main trunk line that receives wastewater from various areas. Four (4) pipe segments have been identified that do not currently require an improvement project but are recommended to be monitored. An overview of the pipe segments and the location of each is provided in Figure 4. Additional information regarding these pipe segments can be referenced in Appendix A, Exhibit 5.

Figure 4. South Weber Drive Watch Area

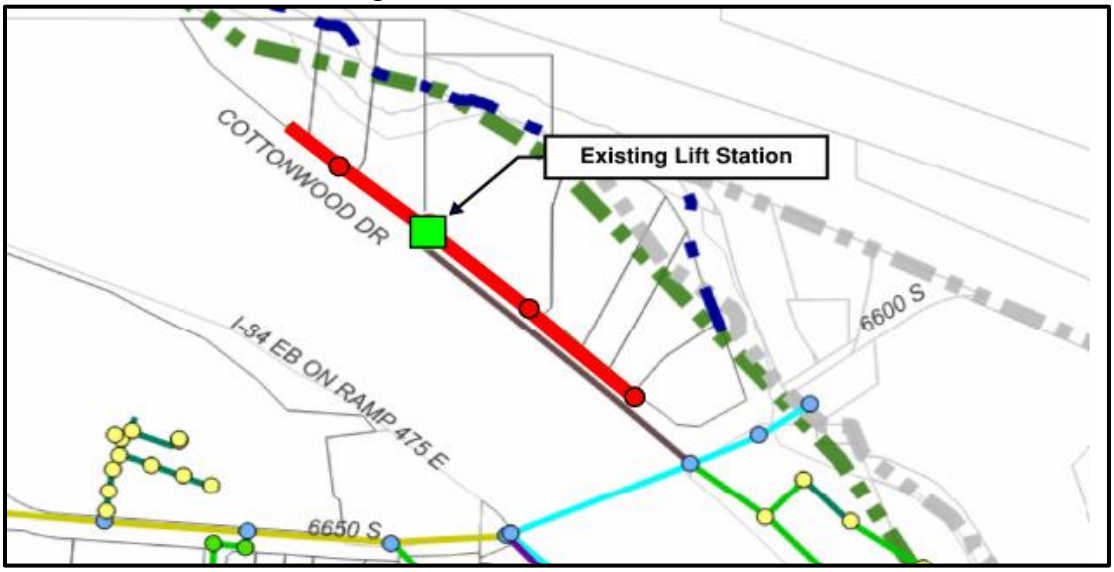


5.3 Additional Investigation

In addition to evaluating potential deficiencies, the City requested a review regarding the lift station located on Cottonwood Drive near the Riverside RV Resort. An analysis was completed to determine whether removing the lift station was feasible in order to have the sewer system operate via gravity alone.

Cottonwood Dr. Lift Station – The lift station on Cottonwood Drive near the Riverside RV Resort serves a small number of connections and has been needed due to the existing topography. To determine if it was feasible for the lift station to be removed in favor of a gravity line, additional survey data was collected. Several scenarios were input into the SSA model to analyze the results for each. An overview of the area analyzed is shown in Figure 5.

Figure 5. Cottonwood Dr. Lift Station



Results showed that although it could potentially be feasible to install a gravity line into an existing manhole connection, there were elevation conflicts from the residential connection to the main pipe. To

get wastewater into the pipe, it would require pumping it from the residence into the system. Therefore, since pumping would still be required in the area, it was determined that keeping the lift station was the most feasible option.

5.4 Existing System Project Recommendations

No projects are currently recommended for completion.

6.0 FUTURE COLLECTION SYSTEM

6.1 Future System Model and Analysis

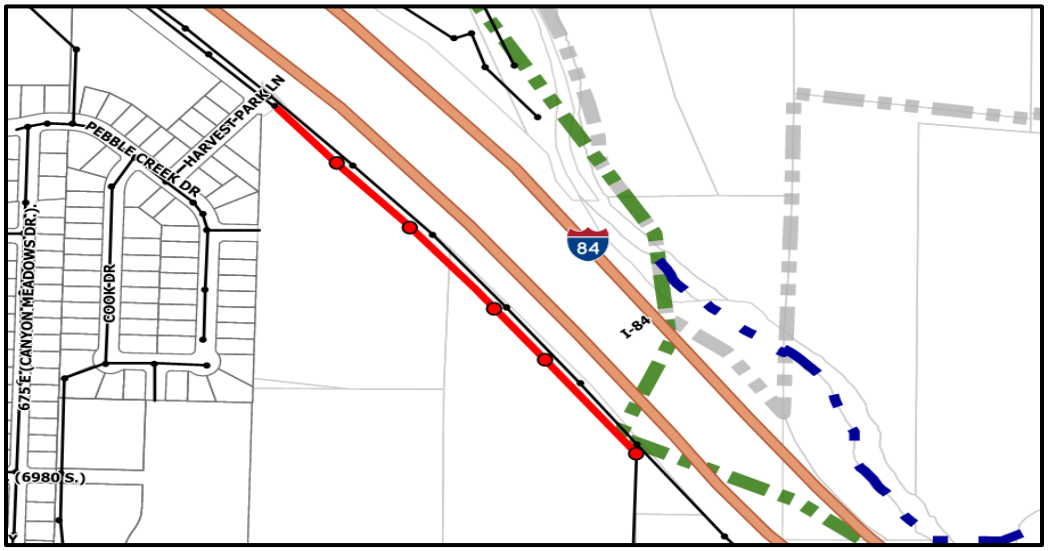
The future system model began with the same features and layout as the existing system model since there are no recommended existing system projects.

The Developable Ground & ERUs map (see Appendix A, Exhibit 3), prepared using the General Plan Land Use and Boundaries, shows that an additional 1,326 ERUs can be developed in the vacant grounds. The estimated flows and associated time patterns for these additional ERUs were assigned to the nearest nodes Like the existing system, the SSA model was run for a simulation time of four (4) days to identify where development would cause the capacity of the pipes to be exceeded.

6.1.1 Old Fort Road Extension

The future system design includes an 8-inch sewer line parallel to the existing 21-inch trunk line from Harvest Park Lane southeastwards approximately 2,000 ft. This future developer-installed sewer line will connect to an existing parallel line. This parallel system is preferrable to replacing the trunk line with a larger size. At the time of development, a revised evaluation should be performed confirming the adequacy of an 8-inch line.
Figure 6 gives an overview of the proposed project, and Exhibit 7 (from Appendix A) provides a reference for the proposed project and its location.

Figure 6. Old Fort Road Extension



6.1.2 South Bench Area

Currently, the South Bench Area is zoned Open Space and has no planned ERUs, therefore, no sewer discharge. However, due to the possible re-zoning and development of this ground, a future model scenario was run which included 260 ERUs. This was done as a precautionary effort to test what kind of impact developing this area of the city would have on the sewer system. Even with the added flows, the model did not indicate any pipe capacity issues beyond those already identified in the rest of the report. If this property were ever considered for development in the future, it would require that the model be

updated to represent the proposed development and confirm impacts. If any upsizing of the existing system is required, the entire cost of those improvements would need to be covered by the proposed development.

The recommendations in this report do not consider the possible development of the South Bench Area.

6.2 Future System Capacity Needs and Recommendations

Running the future system model results in the identification of several pipes meeting capacity. The four (4) pipe segments previously identified on South Weber Drive for the existing system (see Figure 4) are still listed along with four (4) new pipe segments. Of the new pipe segments identified, two (2) are located on South Weber Drive in the same vicinity as the previous four (4) pipes.

The remaining two (2) pipe segments, located near Liberty Way and Riverside Way, are shown to reach capacity; however, no improvement project is recommended due to the location of these pipes within the system.

The identified pipes for the future system can be referenced in Table 12. Exhibit 6 from Appendix A provides the location of the pipe segments and the associated nodes for the future system.

Table 12 Future System – Pipe Segments at Capacity

Upstream Node	Downstream Node	Length (feet)	Slope	Diameter (inches)	d/D
S4J2	S4J1	346.40	0.17%	10	0.55
*SD31	*SD32	110.99	0.05%	8	0.54
S4K2	S4K1	408.30	0.24%	10	0.53
S4J6	S4J5	400.10	0.32%	10	0.52
*S2F5	*S2E9	428.89	0.39%	8	0.51
S4I48	S3I31	79.76	1.89%	8	0.50

**Nodes are not located on South Weber Drive*

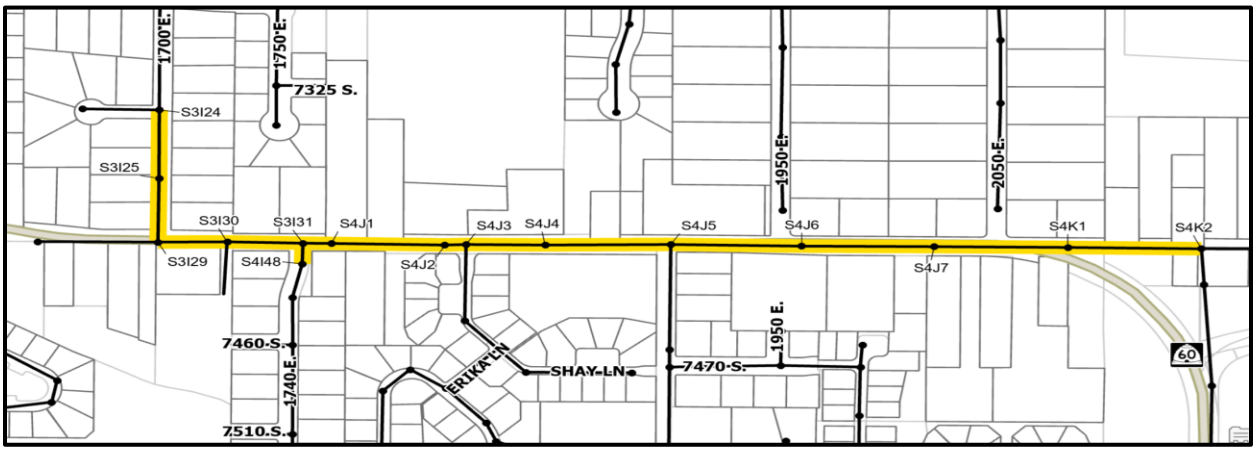
Flow added in the future will be dependent upon growth and development that will occur in the City. Any growth or development that does not correspond with what is anticipated in this report can alter the results. Therefore, any information related to the growth and additional flows contributed to the sewer system should be identified. The project recommendations and notable areas for the future system are provided below.

6.3 Watch Area

For the future system, the single notable area identified was along South Weber Drive.

South Weber Drive – Both the existing and future system models show segments of the sewer line on South Weber Drive from 1700 East to 2215 East reaching their recommended capacity ratios. City personnel have reported no current issues with this sewer line; therefore, it is recommended that this portion of the sewer system be closely monitored. If there is a significant change from the anticipated future ERUs upstream of this pipe run, the sewer model should be run and this pipe segment re-analyzed. An overview of the area is provided in Figure 7.

Figure 7. South Weber Drive (1700 East to 2215 East)



6.4 Future System Project Recommendations

No projects are currently recommended for completion.

7.0 CAPITAL FACILITIES PLAN

7.1 Summary and Recommendations

This report includes an evaluation of South Weber City's sanitary sewer system. The CFP outlines the projects that require immediate replacement and those which will require attention as the build-out of the City occurs. Due to the relatively young age of the sewer system, no maintenance projects are recommended at this time.

It is recommended that South Weber City continue to maintain and clean the sewer system on a consistent basis. Specifically, the pipe segments or areas that have been mentioned need to be watched to ensure further deficiencies do not occur. Despite no major concerns being identified in the SSA model results, specifically regarding pipe capacity, problems can still occur due to unforeseen circumstances (infiltration, inflows, aging infrastructure, etc.).

The CFP should be updated regularly to evaluate future growth and developments. The recommendation is to update the plan every five (5) years.

The CFP is a valuable tool for future planning and contains valuable information needed for the completion of an Impact Fee Facilities Plan (IFFP) and Impact Fee Anaylsis (IFA). The IFFP, included in Section 8, creates a short-term list of projects from the CFP, based on priority, to be used in the calculation of the impact fees. A financial analyst uses the included information to create the IFA.

7.2 Projects

No capacity-related projects are recommended for either the existing or future system. However, the configuration of the future sewer system as detailed in Section 6.1.1 Old Fort Road should be followed when designing that future sewer line.

Additionally, Sections 5.2 and 6.3 identify portions of the sewer system that should be carefully monitored.

8.0 IMPACT FEE FACILITIES PLAN

8.1 Introduction

The Impact Fee Analysis (IFA) will be completed and used as the means for new developments to pay for their impact on the existing sewer system. The State of Utah requires an IFFP to be prepared before an Impact Fee can be implemented in the City. The law also requires the IFFP only contain the costs for short-term growth (6 to 10 years) and cannot include improvements which would raise the existing level of service. This section will summarize information from the previous sections as it relates to the enactment of the impact fee for the City.

Title 11-36a, Section 300, of the UAC outlines the requirements of the IFA, which is also required to be prepared before an Impact Fee can be implemented. South Weber's financial consultant will prepare the IFA.

8.2 Growth Projections

Long term growth projections for South Weber City are discussed in Section 3.2. This section focuses on the growth during the next decade (2025 to 2035).

As described in Section 3.2, South Weber City is expected to reach a build-out population of 12,429 around 2039. The ERU growth rate is projected to mimic population growth, equating to a total of approximately 4,148 ERUs. This would result in an additional 1,326 ERUs from what is estimated in 2025.

Through 2035, South Weber City is expected to reach a population of 11,457 and have 3,580 total ERUs. Table 13 contains the projected population and ERUs for the next 10 years as applicable and analyzed for the CFP.

Table 13. Population and ERU Projections (IFFP)

Year	Population	Residential ERUs	Non-Residential ERUs	Total ERUs	Addt'l ERUs
2025	9,033	2,566	256	2,822	-
2026	9,262	2,631	263	2,894	72
2027	9,494	2,697	270	2,967	145
2027	9,729	2,764	276	3,040	218
2029	9,967	2,832	283	3,115	293
2030	10,208	2,900	290	3,190	368
2031	10,452	2,969	297	3,266	444
2032	10,699	3,039	304	3,343	522
2033	10,948	3,110	311	3,421	600
2034	11,201	3,182	318	3,500	678
2035	11,457	3,255	325	3,580	758

8.3 Service Area

The existing sewer system serves all residents in the South Weber City boundary within one interconnected system. In future years, it is assumed that all annexed areas will be included in the existing system. It is anticipated that most additions will be completed by developers.

8.4 Level of Service

For the sewer system, the residents expect they will be able to use the system under normal operating conditions, including during peak use times, without the associated connections or pipe segments backing up. Unique or unforeseen circumstances such as blockages, infiltration, inflow, line breaks, or other unanticipated problems are not considered in this analysis.

8.5 Future Development Needs

Based on the model, the existing sewer system is capable of handling future development; therefore, no projects are recommended. Attention should be given to the watch areas identified in the Capital Facilities Plan.

8.6 Excess Capacity

Future growth will utilize the remaining capacity in the existing sewer system and future projects described in the CFP. Sewer projects constructed using available City funds were analyzed to determine the remaining capacity. In this section, excess capacity, if any, will be determined and evaluated.

Utah Code 11-36a-202 "Prohibitions on impact fees" states:

*(1) A local political subdivision or private entity **may not:***

(a) impose an impact fee to:

(i) cure deficiencies in a public facility serving existing development;

(ii) raise the established level of service of a public facility serving existing development;

(iii) recoup more than the local political subdivision's or private entity's costs actually incurred for excess capacity in an existing system improvement;

One (1) project was found to be eligible under the UAC Code listed above.

Public Works Facility Project – The City has bonded for and is currently constructing a new Public Works Facility. The new Public Works Facility will serve both the existing and future needs of the sewer system. Utility enterprise funds and impact fees are planned to be used to make the payments on the bond. The City has established that the sewer system accounts for 30% of the use and, therefore, 30% of the total cost of the facility. Additional information can be found in Appendix A, Exhibit 7.

ERUs Served

Total ERUs Served – 4,418

Future ERUs Served – 1,326 (32%)

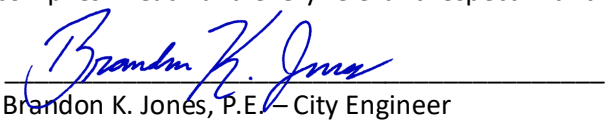
Total Cost of Project (Sewer Portion Only)

Facility Bond (P&I)	$4,002,695
Property Cost	88,221
Total Cost	$4,090,916
Percent Impact Fee Eligible	32%
Impact Fee Eligible Portion of the Public Works Facility Project	**$1,309,093**

8.7 Certification

"I certify that the attached impact fee facilities plan:

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; and
3. complies in each and every relevant respect with the Impact Fees Act."



Brandon K. Jones, P.E. – City Engineer

Appendix A
Exhibits

RIVERDALE CITY

WASHINGTON TERRACE CITY

SOUTH OGDEN CITY

UINTAH CITY

LAYTON CITY

CLEARFIELD

0 0.5 1 Miles

JA

ZONING

- A (AGRICULTURAL ZONE)
- A-10 (AGRICULTURAL-AIRCRAFT HAZARD ZONE)
- B-C (BUSINESS COMMERCE ZONE)
- C (COMMERCIAL ZONE)
- C-H (HIGHWAY-COMMERCIAL ZONE)
- C-R (COMMERCIAL RECREATION ZONE)
- L-I (LIGHT INDUSTRIAL ZONE)
- N-R (NATURAL RESOURCE ZONE)
- P-O (PROFESSIONAL OFFICE ZONE)
- R-5 (RESIDENTIAL MULTIFAMILY ZONE)
- R-7 (RESIDENTIAL MULTI-FAMILY ZONE)
- R-L (RESIDENTIAL LOW DENSITY ZONE)
- R-LM (RESIDENTIAL LOW-MODERATE DENSITY ZONE)
- R-M (RESIDENTIAL MODERATE DENSITY ZONE)
- R-P (RESIDENTIAL PATIO ZONE)
- T-1 (TRANSITIONAL LIGHT INDUSTRIAL ZONE)
- SG (STRATEGIC GROWTH) OVERLAY ZONE
- DEVELOPMENT AGREEMENT

Piped Aqueduct

City Boundaries

- South Weber
- Other
- SWC Annexation

Parcels

- South Weber City
- Other

SOUTH WEBER city

NOTES:

SCALE: 1" = 2,000'

DATE: 8/12/2025

JONES & ASSOCIATES

CONSULTING ENGINEERS

6080 Fashion Point Drive
South Ogden, Utah 84403 (801) 476-9767

SOUTH WEBER CITY

SANITARY SEWER FACILITIES PLAN

CURRENT ZONING

EXHIBIT 1

RIVERDALE CITY

WASHINGTON TERRACE CITY

SOUTH OGDEN CITY

UINTAH CITY

SOUTH WEBER CITY

LAYTON CITY

CLEARFIELD

0 0.5 1 Miles

JA

- *SWC Manholes*
- *Private Manholes*
- *CWID Manholes*
- *Lift Station*

Sewer Mains

- *4"*
- *6"*
- *8"*
- *10"*
- *12"*
- *15"*
- *18"*
- *21"*
- *30"*
- *Unknown*

City Boundaries

- *South Weber*
- *Other*
- *SWC Annexation*

Parcels

- *South Weber City*
- *Other*

SOUTH WEBER city

NOTES:

SCALE: *1" = 2,000'*

DATE: *8/12/2025*

JONES & ASSOCIATES

CONSULTING ENGINEERS

6080 Fashion Point Drive
South Ogden, Utah 84403 (801) 476-9767

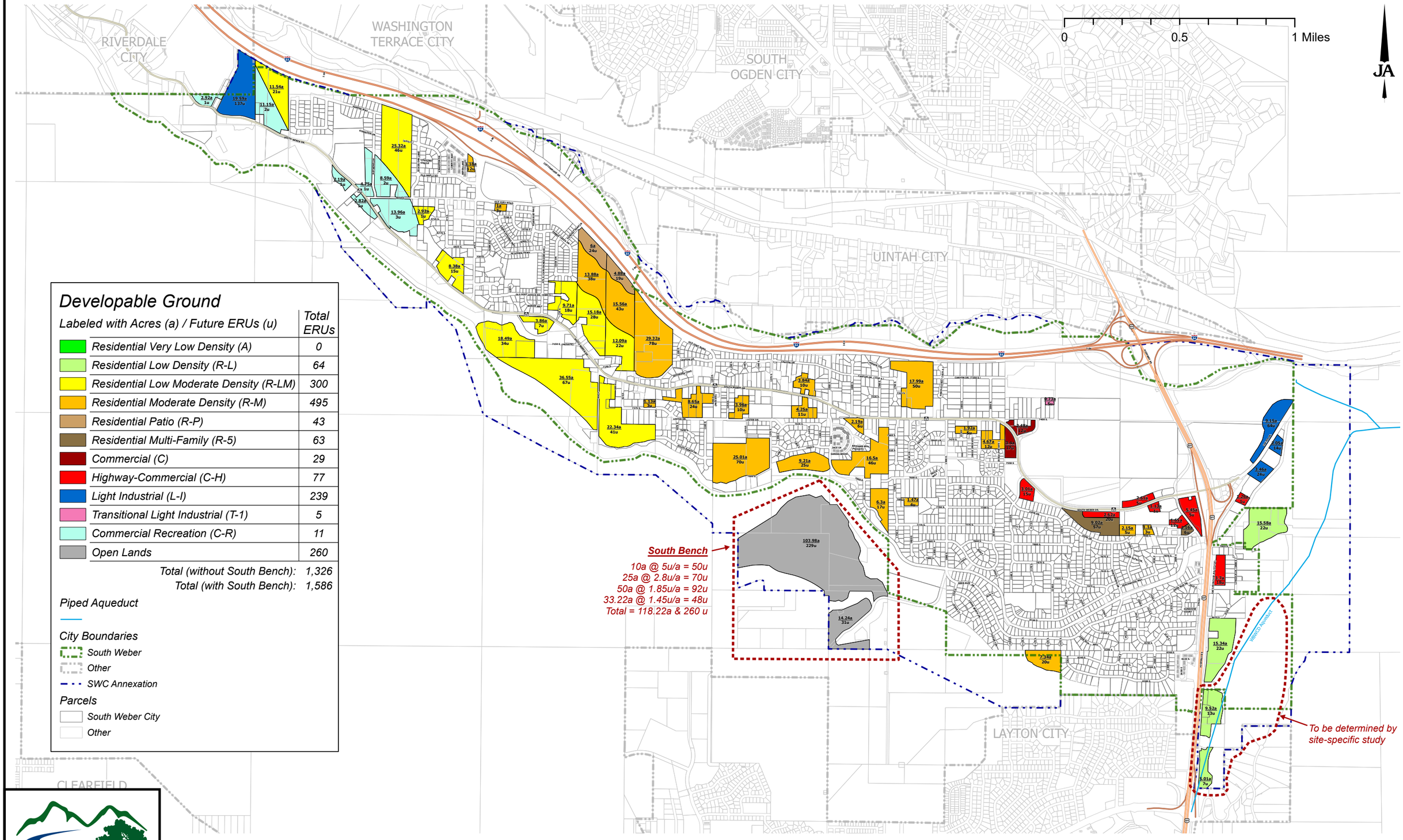
SOUTH WEBER CITY

SANITARY SEWER FACILITIES PLAN

EXISTING SYSTEM

EXHIBIT

2



Developable Ground

Labeled with Acres (a) / Future ERUs (u)

	Total ERUs
Residential Very Low Density (A)	0
Residential Low Density (R-L)	64
Residential Low Moderate Density (R-LM)	300
Residential Moderate Density (R-M)	495
Residential Patio (R-P)	43
Residential Multi-Family (R-5)	63
Commercial (C)	29
Highway-Commercial (C-H)	77
Light Industrial (L-I)	239
Transitional Light Industrial (T-1)	5
Commercial Recreation (C-R)	11
Open Lands	260
Total (without South Bench):	1,326
Total (with South Bench):	1,586

Piped Aqueduct

City Boundaries

- South Weber
- Other
- SWC Annexation

Parcels

- South Weber City
- Other

SOUTH WEBER city

NOTES:

Areas shown with future ERU's are approximate and do not in any way suggest that development of the ground is possible or approvable. The information from this map was used to estimate needs for future sewer infrastructure.

SCALE: 1" = 2,000'

DATE: 8/12/2025

JA JONES & ASSOCIATES

CONSULTING ENGINEERS

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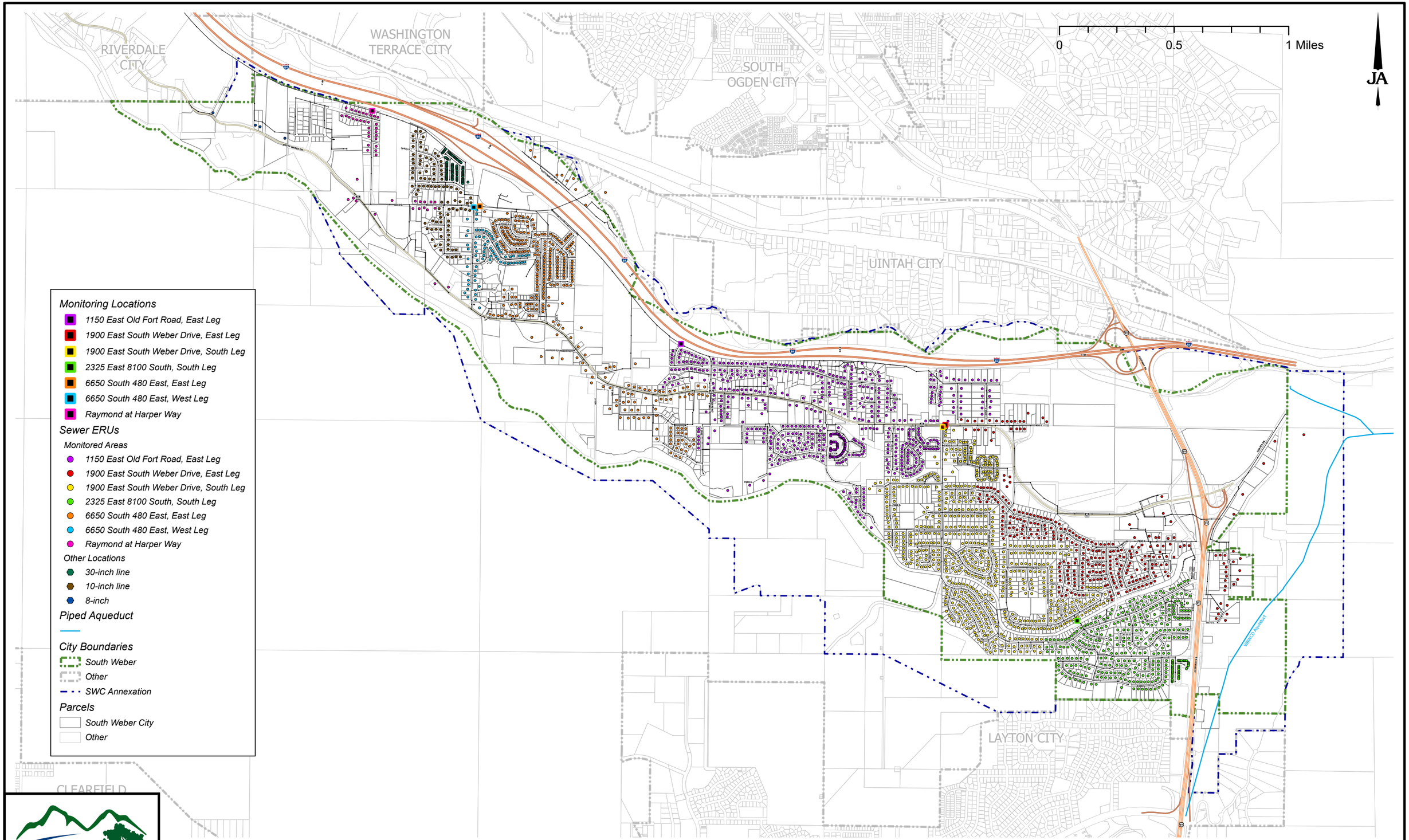
South Ogden, Utah 84403 (801) 476-9767

SOUTH WEBER CITY

SANITARY SEWER FACILITIES PLAN

DEVELOPABLE GROUND & ERUs

EXHIBIT **3**



SOUTH WEBER city

NOTES:

SCALE: 1" = 2,000'

DATE: 8/12/2025

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South Ogden, Utah 84403 (801) 476-9767

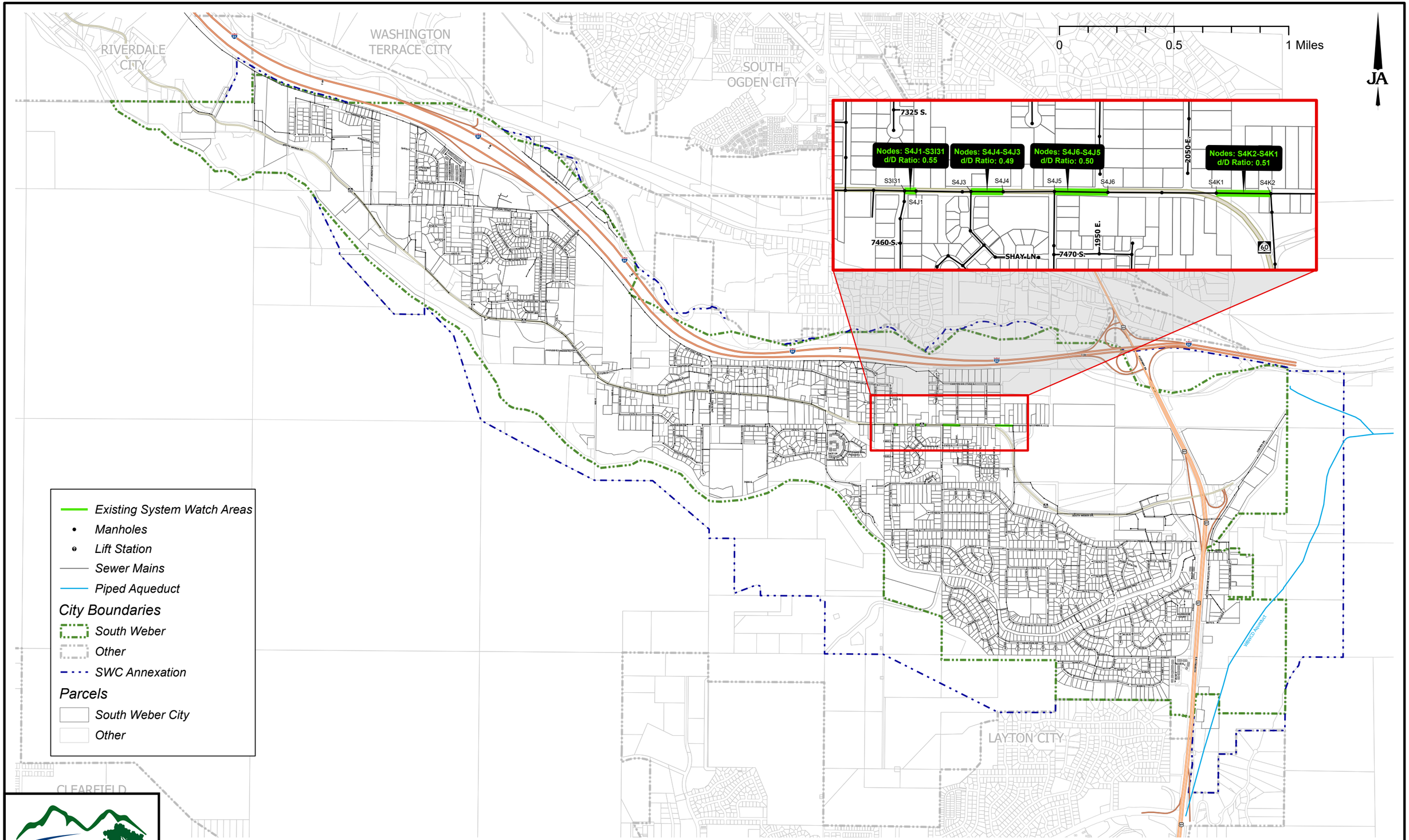
SOUTH WEBER CITY

SANITARY SEWER FACILITIES PLAN

EXISTING ERUs & MONITORING LOCATIONS

EXHIBIT

4



SOUTH WEBER city

NOTES:

SCALE: 1" = 2,000'

DATE: 8/12/2025

JONES & ASSOCIATES

CONSULTING ENGINEERS

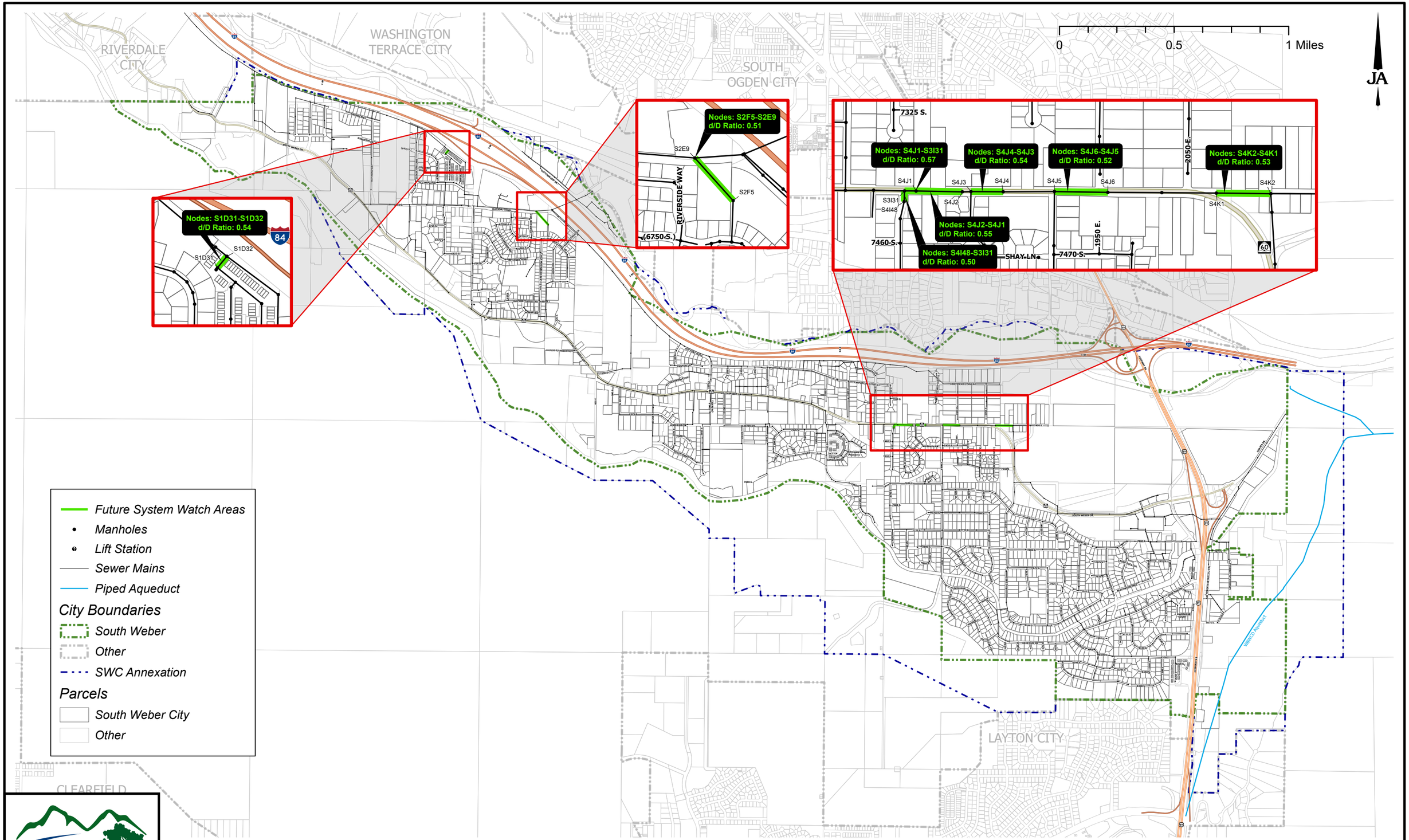
6080 Fashion Point Drive
South Ogden, Utah 84403 (801) 476-9767

SOUTH WEBER CITY

SANITARY SEWER FACILITIES PLAN

EXISTING SYSTEM WATCH AREAS

EXHIBIT 5



SOUTH WEBER city

NOTES:

SCALE: 1" = 2,000'

DATE: 8/12/2025

JA JONES & ASSOCIATES

CONSULTING ENGINEERS

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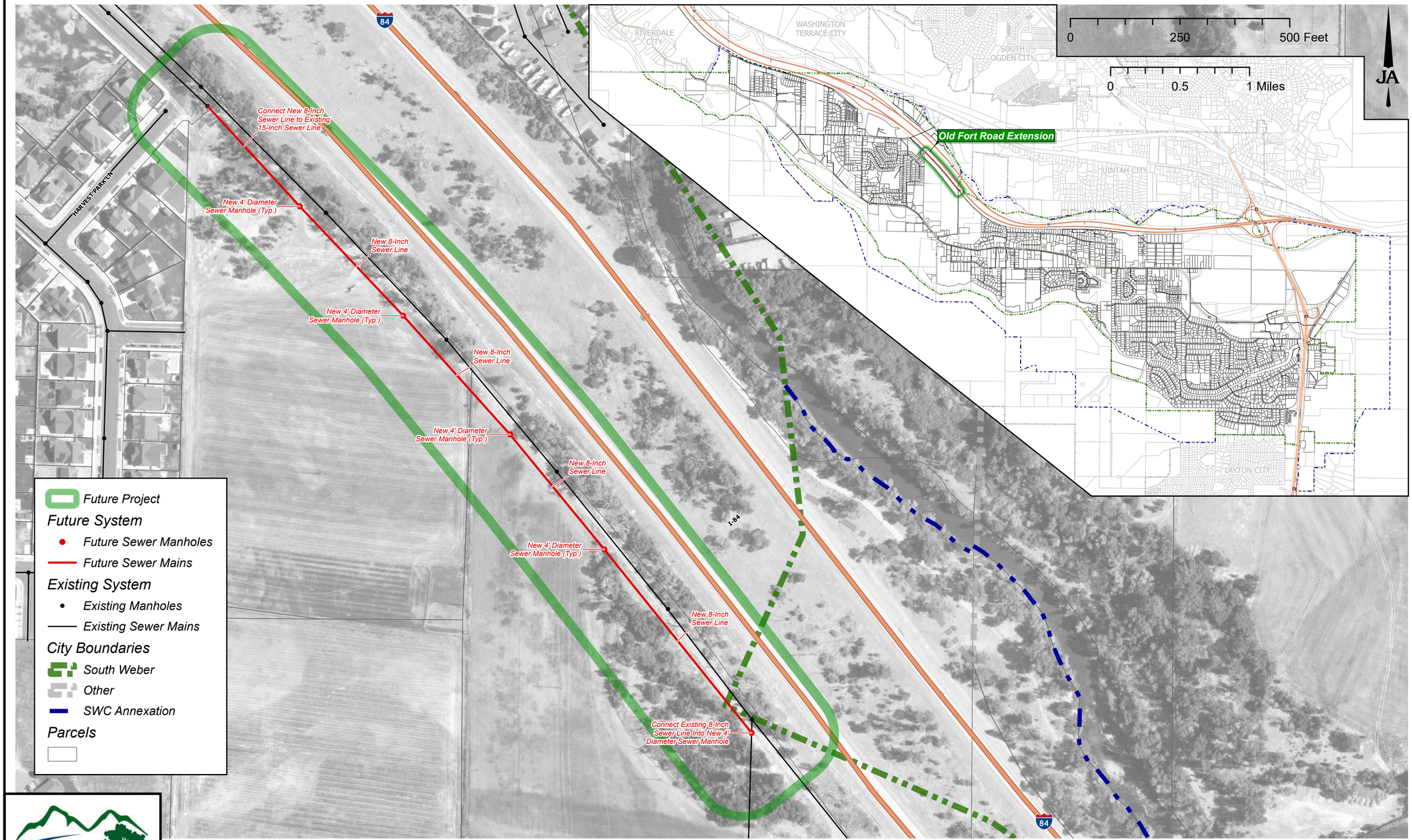
South Ogden, Utah 84403 (801) 476-9767

SOUTH WEBER CITY

SANITARY SEWER FACILITIES PLAN

FUTURE SYSTEM WATCH AREAS

EXHIBIT **6**



SOUTH WEBER city

NOTES:
Aerial Imagery © 2025 HxGN Content Program, Hexagon

SCALE:
1" = 200'

DATE:
8/12/2025

JONES & ASSOCIATES

CONSULTING ENGINEERS

6080 Fashion Point Drive
South Ogden, Utah 84403 (801) 476-9767

SOUTH WEBER CITY

SANITARY SEWER FACILITIES PLAN

OLD FORT ROAD EXTENSION

EXHIBIT

7

Appendix B
Flow Data

No.	Node ID No.	Location	Address	Data Collection Intervals (Months & Days)												Average Data			No. ERUs
				3/31/2023	4/30/2023	5/31/2023	6/30/2023	7/31/2023	8/31/2023	9/30/2023	10/31/2023	11/30/2023	12/31/2023	1/31/2024	2/29/2024				
				31	30	31	30	31	31	30	31	30	31	31	29				
ERU Description and Location				Culinary Water Flow Data (Thousands of Gallons)												Total Gallons	GPD	GPM	Culinary (0.17 gpm)
1	S4L28	Burly Burger	2572 East South Weber Drive	37	45	56	59	57	85	78	84	85	86	84	65	821,000	2,243	1.56	9.16
2	S4G5	Elementary School	1285 East Lester Street	37	30	47	12	7	28	61	44	39	39	84	46	474,000	1,295	0.90	5.29
3	S4G2	Family Activity Center	1181 East Lester Drive	8	7	7	5	2	5	8	9	11	11	9	10	92,000	251	0.17	1.03
4	S4L18	High Mark Charter School	2467 East South Weber Drive	32	27	35	188	163	1,388	405	312	283	0	18	30	2,881,000	7,872	5.47	32.16
5	S4G4	K-2 School	1285 East Lester Street #K2	23	19	27	10	4	8	32	27	23	26	38	26	263,000	719	0.50	2.94
6	S4L25	Maverik	2577 East South Weber Drive	51	63	72	86	82	105	77	74	53	54	59	52	828,000	2,262	1.57	9.24
7	S0047	Morty's Car Wash	7723 South 2700 East	525	495	455	399	415	425	340	396	386	543	657	502	5,538,000	15,131	10.51	61.81
			Total	**713,000**	**686,000**	**699,000**	**759,000**	**730,000**	**2,044,000**	**1,001,000**	**946,000**	**880,000**	**759,000**	**949,000**	**731,000**	**10,897,000**	**29,773**	**20.68**	**121.62**

Appendix C
Population & ERU Projections

Year	Population Projection	Annual Growth Rate	Projected Residential ERUs	Projected Non-Residential ERUs	Projected Total ERUs	Additional Residential ERUs	Additional Total ERUs
2020	7,867	-	2,253	206	2460	-	-
2021	8,145	3.54%	2,333	213	2547	-	-
2022	8,363	2.67%	2,395	219	2615	-	-
2023	8,583	2.64%	2,459	225	2683	-	-
2024	8,807	2.60%	2,502	250	2752	-	-
2025	9,033	2.57%	2,566	256	2,822	-	-
2026	9,262	2.54%	2,631	263	2,894	65	72
2027	9,494	2.51%	2,697	270	2,967	131	145
2028	9,729	2.48%	2,764	276	3,040	198	218
2029	9,967	2.45%	2,832	283	3,115	266	293
2030	10,208	2.42%	2,900	290	3,190	334	368
2031	10,452	2.39%	2,969	297	3,266	403	444
2032	10,699	2.36%	3,040	304	3,344	474	522
2033	10,948	2.33%	3,111	311	3,422	545	600
2034	11,201	2.31%	3,182	318	3,500	616	678
2035	11,457	2.28%	3,255	325	3,580	689	758
2036	11,715	2.26%	3,328	333	3,661	762	839
2037	11,976	2.23%	3,402	340	3,742	836	920
2038	12,176	2.21%	3,459	347	3,806	893	984
2039	12,429	2.18%	3,531	355	3,886	965	1,064
2040	12,429	2.16%	3,531	363	3,894	965	1,072
2041	12,429	2.14%	3,531	371	3,902	965	1,080
2042	12,429	2.11%	3,531	378	3,909	965	1,087
2043	12,429	2.09%	3,531	386	3,917	965	1,095
2044	12,429	2.07%	3,531	394	3,925	965	1,103
2045	12,429	2.05%	3,531	402	3,933	965	1,111
2046	12,429	2.03%	3,531	411	3,942	965	1,120
2047	12,429	2.01%	3,531	419	3,950	965	1,128
2048	12,429	1.99%	3,531	427	3,958	965	1,136
2049	12,429	1.97%	3,531	436	3,967	965	1,145
2050	12,429	1.95%	3,531	444	3,975	965	1,153
2051	12,429	1.93%	3,531	453	3,984	965	1,162
2052	12,429	1.91%	3,531	461	3,992	965	1,170
2053	12,429	1.90%	3,531	470	4,001	965	1,179
2054	12,429	1.88%	3,531	479	4,010	965	1,188
2055	12,429	1.86%	3,531	488	4,019	965	1,197
2056	12,429	1.84%	3,531	497	4,028	965	1,206
2057	12,429	1.83%	3,531	506	4,037	965	1,215
2058	12,429	1.81%	3,531	515	4,046	965	1,224
2059	12,429	1.80%	3,531	524	4,055	965	1,233
2060	12,429	1.78%	3,531	534	4,065	965	1,243
2061	12,429	1.76%	3,531	543	4,074	965	1,252
2062	12,429	1.75%	3,531	552	4,083	965	1,261
2063	12,429	1.73%	3,531	562	4,093	965	1,271
2064	12,429	1.72%	3,531	572	4,103	965	1,281
2065	12,429	1.70%	3,531	581	4,112	965	1,290

2066	12,429	1.69%	3,531	591	4,122	965	1,300
2067	12,429	1.68%	3,531	601	4,132	965	1,310
2068	12,429	1.66%	3,531	611	4,142	965	1,320
2069	12,429	1.65%	3,531	617	4,148	965	1,326