ELK RIDGE CITY

WASTEWATER CAPITAL FACILITIES PLAN

April 19, 2024

Project #: 2211-036

Prepared by:

Jones & DeMille Engineering
1982 2022
Shaping the Quality of Life for 40 Years

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TABLE OF CONTENTS

FIGURES

TABLES

1. EXECUTIVE SUMMARY

The Elk Ridge City Wastewater Capital Facilities Plan will evaluate the system's ability to handle existing and future demands for a 20-year period from 2022 to 2042. Recommendations will be provided based on data collected by Jones and DeMille Engineering (JDE), data provided by Elk Ridge City (the City), future growth projections, and city personnel observations.

The City's wastewater system consists of 454 sewer manholes and 21.1 miles of gravity sewer pipe which conveys flows toward the northwest into the Payson at the intersection of Elk Ridge Drive and 11200 South: with the exception of 51 homes north of 11200 South which flow into the Salem City Wastewater system north of Deer Creek Trail. The Payson and Salem wastewater systems provide all the treatment for the Elk Ridge wastewater.

Future growth is anticipated to occur throughout the city and around the edges especially the east, south, and west sides. Significant development to the south is likely to occur later than other areas of development. No deficiencies in the operation of the Elk Ridge wastewater collection system were identified, and modeling was inconclusive if development will lead to future deficiencies. Further study is recommended to be able to identify future deficiencies.

Recommended Improvements Cost Summary

Improvement Name	Description	Cost (2023 Dollars)	Financial Planning Period	Construction Planning Year	Year Needed
Wastewater Modeling Study	Survey manholes and upload the information in the model. Recalculate system capacity.	$24,000	2024	-	-
System Video Inspection	Every 5-10 years conduct video inspection of 1/3 to 1/2 the system	$130,000	5-10 years		
Total Improvements Cost		**$150,000**			

2. INTRODUCTION

The City collects wastewater from residential, commercial, and institutional connections, with the majority of connections being residential.

Jones and DeMille Engineering has been contracted by Elk Ridge City to prepare this Wastewater Master Plan. The report will examine current deficiencies within the system and determine possible improvements that could be made to improve the longevity of the system.

3. DEFINITIONS

ERU	Equivalent Residential Connections	SRF	State Revolving Fund
gpm	gallons per minute	DWQ	Division of Water Quality
CIB	Community Impact Fund Board	ac	acre

4. DEMOGRAPHICS

4.1. POPULATION PROJECTIONS

Growth projections were developed using historic Census data (1970-2022), Kem C Gardener Policy Institute Projected Utah County Growth, and data reported by Elk Ridge City to the Division of Water Rights (2020-2023). To calculate the projected population, the future value formula was used, see Equation 1.

$$FP = CP \times (1 + r)^t \quad (1)$$

Where:
FP = Future Population
CP = Current Population
r = Annual Growth Rate (%)
t = Number of Years Between Current and Future Population

Elk Ridge City has experienced significant growth in recent years. From 2000 to 2010 the population grew at a pace of 3.10% annually, from 2010 to 2020 the growth increased to 7.50% annually. In 2021 the growth rate returned to 3.00%. Since the more recent growth rate of 3.00% is more typical for the state and this area, it was used to determine the future growth projections. In 2030, Elk Ridge's population is projected to be approximately 5,755, and approximately 7,015 in 2040 (see Figure 1). A Development Capacity map from the Elk Ridge City General Plan identifying future growth areas, their zoning, and the number of units that would be able to be constructed was used to model the build-out condition for the model.

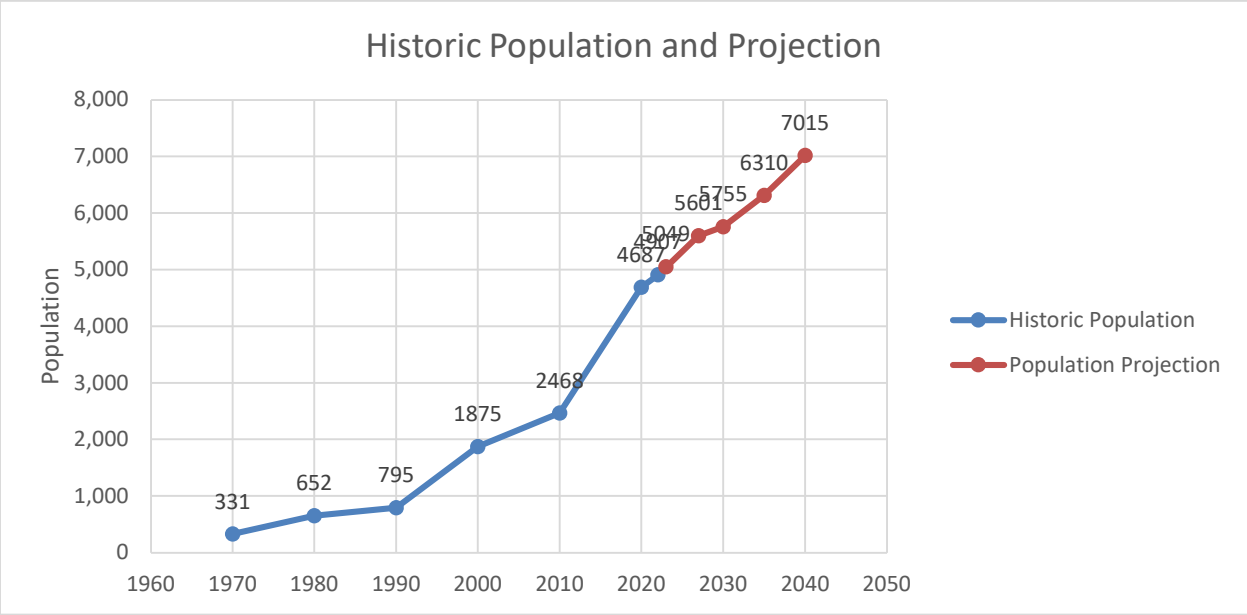


Figure 1 - Population Projections

4.2. EQUIVALENT RESIDNETIAL UNIT

One Equivalent Residential Unit (ERU) is the amount of wastewater that one average permanent household produces in a day. Businesses and other establishments are converted into ERUs based on water usage to determine the total ERUs of a system. Culinary water usage data was used to determine the ERU conversion for all the non-residential connections.

Elk Ridge is mainly a residential community with some commercial and institutional connections. Water usage for these connections was based on the data reported to the Division of Water Rights by Elk Ridge City for 2022. Because the water usage data does not differentiate the water between indoor and outdoor use and most of the residential culinary water use is for irrigating lawns, the calculation for converting connections to ERUs is straightforward and combines indoor and outdoor use. Typically, for planning purposes, ERUs are used to define the capacities of system components. Equations 2 and 3 show the conversion for connections to ERUs. A breakdown of connections and their ERU is shown in In 2022 Elk Ridge reported 810.94 acre-feet of residential water use. That is equivalent to 723,960.58 gallons per day. Using Equation 2, that gives 580.10 gallons per day per ERU, or 0.40 gallons per minute per ERU.

Table 1 - 2022 Culinary Water Connections.

$$\text{Water Usage per ERU} = \frac{\text{Total Water Used by Residential Connections}}{\text{Number of Residential Connections}} \quad (2)$$

$$\text{Number of ERUs} = \frac{\text{Water Usage by Type of Connection}}{\text{Water Usage per ERU}} \quad (3)$$

In 2022 Elk Ridge reported 810.94 acre-feet of residential water use. That is equivalent to 723,960.58 gallons per day. Using Equation 2, that gives 580.10 gallons per day per ERU, or 0.40 gallons per minute per ERU.

Table 1 - 2022 Culinary Water Connections

2022	Connections	ERU
Residential	1,248	1,248
Commercial	1	6
Industrial	0	0
Institutional	13	59
Total Connections	1,262	1,313

The population equivalent is calculated by converting commercial or non-residential users into an equivalent residential population. The total number of occupied residential housing units is 678. As a note, the number of people per household is 3.30, as calculated below in equation 4.

$$\frac{4{,}907\ people}{1{,}248\ Residential\ Connections} = 3.93\ people\ per\ household\ or\ ERU \quad (4)$$

4.3. ERU PROJECTIONS

To project future water demands, it was assumed that the system ERUs would grow at the same rate as the population. This assumes that the residential, institutional, and commercial connections grow proportionally. Figure 2 shows existing and projected number of ERUs through 2040.

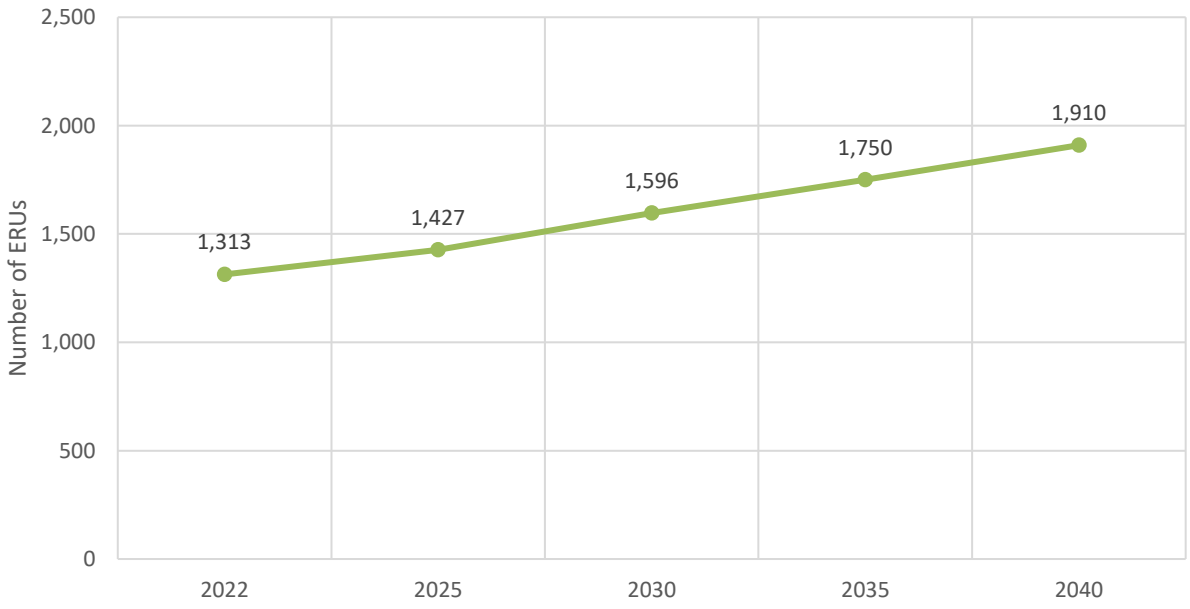


Figure 2 - Projected ERU Growth

4.4. LOCALIZED GROWTH

The previously adopted Elk Ridge City General Plan included a Development Capacity map identifying future growth areas in full city build out. The map identifies the zoning, size of each growth area, and the number of units that would be able to be developed. The map, included in Appendix A, shows the largest area for growth is south of the city, with large areas for growth on the east and west side and limited growth available on the north end of the city.

5. SYSTEM EVALUATION

The existing wastewater system for Elk Ridge city is composed of 454 manholes connected by 21.1 miles of gravity flow wastewater pipe. The pipe network is exclusively a collection system which delivers the wastewater to the Payson City wastewater system north of Elk Ridge city limits in Elk Ridge Drive for treatment. Elk Ridge City pays Payson City for this arrangement. The system has two trunklines: one in 11200 South and one in Elk Ridge Drive. The City maintains a GIS database of information on their utilities including their wastewater system. The database includes information on the locations of manholes and pipes. However, the database only has limited data on pipe sizes and does not have data on pipe invert depths. A representative model was created assuming that the pipe slopes mirrored the surface slope. This model was used to generally analyze the existing and build-out conditions of the collection system. However, without accurate data on existing pipe sizes and slopes, the model is inaccurate and should only be considered an approximate representation of the actual system. However, as the city is located almost entirely on the hillside of the mountain, there is substantial change in elevation along the surface of ground. This generally allows for collection systems to be constructed at minimum depths that follow the slope of the ground, thus giving the approximate model some degree of validity.

The simplified model did not identify any existing deficiencies in the collection system. This imprecise conclusion was confirmed by the City staff as they indicated that they were unaware of any locations where the system was experiencing surcharging. The model did show a need for pipes larger than 8 inches in diameter for the two trunk lines with the future demands on the system. Due to the inaccuracy of the model, further development of the model will need to be conducted to effectively evaluate the magnitude of the improvements needed to address this concern. For the build out condition the demands of future growth areas were calculated as shown in Table 2 – Future Growth Areas Demands. The data for Table 2 can be found in Appendix A. The model shows that further investigation is needed to determine if sufficient capacity exists in existing pipes to flow the most southeast future growth areas.

Table 2 – Future Growth Areas Demands

No.	Land Use	Area (ac)	Units (ERU)	Wastewater Generation (gpm)
1	R&L-1-20,000	50.01	76	30.4
2	C-1	7.35	19	7.6
3	Future Annex C-1	20.08	51	20.4
4	Fut. Annex R-1-15,000	12.94	27	10.8
5	Fut. Annex R-1-15,000	14.63	30	12
6	R-1-15,000	9.05	18	7.2
7	R&L-1-20,000	80.17	122	48.8
8	R&L-1-20,000	5.25	8	3.2
9	R&L-1-20,000	2.97	3	1.2
10	HR-1	69.98	53	21.2
11	R&L-1-20,000	15.37	23	9.2
12	Future Annex HR-1	24.54	19	7.6
13	Fut. Annex CE-3	92.4	86	34.4
14	CE-3 - Cluster	396.61	367	146.8
15	R-1-12,000	4.08	12	4.8
16	HR-1	71.77	55	22
17	R-1-15,000	2.27	6	2.4
18	HR-1	3.48	2	0.8
19	R-1-15,000	10.65	20	8
Totals			997	398.8

6. RECOMMENDED IMPROVEMENTS

6.1.1. WASTEWATER MODEL IMPROVEMENTS

The model of the existing wastewater distribution system is representative but lacks the key details of pipe slopes and in some cases pipe diameter. These details are imperative to calculating system capacity and identifying deficiencies. Gathering the information is a simple but time-consuming process of GPS locating each lid, measuring the distance from the rim to the trough, and recording observations. Gathering that information into a usable format for the entire city is estimated to cost $24,000. If distances from the rim to the trough are carefully collected during the currently ongoing ultrasonic wastewater pipe inspections, or other inspections, the estimated cost of gathering the rest of the data and updating the model is $6,000.

6.1.2. SYSTEM VIDEO INSPECTION

Due to the age and extent of the sewer system, regular video inspection of the pipelines is recommended every five to ten years to verify the condition of the system. The inspection will help to provide valuable information on the condition of the system and prevent damage or harm to residents from any unsanitary conditions should the system become compromised. This inspection process is typically conducted by a professional company with all the proper equipment but could be completed by City if the proper equipment was acquired. A recent quote for cleaning and video inspection would put the cost for cleaning and inspection of the entire system at about $131,300.00; however, different companies may price differently, and costs will go up over time.

6.1.3. TRUNKLINE UPSIZING INVESTIGATION

The main trunklines in 11200 South, Elk Ridge Drive, and Deer Creek Trail are the final collection points for wastewater in the Elk Ridge system before the wastewater enters other jurisdictions. It is recommended that investigations be conducted to determine existing capacity and whether that will be sufficient for future growth. Minimally the pipe size, slope, and length of these trunklines would need to be gathered so that their existing flows and capacities could be precisely modeled.

7. IMPACT FEE ANALYSIS

8. CONCLUSION

The Elk Ridge City Wastewater Capital Facilities Plan approximately evaluated the system's ability to handle existing and future demands for a 20-year period. Recommendations are provided based on data collected by Jones and DeMille Engineering, data provided by Elk Ridge City, future growth projections, and city personnel observations.

Future growth is anticipated to occur throughout the city and around the edges especially the east, south, and west sides. Significant development to the south is likely to occur later than other areas of development. No deficiencies in the operation of the Elk Ridge wastewater collection system were identified, and modeling was inconclusive if development will lead to future deficiencies. Further study is recommended to be able to identify future deficiencies.

The model of the existing wastewater distribution system is representative but lacks the key details of pipe slopes and in some cases pipe diameter. These details are imperative to calculating system capacity and identifying deficiencies.

9. FUNDING SOURCES AVAILABLE

9.1. UTAH DIVISION OF WATER QUALITY (DWQ)

The DWQ offers low interest loans from the Federal SRF and the SRF. These funds are available to all political entities of the state. The typical interest rate ranges between 1.5 to 4% with a 20-year term.

- The Federal SRF is provided to the states by the Environmental Protection Agency (EPA). These funds are federal dollars and require compliance with the Davis Bacon Wage Act, the American Iron and Steel Act (Buy America), and the other federal programs.
- The SRF is administered by the state and offers low interest loans (2 to 4%) and grants. Typically, only about 5% of the SRF funds are awarded as grants.

9.2. PERMANENT COMMUNITY IMPACT FUND BOARD (CIB)

The CIB is an entity of the state that provides loans and grants to cities. The typical conditions of a loan are a 20 to 30-year term at interest rates ranging from 0% to 2.5%.

9.3. USDA RURAL DEVELOPMENT

9.3.1. USDA COMMUNITY FACILITIES DIRECT LOAN & GRANT

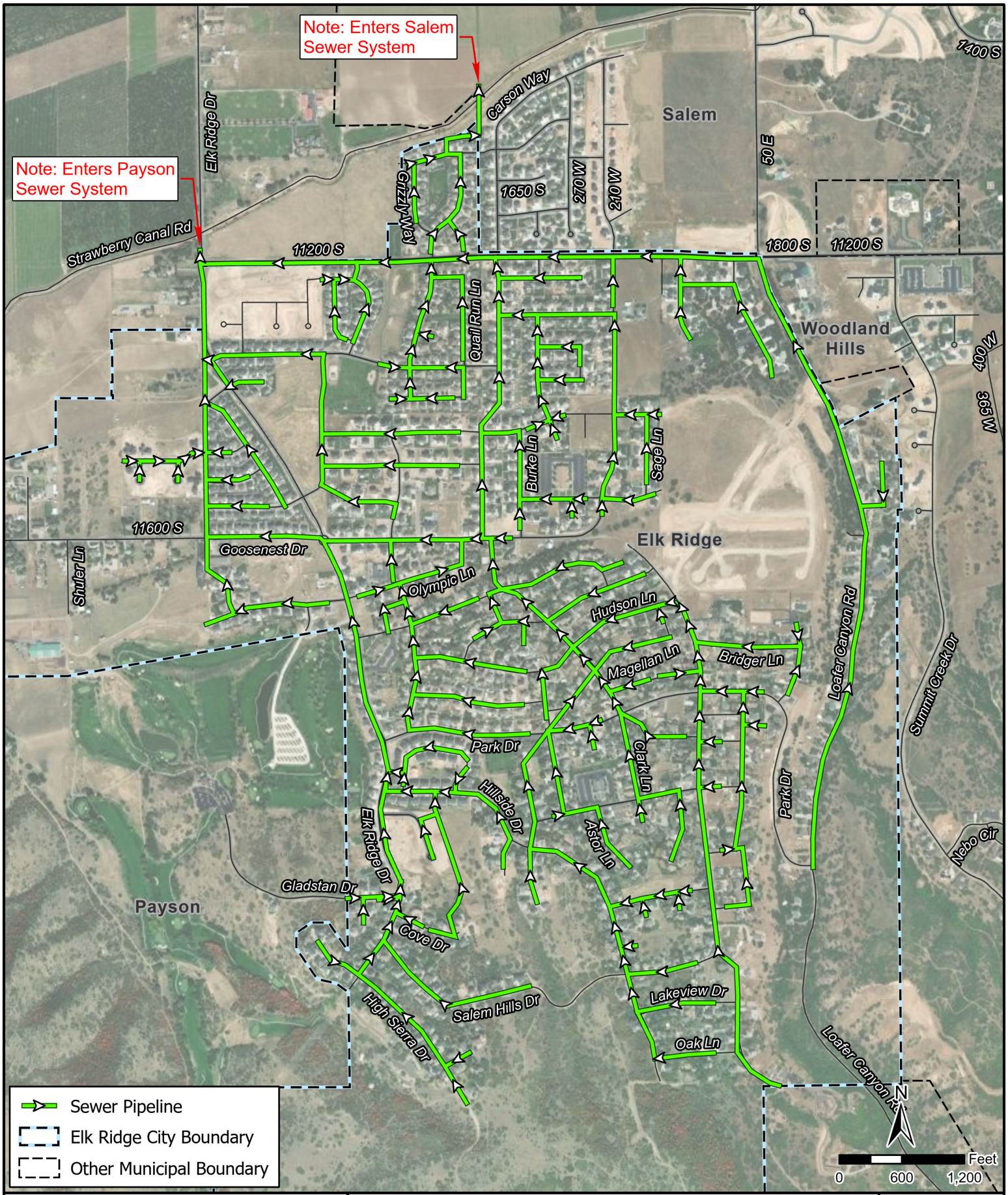
This program provides affordable funding to develop essential community facilities in rural areas. These facilities provide an essential service to the local community for the orderly development of the community in a primary rural area populated with 20,000 residents or less.

Funds can be used to purchase, construct, and/or improve essential community facilities, purchase equipment, and pay related project expenses.

9.4. SELF FUNDING

This option is for self-funded individual projects. Although self-funding is the least expensive money over the life of the project, this option is not always financially possible for all municipalities. For more information on available funding programs, please visit: https://funding.jonesanddemille.com/

APPENDIX A. EXHIBITS



Jones & DeMille Engineering

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Elk Ridge City

Utah County, Utah

Wastewater Capital Facilities Plan
Sanitary Sewer Overview

Scale: 1" = 1,200'

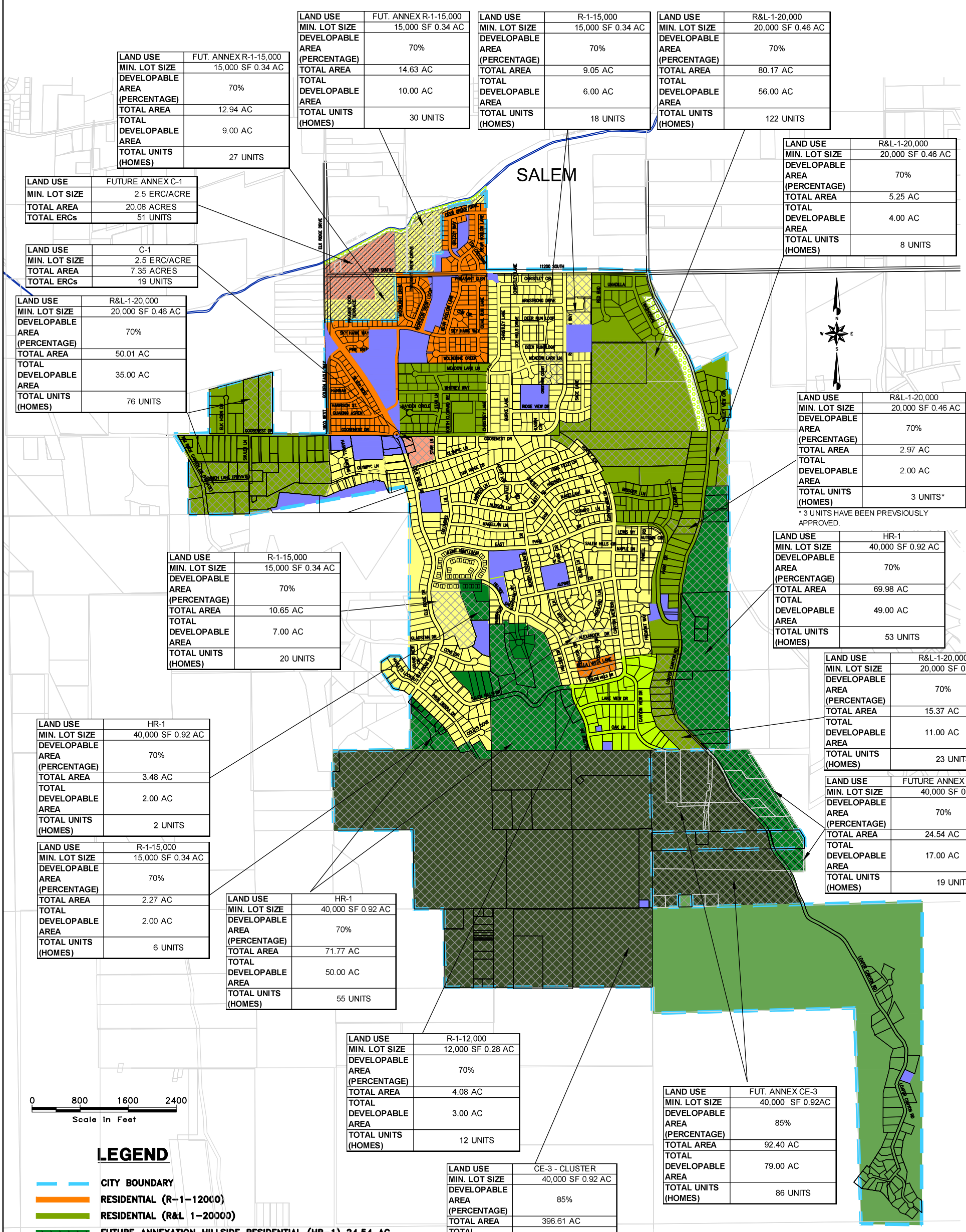
Map Name: H:\JD\Proj\2211-036\001 2023 Miscellaneous Engineering Tasks\Design\GIS\Projects\2211-036_Eng\2211-036_Eng.aprx - Exh Elk Ridge City - Wastewater CFP Overview 8.5x11P

Project Number: 2211-036 | Drawn by: JEM 03-24 | Last Edit: 03/20/2024

1

DEVELOPMENT CAPACITY

CITY OF ELK RIDGE



LAND USE	FUT. ANNEX R-1-15,000
MIN. LOT SIZE	15,000 SF 0.34 AC
DEVELOPABLE AREA (PERCENTAGE)	70%
TOTAL AREA	12.94 AC
TOTAL DEVELOPABLE AREA	9.00 AC
TOTAL UNITS (HOMES)	27 UNITS

LAND USE	FUTURE ANNEX C-1
MIN. LOT SIZE	2.5 ERC/ACRE
TOTAL AREA	20.08 ACRES
TOTAL ERCs	51 UNITS

LAND USE	C-1
MIN. LOT SIZE	2.5 ERC/ACRE
TOTAL AREA	7.35 ACRES
TOTAL ERCs	19 UNITS

LAND USE	R&L-1-20,000
MIN. LOT SIZE	20,000 SF 0.46 AC
DEVELOPABLE AREA (PERCENTAGE)	70%
TOTAL AREA	50.01 AC
TOTAL DEVELOPABLE AREA	35.00 AC
TOTAL UNITS (HOMES)	76 UNITS

LAND USE	FUT. ANNEX R-1-15,000
MIN. LOT SIZE	15,000 SF 0.34 AC
DEVELOPABLE AREA (PERCENTAGE)	70%
TOTAL AREA	14.63 AC
TOTAL DEVELOPABLE AREA	10.00 AC
TOTAL UNITS (HOMES)	30 UNITS

LAND USE	R-1-15,000
MIN. LOT SIZE	15,000 SF 0.34 AC
DEVELOPABLE AREA (PERCENTAGE)	70%
TOTAL AREA	9.05 AC
TOTAL DEVELOPABLE AREA	6.00 AC
TOTAL UNITS (HOMES)	18 UNITS

LAND USE	R&L-1-20,000
MIN. LOT SIZE	20,000 SF 0.46 AC
DEVELOPABLE AREA (PERCENTAGE)	70%
TOTAL AREA	80.17 AC
TOTAL DEVELOPABLE AREA	56.00 AC
TOTAL UNITS (HOMES)	122 UNITS

LAND USE	R&L-1-20,000
MIN. LOT SIZE	20,000 SF 0.46 AC
DEVELOPABLE AREA (PERCENTAGE)	70%
TOTAL AREA	5.25 AC
TOTAL DEVELOPABLE AREA	4.00 AC
TOTAL UNITS (HOMES)	8 UNITS

LAND USE	R&L-1-20,000
MIN. LOT SIZE	20,000 SF 0.46 AC
DEVELOPABLE AREA (PERCENTAGE)	70%
TOTAL AREA	2.97 AC
TOTAL DEVELOPABLE AREA	2.00 AC
TOTAL UNITS (HOMES)	3 UNITS*

* 3 UNITS HAVE BEEN PREVSIOUSLY APPROVED.

LAND USE	R-1-15,000
MIN. LOT SIZE	15,000 SF 0.34 AC
DEVELOPABLE AREA (PERCENTAGE)	70%
TOTAL AREA	10.65 AC
TOTAL DEVELOPABLE AREA	7.00 AC
TOTAL UNITS (HOMES)	20 UNITS

LAND USE	HR-1
MIN. LOT SIZE	40,000 SF 0.92 AC
DEVELOPABLE AREA (PERCENTAGE)	70%
TOTAL AREA	69.98 AC
TOTAL DEVELOPABLE AREA	49.00 AC
TOTAL UNITS (HOMES)	53 UNITS

LAND USE	R&L-1-20,000
MIN. LOT SIZE	20,000 SF 0.46 AC
DEVELOPABLE AREA (PERCENTAGE)	70%
TOTAL AREA	15.37 AC
TOTAL DEVELOPABLE AREA	11.00 AC
TOTAL UNITS (HOMES)	23 UNITS

LAND USE	HR-1
MIN. LOT SIZE	40,000 SF 0.92 AC
DEVELOPABLE AREA (PERCENTAGE)	70%
TOTAL AREA	3.48 AC
TOTAL DEVELOPABLE AREA	2.00 AC
TOTAL UNITS (HOMES)	2 UNITS

LAND USE	FUTURE ANNEX HR-1
MIN. LOT SIZE	40,000 SF 0.92 AC
DEVELOPABLE AREA (PERCENTAGE)	70%
TOTAL AREA	24.54 AC
TOTAL DEVELOPABLE AREA	17.00 AC
TOTAL UNITS (HOMES)	19 UNITS

LAND USE	R-1-15,000
MIN. LOT SIZE	15,000 SF 0.34 AC
DEVELOPABLE AREA (PERCENTAGE)	70%
TOTAL AREA	2.27 AC
TOTAL DEVELOPABLE AREA	2.00 AC
TOTAL UNITS (HOMES)	6 UNITS

LAND USE	HR-1
MIN. LOT SIZE	40,000 SF 0.92 AC
DEVELOPABLE AREA (PERCENTAGE)	70%
TOTAL AREA	71.77 AC
TOTAL DEVELOPABLE AREA	50.00 AC
TOTAL UNITS (HOMES)	55 UNITS

LAND USE	R-1-12,000
MIN. LOT SIZE	12,000 SF 0.28 AC
DEVELOPABLE AREA (PERCENTAGE)	70%
TOTAL AREA	4.08 AC
TOTAL DEVELOPABLE AREA	3.00 AC
TOTAL UNITS (HOMES)	12 UNITS

LAND USE	CE-3 - CLUSTER
MIN. LOT SIZE	40,000 SF 0.92 AC
DEVELOPABLE AREA (PERCENTAGE)	85%
TOTAL AREA	396.61 AC
TOTAL DEVELOPABLE AREA	337.00 AC
TOTAL UNITS (HOMES)	367 UNITS

LAND USE	FUT. ANNEX CE-3
MIN. LOT SIZE	40,000 SF 0.92AC
DEVELOPABLE AREA (PERCENTAGE)	85%
TOTAL AREA	92.40 AC
TOTAL DEVELOPABLE AREA	79.00 AC
TOTAL UNITS (HOMES)	86 UNITS

0 800 1600 2400

Scale in Feet

LEGEND

- CITY BOUNDARY
- RESIDENTIAL (R--1-12000)
- RESIDENTIAL (R&L 1-20000)
- FUTURE ANNEXATION HILLSIDE RESIDENTIAL (HR-1) 24.54 AC.
- RESIDENTIAL (R-1-20000)
- RESIDENTIAL (R-1-15000)
- FUTURE ANNEXATION RESIDENTIAL (R-1-15000) 27.57 AC.
- COMMERCIAL (C-1)
- FUTURE ANNEXATION COMMERCIAL (C-1) 20.08 AC.
- HILLSIDE RESIDENTIAL (HR-1)
- CRITICAL ENVIRONMENT (CE-2)
- CRITICAL ENVIRONMENT (CE-3)
- FUTURE ANNEXATION CRITICAL ENVIRONMENT (CE-3) 92.40 AC.
- PUBLIC FACILITY
- OPEN SPACE
- DEVELOPABLE AREA

REVISED: MARCH 8, 2018

DEVELOPABLE AREA SUMMARY

LAND USE	TOTAL AREA	DEVELOPABLE AREA	UNITS
R-1-12,000	4.08 AC	3.00 AC	12 DWELLINGS
R-1-15,000	49.53 AC	34.00 AC	101 DWELLINGS
R&L-1-20,000	153.76 AC	108.00 AC	232 DWELLINGS
HR-1	169.77 AC	118.00 AC	129 DWELLINGS
CE-3 (Cluster)	489.01 AC	416.00 AC	453 DWELLINGS
C-1	27.43 AC	27.43 AC	70 ERC'S*
TOTALS	893.59 AC	706.43 AC	997 DWELLINGS/ ERC'S

* ERC = EQUIVALENT RESIDENTAL CONNECTION (UNIT)

APPENDIX B. COST ESTIMATES

Owner: Elk Ridge City
Project: Wastewater Capital Facilities Plan
Project #: 2211-036
PM: Michael Hartvigsen
Date: 4/22/2024

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ENGINEER'S OPINION OF PROBABLE COST

Item No.	Item Description	Unit	Estimated Quantity	Unit Price	Price
1-1	Wastewater Model Improvements	L.S.	1	$ 24,000.00	$ 24,000.00
1-2	0	0	0		$ -
1-3	0	0	0		$ -
1-4	0	0	0		$ -
1-5	0	0	0		$ -
1-6	0	0	0		$ -
1-7	0	0	0		$ -
1-8	0	0	0		$ -
1-9	0	0	0		$ -
1-10	0	0	0		$ -
				Total Probable Construction Cost	**$ 24,000.00**

In providing estimates of probable construction cost, the Client understands that the Consultant has no control over the cost or availability of labor, equipment or materials, or over market conditions or the Contractor's method of pricing, and that the Consultant's estimates of probable construction costs are made on the basis of the consultant's professional judgement and experieince. The Consultant makes no warranty, express or implied, that the bids or negotiated costs of the Work will not vary from the Consultant's estimate of probable construction cost.

Owner: Elk Ridge City
Project: Wastewater Capital Facilities Plan
Project #: 2211-036
PM: Michael Hartvigsen
Date: 4/22/2024

Jones & DeMille Engineering
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www.jonesanddemille.com

ENGINEER'S OPINION OF PROBABLE COST

Item No.	Item Description	Unit	Estimated Quantity	Unit Price	Price
1-1	Closed Circuit Video Inspection	L.F.	111,400	$ 0.55	$ 61,270.00
1-2	Pipe Cleaning - Jetting	L.F.	111,400	$ 0.55	$ 61,270.00
1-3	Lodging and Per Diem	L.S.	1	$ 7,460.00	$ 7,460.00
1-4	0	0	0		$ -
1-5	0	0	0		$ -
1-6	0	0	0		$ -
1-7	0	0	0		$ -
1-8	0	0	0		$ -
1-9	0	0	0		$ -
1-10	0	0	0		$ -
				Total Probable Construction Cost	**$ 130,000.00**

In providing estimates of probable construction cost, the Client understands that the Consultant has no control over the cost or availability of labor, equipment or materials, or over market conditions or the Contractor's method of pricing, and that the Consultant's estimates of probable construction costs are made on the basis of the consultant's professional judgement and experieince. The Consultant makes no warranty, express or implied, that the bids or negotiated costs of the Work will not vary from the Consultant's estimate of probable construction cost.

APPENDIX C. CALCULATIONS

Historic Population and Projection

Year	1970	1980	1990	2000	2010	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Population	331	652	795	1,875	2,468	4,733	4,874	4,907	5,049	5,191	5,331	5,469	5,601	5,724	5,844	5,961	6,074	6,190	6,307	6,421	6,536	6,654	6,774	6,896	7,013	7,132	7,253	7,369

ERC Projections

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
Residential ERCs	1,199	1,248	1,285	1,321	1,356	1,392	1,425	1,456	1,487	1,517	1,546	1,575	1,605	1,634	1,663	1,693	1,724	1,755	1,784	1,815	1,846	1,875
Commercial ERCs	4	6	6	7	7	7	7	7	7	8	8	8	8	8	8	8	9	9	9	9	9	9
Industrial ERCs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Institutional ERCs	36	59	61	62	64	66	67	69	70	72	73	74	76	77	79	80	81	83	84	86	87	89
Total ERCs	**1,239**	**1,313**	**1,352**	**1,390**	**1,427**	**1,464**	**1,500**	**1,533**	**1,565**	**1,596**	**1,626**	**1,657**	**1,689**	**1,719**	**1,750**	**1,782**	**1,814**	**1,846**	**1,878**	**1,910**	**1,942**	**1,973**

https://www.census.gov/programs-surveys/popest/data/tables.2022.List_58029271.html#list-tab-List_58029271
https://gardner.utah.edu/wp-content/uploads/Utah-Proj-Feb2022.pdf?x71849