

SANITARY SEWER COLLECTION SYSTEM MASTER PLAN & IMPACT FEE STUDY



Tremont City Corporation

September 2008

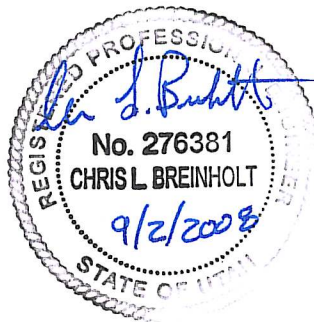


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ASSOCIATES**
CONSULTING ENGINEERS

**SANITARY SEWER COLLECTION
SYSTEM MASTER PLAN
&
IMPACT FEE STUDY**

for

TREMONTON CITY CORPORATION



September 2008

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Tremonton City

Sanitary Sewer Collection System

Master Plan & Impact Fee Study

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1.0 INTRODUCTION

1.1 Background

In the 1995 regular session of the Utah State Legislature a Bill was passed which established procedures and requirements for imposing and challenging impact fees in the State of Utah. Because the bill was primarily influenced by homebuilder's associations, real estate interests, and developers, it contained many features that were objected to by municipalities and special service districts throughout the state. Governor Leavitt ultimately vetoed the bill and called a special session of the Utah State Legislature to have the matter reconsidered. During the special session S.B. 4 was approved which was entitled the "Impact Fees Act". The new law is found in Section 11-36-101 of the Utah Code.

The Act requires jurisdictions, which desire to charge impact fees, to adopt a Capital Facilities Plan (CFP) and Impact Fee Analysis (IFA). The CFP and IFA must serve as a basis for justification of any impact fees currently in place or to be imposed in the future.

In response to this legislation, Tremonton City has requested that Jones and Associates Consulting Engineers develop a Capital Facilities Plan for their sanitary sewer distribution system, and to perform an impact fee analysis based upon the findings of the plan. Since that time, Jones and Associates has met with Tremonton City on numerous occasions to discuss details of the existing and proposed sanitary sewer system in order to analyze existing function and plan for future expansion.

1.2 System Overview

Tremonton City's sewage is treated at a city owned mechanical treatment facility. The impact fee for the treatment facility is not a part of this study. An impact fee is charged for the facility, and is outlined in a separate report.

Garland City is served by Tremonton's treatment facility and collected in a trunk line that runs along the Malad River bottoms south of Main Street, and up 300 East and David Drive north of Main Street. Tremonton City does not collect impact fees from Garland City residents. Garland City is charged by Tremonton City based on a count of active ERU's. The cost of the Impact Fee for the treatment plant is built into this fee.

1.3 Service Area

Tremonton City's Annexation Declaration was used to determine potential growth area. The entire area was reviewed with city officials and a likely development progression plan was developed. The potential growth is summarized in Section 2. The Impact Fees calculated in this report are given for the service area as defined by the Annexation Declaration.

Inflow from Garland was only considered at two points as shown on Figure 3. A simple percentage growth rate was applied to estimate overall inflow from Garland.

The Impact Fees calculated in this report are given for the service area as defined by the Annexation Declaration. No other zones or divisions are considered for separate fee structures in this study.

2.0 ERU AND POPULATION ESTIMATES

2.1 Introduction

All master planning requires estimates or actual counts for current and future population and ERU's. An ERU, otherwise known as an Equivalent Residential Unit, is the discharge into the system that is equivalent to 1 single family residential unit. The estimated discharge into the system for 1 ERU is 350 gallons per day.

Large sewer system users may be the equivalent of many ERU's. For example, the new hospital under construction will have 16 beds. Each bed is equivalent to 0.34 ERU/bed so the new hospital will be equal to 5.4 ERU's. Estimated ERU's for commercial sites may be calculated from a table found in "Tremonton City Resolution No. 05-08". In special cases, a calculation may be performed and can be based on known flows.

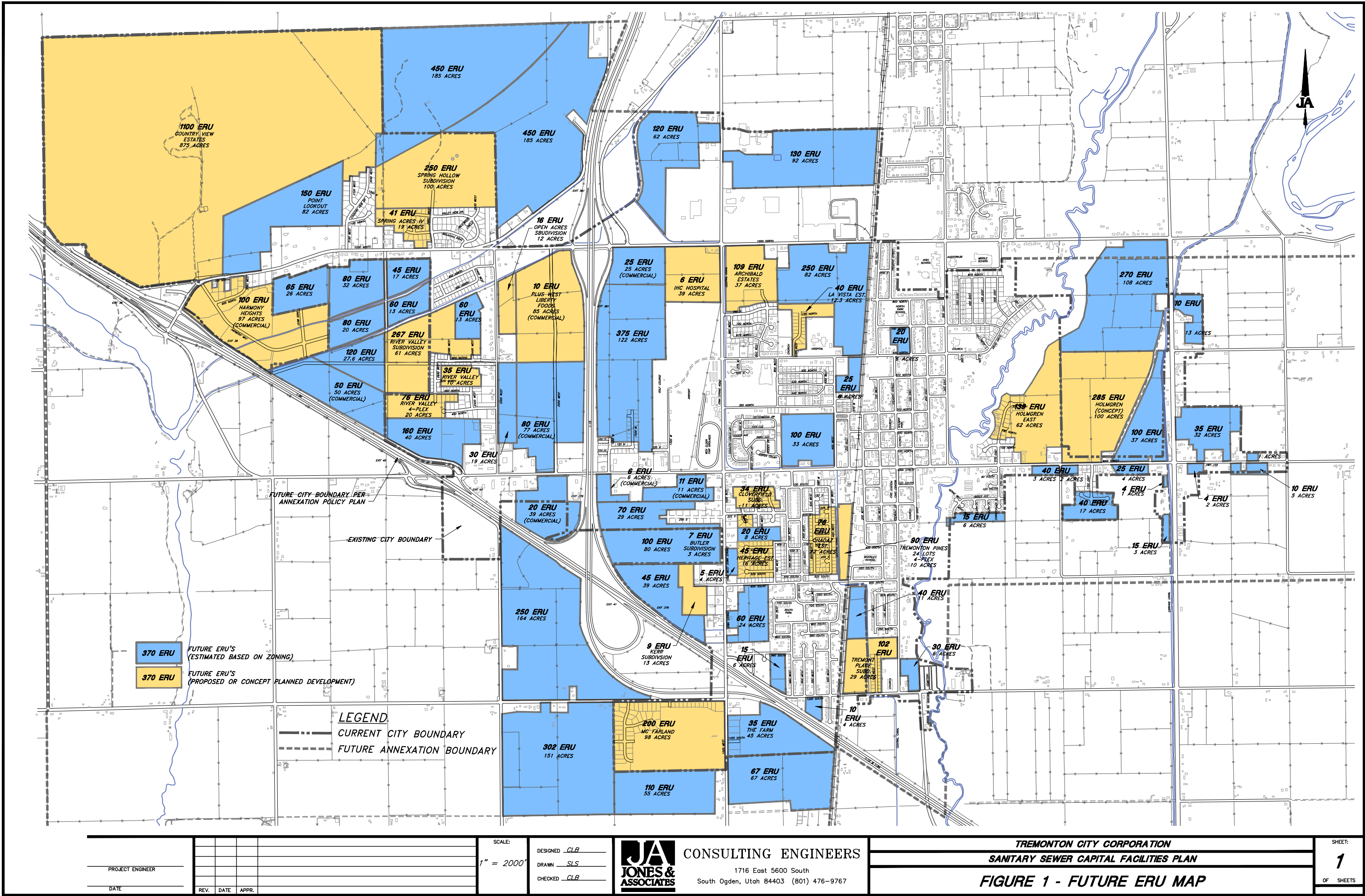
2.2 Growth Estimates

The population projections for Tremonton City were calculated using the number of current connections, ERU's, estimated current population, and estimated 2030 population. Current population was estimated from the 2000 census. Future population estimates came from The Bear River Association of Governments (BRAG) for 2030 and where estimated at 10,852. A growth rate of 2.31% per year will achieve a population of 10,852 in 2030. This same growth rate is applied to the ERU's and population through 2070. Utah state code calls for a minimum planning period of 50 years for sewer systems.

Table 1
ERU & Population Projections

	<u>Tremonton</u>		<u>Garland</u>		Total ERU's
	Population Estimate	ERU's	Population Estimate	ERU's	
2007	6424	2570	2279	649	3219
2008	6572	2629	2332	664	3293
2009	6724	2690	2386	679	3369
2010	6879	2752	2441	695	3447
2015	7711	3086	2736	779	3865
2020	8643	3459	3067	873	4332
2025	9689	3879	3438	979	4858
2030	10861	4349	3853	1098	5447
2035	12176	4875	4319	1231	6106
2040	13648	5465	4841	1379	6844
2045	15299	6125	5427	1546	7671
2050	17149	6866	6082	1733	8599
2055	19223	7697	6817	1943	9640
2060	21549	8628	7642	2178	10806
2065	24155	9671	8567	2441	12112
2070	27077	10841	9603	2736	13577

Figure 1 on the following page shows the projected development areas with their ERU's through 2070. The overall area analyzed is the area included in the city's Annexation Declaration. The growth used in the sewer system analysis is based on the growth shown on this map. As future development continues, the map should periodically be updated and checked against actual development. Our recommendation is that this should be done every five years.



3.0 COLLECTION SYSTEM

3.1 Analysis Background

In 2006, the City contracted with the state's Automated Geographic Reference Center (AGRC) to provide a 1 foot resolution aerial photo together with a Digital Elevation Model (DEM). The aerial photo, DEM, and CAD basemap provided the background for this study. The flows in the pipes were estimated based on counts of homes and businesses using the aerial photograph. Slopes for trunk lines or sewer lines that were deemed critical were taken from construction plans or survey. Where lines were deemed less critical, and the actual slope was not available, the surface slope based on the DEM was used. In flat areas the state required minimum slope was used. No modeling software was used in the analysis.

3.2 Flow Data

3.2.1 Influent Flow and BOD Comparison

Table 2 and Figure 2 show influent flow data for the City's *wastewater treatment plant* (WWTP) from 1990 to 2007. Total influent flow is compared with *biochemical oxygen demand* (BOD). BOD is used to give an indication of the organic waste content. For example, the more concentrated the wastewater is, the higher the BOD will be.

The trend for the influent flow has been fairly steady through the years and has not increased as the population has grown. The spike in the flows around 2005 can be explained by flooding that occurred during the spring due to weather. In 2007 the flows had returned to a level that is consistent with the historical flow. During this same time period the BOD loading has steadily increased with the population, but flows have remained generally steady. This trend can likely be explained by infiltration. The city has many sewer lines that cross flood irrigated fields. Some of these fields have been developed over the years. As the fields develop, clean water infiltration into the system from flood irrigation is replaced by wastewater from the homes in the development. The spike in the BOD loading in 2007 is likely due to additional loading from the new West Liberty Foods facility and expansion at the Malt-O-Meal facility.

Table 2
Influent Flow and Influent BOD Comparison

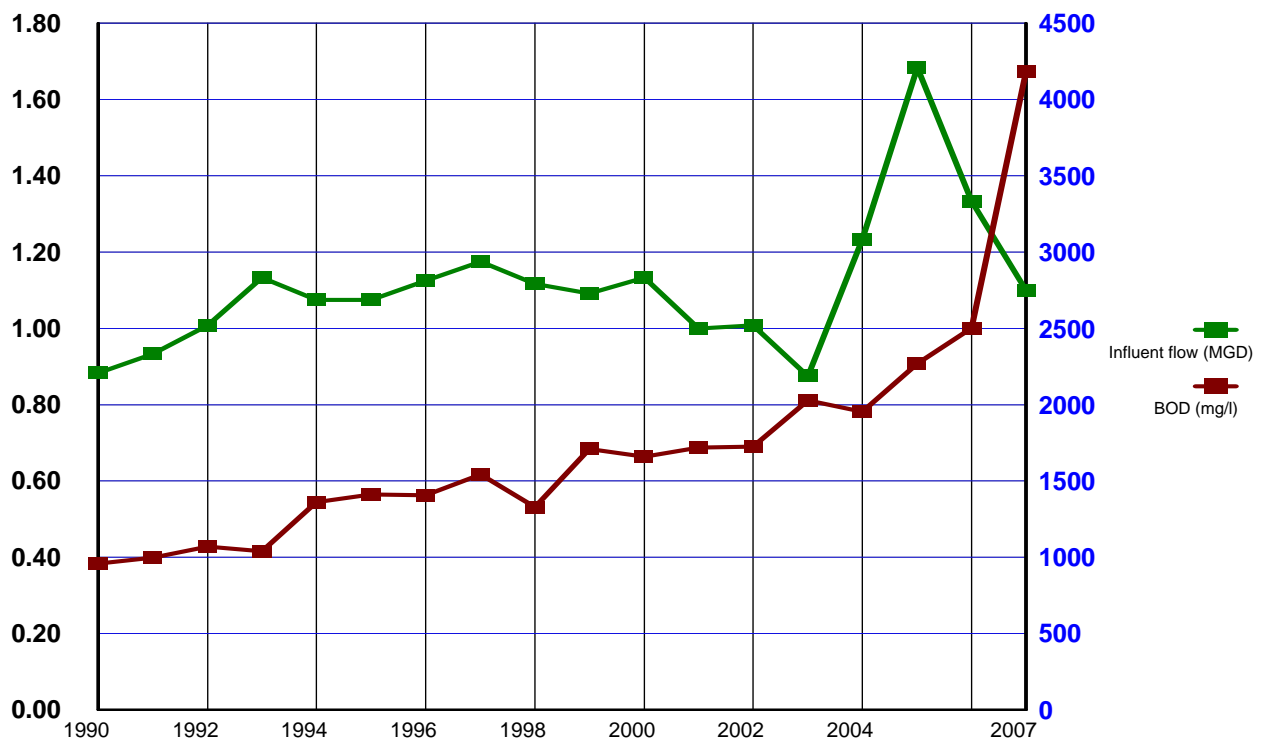
Year	Influent flow @ WWTP (MGD)	Influent BOD @ WWTP (mg/l)	Connections	Flow per Connection (gal.)
1990	0.88	959	1577	560.1
1991	0.93	997	1613	578.6
1992	1.01	1070	1650	611.1
1993	1.13	1039	1688	671.4
1994	1.08	1361	1727	622.5
1995	1.08	1412	1767	608.4
1996	1.13	1407	1808	622.2

Year	Influent flow @ WWTP (MGD)	Influent BOD @ WWTP (mg/l)	Connections	Flow per Connection (gal.)
1997	1.18	1543	1850	635.1
1998	1.12	1329	1893	589.9
1999	1.09	1710	1937	563.6
2000	1.13	1658	1982	571.8
2001	1.00	1718	2028	493.1
2002	1.01	1726	2075	485.9
2003	0.88	2028	2123	412.2
2004	1.23	1955	2172	567.8
2005	1.68	2269	2222	757.6
2006	1.33	2502	2273	586.6
2007	1.10	4181	2326	472.9

Figure 2

Treatment Plant Inflow Comparison

Total Inflow and B.O.D. Loading



3.2.2 Infiltration

Table 3 shows the average flow per month for a five year period from 2002 to 2007. The data from October 2004 to September 2005 was eliminated because of very unusual data in the spring of 2005 due to flooding. An average irrigation season flow was calculated for the months of May to August. Also, an average flow was calculated for the winter months of November to February. The difference between the two should represent the infiltration in the system due to high ground water.

Table 3
Monthly Influent Flows @
Wastewater Treatment Plant (MGD)

	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>
2002	0.68	0.76	1.24	0.99	1.18	1.43	1.30	1.20	1.06	0.84	0.75	0.63
2003	0.65	0.67	0.65	0.65	1.00	1.40	1.20	1.20	1.04	0.75	0.68	0.64
2004	0.67	0.78	1.50	1.10	1.60	1.70	1.40	1.20	1.10			
2005										1.00	0.90	0.86
2006	1.30	1.20	1.60	1.80	1.40	1.73	1.50	1.40	1.40	1.00	0.90	0.81
2007	0.75	0.79	0.93	0.84	1.23	1.46	1.39	1.42	1.29	1.17	0.97	0.94
2008	0.98	1.05	1.61									
Average Flow/ by month	0.84	0.88	1.26	1.08	1.28	1.54	1.36	1.28	1.18	0.95	0.84	0.78

November - February Avg Flow = 0.84 MGD (276 gallons per day / ERU)

May - August Avg Flow = 1.37 MGD (450 gallons per day / ERU)

Estimated Infiltration = 0.53 MGD (174 gallons per day / ERU)

Est. Avg ERU's (2002-2007) = 3043

3.2.3 Standard Flow Used in Analysis

The Utah State Rule R317-3-2 Sewers states: "New sewer systems shall be designed on the basis of an annual average daily rate of flow of 100 gallons per capita per day (0.38 cubic meter per capita per day) unless there are data to indicate otherwise. The per capita rate of flow includes an allowance for infiltration/inflow. The per capita rate of flow may be higher than 100 gallons per day (0.38 cubic meter per day) if there is a probability of large amounts of infiltration/inflow entering the system."

An average of 3.5 persons per ERU was assumed for purposes of this study. From the Rule quoted above, the average flow per ERU is then 350 gallons per ERU per day, however, the May to August average flow was calculated at 450 gallons per day per ERU. As detailed in section 3.2.1 and 3.2.2, it is our opinion that the excess infiltration in the system is due to infiltration in sewer lines from groundwater that is influenced by flood irrigated fields. As Tremonton develops the irrigated fields will be converted from agriculture to residential developments. As this happens the infiltration will be reduced to an average level for an urban area.

The existing system was evaluated with the peak calculated flow for May to August of 450 gallons per ERU per day. It is anticipated that the future system will approach the state's standard flow of 350 gallon per ERU per day for the reasons outlined above. For this reason 350 gallons per ERU per day was used in evaluating the future system.

3.2.4 Peaking Factors

The Utah State Rule R317-3-2 also states:

- a. laterals and collector sewers shall be designed for 400 gallons per capita per day (1.51 cubic meters per capita per day).*
- b. Interceptors and outfall sewers shall be designed for 250 gallons per capita per day (0.95 cubic meter per capita per day), or rates of flow established from an approved infiltration/inflow study.*

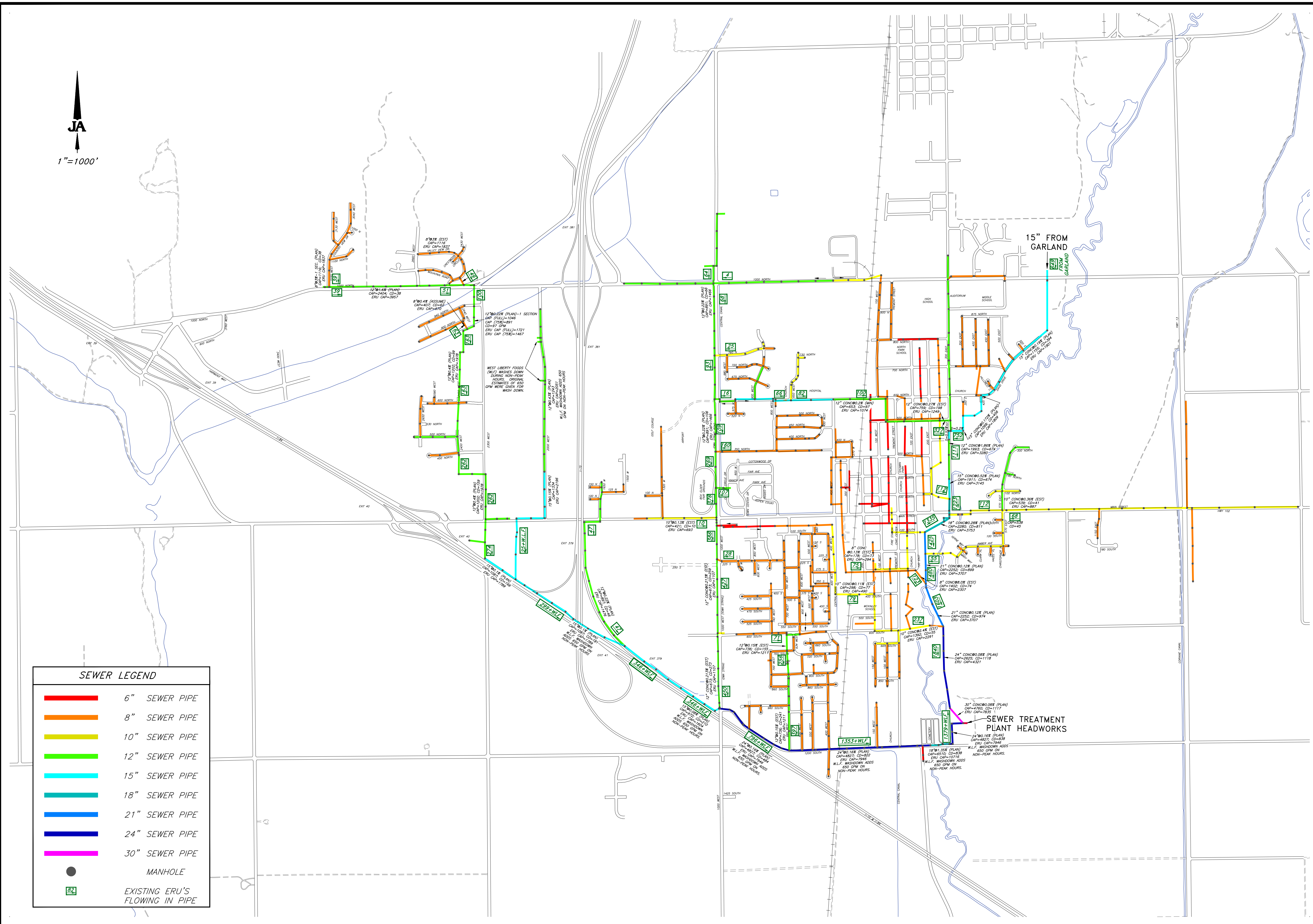
The rule does not specify how to classify a lateral, collector, interceptor, or outfall line. For this reason, a number of peaking standards were researched in an effort to develop a peaking factor policy for this study. It was determined that any line with less than 700 people (200 ERU's) would be considered a lateral sewer with a peaking factor of 4.0. All other lines had a peaking factor of 2.5 used. Some engineering judgement was used and these number were used as guidelines only.

3.3 Existing System

The existing system has no capacity deficiencies. There are some areas where the sewer lines are aging and will need to be replaced. Only one of these projects (Project 9 - Table 5) is in need of replacement at this time and is identified with the capital improvement projects included in the Future Sewer System Map (Figure 4). The analysis of the existing system including ERU counts is shown in Figure 3 on the following page. For the purpose of the Impact Fee Calculation the existing sewer system value is given below.

Table 4
Existing Sewer System Value Estimate

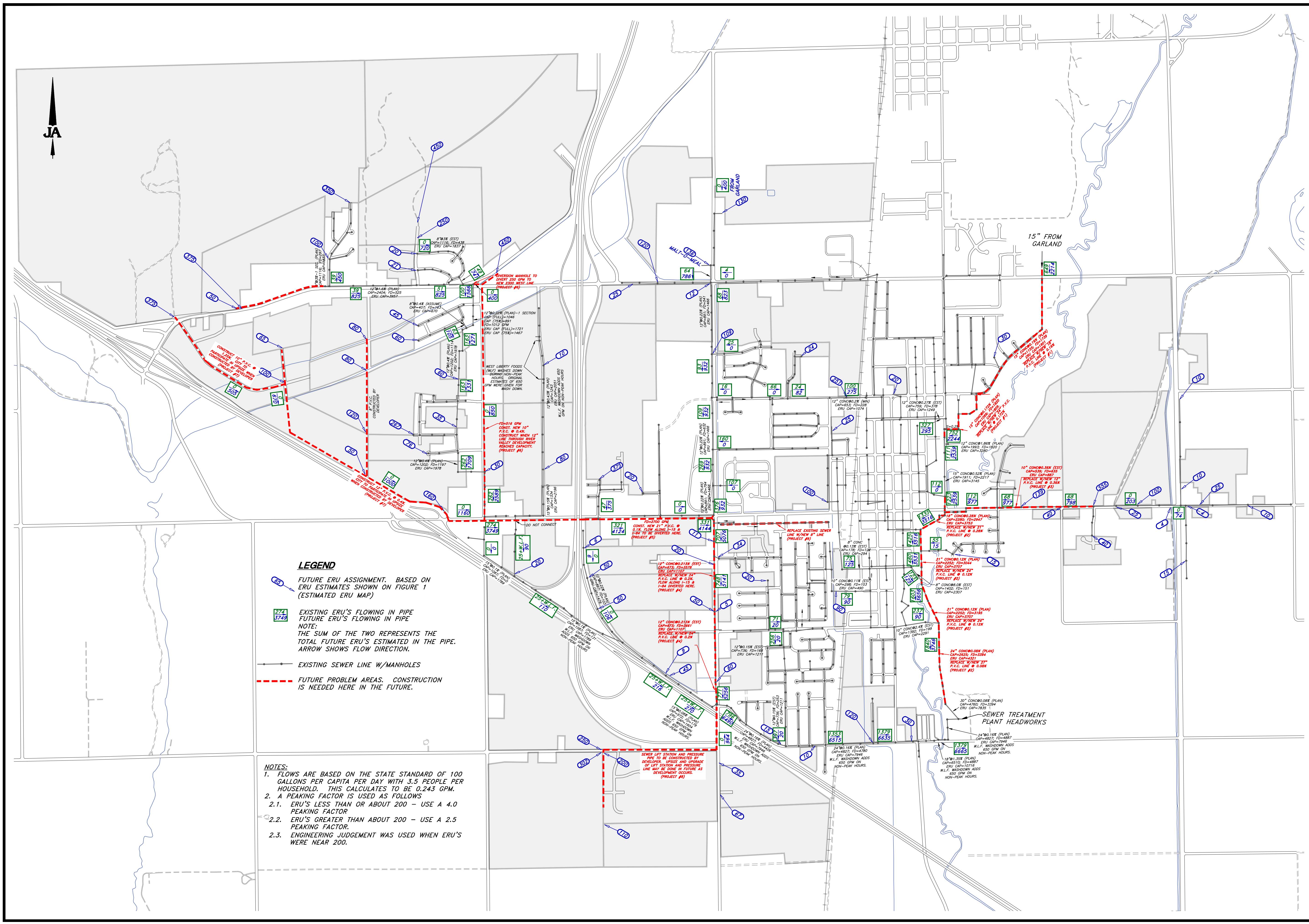
Item	Description	Quantity	Unit	Unit Price	Total Amount
1	30" sewer pipe	451	lf	\$75.00	\$33,825.00
2	24" sewer pipe	7,815	lf	\$60.00	\$468,900.00
3	21" sewer pipe	2,223	lf	\$50.00	\$111,150.00
4	18" sewer pipe	1,716	lf	\$42.00	\$72,072.00
5	15" sewer pipe	17,374	lf	\$40.00	\$694,960.00
6	12" sewer pipe	51,719	lf	\$33.00	\$1,706,727.00
7	10" sewer pipe	27,521	lf	\$27.00	\$743,067.00
8	8" sewer pipe	100,504	lf	\$24.00	\$2,412,096.00
9	6" sewer pipe	14,631	lf	\$21.00	\$307,251.00
10	manholes	715	ea	\$2,750.00	\$1,966,250.00
TOTAL ESTIMATED VALUE					\$8,516,298.00



3.4 Future System

Deficiencies in the future system are shown in Figure 4 on the following page. None of the capacity deficiencies are in need of immediate attention at this time, however, growth in the areas that are served by these lines should be monitored so that the lines can be upsized when the capacity is reached. The biggest change, and the area that will likely need to be upsized the soonest, involves the 15" line that runs along I-84 & I-15 from 2300 West to 1000 West. The plan for this area is to construct a new sewer line that will divert sewer flow away from the freeway and take it along Main Street to 1000 West, then down 1000 West to Rocket Road. The 15" freeway line would remain in service taking sewage from the area served by the 2000 West line. Another location to watch will be the Malad River crossing at Main Street (Project 3 - Table 5).

Figure 4 shows the analysis for existing lines, future lines, ERU counts per line, and ERU assignment from growth areas as outlined in Figure 1.



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TREMONTON CITY

SEWER CAPITAL FACILITIES PLAN

FIGURE 4

FUTURE SEWER SYSTEM

DATE	DESCRIPTION

CLB
DESIGNED

DDA
DRAWN

CLB
CHECKED

SCALE:

1" = 1000'

SHEET:
1
OF 1 SHEETS

3.5 Capital Facilities Plan

The Capital Facilities Plan outlines the planned improvement projects needed for the city's future growth and for the immediate replacement needs. This report does not attempt to identify the sewer lines that will be in need of replacement in the future due to the life expectancy of the pipe. It is expected that depreciation costs, which are budgeted and set aside, will be sufficient for these problems. One line was identified for immediate replacement due to the poor condition of the line itself. This problem is a regular maintenance issue and not a capacity issue.

Figure 4 (Future Sewer System) identifies the projects associated with the overall Capital Facilities Plan. A summarized list of the projects is shown below in Table 5, and itemized cost estimates and descriptions for each of the projects are included in Appendix A. The table below divides the project costs between developer costs, capital improvement projects, and current deficiencies. The capital improvement projects are further divided between the collection network (Collection Piping) and the main trunk lines to Garland, which are considered part of the wastewater treatment plant (WWTP Piping) for the calculation of the impact fee. The piping that is included in the Wastewater Treatment Plant piping is the trunk line from the plant running north up the Malad River bottoms to Main Street, then up 300 East and David Drive to the city limits. The other line that is considered part of the treatment plant impact fee is the new 24" line from the plant running west on 1200 South to 1000 West, then north on 1000 West to the city limit boundary. All other lines are part of the Collection Piping.

Table 5
Summary of Capital Improvement Projects

No.	Project Description	Current Deficiency	Capital Improvement (Coll. Piping)	Capital Improvement (WWTP Piping)	Developer Participation	Total
1	Upsize north segment of existing sewer outfall line from Garland. Location: Garland city limit along David Drive, 425 East, and across Holmgren Historical Farm to 300 East	\$0.00	\$0.00	\$479,895.00	\$0.00	\$479,895.00
2	Upsize south segment of existing sewer outfall line from Garland. Location: Along the Malad River from north of Main St. to the sewer treatment plant	\$0.00	\$0.00	\$689,975.00	\$0.00	\$689,975.00
3	Upsize existing line along east Main Street. Location: Main St. from Malad River to approx. 1150 East	\$0.00	\$317,460.00	\$0.00	\$0.00	\$317,460.00

No.	Project Description	Current Deficiency	Capital Improvement (Coll. Piping)	Capital Improvement (WWTP Piping)	Developer Participation	Total
4	Upsize existing Iowa String Road trunk line. This line will be part of the rerouting the sewer outfall along I-15 and I-84. Location: Along Iowa String from Main St. To Rocket Road	\$0.00	\$0.00	\$678,405.00	\$0.00	\$678,405.00
5	Construct trunk line along Main Street from 2300 West to 1000 West.	\$0.00	\$890,565.00	\$0.00	\$0.00	\$890,565.00
6	Construct new 10" and 15" sewer lines along 2300 West from Main Street to 1000 North. Location: 2300 West from 1000 North to Main Street	\$0.00	\$460,460.00	\$0.00	\$0.00	\$460,460.00
7	Construct trunk line along I-84 from the Harmony Heights development to the intersection of Main Street and 2300 West. This project will be developer constructed.	\$0.00	\$81,900.00	\$0.00	\$639,600.00	\$721,500.00
8	Upgrade sewer lift station at McFarland Estates for more capacity	\$0.00	\$13,000.00	\$0.00	\$13,000.00	\$26,000.00
9	Replace alley sewer line between 1000 West and 400 West (east-west line)	\$110,000.00	\$0.00	\$0.00	\$0.00	\$110,000.00
Totals		\$110,000.00	\$1,763,385.00	\$1,848,275.00	\$652,600.00	\$4,374,260.00

4.0 IMPACT FEE

4.1 Introduction

The impact fee is given by a dollar range. The lower end of the range is the Marginal Impact Fee. This portion of the fee represents the minimum amount necessary for the new connections to completely pay for the capital improvement projects. These are the projects that are necessary to accommodate the extra demand put on the system by the new connections. The Full Recoupment Impact Fee represents the amount that new connections must pay to buy into current oversizing in the current water system and to pay for the capital improvement projects. This calculated fee is compared with a Proportionate Share amount. The Proportionate Share Analysis calculates the amount per ERU that existing connections have paid into the current system. The Proportionate Share is compared with the Full Recoupment Impact Fee and the smaller of the two amounts is the maximum allowable impact fee.

Any funds generated by the adopted Impact Fee that are less than or equal to the Marginal Impact Fee must be used to pay for the Capital Improvement Projects that are associated with new growth. Funds generated by the adopted Impact Fee that are more than the Marginal Impact Fee may be used for all Sewer Capital Improvement Projects.

The sewer impact fee is divided into two components. One for the collection piping that is paid by only Tremonton City residents (we will refer to this as *Collection Piping* in the following tables), and one for the waste water treatment plant that is paid by Garland and Tremonton residents (we will refer to this as *WWTP Piping* in the following tables). This study does not consider the treatment plant itself, however, the main trunk lines that serve or are planned to serve as outfall lines for Garland City are considered part of the treatment plant for the purpose of the impact fee calculation and payment. The piping that falls under the treatment plant impact fee is the trunk line from the plant running north up the Malad River bottoms to Main Street, then up 300 East and David Drive to the city limits. The other line that is considered part of the treatment plant impact fee is the new 24" line from the plant running west on 1200 South to 1000 West, then north on 1000 West to the city limit boundary. The west trunk line will serve some additional Tremonton connections that will be diverted away from the Malad River trunk line and about 400 Garland ERU's. The diversion of the Tremonton connections away from the Malad River trunk line will allow additional capacity for Garland through that line.

4.2 Calculation

4.2.1 Marginal Impact Fee

The marginal impact fee is calculated by summing the capital improvement projects and dividing by the additional future ERU's (i.e.: Total future ERU's less existing ERU's). The capital improvement project costs are summarized in Table 5. Only the *Capital Improvement* column

from this table may be used in the calculation of the Marginal Impact Fee. In the Marginal Impact Fee, there is no cost recovery of existing over sizing in the system.

Equation 1
Marginal Impact Fee (Collection Piping)

$$\frac{\text{Capital Improvement Projects (piping)}}{\text{Future Additional Tremonton ERU 's}} = \frac{\$1,763,385.00}{8,271} = \$213.20$$

Equation 2
Marginal Impact Fee (WWTP Piping)

$$\frac{\text{Capital Improvement Projects (WWTP)}}{\text{All Future Additional ERU 's}} = \frac{\$1,848,275.00}{10,358} = \$178.44$$

4.2.2 Full Recoupment Impact Fee

The Full Recoupment Impact Fee is calculated by estimating the value of the entire sewer system in 2070 and dividing by total future ERU's. The estimate does not include values for 6" and 8" sewer lines. These are not considered to have any oversizing value in the system and only have a local benefit. Future local lines constructed to serve new developments are also not considered. The 2070 water system will also include the value of the planned capital improvements. The total cost of the future improvements is summarized in Table 5 above. The existing system value must be divided between those lines that make up the Tremonton collection network and the lines that are considered part of the treatment facility as described in Section 4.1. That division of value is shown in Table 6.

Table 6
Existing Sewer System Value
for Impact Fee Calculation

Item	Description	Unit Price	Collection System Quantity	Collection System Value	WWTP Piping Quantity	WWTP Piping Value
1	30" sewer pipe	\$75.00	0 If	\$0.00	451 If	\$33,825.00
2	24" sewer pipe	\$60.00	28 If	\$1,680.00	7787 If	\$467,220.00
3	21" sewer pipe	\$50.00	0 If	\$0.00	2223 If	\$111,150.00
4	18" sewer pipe	\$42.00	208 If	\$8,736.00	1508 If	\$63,336.00
5	15" sewer pipe	\$40.00	11,802 If	\$472,080.00	5572 If	\$222,880.00
6	12" sewer pipe	\$33.00	39,550 If	\$1,305,150.00	12169 If	\$401,577.00
7	10" sewer pipe	\$27.00	27,521 If	\$743,067.00	0 If	\$0.00
8	8" sewer pipe	\$24.00	100,504 If	\$0.00	0 If	\$0.00

Item	Description	Unit Price	Collection System Quantity	Collection System Value	WWTP Piping Quantity	WWTP Piping Value
9	6" sewer pipe	\$21.00	14,631 lf	\$0.00	0 lf	\$0.00
10	manholes	\$2,750.00	616 ea	\$1,694,000.00	99 ea	\$272,250.00
Totals				\$4,224,713.00		\$1,572,238.00

Equation 3
Full Recoupment Impact Fee (Collection Piping)

$$\frac{2007 \text{ Collection System Value} + \text{Capital Improvements (Collection Piping)}}{\text{Total 2070 Tremonton ERU 's}} =$$

$$\frac{\$4,224,713 + \$1,763,385}{10,841} = \$552.36$$

Equation 4
Full Recoupment Impact Fee (WWTP Piping)

$$\frac{2007 \text{ WWTP Piping Value} + \text{Capital Improvements (WWTP Piping)}}{\text{Total 2070 ERU 's}} =$$

$$\frac{\$1,572,238 + \$1,848,275}{13,577} = \$251.93$$

4.2.3 Credit for Bond Debt

Typically credit must be given for any projects that are currently bonded, however, Tremonton has no bond debt related to the sanitary sewer collection system.

4.2.4 Proportionate Share Analysis

New connections cannot be charged more than the existing connections have contributed to the existing system. This amount represents the largest dollar amount chargeable in the sanitary sewer impact fee.

Equation 5
Proportionate Share (Collection Piping)

$$\frac{2007 \text{ Collection Piping Value}}{\text{Existing Tremonton ERU 's}} = \frac{\$4,224,713}{2,570} = \$1,643.86$$

Equation 6
Proportionate Share (WWTP Piping)

$$\frac{2007 \text{ WWTP Piping Value}}{\text{Total Existing ERU 's}} = \frac{\$1,572,238}{3,219} = \$488.42$$

4.3 Impact Fee Summary

As stated at the beginning of this report, the Marginal Impact Fee represents the amount necessary for the new connections to completely pay for future capital improvement projects. These are the projects that are necessary to accommodate the extra demand put on the system by the new connections. The Full Recoupment Impact Fee represents the amount that new connections must pay to buy into current oversizing in the current water system and to pay for the capital improvement projects. The bond debt needs to be subtracted from the full recoupment impact fee to get the final Full Recoupment Impact Fee. The fees are summarized below.

Table 7
Impact Fee Summary

	Collection Piping	WWTP Piping
Marginal Impact Fee	\$213.20	\$178.44
Full Recoupment Impact Fee	\$552.36	\$251.93
Proportionate Share Analysis	\$1,643.86	\$488.42

4.3.1 Collection Piping Impact Fee

The Impact Fee Charged for the sewer collection system must not exceed the Full Recoupment Impact Fee or the Proportionate Share Analysis, whichever is less. Since the Proportionate Share Analysis figure is greater than the Full Recoupment Impact Fee, the recommended Impact Fee for the Collection Piping System is as follows:

Minimum Recommended (Marginal) Impact Fee **\$213.20 per ERU**

Maximum Impact Fee Chargeable **\$552.36 per ERU**

The Impact Fee that is actually charged can be any amount so long as it does not exceed \$552.36

4.3.2 Wastewater Treatment Plant Piping Impact Fee

The Impact Fee Charged for the wastewater treatment plant piping must not exceed the Full Recoupment Impact Fee or the Proportionate Share Analysis, whichever is less. Since the Proportionate Share Analysis figure is greater than the Full Recoupment Impact Fee, the recommended Impact Fee for the Collection Piping System is as follows:

Minimum Recommended Impact Fee (piping only) \$178.44 per ERU

Maximum Impact Fee Chargeable (piping only) \$251.93 per ERU

These amounts are in addition to the Impact Fee already being charged for the treatment plant itself. This amount is \$1,128.00, so the total Wastewater Treatment Plant Impact Fee is as follows:

Minimum Recommended (Marginal) Impact Fee	\$1,306.44 per ERU (\$1,128.00 + \$178.44)
Maximum Impact Fee Chargeable	\$1,379.93 per ERU (\$1,128.00 + \$251.93)

The Impact Fee that is actually charged can be any amount so long as it does not exceed \$1,379.93

4.4 Hookup Fees

It is also possible for Tremonton City to assess a fee associated with the actual connection, inspections and administrative fees of the sewer hookup. These items do not fit under the scope of the impact fee and would need to be assessed as a hookup fee. The Impact fees Act Section 11-36-102 defines "Hookup fees" as:

"(6)...reasonable fees, not in excess of the approximate average costs to the political subdivision, for services proved for and directly attributable to the connection to utility services, including gas, water, sewer, power, or other municipal, country or independent special district utility services."

It is advisable for the City to reevaluate and update their hookup fees with the adoption of the new impact fees.

4.5 Impact Fee Escalation

The above impact fee should be escalated on an annual basis. This escalation factor should be taken from the Engineering News Record showing the inflation (deflation) for the past year based on Building Cost Index. The entire report should also be reviewed to check for any major changes that may have occurred. These changes may include but not be limited to changes to Land Use, changes in service area, unexpected deficiencies in the system, etc.

Tremonton City Sanitary Sewer Capital Facilities Plan
Capital Improvement Projects

Project #1

Description: Upsize north segment of existing sewer outfall line from Garland. This line serves mostly areas north of 600 North and west of the railroad tracks in Tremonton and all of Garland.

Location: Garland city limit along David Drive, 425 East, and across Holmgren Historical Farm to 300 East

Item	Description	Quantity	Unit	Unit Price	Total Amount
1	Construct new 18" sewer line	3,550	lf	\$42.00	\$149,100.00
2	Construct new 24" sewer line	1,700	lf	\$55.00	\$93,500.00
3	Furnish and install sewer manhole	17	ea	\$3,000.00	\$51,000.00
4	Reconnect existing sewer services	30	ea	\$1,500.00	\$45,000.00
5	Asphalt patch	2,350	lf	\$13.00	\$30,550.00
				Subtotal	\$369,150.00
				30% Engineering and Contingency	\$110,745.00
				TOTAL	\$479,895.00

**Tremonton City Sanitary Sewer Capital Facilities Plan
Capital Improvement Projects**

Project #2

Description: Upsize south segment of existing sewer outfall line from Garland. This line serves all of Tremonton that lies east of the railroad tracks and all of Garland at this time.

Location: Along the Malad River from north of Main Street to the sewer treatment plant

Item	Description	Quantity	Unit	Unit Price	Total Amount
1	Construct new 21" sewer line	1,150	lf	\$50.00	\$57,500.00
2	Construct new 24" sewer line	2,220	lf	\$60.00	\$133,200.00
3	Construct new 27" sewer line	1,900	lf	\$65.00	\$123,500.00
4	Furnish and install sewer manhole	20	ea	\$3,000.00	\$60,000.00
5	Connect existing sewer to new sewer	6	ea	\$1,500.00	\$9,000.00
6	Bore new sewer line under Main Street	1	LS	\$68,000.00	\$68,000.00
7	Malad River crossing	1	LS	\$75,000.00	\$75,000.00
8	Asphalt patching	350	lf	\$13.00	\$4,550.00
Subtotal					\$530,750.00
30% Engineering and Contingency					\$159,225.00
TOTAL					\$689,975.00

**Tremonton City Sanitary Sewer Capital Facilities Plan
Capital Improvement Projects**

Project #3

Description: Upsize existing line along east Main Street. The new line will serve development mostly north of Main Street and west of the Malad River.

Location: Main Street from Malad River to approximately 1150 East

Item	Description	Quantity	Unit	Unit Price	Total Amount
1	Construct new 12" sewer line	3,500	lf	\$33.00	\$115,500.00
2	Furnish and install sewer manhole	12	ea	\$3,000.00	\$36,000.00
3	Connect existing sewer lines	4	ea	\$1,500.00	\$6,000.00
4	Connect existing sewer laterals	10	ea	\$750.00	\$7,500.00
5	Above grade crossing of the Malad River	1	LS	\$35,000.00	\$35,000.00
6	Asphalt patching	3,400	lf	\$13.00	\$44,200.00
				Subtotal	\$244,200.00
				30% Engineering and Contingency	\$73,260.00
				TOTAL	\$317,460.00

**Tremonton City Sanitary Sewer Capital Facilities Plan
Capital Improvement Projects**

Project #4

Description: Upsize existing Iowa String Road trunk line. Trunk line will serve as outfall for areas west of I-15 and areas around Iowa String including the industrial area at the north end of the city. Some Garland City areas are expected to outfall through this line. This line will be part of the rerouting the sewer outfall along I-15 and I-84

Location: Along Iowa String from Main Street to Rocket Road

Item	Description	Quantity	Unit	Unit Price	Total Amount
1	Construct new 24" sewer line (5' deep to 16' deep)	4,400	lf	\$85.00	\$374,000.00
2	Furnish and install sewer manhole	16	ea	\$3,200.00	\$51,200.00
3	Connect existing sewer lines	5	ea	\$1,500.00	\$7,500.00
4	Connect existing sewer laterals	25	ea	\$750.00	\$18,750.00
5	Asphalt patching	4,400	lf	\$16.00	\$70,400.00
				Subtotal	\$521,850.00
				30% Engineering and Contingency	\$156,555.00
				TOTAL	\$678,405.00

**Tremonton City Sanitary Sewer Capital Facilities Plan
Capital Improvement Projects**

Project #5

Description: Construct trunk line along Main Street from 2300 West to 1000 West. This line will take sewer from most areas west of I-15 and will replace the existing trunk line that runs along I-15. The industrial area around 2000 South will not sewer through this line.

Location: Main Street from 1000 West to 2300 West

Item	Description	Quantity	Unit	Unit Price	Total Amount
1	Construct new 21" sewer line	5,300	If	\$80.00	\$424,000.00
2	Furnish and install sewer manhole	19	ea	\$3,200.00	\$60,800.00
3	Connect existing sewer to new sewer	5	ea	\$1,500.00	\$7,500.00
4	Connect existing sewer lateral	5	ea	\$750.00	\$3,750.00
5	Cross under freeway	1	LS	\$20,000.00	\$20,000.00
6	Asphalt patching (UDOT std.)	5,300	If	\$30.00	\$159,000.00
7	Traffic control	1	LS	\$10,000.00	\$10,000.00
Subtotal					\$685,050.00
30% Engineering and Contingency					\$205,515.00
TOTAL					\$890,565.00

**Tremonton City Sanitary Sewer Capital Facilities Plan
Capital Improvement Projects**

Project #6

Description: Construct new 10" and 15" sewer lines along 2300 West from Main Street to 1000 North. This line will help take sewer flow from the hillside area north of 1000 North. This line is necessary for the overall growth on the hillside because the existing line is undersized for the entire area. The 14" line will take a combined flow at the south end of 2300 West

Location: 2300 West from 1000 North to Main Street

Item	Description	Quantity	Unit	Unit Price	Total Amount
1	Construct new 10" sewer line	1,100	lf	\$27.00	\$29,700.00
2	Construct new 15" sewer line	4,400	lf	\$40.00	\$176,000.00
3	Furnish and install sewer manhole	20	ea	\$3,000.00	\$60,000.00
4	Connect existing sewer line	3	ea	\$1,500.00	\$4,500.00
5	Connect existing sewer lateral	10	ea	\$750.00	\$7,500.00
6	Construct sewer diversion structure	1	ea	\$5,000.00	\$5,000.00
7	Asphalt patching	5,500	lf	\$13.00	\$71,500.00
				Subtotal	\$354,200.00
				30% Engineering and Contingency	\$106,260.00
				TOTAL	\$460,460.00

**Tremonton City Sanitary Sewer Capital Facilities Plan
Capital Improvement Projects**

Project #7

Description: Construct trunk line along I-84 from the Harmony Heights development to the intersection of Main Street and 2300 West. This project will be developer constructed. This project is shown in this report because the city will participate in an upsizing cost

Location: Along I-84 from 1000 North near Exit 39 to the intersection of Main Street and 2300 West

Overall Cost

Item	Description	Quantity	Unit	Unit Price	Total Amount
1	Construct 12" sewer line	5,750	lf	\$33.00	\$189,750.00
2	Construct 10" sewer line	3,750	lf	\$27.00	\$101,250.00
3	Furnish and install sewer manhole	30	ea	\$3,000.00	\$90,000.00
4	Asphalt patch (UDOT)	800	lf	\$30.00	\$24,000.00
5	Easement acquisition	3	ac	\$50,000.00	\$150,000.00
Subtotal					\$555,000.00
30% Engineering and Contingency					\$166,500.00
TOTAL					\$721,500.00

Developer Cost

Item	Description	Quantity	Unit	Unit Price	Total Amount
1	Construct 8" sewer line	5,750	lf	\$24.00	\$138,000.00
2	Construct 8" sewer line	3,750	lf	\$24.00	\$90,000.00
3	Furnish and install sewer manhole	30	ea	\$3,000.00	\$90,000.00
4	Asphalt patch (UDOT)	800	lf	\$30.00	\$24,000.00
5	Easement acquisition	3	ac	\$50,000.00	\$150,000.00
Subtotal					\$492,000.00
30% Engineering and Contingency					\$147,600.00
TOTAL					\$639,600.00

**Tremonton City Sanitary Sewer Capital Facilities Plan
Capital Improvement Projects**

Project #8

Description: Upgrade sewer lift station. The lift station will be constructed when McFarland Estates is constructed. The pumps in the lift station can be upgraded as more development demands it.

Location: McFarland Estates near 1000 West and 1200 South,
south of the freeway

Item	Description	Quantity	Unit	Unit Price	Total Amount
1	Upgrade existing sewer lift station	1	LS	\$20,000.00	\$20,000.00
Subtotal					\$20,000.00
30% Engineering and Contingency					\$6,000.00
TOTAL					\$26,000.00

