CITY OF LYTLE

WATER AND WASTEWATER IMPACT FEE ANALYSIS

CAPITAL IMPROVEMENTS PLAN
LAND USE PLAN

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1.0 INTRODUCTION

Chapter 395 of the Texas Local Government Code requires the following elements be included in the Capital Improvements Plan (CIP) used as the basis for impact fees:

- Table of service usage for each category of capital improvements and a conversion table of service units per acre (or other measure) of at least residential, commercial and industrial land uses

- Projections of total service units for new development, within the service area

- Description of existing capital improvements, including:
  - Existing capital improvements within the service area;
  - Analysis of total capacity of existing improvements;
  - Analysis of current usage of existing improvements;
  - Cost to upgrade, update, improve, expand or replace facilities for existing needs.

- Description of capital improvements needed to serve new development within the next 10 years or less (based upon adopted service area, land use and unit usage assumptions), including:
  - All or portions of the existing CIP;
  - All or portions of the future CIP;
  - Costs associated with both existing and future CIP facilities needed for new development.

2.0 ANALYSIS OF WATER AND WASTEWATER SYSTEMS

2.1 Existing Water System

2.1.1 Present Water Demand

At present, the Lytle water system serves approximately 1,547 customers of all sizes based on the current number of meters provided by the City. **Table 1 – LUE for Various Types and Sizes of Water Meters** illustrates the chosen American Water Works Association (AWWA) standard of conversion rates, between meter size and Living Unit Equivalent (LUE). An LUE is equivalent to the amount of demand typically produced by a single-family residence using a 5/8” x 3/4” water meter. **Table 2 – Current Count and Estimation of Living Unit Equivalents** lists all existing meter counts and converts the meters larger than 5/8" size to an “equivalent” number of 5/8" meters.

Table 1 - LUE for Various Types and Sizes of Water Meters

METER TYPE	METER SIZE	CONTINUOUS DUTY MAXIMUM RATE (GPM)	LUE RATIO TO 5/8" METER
Simple	5/8" x 3/4"	10	1.0
Simple	3/4"	15	1.5
Simple	1"	25	2.5
Simple	1 1/2"	50	5.0
Simple	2"	80	8.0
Compound	2"	80	8.0
Turbine	2"	160	16.0
Compound	3"	175	17.5
Turbine	3"	350	35.0
Compound	4"	300	30.0
Turbine	4"	650	65.0
Compound	6"	675	67.5
Turbine	6"	1400	140.0
Compound	8"	900	90.0
Turbine	8"	2400	240.0
Compound	10"	1150	115.0
Turbine	10"	3500	350.0
Turbine	12"	4400	440.0

SOURCE: AWWA Standards C700, C701, C702, C703.

Table 2 - Current Count and Estimation of Living Unit Equivalents

METER SIZE	NUMBER OF METERS[(a)]	LUEs PER METER[(b)]	NUMBER OF LUEs
5/8"	1,446	1.0	1,446
3/4"	2	1.5	3
1"	49	2.5	123
1 1/2"	17	5.0	85
2"	25	8.0	200
3"	6	17.5	105
4"	2	30.0	60
TOTAL	**1,547**		**2,022**
Population 2019[(a)]			3,084
Population/LUE			1.53

[(a)]SOURCE: City of Lytle

[(b)]See Table 1

The yearly and monthly water consumption for the City of Lytle over the past (5) years is shown in **Table 3 – Historical Water Usage Data**. The average and peak demand is 0.439 MGD and 0.827 MGD respectively.

Table 3 - Historical Water Usage Data

Month	Year	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	2014	0.404	0.466
February	2014	0.395	0.478
March	2014	0.394	0.48
April	2014	0.465	0.658
May	2014	0.442	0.59
June	2014	0.455	0.568
July	2014	0.573	0.688
August	2014	0.643	0.713
September	2014	0.496	0.694
October	2014	0.466	0.548
November	2014	0.353	0.423
December	2014	0.348	0.407
Average	2014	0.420	
Maximum	2014		0.713
Date	2014		

Month	Year	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	2015	0.365	0.827
February	2015	0.356	0.609
March	2015	0.372	0.453
April	2015	0.374	0.453
May	2015	0.361	0.513
June	2015	0.411	0.505
July	2015	0.523	0.696
August	2015	0.597	0.747
September	2015	0.587	0.769
October	2015	0.493	0.597
November	2015	0.376	0.437
December	2015	0.351	0.407
Average	2015	0.431	
Maximum	2015		0.827
Date	2015		

Month	Year	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	2016	0.372	0.424
February	2016	0.398	0.462
March	2016	0.386	0.431
April	2016	0.408	0.498
May	2016	0.398	0.486
June	2016	0.437	0.563
July	2016	0.587	0.699
August	2016	0.461	0.612
September	2016	0.477	0.653
October	2016	0.457	0.519
November	2016	0.404	0.497
December	2016	0.374	0.423
Average	2016	0.430	
Maximum	2016		0.699
Date	2016		

Month	Year	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	2017	0.389	0.528
February	2017	0.396	0.429
March	2017	0.402	0.490
April	2017	0.431	0.540
May	2017	0.504	0.685
June	2017	0.526	0.663
July	2017	0.645	0.742
August	2017	0.486	0.720
September	2017	0.504	0.575
October	2017	0.414	0.485
November	2017	0.402	0.484
December	2017	0.385	0.476
Average	2017	0.457	
Maximum	2017		0.742
Date	2017		

Month	Year	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	2018	0.405	0.456
February	2018	0.382	0.454
March	2018	0.414	0.528
April	2018	0.437	0.521
May	2018	0.467	0.588
June	2018	0.567	0.723
July	2018	0.587	0.766
August	2018	0.536	0.638
September	2018	0.403	0.609
October	2018	0.380	0.424
November	2018	0.381	0.445
December	2018	0.378	0.511
Average	2018	0.445	
Maximum	2018		0.766
Date	2018		

AVERAGE FOR 2014 THROUGH 2018: 0.439 MGD

MAXIMUM FOR 2014 THROUGH 2018: 0.827 MGD

Average Per LUE Usage = 439,000 gal/day ÷ 2,022 LUEs = 217 gal/day/LUE
Average Per Population = 439,000 gal/day ÷ 3,084 population = 142 gal/day/capita
Peak Per LUE Usage = 827,000 gal/day ÷ 2,022 LUEs = 409 gal/day/LUE
Peak Per Population = 827,000 gal/day ÷ 3,084 population = 268 gal/day/capita

2.1.2 Water Supply

The City of Lytle currently has one producing well; Well No. 2. Well No. 4 is currently nearing construction completion and is considered an existing facility for this analysis. Their capacities are shown in **Table 4 – Water Well Production** below.

Table 4 - Water Well Production

Well No.	Capacity	Unit	
2	750	gpm	1.08 MGD
4	600	gpm	0.864 MGD
Total	**1,350**	**gpm**	**1.944 MGD**

2.1.3 Water Treatment Facilities

Treatment facilities were only necessary at Well No. 3, which is no longer in service. Previously, flow from Water Well No. 3 went through a Forced Draft Aerator and then a 100,000 gallon settling/clarifying tank. Water from this reservoir then flows into a 500,000 gallon storage reservoir, which serves as suction for the high service pumps that supply the City's water system.

In 2008 the settling/clarifying tank and storage reservoir were expanded to 250,000 gallons and 1,080,000 gallons respectively. With Well No. 3 no longer in service, the settling/clarifying 250,000 gallon reservoir will be combined with the 1,080,000 gallon storage reservoir and the Force Draft Aerator will be taken out of service.

2.1.4 Storage, High-Service Pumps, and Distribution Mains

The 1,080,000 gallon ground storage reservoir and 250,000 gallon reservoir are located at the intersection of FM 463 and FM 2790. Three (3) high service pumps with a capacity of 1,600 gpm each, pump water out of the combined 1,330,000 gallon ground storage tanks through an 18 inch distribution line. The distribution system consists of 2-inch, 4-inch, 6-inch, 8-inch, 12-inch and 18-inch mains. The City also operates two (2) elevated storage tanks with a combined capacity of 200,000 gallons. The elevated tank located at the high service pump station is 150,000 gallons. The elevated tank located at the abandoned high service pump station is 50,000 gallons.

2.2 Existing Wastewater System

2.2.1 Present Wastewater Flows

The Lytle collection and treatment system currently collects and treats essentially all of the domestic wastewater generated by the citizens of Lytle. The wastewater collection system serves approximately 1,547 residential and commercial customers (2,022 LUE). A review of the wastewater flow records shown in **Table 5 – Historical Wastewater Usage Data**, indicates the average amount of wastewater flow received at the treatment plant is 64 gallons per capita per day and the peak flow is 166 gallons per capita per day. As shown in the following, the average flow per LUE is 98 gpd, and the peak flow per LUE is 254 gpd. The peak average wastewater flow per LUE is 144 gpd.

Table 5 - Historical Wastewater Usage Data

Month	Year	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	2014	0.180	0.254
February	2014	0.185	0.273
March	2014	0.191	0.259
April	2014	0.193	0.208
May	2014	0.194	0.334
June	2014	0.186	0.216
July	2014	0.182	0.219
August	2014	0.186	0.202
September	2014	0.187	0.220
October	2014	0.191	0.230
November	2014	0.183	0.423
December	2014	0.183	0.264
Average	2014	0.187	0.259
Maximum	2014		0.423
Date	2014		

Month	Year	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	2015	0.176	0.254
February	2015	0.184	0.263
March	2015	0.200	0.269
April	2015	0.208	0.309
May	2015	0.232	0.457
June	2015	0.194	0.284
July	2015	0.198	0.251
August	2015	0.194	0.222
September	2015	0.196	0.257
October	2015	0.195	0.299
November	2015	0.194	0.348
December	2015	0.187	0.266
Average	2015	0.197	0.290
Maximum	2015		0.457
Date	2015		

Month	Year	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	2016	0.190	0.310
February	2016	0.203	0.327
March	2016	0.206	0.263
April	2016	0.205	0.277
May	2016	0.205	0.325
June	2016	0.218	0.443
July	2016	0.197	0.312
August	2016	0.222	0.512
September	2016	0.197	0.273
October	2016	0.201	0.229
November	2016	0.195	0.238
December	2016	0.220	0.504
Average	2016	0.205	0.334
Maximum	2016		0.512
Date	2016		

Month	Year	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	2017	0.200	0.222
February	2017	0.210	0.307
March	2017	0.209	0.283
April	2017	0.202	0.270
May	2017	0.202	0.230
June	2017	0.200	0.248
July	2017	0.191	0.214
August	2017	0.191	0.219
September	2017	0.211	0.446
October	2017	0.200	0.229
November	2017	0.183	0.221
December	2017	0.195	0.285
Average	2017	0.199	0.265
Maximum	2017		0.446
Date	2017		

Month	Year	Average Daily Flow (MGD)	Maximum Daily Flow (MGD)
January	2018	0.192	0.215
February	2018	0.191	0.304
March	2018	0.206	0.290
April	2018	0.186	0.237
May	2018	0.203	0.364
June	2018	0.191	0.223
July	2018	0.191	0.225
August	2018	0.203	0.309
September	2018	0.262	0.464
October	2018	0.225	0.333
November	2018	0.208	0.394
December	2018	0.184	0.293
Average	2018	0.203	0.304
Maximum	2018		0.464
Date	2018		

AVERAGE FOR 2014 THROUGH 2018: 0.198 MGD

MAXIMUM FOR 2014 THROUGH 2018: 0.512 MGD

Average Per LUE Usage = 198,000 ÷ 2,022 LUEs = 98 gal/day/LUE
Average Per Population = 198,000 ÷ 3,084 population = 64 gal/day/capita
Peak Per LUE Usage = 512,000 ÷ 2,022 LUEs = 254 gal/day/LUE
Peak Per Population = 512,000 ÷ 3,084 population = 166 gal/day/capita

2.2.2 Collection System

The City's existing sewage collection system has been extended geographically as necessary through the years for growth. The majority of the older system is constructed of vitrified clay tile sewer pipe. The recently installed collector mains (in the past 35 years) are constructed of PVC pipe. Collector line sizes are generally 6-inch and 8-inch and interceptor lines range from 10-inch to 18-inch in diameter. The depth of the collection system ranges from 3 feet to 18 feet below the ground surface, with a median depth of 6-7 feet for the majority of the lines. Most of the lines in the collection system have sufficient grades to maintain self-cleaning velocities.

Currently there is only one existing lift station and it is located at the WWTP. The lift station was rehabilitated in 2017. The rehabilitation consisted of removal and replacement of (3) submersible pumps rated at 473.8 gpm each at 92.5 feet TDH.

2.2.3 Wastewater Treatment Plant

The plant was constructed in 2003 and has a design capacity of 0.45 MGD average flow. The plant consists of raw sewage screening, aeration basin, clarification, disinfection, sludge handling, and dewatering.

2.3 Projected Population Growth

Community Development Management Co. (CDMC) provided 3 projected population scenarios, as shown in **Table 6 – Projected Population Growth**.

Scenario A
Based on traditional growth rates observed over the 2000-2010 decade.

Scenario B
Based on faster than average growth rate taking into consideration proposed new developments and build-out-rates, the impact of increased economic development in the region and metropolitan regional growth rates.

Scenario C
High Growth Alternative scenario based on housing starts and traditional growth rate consisting of an estimate of how many houses can be assimilated into the market place and assuming utilities will be available when needed. This scenario takes into consideration the upper levels of growth rate greater than the norm.

Table 6 - Projected Population Growth

Year	A	B	C
2010	2,492*	2,492	2,492
2015	2,537	3,028**	3,028
2020	2,582	3,098	3,098
2025	2,627	4,598	5,098
2030	2,672	6,098	8,098
2035	2,717	7,098	10,598

*As determined by the Bureau of Census, 2010 Population

**As determined using residential water meter connections

The City decided to use scenario B. Based on scenario B, the population for 2029 was estimated to be 5,798.

2.4 Future Water System

2.4.1 Future Water Use

Table 7 – Estimated Growth of Connections, below, presents the projected growth of LUEs for water. For water, connections are estimated to grow by 88% over the ten-year period. These projections are based on the population projections as discussed above. The projected LUE's then increase at the same rate as the connections. In 2029, water LUEs are projected to grow to 2,908 LUEs.

Table 7 - Estimated Growth of Connections

YEAR	CONNECTIONS	WATER LUEs	POPULATION
2019	1,547	2,022	3,084
2029	2,908	3,801	5,798

The future water use projections shown in **Table 8 – Projected Water Usage** were derived from the future population projections and the per capita water demands shown in Table 3. These projections are used for making recommendations for future improvements to the water system.

Table 8 - Projected Water Usage

Year	Population	Average Water Usage[(1)] (MGD)	Peak Water Usage[(2)] (MGD)
2019	3,084	0.439	0.827
2029	5,798	0.825	1.554

[(1)]Based upon average per capita water usage of 142 gal/day

[(2)]Based upon peak per capita water usage of 268 gal/day

2.4.2 Water Supply Improvements

Presently, the source of water for Lytle is ground water from the Edwards Aquifer. The Edwards Aquifer has been a reliable source of water for Lytle for the past sixty years. However, withdrawal rates from the Edwards are greater than recharge rates, and therefore restrictions on withdrawal are now in place. The City must acquire additional withdrawal rights or other sources of water in order to grow. Water rights have been omitted from the impact fee due to escalating costs for water rights. The City will acquire water rights as required and pass the cost through to developers. An additional well is needed within the ten year planning period to meet future demands.

2.4.3 Water Treatment Improvements

It is not anticipated treatment will be needed for Well No. 4. Therefore, there are no plans for water treatment improvements.

2.4.4 Ground Storage Improvements

The ground storage reservoir capacity requirements are based upon the Texas Commission on Environmental Quality (TCEQ) requirement of 200 gallons per connection for total storage. The present ground storage capacity is 1,330,000 gallons and total storage is 1,530,000 gallons. Based upon the requirement of 200 gallons per connection for total storage and population projections, the City will not require additional ground storage within the ten (10) year planning period.

2.4.5 High Service Pump Improvements

The City has three (3) high service pumps with a total combined capacity of 4,800 gpm (6.912 MGD). These pumps send water into the water distribution system and fill the existing elevated storage tanks. The high service pump capacity requirements are based upon the TCEQ requirements of 2 gpm per connection. The current pumping capacity will not provide adequate supply for the projected connections in the year 2029. Therefore, a new pump will need to be added to the existing high service pump station.

2.4.6 Elevated Storage Improvements

TCEQ requires potable water system maintain a minimum elevated storage capacity of 100 gallons per connection. Elevated storage provides water stored in elevated tanks to help maintain pressure in the water system and for use by customers and for fire protection without the need for additional pumping. The capacity of the two (2) existing elevated tanks is 200,000 gallons. Based upon the requirement of 100 gallons per connection, an additional elevated storage tank is needed by the year 2029.

The two (2) existing elevated storage tanks were constructed to the same overflow elevation. As growth occurs to the southeast of IH-35, the existing elevated storage tanks will not be able to provide adequate pressures. An additional elevated storage tank will be required in that area, as shown in **Figure A – Water System Capital Improvements Plan**. The new elevated tank is proposed to be 250,000 gallons in capacity.

2.4.7 Distribution System Improvements

The City's present distribution system consists of water mains ranging in size from 2-inch to 18-inch in diameter. TCEQ requires that a residual pressure of 35 psi be maintained during peak water use periods and a residual pressure of 20 psi be maintained during fire flow situations. **Figure A – Water System Capital Improvements Plan** indicates the major pipelines needed to meet requirements for future development of the City.

2.4.8 Cost Estimates

Cost estimates for all the improvements proposed including construction and engineering are shown in **Table 9 – Proposed Water System Improvements Plan**.

Table 9 - Proposed Water System Improvements

Name	Quantity	Unit	Description	Cost
W-1	6,750	Feet	12" Water Pipe	$2,468,475
W-2	1	Each	Water Wells	$1,120,000
W-3	1	Each	Booster Pump	$779,000
W-4	1	Each	.25 MG Elev. Tank	$1,498,000
W-5	8,400	Feet	12" Water Pipe	$3,071,880
W-6	5,000	Feet	12" Water Pipe	$1,828,500
W-7	8,150	Feet	12" Water Pipe	$2,980,455
W-8	6,900	Feet	12" Water Pipe	$2,523,330
W-9	5,838	Feet	12" Pipeline Loop	$2,135,000
			Total	**$18,404,640**

2.5 Future Wastewater System

2.5.1 Future Wastewater Flows

The future wastewater flows are given in **Table 10 – Projected Future Wastewater Flows**. These flows are based upon TCEQ's design criteria of 100 gallons/person.

Table 10 - Projected Future Wastewater Flows

Year	Population	Wastewater Flow (MGD)[(1)]
2019	3,084	0.308
2029	5,798	0.580

[(1)] Based upon TCEQ requirement of 100 gal/person

2.5.2 Collection System Improvements

Proposed improvements needed to serve the future development of the City are shown in **Figure B – Wastewater System Capital Improvements Plan**. Major trunk mains and lift stations are shown to provide service within the service area. Additional collector mains will be required for adequate wastewater service that is not shown in the illustration. Lift stations are expensive to construct, maintain, and operate, but are required in some instances to move the wastewater from one collection area to another collection area. Additional lift stations will be required to provide service for future growth in various parts of the City.

2.5.3 Future Wastewater Treatment Needs

The City of Lytle will need additional treatment plant capacity during the next 10 years. The expansion will be constructed adjacent to the existing plant. The existing plant should be doubled in capacity to 0.90 MGD. Reference TRC's "Utility Infrastructure Capacity Report" dated June 25, 2019 for a more in depth explanation.

2.5.4 Cost Estimates

Cost estimates for all the proposed wastewater system improvements including construction and engineering and are shown in **Table 11 – Proposed Wastewater System Improvements**.

Table 11 - Proposed Wastewater System Improvements

Name	Quantity	Unit	Description	Cost
S-1	2,600	Feet	18" Gravity Sewer	$650,000
S-2	9,300	Feet	12" Gravity Sewer	$1,469,400
S-3	1	L.S.	Lift Station, 6" F.M., 10" Sewer	$1,000,000
S-4	1	L.S.	Lift Station, 6" Force Main	$1,500,000
S-5	1,300	Feet	12" Gravity Sewer	$205,400
S-6	1	L.S.	0.45 MGD WWTP Expansion	$9,600,000
S-7	1	L.S.	Lift Station, 6" F.M., 10" Sewer	$1,000,000
S-8	1	L.S.	Lift Station, 6" F.M., 10" Sewer	$1,000,000
			Total	**$16,424,800**

3.0 DERIVATION OF UNIT CAPITAL COSTS

3.1. Unit Usage Statistics

Design standards (unit usage statistics) for the water and sewer systems have been developed by TRC. Those standards are shown in **Table 12 – Capacity Demand for Each New Water LUE** and **Table 13 – Capacity Demand for Each New Wastewater LUE**.

Table 12 - Capacity Demand for Each New Water LUE

FACILITY	BASIS	CAPACITY PER LUE
Wells	TCEQ Standards 0.6 gal./min. per connection	661 gallons/day[(a)]
Raw Water Transmission	TCEQ Standards 0.6 gal./min. per connection	661 gallons/day[(a)]
Treatment	TCEQ Standards 0.6 gal./min. per connection	661 gallons/day[(a)]
High Service Pumps	TCEQ Standards 2.0 gal./min. per connection	2,203 gallons/day[(b)]
Ground Storage	Engineering Analysis	217 gallons[(c)]
Elevated Storage	TCEQ Standards 100 gallons per connection	77 gallons[(d)]
Major Transmission	TCEQ Standards 2 gal./min. per connection	2,203 gallons/day[(b)]

SOURCE: TRC Engineers, Inc.

[(a)](1,547 connections * 0.6 gal./min. per connection * 24 hrs * 60 min.) / 2,022 LUE = 661 gallons/day/LUE

[(b)](1,547 connections * 2.0 gal./min. per connection * 24 hrs * 60 min.) / 2,022 LUE = 2,203 gallons/day/LUE

[(c)](439,000 gal/day) / 2,022 LUE = 217 gallons/day/LUE

[(d)](1,547 connections * 100 gals per connection) / 2,022 LUE = 77 gallons/LUE

Table 13 - Capacity Demand for Each New Wastewater LUE

FACILITY	BASIS	CAPACITY PER LUE
Treatment	Average Day	144 gallons/day[(a)]
Pumping	Engineering Analysis	432 gallons/day[(b)]
Major Collection	Engineering Analysis	432 gallons/day[(b)]

[(a)]290,000 GPD / 2,022 LUE's = 144 gallons/day

[(b)]Capacity per LUE asssumes a peak factor of 3.0

3.2. Conversion Table

Section 395.014(a)(4) of the Impact Fee Act requires:

> *...an equivalency or conversion table establishing the ratio of a service unit to various types of land used, including residential, commercial, and industrial....*

Water meter size (expressed in the common units of LUE's) was determined to be the most appropriate measure for calculating the fees due from any individual customer. Water meter size was selected as the unit determinant for fee collection for the following reasons:

- It allows the use of an American Water Works Association (AWWA) published standard.
- This standard includes both safe continuous flow and safe maximum flow which will thereby accommodate all requests for service.
- These standards are those used by building owners, professional engineers and architects, and City staff for sizing meters and plumbing fixtures.
- Meters are physical elements which can be maintained and controlled by the City, thus allowing the monitoring of the accuracy of meter sizing. The City can require any necessary replacement of meters which can be shown to have been sized too small for a development and collect additional impact fees required by the change in meters.
- The use of water meter size allows equitable cost assignment to each of the three customer classes identified in Chapter 395 (residential, commercial and industrial).

Since water meter size is the basis for calculation of both water and wastewater fees, the base fee should be applied to the smallest meter used by the City. The following policies are suggested:

- The standard used for the ratio of the continuous duty maximum flow rate should be derived from AWWA C700-C703 (in gpm).
- The City's smallest water meter (5/8" x 3/4") should be the base unit for impact fee assessment.
- The Impact Fee Ordinance should have the schedule published as shown in Table 1, which includes both compound and turbine meters.
- For larger meter sizes, Table 1 lists different LUE ratios for compound and turbine meters. Certain compound meters use turbine meters in connection with displacement meters. In such case, the LUE ratio used shall be that of a turbine meter.

Table 1 shows a conversion table for various types and sizes of water meters in the Lytle Water System. Because the fee calculation was based on water meter size, the LUE/meter conversion table applies equally to all land used. Table 2 shows the current number of LUE's on the Lytle water system.

Typically, some concern is expressed that water meters are not always a reasonable means of calculating wastewater flows, particularly for certain types of commercial uses (car washes, restaurants) or industrial

processes. Additionally, any land use might have a large meter for irrigation purposes, thus over representing its wastewater flows. However, experience has indicated that few such exceptional customers choose to have a separate wastewater meter because of the installation and maintenance expense incurred. Because no alternative means for assessing flow is practical, it is recommended that the water meter also be adopted as the basis for wastewater impact fees.

However, given the potential that some commercial and industrial customers may be considerably overcharged for sewer capacity demand when water meter size is used for calculating wastewater impact fees, it is also recommended that the ordinance provide for exceptions. Specifically, the ordinance should permit individual wastewater customers to present data, prepared by a professional engineer, documenting expected wastewater flow below that which is indicated by meter-size determinations for a lower sewer fee. For irrigation-only water meters, the ordinance should provide for a water-only impact fee.

3.3. Projected Service Units for New Development

The estimated demand per LUE shown in Table 12 and Table 13 was applied to the existing population of 3,084 and projected population of 5,798 in 2029 to yield the estimated water and wastewater service demands shown in **Table 14 – Estimated Water Service Demand by Facility Type** and **Table 15 – Estimated Wastewater Service Demand by Facility Type**.

Table 14 - Estimated Water Service Demand by Facility Type

	VOLUME	
	2019	**2029**
LUE'S[a]	2,022	3,801
WELLS (MGD):		
Estimated Demand[b]	1.337	2.513
Existing Capacity	1.944	1.944
Excess/(Deficiency)	0.607	(0.569)
WATER TREATMENT PEAK (MGD):		
Estimated Demand[d]	0.000	0.000
Existing Capacity	0.000	0.000
Excess/(Deficiency)	0.000	0.000
HIGH SERVICE PUMPS (MGD):		
Estimated Demand[e]	4.455	8.376
Existing Capacity	6.912	6.912
Excess/(Deficiency)	2.457	(1.464)
GROUND STORAGE (MG):		
Estimated Demand[f]	0.439	0.825
Existing Capacity	1.330	1.330
Excess/(Deficiency)	0.891	0.505
ELEVATED STORAGE (MG):		
Estimated Demand[g]	0.155	0.291
Existing Capacity	0.200	0.200
Excess/(Deficiency)	0.045	(0.091)
TRANSMISSION/DIST LINES (MGD)		
Estimated Demand[c]	1.337	2.513
Existing Capacity	7.615	7.615
Excess/(Deficiency)	6.278	5.102

[a]2019 LUE's based on count of equivalent meters. 2029 and ultimate LUE's determined by 2019 persons per LUE and projected 2029 poulation.

[b]Capacity Demand = 661 gallons/LUE/day.

[c]Capacity Demand = 661 gallons/LUE/day.

[d]Capacity Demand = 661 gallons/LUE/day.

[e]Capacity Demand = 2,203 gallons/LUE/day.

[f]Capacity Demand = 217 gallons/LUE.

[g]Capacity Demand = 77 gallons/LUE.

Table 15 - Estimated Wastewater Service Demand by Facility Type

FACILITY TYPE	VOLUME	
	2019	2029
LUE'S[(a)]	2,022	3,801
WASTEWATER TREATMENT PEAK MGD:		
Estimated Demand[(b)]	0.290	0.546
Existing Capacity	0.450	0.450
Excess (Deficiency)	0.160	(0.096)
WASTEWATER PUMPING MGD:		
Estimated Demand[(c)]	0.874	1.642
Existing Capacity	1.365	1.365
Excess (Deficiency)	0.491	(0.277)
MAJOR COLLECTION LINES		
Estimated Demand[(d)]	0.874	1.642
Existing Capacity	1.754	1.754
Excess (Deficiency)	0.880	0.112

[(a)]Wastewater LUE's same as water

[(b)]Capacity demand = 144 gallons/LUE/day

[(c)]Capacity demand = 432 gallons/LUE/day

[(d)]Capacity demand = 432 gallons/LUE/day

3.4. CIP Development for Existing and Future Needs

Facility unit statistics shown in Tables 12 and Table 13 were used to project facility needs for both existing and future customers. Table 14 and Table 15 show current needs and deficiencies, if any, for existing customers, as well as projected capacity needs for growth. Although not shown in Tables 14 and Table 15 both the water and sewer system will require additional lines by 2029, which are addressed in the capital improvements program.

Table 16 – Water CIP Inventory and Costing and Table 17 – Wastewater CIP Inventory and Costing present the inventory of facilities as required in Chapter 395. They show the required allocation of existing and future CIP facility needs for existing development; future development within the next ten years; and excess capacity for subsequent future development. For each generation of utility customers, these tables show facility needs which will be met by existing facilities and future facilities.

Cost allocations are also shown in Table 16 and Table 17. Cost estimates for each facility were taken from actual cost of existing facilities which have excess capacity **(see Table 18 – Cost of Existing Facilities with Excess Capacity)** and projected costs of future facilities (see Table 9 and Table 11).

An appropriate cost share was attributed to 2019-2029 growth, as determined from the capacity allocations shown. This analysis assumes all future CIP projects will be financed through bonds. Thus, a finance cost was added by increasing the construction cost by 50%. Finally, costs were expressed on a per-LUE basis. Total capital costs for 2019-2029 growth were then summed for each utility.

Table 16 - Water CIP Inventory and Costing

FACILITY		CONSTRUCT COST	CONSTRUCT COST PLUS FINANCE	FACILITY CAPACITY (mgd, gals or gpm)				NEXT 10-YEAR CAPITAL COST TOTAL	NEXT 10-YEAR COST PER LUE
TYPE	NAME			TOTAL	FOR CURRENT CUST.	EXCESS <10 YEARS	EXCESS >10 YEARS		
WELLS									
EXISTING FACILITIES				MGD					
	Well #2	$750,000	$1,125,000	1.080	0.669	0.411	0.000	$428,125.00	$240.60
	Well #4	$720,000	$1,080,000	0.864	0.668	0.196	0.000	$245,000.00	$137.69
	Subtotal Existing Facilities	$1,470,000	$2,205,000	1.944	1.337	0.607	0.000	$673,125.00	$378.28
NEW FACILITIES									
(W-2)	Well #5	$1,120,000	$1,680,000	1.000	0.000	0.569	0.431	$955,920.00	$537.21
	Subtotal New Facilities	$1,120,000	$1,680,000	1.000	0.000	0.569	0.431	$955,920.00	$537.21
TOTAL WELLS		**$2,590,000**	**$3,885,000**	**2.944**	**1.337**	**1.176**	**0.431**	**$1,629,045.00**	**$915.50**
WATER TREATMENT									
EXISTING FACILITIES				MGD					
	Water Treatment Plant (Aerator & Tank)	$235,000	$352,500	0.000	0.000	0.000	0.000	$0.00	$0.00
	Subtotal Existing Facilities	$235,000	$352,500	0.000	0.000	0.000	0.000	$0.00	$0.00
TOTAL WATER TREATMENT		**$235,000**	**$352,500**	**0.000**	**0.000**	**0.000**	**0.000**	**$0.00**	**$0.00**

Table 16 - Water CIP Inventory and Costing (Continued)

FACILITY		CONSTRUCT COST	CONSTRUCT COST PLUS FINANCE	FACILITY CAPACITY (mgd, gals or gpm)				NEXT 10-YEAR CAPITAL COST TOTAL	NEXT 10-YEAR COST PER LUE
TYPE	NAME			TOTAL	FOR CURRENT CUST.	EXCESS <10 YEARS	EXCESS >10 YEARS		
HIGH SERVICE PUMPS									
EXISTING FACILITIES				MGD					
	High Service Pumps (3)	$255,000	$382,500	6.912	4.455	2.457	0.000	$135,966.80	$76.41
	Subtotal Existing Facilities	$255,000	$382,500	6.912	4.455	2.457	0.000	$135,966.80	$76.41
NEW FACILITIES									
(W-3)	High Service Pump	$779,000	$1,168,500	2.304	0.000	1.464	0.840	$742,484.38	$417.26
	Subtotal New Facilities	$779,000	$1,168,500	2.304	0.000	1.464	0.840	$742,484.38	$417.26
TOTAL HIGH SERVICE PUMPS		**$1,034,000**	**$1,551,000**	**9.216**	**4.455**	**3.921**	**0.840**	**$878,451.17**	**$493.67**
GROUND STORAGE									
EXISTING FACILITIES				MG					
	0.5 MG Ground Storage Reservoir	$150,000	$225,000	0.500	0.204	0.186	0.110	$83,700.00	$47.04
	Ground Storage Rehab	$337,000	$505,500	0.830	0.235	0.200	0.395	$121,807.23	$68.45
	Subtotal Existing Facilities	$487,000	$730,500	1.330	0.439	0.386	0.505	$205,507.23	$115.49
TOTAL GROUND STORAGE		**$487,000**	**$730,500**	**1.330**	**0.439**	**0.386**	**0.505**	**$205,507.23**	**$115.49**
ELEVATED STORAGE									
EXISTING FACILITIES				MG					
	0.15 and 0.05 Elevated Tanks	$150,000	$225,000	0.200	0.155	0.020	0.025	$22,500.00	$12.64
	Subtotal Existing Facilities	$150,000	$225,000	0.200	0.155	0.020	0.025	$22,500.00	$12.64
NEW FACILITIES									
(W-4)	0.250 MG Elevated Tank	$1,498,000	$2,247,000	0.250	0.000	0.116	0.134	$1,042,608.00	$585.93
	Subtotal New Facilities	$1,498,000	$2,247,000	0.250	0.000	0.116	0.134	$1,042,608.00	$585.93
TOTAL ELEVATED STORAGE		**$1,648,000**	**$2,472,000**	**0.450**	**0.155**	**0.136**	**0.159**	**$1,065,108.00**	**$598.57**

Table 16 - Water CIP Inventory and Costing (Continued)

FACILITY		CONSTRUCT COST	CONSTRUCT COST PLUS FINANCE	FACILITY CAPACITY (mgd, gals or gpm)				NEXT 10-YEAR CAPITAL COST TOTAL	NEXT 10-YEAR COST PER LUE
TYPE	NAME			TOTAL	FOR CURRENT CUST.	EXCESS <10 YEARS	EXCESS >10 YEARS		
MAJOR TRANSMISSION LINES									
EXISTING FACILITIES				MGD					
	Water Major Transmission Lines	$500,000	$750,000	7.615	1.337	1.176	5.102	$115,824.03	$65.09
	Subtotal Existing Facilities	$500,000	$750,000	7.615	1.337	1.176	5.102	$115,824.03	$65.09
NEW FACILITIES									
(W-1)	12" Water Pipe	$2,468,475	$3,702,713	2.538	0.000	0.000	2.538	$0.00	$0.00
(W-5)	12" Water Pipe	$3,071,880	$4,607,820	2.538	0.000	0.000	2.538	$0.00	$0.00
(W-6)	12" Water Pipe	$1,828,500	$2,742,750	2.538	0.000	0.000	2.538	$0.00	$0.00
(W-7)	12" Water Pipe	$2,980,455	$4,470,683	2.538	0.000	0.000	2.538	$0.00	$0.00
(W-8)	12" Water Pipe	$2,523,330	$3,784,995	2.538	0.000	0.000	2.538	$0.00	$0.00
(W-9)	12" Pipeline Loop	$2,135,000	$3,202,500	2.538	0.000	0.000	2.538	$0.00	$0.00
	Subtotal New Facilities	$15,007,640	$22,511,460	15.228	0.000	0.000	15.228	$0.00	$0.00
TOTAL MAJOR TRANSMISSION LINES		**$15,507,640**	**$23,261,460**	**22.843**	**1.337**	**1.176**	**20.330**	**$115,824.03**	**$65.09**
TOTALS		**$21,501,640**	**$32,252,460**					**$3,893,935.43**	**$2,188.33**

Note: Totals may not add due to rounding.

Assumes the following gals to LUE conversion factors:

Wells:	661	gals/LUE/day
Water Treatment:	661	gals/LUE/day
High Service Pumps:	2,203	gals/LUE/day
Ground Storage:	217	gals/LUE
Elevated Storage:	77	gals/LUE
Major Transmission:	2,203	gals/LUE/day

Table 17 - Wastewater CIP Inventory and Costing

FACILITY		CONSTRUCT COST	CONSTRUCT COST PLUS FINANCE	FACILITY CAPACITY (mgd, gals or gpm)				NEXT 10-YEAR CAPITAL COST TOTAL	NEXT 10-YEAR COST PER LUE
TYPE	NAME			TOTAL	FOR CURRENT CUST.	EXCESS <10 YEARS	EXCESS >10 YEARS		
WASTEWATER TREATMENT									
EXISTING FACILITIES				PEAK MGD					
	WWTP	$1,420,000	$2,130,000	0.450	0.290	0.160	0.000	$757,333.33	$425.61
	Subtotal Existing Faclities	$1,420,000	$2,130,000	0.450	0.290	0.160	0.000	$757,333.33	$425.61
NEW FACILITIES									
(S-6)	WWTP Expansion	$9,600,000	$14,400,000	0.450	0.000	0.095	0.355	$3,040,000.00	$1,708.43
	Subtotal New Facilities	$9,600,000	$14,400,000	0.450	0.000	0.095	0.355	$3,040,000.00	$1,708.43
TOTAL WASTEWATER TREATMENT		**$11,020,000**	**$16,530,000**	**0.900**	**0.290**	**0.255**	**0.355**	**$3,797,333.33**	**$2,134.04**
WASTEWATER PUMPING									
EXISTING FACILITIES				PEAK MGD					
	Lift Station Rehab	$223,400	$335,100	1.365	0.874	0.491	0.000	$120,537.80	$67.74
	Subtotal Existing Faclities	$223,400	$335,100	1.365	0.874	0.491	0.000	$120,537.80	$67.74
NEW FACILITIES									
(S-3)	Lift Station, 6" F.M., 10" Sewer	$1,000,000	$1,500,000	0.250	0.000	0.069	0.181	$414,000.00	$232.66
(S-4)	Lift Station, 6" Force Main	$1,500,000	$2,250,000	0.250	0.000	0.069	0.181	$621,000.00	$348.99
(S-7)	Lift Station, 6" F.M., 10" Sewer	$1,000,000	$1,500,000	0.250	0.000	0.069	0.181	$414,000.00	$232.66
(S-8)	Lift Station, 6" F.M., 10" Sewer	$1,000,000	$1,500,000	0.250	0.000	0.070	0.180	$420,000.00	$236.03
	Subtotal New Facilities	$4,500,000	$6,750,000	1.000	0.000	0.277	0.723	$1,869,000.00	$1,050.35
TOTAL WASTEWATER PUMPING		**$4,723,400**	**$7,085,100**	**2.365**	**0.874**	**0.768**	**0.723**	**$1,989,537.80**	**$1,118.09**

Table 17 - Wastewater CIP Inventory and Costing (Continued)

FACILITY		CONSTRUCT COST	CONSTRUCT COST PLUS FINANCE	FACILITY CAPACITY (mgd, gals or gpm)				NEXT 10-YEAR CAPITAL COST TOTAL	NEXT 10-YEAR COST PER LUE
TYPE	NAME			TOTAL	FOR CURRENT CUST.	EXCESS <10 YEARS	EXCESS >10 YEARS		
MAJOR COLLECTION LINES									
EXISTING FACILITIES				MGD					
	8" Trunk Main	$160,000	$240,000	1.500	0.620	0.768	0.112	$122,880.00	$69.06
	6" Hester Street	$45,895	$68,843	0.254	0.254	0.000	0.000	$0.00	$0.00
	Subtotal Exsiting Faclities	$205,895	$308,843	1.754	0.874	0.768	0.112	$122,880.00	$69.06
NEW FACILITIES				MGD					
(S-1)	18" Trunk Main	$650,000	$975,000	2.284	0.000	0.000	2.284	$0.00	$0.00
(S-2)	12" Trunk Main	$1,469,400	$2,204,100	1.015	0.000	0.000	1.015	$0.00	$0.00
(S-5)	12" Trunk Main	$205,400	$308,100	1.015	0.000	0.000	1.015	$0.00	$0.00
	Subtotal New Faclities	$2,324,800	$3,487,200	4.314	0.000	0.000	4.314	$0.00	$0.00
TOTAL MAJOR COLLECTION LINES		**$2,530,695**	**$3,796,043**	**6.068**	**0.874**	**0.768**	**4.426**	**$122,880.00**	**$69.06**
TOTALS		**$18,274,095**	**$27,411,143**					**$5,909,751.14**	**$3,321.18**

Note: Totals may not add due to rounding

Assumes the following gals to LUE conversion factors:

Treatment:	144 gals/day/LUE
Pumpage:	432 gals/day/LUE
Major Collection:	432 gals/day/LUE

Table 18 - Cost of Existing Facilities with Excess Capacity

Water		
Wells		
Well	2	$750,000
Well	4	$720,000
Treatment		
Ground Storage		
1.33 MG Ground Storage		$487,000
Elevated Storage		
0.20 MG Elevated Storage		$150,000
Transmission Mains		
18" & 12" Bank Water Mains		$500,000
	Total Water	**$2,607,000**
Wastewater		
Treatment		$1,420,000
Collection Lines		
Trunk Main		$160,000
	Total Wastewater	**$1,580,000**

3.5. Land Use Assumptions

The Land Use Assumptions were derived from the existing population analysis performed by the City of Lytle Utility Water Department. The existing Land Use Table (see **Table 19 – 2008 Land Uses**) was derived from the City of Lytle Comprehensive Planning Report that was developed in 1987. The existing land uses were updated by a cursory windshield survey to identify the changes that have taken place since 1987.

The Land Use Assumptions map is a generalization of future land use trends in Lytle. The map is not intended to be used as the definitive answer of where a certain land use will occur. Rather the future final land use will be determined by the legislative body of the City of Lytle in conformance with future land use developments that could occur. See **Table 20 – Projected Ten Year Land Uses** for estimated future land use.

Table 19 – 2008 Land Uses

Existing	Acres	% of Total	%Developed	Acres Per 100 Persons
Residential Single Family	890.04	31.7	59	31.23
Residential Multi-Family	2.49	0.08	0.17	0.1
Commercial	119.8	4.2	8.4	4.2
Public/Semi-Public	51.34	1.8	3.6	1.8
Industrial (Light)	70.9	2.5	5	2.49
Streets/Thoroughfares	293.38	10.3	20.5	10.3
Subtotal	**1,427.95**			
Agricultural	535.34	18.8		18.78
Undeveloped	882.41	31		31
Total	**2,845.70**	**100**	**53.6**	**99.8**

Table 20 – Projected Ten Year Land Uses

Land Use Category	No. of Acres in 2019 (3,084 pop.)	Acres Per 100 Persons in 2019	No. of Acres in 2029 (5,798 pop.)	Increase Between 2019-2029
Residential Single Family	963.13	31.23	1810.72	847.58
Residential Multi-Family	3.08	0.1	5.80	2.71
Commercial	129.53	4.2	243.52	113.99
Public/Semi-Public	55.51	1.8	104.36	48.85
Industrial (Light)	76.79	2.49	144.37	67.58
Streets/Thoroughfares	317.65	10.3	597.19	279.54
Subtotal	**1,545.70**		**2,905.96**	**1,360.26**
Agricultural	579.18	18.78	1088.86	509.69
Undeveloped	956.04	31	1797.38	841.34
Total	**3,080.92**		**5,792.20**	**2,711.29**

3.6. Summary of Capital Cost Allocation

Unit capital costs for each type of facility are summarized below in **Table 21**.

Table 21 – Summary of Cost Allocation by Facility

UTILITY	FACILITY	COST/LUE
WATER	Wells	$915.50
	Treatment	$0.00
	Pumping	$493.67
	Ground Storage	$115.49
	Elevated Storage	$598.57
	Major Transmission	$65.09
TOTAL WATER		**$2,188.33**
SEWER	Treatment	$2,134.04
	Lift Stations	$1,118.09
	Major Collection	$69.06
TOTAL SEWER		**$3,321.18**
TOTAL WATER AND WASTEWATER CAPITAL COSTS		**$5,509.51**

4.0 FEE CALCULATION

Chapter 395.014(a)(7)(A)(B) states that the maximum fee amount may not exceed the full capital cost per unit. The statute also requires:

> *a credit for the portion of ad valorem tax and utility service revenues generated by new service units during the program period that is used for the payment of improvements, including the payment of debt, that are included in the capital improvements plan; or in the alternative, a credit equal to 50 percent of the total projected cost of implementing the capital improvements plan.*

The Equity Residual Model was used in the fee calculation for the water and sewer utilities. That methodology essentially allows the feepayers to finance a portion of his or her costs through City financing, similar to the amount of principal owed by each existing customer, thus establishing fairness between existing and future customers. **Table 22 – Categorization of Utility Debt Water Utility** contains calculations of rate credits for the water utility, and **Table 23 - Categorization of Utility Debt Wastewater Utility** shows similar calculations for the wastewater utility. These tables show the dollar amount of capital debt service payback proportionately attributed to each LUE of existing service. This amount is used as a credit for future feepayers. Since the City of Lytle currently has no water or wastewater capital debt to pay back, no credit can be applied using this methodology.

Table 24 – Derivation of Maximum Water and Wastewater Development Fees shows the remainder of the fee calculation process. According to Chapter 395, the City may either calculate actual rate credits, or it may simply reduce the construction costs by 50% to approximate a fee credit. **Table 24** performs both fee calculations for each type of facility, for each utility. The higher fee between the two credit approaches is then shown in the right-most column as the maximum allowable fees.

Table 25 – Maximum Impact Fees for Various Water Meter Sizes shows maximum fee amounts for various sizes of water meters, using the maximum fee amounts shown in **Table 24.** The City Council may set fees at the maximum or at any lesser amount.

Table 22 - Categorization of Utility Debt Water Utility

FACILITY TYPE/NAME	BOND ISSUE			FACILITY CAPACITY		TOTAL DEBT PRINCIPAL PER CURRENT LUE
	ISSUANCE DATE	ISSUANCE AMOUNT	REMAINING PRINCIPAL	TOTAL	FOR CURRENT CUSTOMERS	
WELLS						
(W-2) Well #5	Prospective	$1,680,000	$1,680,000	1.000	0.000	$0.00
Subtotal Wells		**$1,680,000**	**$1,680,000**			**$0.00**
HIGH SERVICE PUMPS						
(W-3) High Service Pump	Prospective	$1,168,500	$1,168,500	2.304	0.000	$0.00
Subtotal High Service Pumps		**$1,168,500**	**$1,168,500**			**$0.00**
ELEVATED STORAGE						
(W-4) 0.250 MG Elevated Tank	Prospective	$2,247,000	$2,247,000	0.250	0.000	$0.00
Subtotal Elevated Storage		**$2,247,000**	**$2,247,000**			**$0.00**
MAJOR TRANSMISSION LINES						
(W-1) 12" Water Pipe	Prospective	$3,702,713	$3,702,713	2.538	0.000	$0.00
(W-5) 12" Water Pipe	Prospective	$4,607,820	$4,607,820	2.538	0.000	$0.00
(W-6) 12" Water Pipe	Prospective	$2,742,750	$2,742,750	2.538	0.000	$0.00
(W-7) 12" Water Pipe	Prospective	$4,470,683	$4,470,683	2.538	0.000	$0.00
(W-8) 12" Water Pipe	Prospective	$3,784,995	$3,784,995	2.538	0.000	$0.00
(W-9) 12" Pipeline Loop	Prospective	$3,202,500	$3,202,500	2.538	0.000	$0.00
Subtotal Major Transmission Lines		**$22,511,460**	**$22,511,460**			**$0.00**
WATER OUTSTANDING DEBT TOTAL		**$27,606,960**	**$27,606,960**			**$0.00**

Table 23 - Categorization of Utility Debt Wastewater Utility

FACILITY TYPE/NAME	BOND ISSUE			FACILITY CAPACITY		TOTAL DEBT PRINCIPAL PER CURRENT LUE
	ISSUANCE DATE	ISSUANCE AMOUNT	REMAINING PRINCIPAL	TOTAL	FOR CURRENT CUSTOMERS	
WASTEWATER TREATMENT						
(W-6) WWTP Expansion	Prospective	$14,400,000	$14,400,000	0.450	0.000	$0.00
Subtotal Wastewater Treatment		**$14,400,000**	**$14,400,000**			**$0.00**
WASTEWATER PUMPING						
(S-3) Lift Station, 6" F.M., 10" Sewer	Prospective	$1,500,000	$1,500,000	0.250	0.000	$0.00
(S-4) Lift Station, 6" Force Main	Prospective	$2,250,000	$2,250,000	0.250	0.000	$0.00
(S-7) Lift Station, 6" F.M., 10" Sewer	Prospective	$1,500,000	$1,500,000	0.250	0.000	$0.00
(S-8) Lift Station, 6" F.M., 10" Sewer	Prospective	$1,500,000	$1,500,000	0.250	0.000	$0.00
Subtotal Wastewater Pumping		**$6,750,000**	**$6,750,000**			**$0.00**
MAJOR COLLECTION LINES						
(S-1) 18" Trunk Main	Prospective	$975,000	$975,000	2.284	0.000	$0.00
(S-2) 12" Trunk Main	Prospective	$2,204,100	$2,204,100	1.015	0.000	$0.00
(S-5) 12" Trunk Main	Prospective	$308,100	$308,100	1.015	0.000	$0.00
Subtotal Major Collection Lines		**$975,000**	**$975,000**			**$0.00**
WATER OUTSTANDING DEBT TOTAL		**$22,125,000**	**$22,125,000**			**$0.00**

Table 24 - Derivation of Maximum Water and Wastewater Development Fees

UTILITY / FACILITY TYPE	CONSTRUCTION COSTS/LUE	CREDIT APPLIED		MAXIMUM FEE		HIGHER OF A OR B
		A RATE CREDIT	B 50% CREDIT	A RATE CREDIT	B 50% CREDIT	
WATER UTILITY						
Wells	$915.50	$0.00	$457.75	$915.50	$457.75	$915.50
Treatment	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Pumping	$493.67	$0.00	$246.84	$493.67	$246.84	$493.67
Ground Storage	$115.49	$0.00	$57.75	$115.49	$57.75	$115.49
Elevated Storage	$598.57	$0.00	$299.29	$598.57	$299.29	$598.57
Major Transmission	$65.09	$0.00	$32.55	$65.09	$32.55	$65.09
Subtotal Water	**$2,188.33**	**$0.00**	**$1,094.16**	**$2,188.33**	**$1,094.16**	**$2,188.33**
WASTEWATER UTILITY						
Treatment	$2,134.04	$0.00	$1,067.02	$2,134.04	$1,067.02	$2,134.04
Lift Stations	$1,118.09	$0.00	$559.04	$1,118.09	$559.04	$1,118.09
Major Collection	$69.06	$0.00	$34.53	$69.06	$34.53	$69.06
Subtotal Wastewater	**$3,321.18**	**$0.00**	**$1,660.59**	**$3,321.18**	**$1,660.59**	**$3,321.18**
TOTAL WATER AND WASTEWATER UTILITIES	**$5,509.51**	**$0.00**	**$2,754.75**	**$5,509.51**	**$2,754.75**	**$5,509.51**

Table 25 - Maximum Impact Fees for Various Water Meter Sizes

METER TYPE	METER SIZE	MULTIPLIER	MAXIMUM IMPACT FEE		
			WATER	SEWER	BOTH
Simple	5/8" x 3/4"	1.0	$2,188.33	$3,321.18	$5,509.51
Simple	3/4"	1.5	$3,282.49	$4,981.77	$8,264.26
Simple	1"	2.5	$5,470.82	$8,302.95	$13,773.77
Simple	1 1/2"	5.0	$10,941.63	$16,605.91	$27,547.54
Simple	2"	8.0	$17,506.61	$26,569.45	$44,076.06
Compound	2"	8.0	$17,506.61	$26,569.45	$44,076.06
Turbine	2"	16.0	$35,013.22	$53,138.90	$88,152.12
Compound	3"	17.5	$38,295.71	$58,120.67	$96,416.38
Turbine	3"	35.0	$76,591.43	$116,241.34	$192,832.77
Compound	4"	30.0	$65,649.80	$99,635.44	$165,285.23
Turbine	4"	65.0	$142,241.22	$215,876.78	$358,118.00
Compound	6"	67.5	$147,712.04	$224,179.73	$371,891.77
Turbine	6"	140.0	$306,365.71	$464,965.36	$771,331.08
Compound	8"	90.0	$196,949.39	$298,906.31	$495,855.69
Turbine	8"	240.0	$525,198.36	$797,083.48	$1,322,281.84
Compound	10"	115.0	$251,657.55	$381,935.84	$633,593.38
Turbine	10"	350.0	$765,914.28	$1,162,413.41	$1,928,327.69
Turbine	12"	440.0	$962,863.66	$1,461,319.72	$2,424,183.38

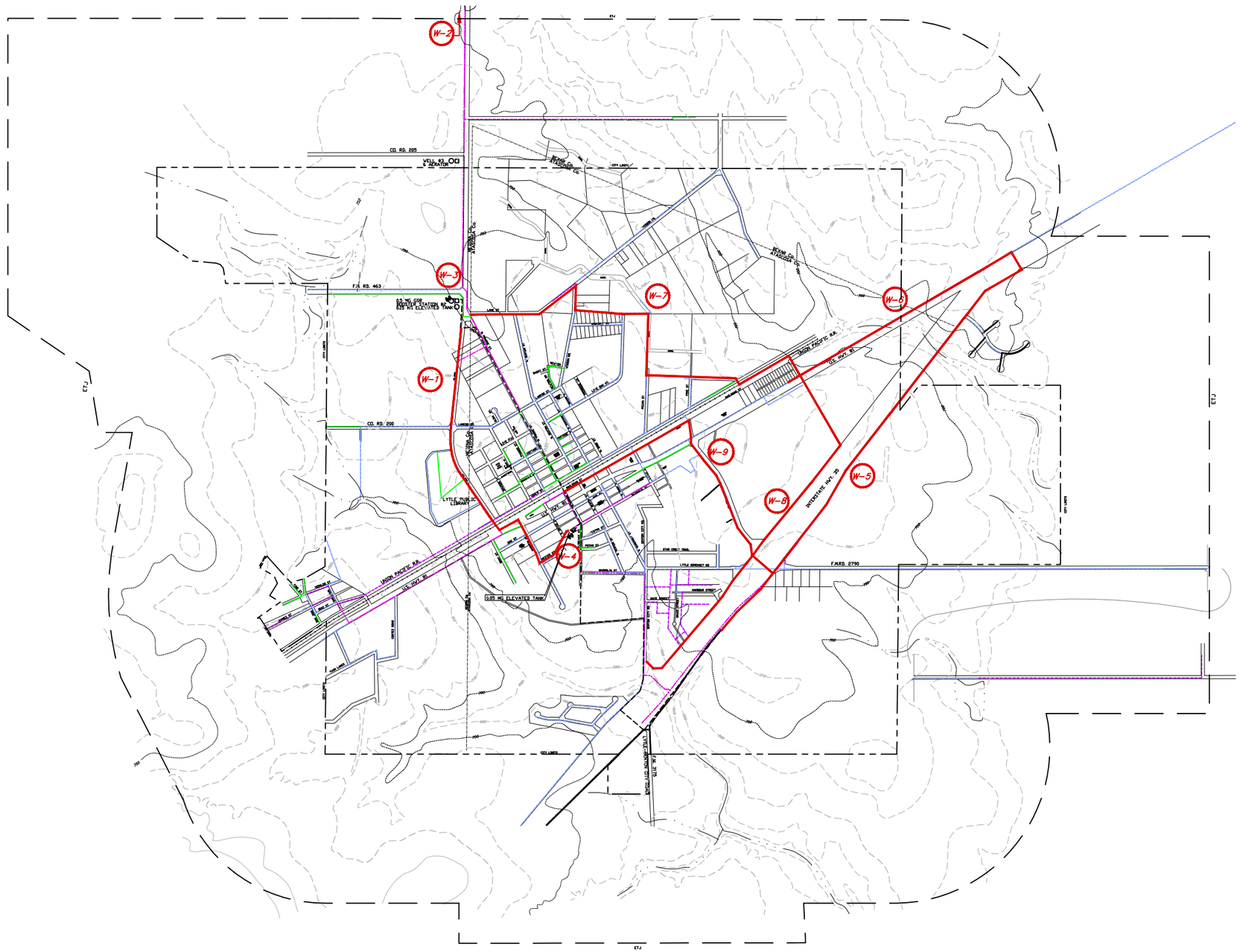
5.0 CONCLUSIONS AND RECOMMENDATIONS

This report represents the technical compliance activities of the City responsive to Chapter 395 of the Texas Local Government Code. In addition to the adoption of the fees calculated herein, the following is recommended:

- The use of impact fee revenues to avoid future bonding, whenever possible.
- If the first option is not possible, fee proceeds should be used for debt service for future customers.
- Maintenance of separate dedicated accounts for water and wastewater fee revenues and retain accrued interest in the account, as stipulated in Chapter 395.
- Maintenance of records of information for each impact fee payment made including date of fee assessment, the property to which the fee is assigned, date of tap purchase, size of water meter, number of water and sewer LUEs applied to property, amount of fees paid, date of payment, and any other pertinent information as determined by City staff.

Figure A
Water System Capital Improvements Plan

FIGURE A
WATER SYSTEM
CAPITAL IMPROVEMENTS PLAN



LEGEND

- 2" WATER
- 3" WATER
- 4" WATER
- 6" WATER
- 8" WATER
- 12" WATER
- 18" WATER
- PROPOSED WATER
- W-1 PROPOSED PROJECT
- 700 CONTOURS
- SERVICE AREA (ETJ)
- CITY LIMITS

N

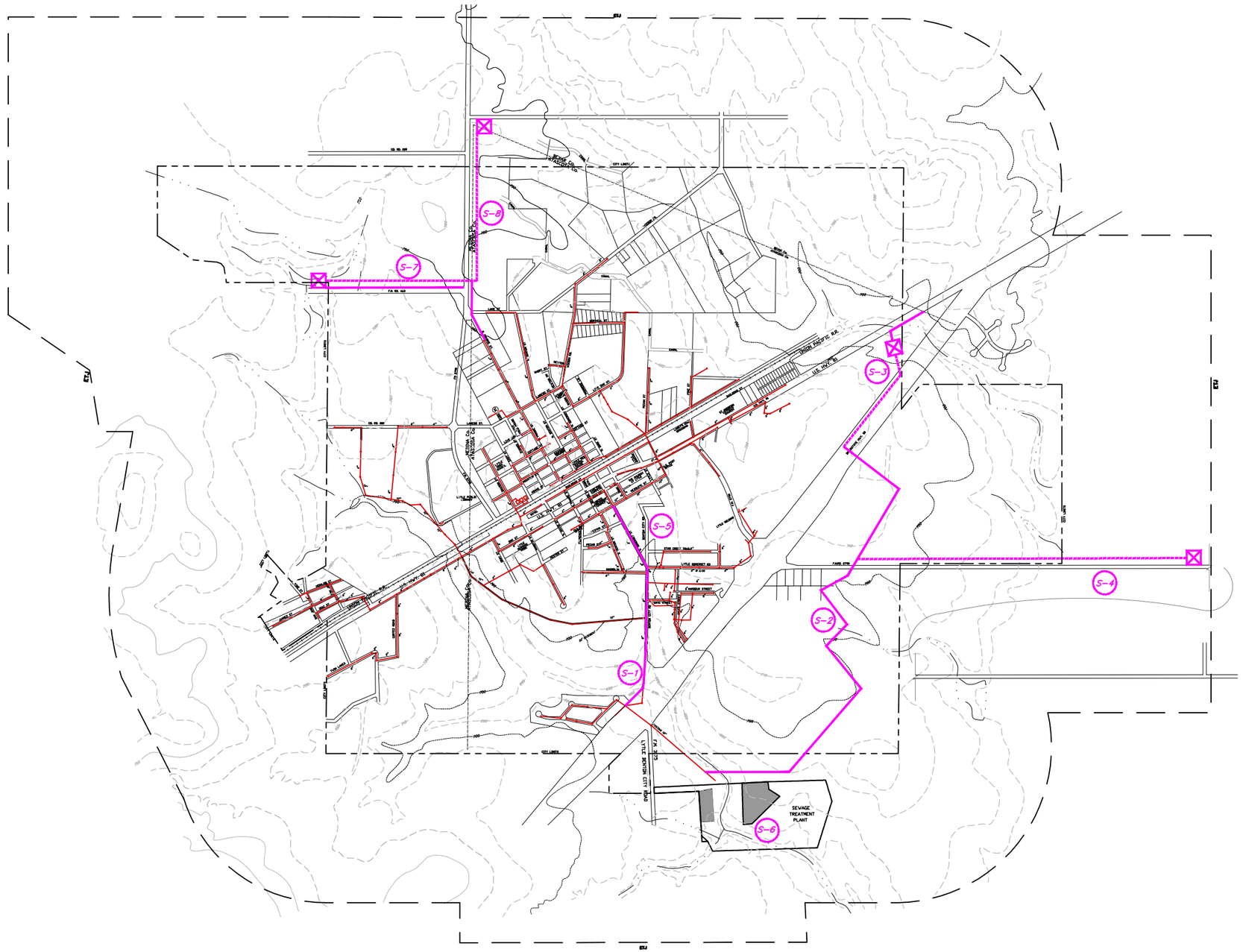
2,000 1,000 0 2,000

SCALE : 1" = 2,000'

TRC

Figure B
Wastewater System Capital Improvements Plan

FIGURE B
SEWER SYSTEM
CAPITAL IMPROVEMENTS PLAN



LEGEND

- 8" EXISTING SEWER
- PROPOSED SEWER
- PROPOSED FORCE MAIN
- S-1 PROPOSED PROJECT
- 700 CONTOURS
- SERVICE AREA (ETJ)
- CITY LIMITS
- PROPOSED LIFT STATION

N

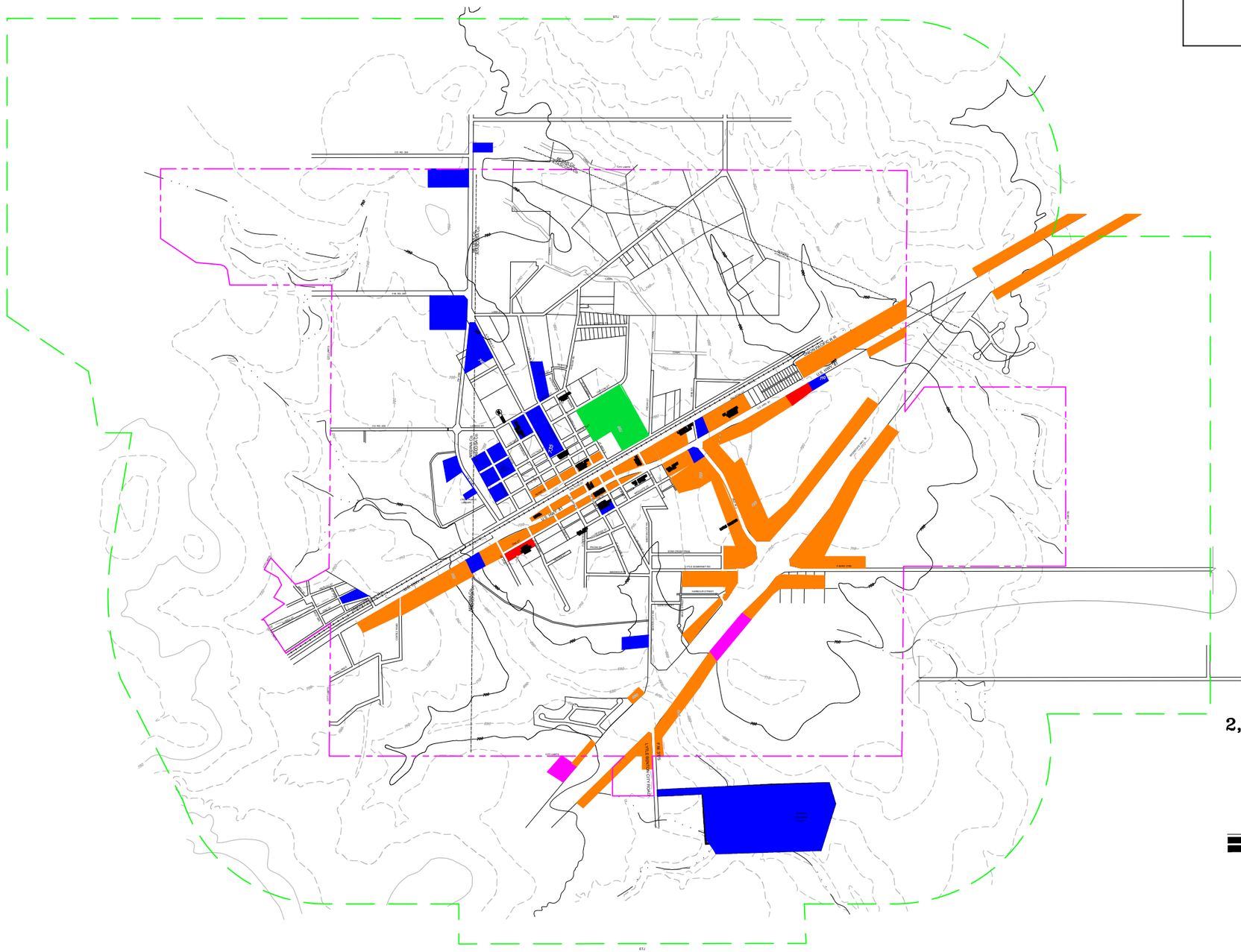
2,000 1,000 0 2,000

SCALE : 1" = 2,000'

TRC

Figure C
Land Use Plan

FIGURE C
LAND USE
PLAN AND MAP



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