

CITY OF DENISON

Water, Wastewater, and Roadway Impact Fee Study

REPORT / FEBRUARY 14, 2023

February 14, 2023

Mr. Ronnie Bates
Director of Public Works
City of Denison
300 W. Main Street
Denison, Texas 75020

Subject: Water, Wastewater, and Roadway Impact Fee Study

Dear Mr. Bates:

Raftelis and Huitt-Zollars are pleased to provide this Water, Wastewater, and Roadway Impact Fee Study Report (Report) for the City of Denison (City). This report provides the documentation required under Chapter 395 of the Texas Local Government Code.

The major objectives of the study include the following:

- Development of the Land Use Assumptions
- Development of the 10-year Capital Improvement Plan
- Calculation of the Maximum Allowable Impact Fee.

The report summarizes the results of meetings with the Capital Improvement Advisory Committee (CIAC) and its recommendations to the City Council.

It has been a pleasure working with you, and we thank you, the CIAC, and the City staff for the support provided during this study.

Sincerely,



Angie Flores
Raftelis
Senior Manager



John Ho, PE, F.NSPE
Huitt-Zollars, Inc.
Vice President

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1. Executive Summary

The City of Denison (City) has completed an Impact Fee Study (Study) in accordance with Chapter 395 of the Texas Local Government Code (Chapter 395). The Study included the completion of land use assumptions and capital improvement plans (CIP) for water, wastewater, and roadway projects. The CIP reflects the latest information about future projects needed to serve future growth within the next ten years, 2023 – 2033. The impact fee was calculated based on the CIP and forecasted future growth. This report establishes the maximum allowable impact fee applicable to the City of Denison service areas.

1.1. Capital Improvement Advisory Committee

The City Council of Denison appointed the Capital Improvement Advisory Committee (CIAC) members on September 6, 2022, as required by Chapter 395. The advisory committee members include Janet Gott, Ryan Johnson, Robert Crawley, Chip Piazza, and Kristofor Spiegel. The chairperson of the CIAC is Kristofor Spiegel.

The CIAC met four times to discuss the impact fee process, land use assumptions, capital improvement plan, and impact fee calculations. The group provided input based on their knowledge of growth and development in the City.

This report has been developed with input from the CIAC. The recommendation below is the culmination of these meetings with the CIAC and reflects the group consensus.

1.2. Impact Fee Calculations

As a result of the study, the maximum allowable impact fee was calculated. Chapter 395 allows for either a rate credit by other payment methods for utility capital by a new customer or a reduction of the unit capital costs by 50% to calculate the maximum allowable fee. The maximum fee is the maximum fee the City may lawfully charge based on given capital improvements, existing capacity, and the selected rate credit. City Council does not have to select the maximum rate and may set fees lower than the maximum allowable to be assessed.

The CIAC reviewed the overall water and wastewater maximum fees by classification. The maximum water fee is based on water treatment, pumping, storage, and transmission classifications. The maximum wastewater fee is based on wastewater treatment, pumping, and interceptor classifications. The City may add or subtract categories to reflect the developer's contribution by utilizing these classifications. For example, if a developer is contributing to the water transmission lines, then the water transmission classification may be removed from the fee. In the future, if the City chooses to provide wholesale service to utilities, these classifications may be used to calculate impact fees for relevant facilities. Local distribution and collection lines that are contributed are not included in the impact fee calculations.

In addition, the CIAC reviewed the roadway impact fee approach, assumptions, and maximum fees by land use classification. The projected amount of future development was reviewed, and while higher than historical averages, the CIAC believes these are realistic projections based on growth trends. The CIP projects included in the study were reviewed and discussed as benefiting the regional and city-wide transportation needs. From the CIP, projects not included in the impact fee calculation were for local roads (interior to neighborhoods), equipment, and sidewalks (not associated with roadway upgrades/expansions). By applying the 50% reduction

to the eligible CIP projects, under provisions of Chapter 395, and then dividing the project costs amongst anticipated future development the maximum assessable roadway impact fees were developed.

This report provides the assumptions used to calculate the impact fees. The design assumptions, service demands, and planning costs were obtained in coordination with the City.

1.3. Recommendation to Council

The CIAC recommends that the Council adopt the maximum allowable impact fees for water, wastewater, and roadways. However, they also recommend that the amount assessed be 50% of the maximum allowable fees. The amounts by impact fee type are shown in Table 1.

Table 1: Impact Fee Recommendation

Impact Fee Type	Maximum Allowable	Assessed Amount	Basis¹
Water	\$9,138	\$4,569	per LUE
Wastewater	\$12,598	\$6,299	Per Connection
Roadway	\$1,727	\$864	Per TDF

¹ LUE – Living Unit Equivalent; TDF – Travel Demand Factor; Impact Fee detail available in Section X of Report

2. Chapter 395 Requirements

The impact fee process in Texas is governed by Chapter 395 of the Texas Local Government Code. Chapter 395 dictates how impact fees are calculated and the process that must be followed. The process starts with creating a Capital Improvements Advisory Committee (CIAC) and the development of Land Use Assumptions, a 10-year Capital Improvement Plan, and finally, the calculation of the impact Fee. The CIAC must review and provide comments on the Land Use Assumptions, Capital Improvement Plan, and impact fee calculation.

2.1. Capital Improvement Advisory Committee

The CIAC should be comprised of at least five members, with 40 percent of the membership being from the real estate, development, or building industries. As stated in Section 395.058(c), the advisory committee serves in an advisory capacity and is established to:

- 1) Advise and assist the political subdivision in adopting land use assumptions;
- 2) Review the capital improvements plan and file written comments
- 3) Monitor and evaluate the implementation of the capital improvements plan;
- 4) File semiannual reports concerning the progress of the capital improvements plan and report to the political subdivision any perceived inequities in implementing the plan or imposing the impact fee; and
- 5) Advise the political subdivision of the need to update or revise the land use assumptions, capital improvements plan, and impact fee.

The City shall make available to the CIAC any professional reports concerning developing and implementing the capital improvements plan. For the ongoing requirements of the CIAC, the City should adopt procedural rules for the CIAC to follow in carrying out its duties.

The CIAC must document its recommendations and considerations about the land use assumptions, capital improvement plan, and impact fee calculation. This report serves as the documentation of the CIAC.

2.2. Public Hearings

The City must hold two public hearings to establish a new impact fee. The public hearings are held after the CIAC's input is provided about the land use assumptions, CIP, and the impact fee calculation. The first public hearing considers the land use assumptions and capital improvement plan. The public hearing is held at least 30 days after the notice is published in one or more local newspapers in each county in which the City is located. The second public hearing considers the impact fee calculation and must also be at least 30 days after publishing a notice.

2.3. Impact Fee

The adopted impact fee may be imposed within the city limits and, except for roadway impact fees, within the city's extraterritorial jurisdiction. Impact fees can be used to fund the projects identified in the 10-year CIP, specifically on construction, surveying and engineering fees, land acquisition costs, and fees paid to a qualified engineer or financial consultant. The established CIP should include projects needed to serve future growth. In addition, impact fees can pay for interest and financing costs related to the issuance of bonds to fund projects identified in the 10-year CIP. Impact fees can only be used for the cost of facilities included in the 10-year CIPs. Any facility improvements that are not required to serve future growth are ineligible.

2.3.1. Capital Improvement Plan

The CIP should include a list of the projects and the costs to upgrade and expand existing facilities to serve future growth. To establish the CIP, an analysis of the system's total capacity was completed to determine the current level of usage and the future usage needed to serve the growth in the 10 years. The projected growth was determined based on the land uses of the service area. The total number of service units for the 10 years was established based on the system's future growth.

2.3.2. Impact Fee Calculation

Once the CIP is established, the cost per service unit is calculated by dividing the cost of capital projects by the number of service units. For water and wastewater, this calculation is done by facility type to ease in providing future impact fee credits to developers. Once the cost per service unit is determined, a rate credit must be applied. The rate credit can be based on 50% of the cost per service unit or the credit application based on the portion of utility service revenues generated by new service units during the 10 years. For the study, 50% credit was applied.

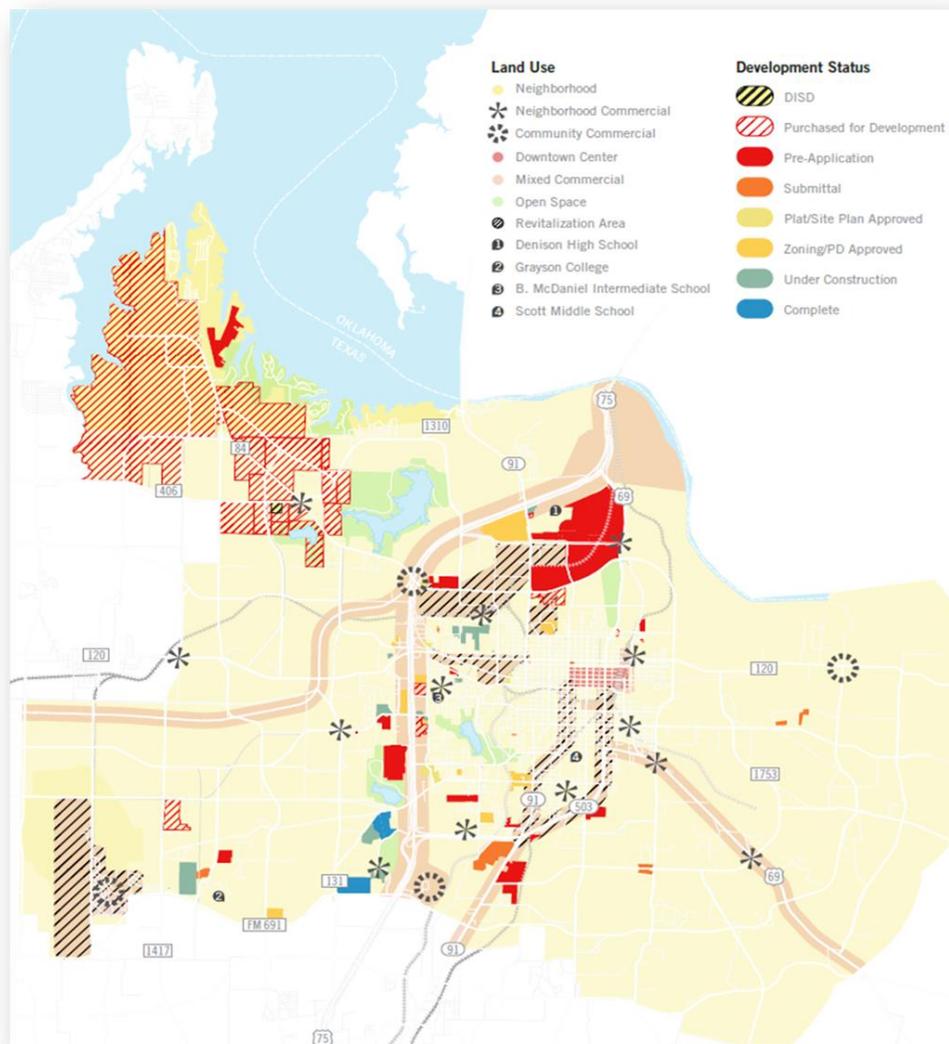
2.4. Administration of Impact Fees

Once the impact fee is adopted, the City must establish a process for tracking the impact fees received and used. Impact Fees may only be used on eligible projects identified in the capital improvement plan. Therefore, the funding sources for those projects should be tracked and documented. If impact fees are used on debt service, the debt service that is paid must be for eligible impact fee-related projects only. This information should be provided to the CIAC in semiannual reports that should also be provided to the City Council after review by the CIAC.

3. Land Use Assumptions

The land use assumptions were based on the City of Denison’s current Comprehensive Plan, as shown in Figure 1. Additionally, the City has experienced significant growth in recent years, and development activities such as pre-applications, zoning, platting and construction have increased. As of mid-October 2022, there were numerous service and hospitality-related commercial developments projected along with 1,952 and 3,258 apartment and single-family residential development units, respectively. These are all in various stages of development. The CIAC recommends approval of these assumptions in the preparation of developing the Water, Wastewater, and Roadway Impact Fees.

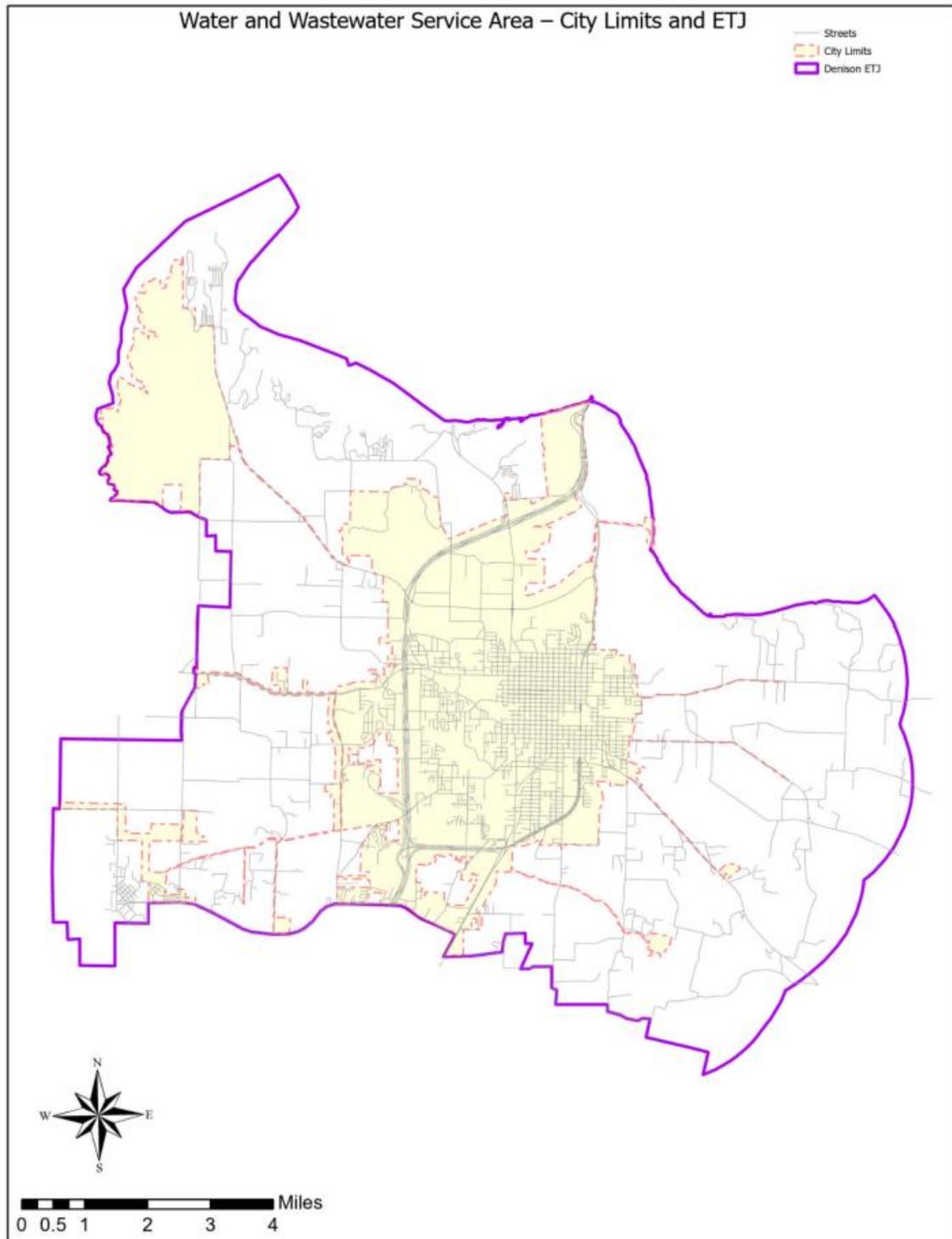
Figure 1: Land Use



3.1. Service Areas

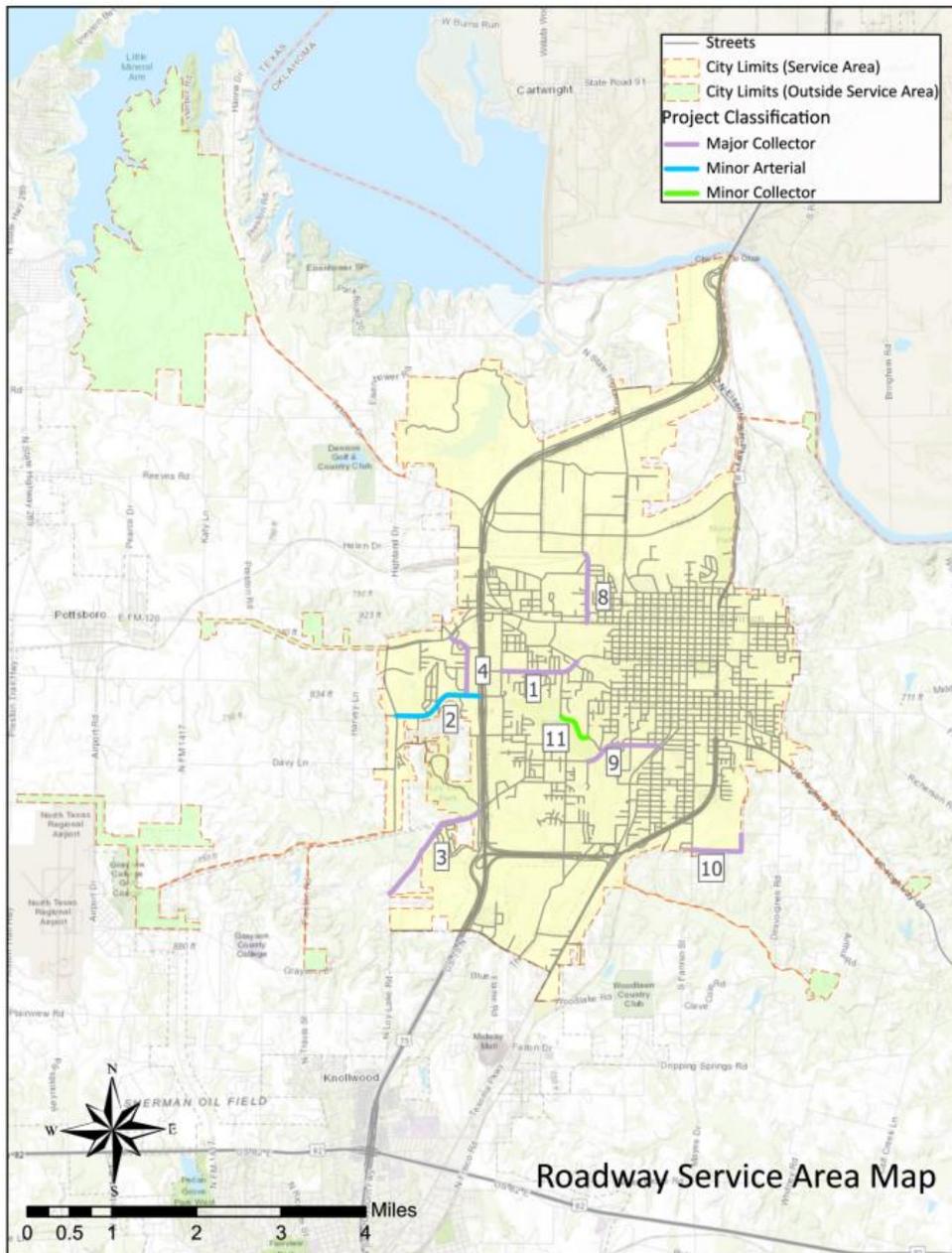
Impact fees can only be collected from a connection within the service areas defined in this report. Per Chapter 395, the water and wastewater service areas differ from the roadway service areas. The water and wastewater service areas are shown in Figure 2. This service area includes the extraterritorial jurisdiction of the City.

Figure 2: Water and Wastewater Impact Fee Service Area



Chapter 395 defines a roadway service area as the six-mile area within a political subdivision that the capital improvements plan will serve. Since most of the City is within a six-mile radius, a single service area is used in the Study to comprise the area where the roadway impact fee will be applied to new development. Figure 3 shows a map of the city’s municipal boundaries along with the roadway impact fee service area. As demonstrated on the map, the primary areas contiguous to the central part of the City are included in the Service Area. There are several incorporated areas further out from the central part of the City that are excluded from the Service Area since they need to meet the six-mile limitations imposed by Chapter 395. Should growth in these areas require significant investment in road widening, extensions, or other upgrades, additional roadway impact fee service areas should be considered. Figure 3 shows the service area for the roadway impact fees.

Figure 3: Roadway Impact Fee Service Area



3.2. Forecasted Growth

Also, based on the City's Comprehensive Plan, which is currently being updated, the population for the City is 26,800 people with a projected population of 45,078 in 2033. The Comprehensive Plan update demonstrates growth rates of 3.0% from 2024 – 2025, 5.0% from 2026 – 2030, and 7.5% from 2031 – 2033. These population projections were used to develop the future growth for the water, wastewater, and roadway impact fees.

4. Water Impact Fee

The water impact fee was calculated using the costs of the projects in the 10-year CIP. The costs were divided based on the amount of capacity used in the next 10 years and divided by the number of Living Unit Equivalents (LUE). One LUE represents one single-family household residence. The LUE conversion factors are based on standard American Water Works Association (AWWA) meter equivalent ratios. The number of LUEs increases based on the meter size. As derived from Table 2 and Table 3, the City currently has 12,242 connections on the system. Based on the LUE conversion factors, there are 17,004 LUEs in the City. Table 2 shows the number of existing residential meters and the converted number of LUEs for the residential class. Table 3 shows the same conversion for the commercial meters. For the residential class, the 1" meter is a standard meter for all single-family residential customers. Therefore, it is considered representative of 1 LUE.

Table 2: Living Unit Equivalents - Residential

Meter Size	Equivalent Factors	Number of Meters	Number of LUEs
1" or smaller	1.00	10,573	10,573
1 ½"	5.00	123	615
2"	8.00	122	976
3"	16.00	1	16
Total		10,819	12,180

Table 3: Living Unit Equivalents - Commercial

Meter Size	Equivalent Factors	Number of Meters	Number of LUEs
5/8" or ¾"	1.00	771	771
1"	1.50	247	371
1 ½"	5.00	109	545
2"	8.00	256	2,048
3"	16.00	19	304
4"	25.00	13	325
6"	50.00	6	300
8"	80.00	2	160
Total		1,423	4,824

Based on the population projection and as shown in Table 4, it is estimated that 11,583 LUEs will be added to the system in the 10 years.

Table 4: Forecasted Water Growth

Year	Connections	LUEs	Population
2023	12,318	16,984	26,800
2033	20,719	28,567	45,078
Growth	8,401	11,583	18,278

4.1. Capital Improvement Plan

Based on the projected growth and capacity needs, impact fee-eligible projects were developed for the ten-year study period. The CIP includes future projects that will be required to meet future capacity needs. These projects were developed based on existing and future demands.

Table 5 shows the Water CIP. The details for the Utilities and Utility Neighborhood Improvement projects can be found in Appendix A.

The total CIP investment equals \$254,380,250 to be spent over the next ten years.

Table 5: Water Capital Improvement Plan

Facilities	Year of Need	Cost
Water Treatment Facilities		
SCADA	2023	\$525,000
Water Treatment Plant, Phase 1	2023	15,175,000
Water Treatment Plant, Phase 2	2026	<u>35,000,000</u>
Subtotal		\$50,700,000
Water Pumping		
Texoma Pump Station	2023	\$42,350,000
Storage		
New Grayson Water Tower (S6)	2023	\$8,500,000
Preston/Grayson 12-inch line (S3)	2027	406,000
Utilities, Ansley Lane (Crawford to 120)	2028	4,200,000
Lake Texoma Storage	2023	<u>6,153,846</u>
Subtotal		\$19,259,846
Transmission		
Lake Texoma Transmission	2023	\$33,846,154
FM 131 and Preston Road Water Line (S37 & S8)	2023	5,056,550
691 and THF Park Waterline Relocations	2023	400,000
US75/Hwy 91 10" Water Line (S25)	2024	2,650,000
Tone Water Line Replacement (S12 & S14)	2024	6,395,950
US75/Hwy 91 24" Water Line (S13)	2025	4,600,000
Preston/Grayson 12-inch line (S3)	2025	1,500,000
Hwy 84 - 10" Waterline Upgrade	2025	1,000,000
Waterline RR Bore Crossing	2025	1,500,000
US75 - Crawford to Parkside 12" WL (S40)	2026	1,150,000
W Texas Street Water Line (S18)	2027	1,500,000
Juanita/Railroad Tracks Waterline Update	2027	1,000,000
Seymore Bradley Road water line (S8, S10)	2027	2,500,000
FM996 to Quarter Mile Road 12-inch water line (S11, S9)	2027	2,500,000
MLK 24-inch water line (S12)	2028	5,000,000
Texoma Parkway 24-inch water line (S13)	2028	5,250,000

Randell Water Line (L1)	2029	7,500,000
Hull/Burnett 12-inch water line (S15)	2029	400,000
Tone/Hanna 16-inch water line (S14)	2030	2,000,000
Glenwood/Preston Water line (L33)	2030	3,750,000
Lillis Lane Water Line upsize (L68)	2030	5,500,000
Square dance road water line (L11)	2030	4,000,000
Helen Drive Water Line (L9)	2030	5,500,000
Water line replacement crossing Macgregor (S25)	2033	3,000,000
Grayson Drive Water Line (S36)	2033	2,500,000
AMI Changeover	2023 - 2025	5,000,000
Distribution Expansions	2023 - 2033	3,071,250
Utilities	2023 - 2033	17,812,500
Utility Neighborhood Improvements	2023 - 2033	<u>5,688,000</u>
Subtotal		\$142,070,404
Total		\$ 254,380,250

4.2. Maximum Allowable Impact Fee

Chapter 395 allows for two ways to pay for capital improvements:

- An up-front impact fee that allows the new customers to buy into the system, and
- Monthly utility fees that support the debt service of the system.

The cost per LUE must first be calculated to determine the impact fee. In Table 6, the cost per LUE is shown by facility type. Once this calculation is completed, Chapter 395 allows the utility to either use a 50% credit of the total projected cost of capital for all projects or apply a credit for rate payments. The utility may select the maximum fee amount after calculating these credits. The maximum allowable impact fee for this study was calculated by applying the 50% credit cost per LUE. The CIAC recommended adoption of the maximum allowable impact fee and an assessment of 50% of the maximum allowable fee.

Table 6: Maximum Allowable Impact Fee Calculation

Facility	Cost per LUE	Maximum Allowable Fee	Recommended Assessment
Water Treatment	\$3,585	\$1,792	\$896
Pumping	\$3,194	\$1,597	\$799
Storage	\$1,452	\$726	\$363
Transmission	\$10,045	\$5,022	\$2,511
Total	\$18,275	\$7,896	\$4,569

The total maximum allowable impact fee per LUE for water is \$7,896. The impact fee has been provided by facility type to allow the City to apply an impact fee credit to developers who may choose to install and contribute to a facility identified in the CIP.

The fees in Table 6 are based on LUEs. When the impact fees are assessed, they will be calculated based on the meter size needed for the connection. Table 7 shows the impact fees for a single-family residential connection. In the City, a 1” meter is standard for a single-family residential connection. In this case, one LUE will be equivalent to a 1” meter.

Table 7: Single Family Residential Impact Fee by Meter Size

Meter Size	Equivalent Factors	Water Treatment	Pumping	Storage	Transmission	Total
1" or smaller	1.00	\$896	\$799	\$363	\$2,511	\$4,569
1 1/2"	5.00	\$4,480	\$3,993	\$1,815	\$12,555	\$22,843
2"	8.00	\$7,168	\$6,388	\$2,904	\$20,088	\$36,548
3"	16.00	\$14,336	\$12,776	\$5,808	\$40,176	\$73,096
4"	25.00	\$22,400	\$19,963	\$9,075	\$62,775	\$114,213
6"	50.00	\$44,800	\$39,925	\$18,150	\$125,550	\$228,425
8"	80.00	\$71,680	\$63,880	\$29,040	\$200,880	\$365,480

Table 8 shows the impact fee for commercial customers to be assessed by meter size. A 5/8" or 3/4" meter for the commercial class is equivalent to 1 LUE.

Table 8: Commercial Impact Fee by Meter Size

Meter Size	Equivalent Factors	Water Treatment	Pumping	Storage	Transmission	Total
5/8" or 3/4"	1.00	\$896	\$799	\$363	\$2,511	\$4,569
1"	1.50	\$1,344	\$1,198	\$545	\$3,767	\$6,853
1 1/2"	5.00	\$4,480	\$3,993	\$1,815	\$12,555	\$22,843
2"	8.00	\$7,168	\$6,388	\$2,904	\$20,088	\$36,548
3"	16.00	\$14,336	\$12,776	\$5,808	\$40,176	\$73,096
4"	25.00	\$22,400	\$19,963	\$9,075	\$62,775	\$114,213
6"	50.00	\$44,800	\$39,925	\$18,150	\$125,550	\$228,425
8"	80.00	\$71,680	\$63,880	\$29,040	\$200,880	\$365,480

5. Wastewater Impact Fee

Like water, the wastewater impact fees are calculated based on the 10-year capital improvement plan and the forecasted growth of the wastewater system. Currently, the wastewater system serves 10,154 connections. The wastewater connections are not converted to LUEs as wastewater connections do not have meters.

Based on the population projection and as shown in Table 9 it is estimated that 8,401 LUEs will be added to the system in the 10-year period.

Table 9: Forecasted Wastewater Connections

Year	Connections	Population
2023	10,154	22,229
2033	17,079	37,389
Growth	6,925	15,160

5.1. Capital Improvement Plan

Based on the projected growth and capacity needs, impact fee-eligible projects were developed for the ten-year study period and comprise the 10-year Capital Improvement Plan (CIP). The CIP has been developed based on existing and future demands to meet capacity needs.

Table 10 shows the Wastewater CIP. The details for the Utilities and Utility Neighborhood Improvement projects can be found in Appendix A.

The total CIP investment equals \$251,961,000 to be spent over the next 10 years.

Table 10: Wastewater Capital Improvement Plan

Facilities	Year of Need	Cost
Wastewater Treatment		
NTRA Wetland Rehab	2023	\$920,000
Secondary Clarifier WWT Replacement	2023	12,137,500
SCADA	2023	525,000
Paw-Paw Belt Press (WWT)	2023	450,000
NTRA	2024	15,250,000
Aeration Basin Replacement (WWTP)*	2024	26,500,000
Iron Ore Storage	2025	3,945,000
Duck Creek Auto Bar Screen (WWT)	2026	250,000
Solids Train Improvements at Paw Paw (4)	2027	17,000,000
Third Secondary Clarifier WWTP	2029	2,500,000
Paw Paw Treatment Improvements	2031	7,000,000
NTRA Capacity Improvements	2033	<u>4,500,000</u>
Subtotal		\$90,977,500

Wastewater Pumping (Lift Stations)		
Iron Ore Pump Station Upgrade (WWT)	2026	\$5,000,000
Duck Creek Pump Station Upgrade	2031	9,000,000
Duck Creek Pumps (WWT)	2026	250,000
Lake Texoma Lift Station	2023	<u>26,315,789</u>
		\$40,565,789
Interceptors		
Lake Texoma Wastewater Improvements	2023	\$13,684,211
Duck Creek Interceptor Phase 1	2023	10,000,000
Duck Creek Interceptor Phase 2	2024	13,000,000
Waterloo Gravity Sewer Line	2023	10,000,000
Upper Iron Ore Sewer Line (Loy Lake)	2026	6,650,000
Duck Creek Force Main	2027	7,000,000
Upsize portion of Truckstop Line	2027	2,000,000
Upsize portion of Waterloo Gravity	2027	10,550,000
Iron Ore Force Main Upsize	2026	4,500,000
Loy Lake Park 10" Sewer Main	2027	10,000,000
Collections Improvements and Expansion	2033	4,500,000
Collections Expansions	2023 - 2033	3,071,250
Utility Neighborhood Improvements	2023 - 2033	6,831,000
Utilities	2023 - 2033	<u>18,631,250</u>
Subtotal		\$120,417,711
	Total	\$251,961,000

5.2. Maximum Allowable Impact Fee

In Table 11, the cost per LUE is shown by facility type. Once this calculation is completed, Chapter 395 allows the utility to either use a 50% credit of the total projected cost of capital for all projects or apply a credit for rate payments. The utility may select the maximum fee amount after these credits have been calculated. For this study, the maximum allowable impact fee was calculated by applying the 50% credit cost per LUE. The CIAC recommended adoption of the maximum allowable fee and an assessment of 50% of the maximum allowable fee.

Table 11: Maximum Allowable Impact Fee Calculation

Facility	Cost per LUE	Maximum Allowable Fee	Recommended Assessment
Treatment	\$9,098	\$4,549	\$2,275
Pumping	\$4,057	\$2,028	\$1,014
Interceptors	\$12,042	\$6,021	\$3,011
Total	\$25,196	\$12,598	\$6,299

The total maximum allowable impact fee for wastewater is \$12,598. The impact fee has been provided by facility type to allow the City to apply an impact fee credit to developers that may choose to install and contribute to a facility that is identified in the CIP.

6. Roadway Impact Fee

6.1. Introduction

This section will discuss the approach and analysis to calculate a Roadway Impact Fee to determine the maximum allowable fee that can be implemented per Chapter 395. A roadway impact fee is the fee applied to development and is used to increase the capacity of roadway infrastructure to support additional traffic created by new development. The City does not currently assess roadway impact fees. Several surrounding communities, and many communities throughout the State of Texas, do charge roadway impact fees so the City is studying the feasibility and potential fee levels necessary to maintain appropriate road capacities as growth continues.

6.2. Land Use Assumptions

Chapter 395 states roadway impact fees should use reasonable projections of growth to determine roadway impact fees. Land use assumptions provide the basis for residential and non-residential growth projection to be used in impact fee development. In this Study, current population data was acquired from the U.S. Census and draft City Comprehensive Plan. The existing property data was obtained from the Grayson County Appraisal District to establish a baseline of existing development in the City. The property data download provided information for each property including the property ID number, land use codes and descriptions, size of property, improvement details such as number of buildings and square footage of buildings, amongst other data fields. This data was relied on as being accurate for the purposes of establishing the existing development in the City and for forecasting future growth and development. From the U.S. Census, the number of units of single family and multi-family dwellings was obtained since this data was not easily discernible from the property data.

As discussed in Section 3, future population and development trends were obtained from the City's pending Comprehensive Plan update. The draft version of the Comprehensive Plan update demonstrates growth rates of 3.0% from 2024 – 2025, 5.0% from 2026 – 2030, and 7.5% from 2031 – 2033. These rates were used to forecast the increase in population and residential units. Additionally, based on further discussions with City staff, it was determined that currently there are several projects that will develop multi-family dwellings in the range of an additional 1,000 units over the next few years. According to the U.S. Census data, the City currently has around 80% single family dwelling units and 20% multi-family dwelling units. Based on the recent trends identified with a significant number of multi-family units being developed, the mix of single family and multi-family units is anticipated to change. Over the first three years of the forecast, from 2023 through 2025, it is forecast that 240 single family homes will be developed and 1,025 multi-family homes will be developed. These figures support the growth in population, based on the persons per household derived from the U.S. Census data of 2.44 for single family and 1.81 for multi-family. Additionally, after 2025, the ratio of single family to multi-family dwelling units was assumed to be 60% and 40%, respectively. Further, it was assumed that the amount of non-residential building space would trend similarly to that of residential, so the same growth rates were applied. The non-residential land use categories were determined based on the existing development within the City, consolidated into three high level categories that work in conjunction with City planning documents. Table 12 and Table 13 illustrate the existing characteristics and forecasted growth used in this Study.

Table 12: Projected Residential Growth

	2023	2033	Increase
Population	26,800	45,078	18,278
Single family Dwelling Units	9,042	13,812	4,770
Multi-family Dwelling Units	2,633	6,301	3,668
Total Residential Dwelling Units	11,675	20,113	8,438

Table 13: Projected Non-Residential Growth (Building square feet)

	2023	2033	Increase
Industrial/Warehousing	3,961,522	6,663,339	2,701,817
Commercial (General Office)	4,582,830	7,708,389	3,125,559
Retail	1,807,913	3,040,937	1,233,024
Total Square Feet	10,352,265	17,412,665	7,060,400

6.3. Roadway Capital Improvement Plan

A roadway capital improvement plan (CIP) between Fiscal Years (FYs) 2023 – 2033 was developed. This CIP identified \$131.8 million in various roadway projects within the Service Area for local, collector, and arterial roadways and other improvements. The CIP includes estimated inflationary impacts to projects that occur in the outer years of the forecast. After discussions with City staff, the individual projects for local roads (interior to neighborhoods), equipment, and sidewalks (not associated with roadway upgrades/expansions) were excluded from the analysis, as it was determined these would not provide benefit to regional or City-wide transportation needs or were not eligible for inclusion in impact fee calculations per the Impact Fee Statute. The remaining eligible roadway projects have a total cost of \$79.8 million; however, Chapter 395 only allows for up to 50% of CIP costs to be collected through impact fees. Therefore, only half of these costs, or \$39.9 million, will be utilized to calculate the maximum roadway impact fee. The eligible CIP projects and their associated costs are shown below in Table 14.

Table 14: FY 23 – FY 33 Eligible Capital Improvement Projects

Project Name	Project Description	Classification	Length (feet)	Project Cost
Waterloo/Lang Intersection	3-lanes undivided	Minor Collector	2,190	\$2,567,566
Crawford (Lillis to Flora)	3-lanes undivided	Major Collector	4,450	7,700,000
West Crawford (FM 131 to US 75)	Four lanes divided	Minor Arterial	5,520	12,400,000
Loy Lake Road (West of 75 to FM 131)	3-lanes undivided	Major Collector	8,000	16,100,000
Ansley Lane (Crawford to 120)	3-lanes undivided	Major Collector	4,200	9,000,000
W. Bullock (Armstrong to Armory)	3-lanes undivided	Major Collector	3,900	6,800,000
Juanita (Morton to Railroad @ Helen)	3-lanes undivided	Major Collector	4,400	10,500,000
Fannin and Square Dance Road	3-lanes undivided	Major Collector	6,100	14,700,000
Total			37,410	\$79,767,566
Eligible Project Costs (50% of Total)				\$39,883,783

6.4. Roadway Impact Fee Methodology

The impact of new development on the roadway network, or demand for facility capacity, is defined and measured in terms of the number of estimated vehicle-miles traveled for each unit of new development. The term used in this Report and Chapter 395 is “service unit” . In the context of the roadway impact fee, the service unit is defined as the vehicle-mile, as this is the unit used to quantify the City’s roadway supply and demand. In order to meet the additional demands placed on the roadway network by the service units from new development, the City has identified a variety of necessary projects. The cost of providing these projects, as shown in Table 17, is the basis for the roadway impact fee as further described throughout this section.

6.4.1. Transportation Demand Factor

To determine the maximum allowable roadway impact fee per service unit, the additional demand attributable to new development should be calculated. The demand is a function of two variables:

- number of trips generated by land use
- average trip length

Each of these factors will be discussed and then used to convert the development forecast provided on Table 12 and Table 13 into the appropriate service units for determination of the roadway impact fees.

6.4.1.1. Trip Generation

The Institute of Transportation Engineers (ITE) is a nationally recognized and industry accepted resource that publishes information related to trip generation by land use. Trip generation is a measure of how many trips a certain land use generates and is based on the premise that the activity at each land use uniquely determines the amount of travel to and from that location. Each of the trip generation rates associated with a particular land use is adjusted to a per unit basis. For residential land uses, the trip generation rate is per dwelling unit and for the non-residential included in this Study, the trip generation rate is per 1,000 building square feet. Additionally, it is standard practice to reduce the trip generation rate by a one-way trip factor since impact fees get charged

to both origin and destination ends of trips. Therefore, to prevent double counting trips, a 0.5 factor is applied to all land use trip generation rates. Further, the pass-by trip factor should also be considered. Pass-by trips are defined as intermediate stops with no trip diversion while on the way to a primary destination. The retail land use tends to attract a portion of its trips from vehicles already on the roadway network. As pass-by trips are already on the roadway network, they should be excluded from the calculation of impact fees. The most current ITE Trip Generation Manual 11th edition and the Trip Generation Handbook 3rd edition were relied upon for the various trip rate and pass-by factors, and by extension, the adjusted trip generation rate for each land use, as shown in Table 15.

Table 15: PM Peak Hour Trip Generation by Land Use

ITE Code	Land Use (Consolidated)	Impact Unit	Trip Gen Rate [1]	One-Way Trip Factor	Pass By Factor [2]	Adj. Trip Factor	Adj. Trip Gen Rate
			<i>a</i>	<i>b</i>	<i>c</i>	$d = b \times (1-c)$	$e = a \times d$
210	Residential (Single family)	Dwelling Units	0.99	50%	-	50%	0.50
220	Residential (Multi-family)	Dwelling Units	0.57	50%	-	50%	0.29
110	Industrial/ Warehousing	1,000 Sq Ft	0.80	50%	-	50%	0.40
710	Commercial (General Office)	1,000 Sq Ft	3.37	50%	-	50%	1.69
820	Retail	1,000 Sq Ft	4.09	50%	34%	33%	1.35

[1] Peak PM Hourly trip rate from ITE Manual 11th Edition.

[2] Pass-by trip rate from ITE Handbook 3rd Edition.

6.4.1.2. Average Trip Length

The next piece of determining the transportation demand factor is the average trip length in a Service Area. The average trip length is defined as the average distance traveled in the Service Area for each trip. The average trip length for the City is 3.5 miles.

6.4.1.3. Transportation Demand Factor

By applying the Adjusted Trip Rate calculated in Table 15 above with the average trip length, the transportation demand factor is developed for each land use. The transportation demand factor represents the unique demand each land use has on roadways. After adjusting the trip generation rate by the one-way and pass-by factors, it is multiplied by the average trip length to calculate the transportation demand factor for each land use, as shown in Table 16. This value will be used to determine the needed increase in vehicle miles for future development.

Table 16: Transportation Demand Factor by Land Use

ITE Code	Land Use (Consolidated)	Adj. Trip Gen Rate	Avg. Trip Length	Demand Factor
		<i>e</i>	<i>f</i>	<i>e x f</i>
210	Residential (Single family)	0.50	3.50	1.73
220	Residential (Multi-family)	0.29	3.50	1.00
110	Industrial/Warehousing	0.40	3.50	1.40
710	Commercial (General Office)	1.69	3.50	5.90
820	Retail	1.35	3.50	4.72

6.4.2. Additional Capacity Demanded by New Development

Each land use creates a unique impact on the roadways; therefore, the transportation demand factors for each land use are used to ascertain the additional capacity demanded by new development. By multiplying the increase in number of development units for each land use by the respective transportation demand factor, the additional vehicle miles demanded per impact unit is determined. This calculation is shown below in Table 17.

Table 17: Vehicle Miles of Demand based on 10-Year Growth Projection

Description	Increase in Units [1]	Demand Factor (Miles) [2]	Change in Total Vehicle Miles
	<i>a</i>	<i>b</i>	<i>a x b</i>
Residential			
Single family	4,770	1.73	8,252
Multi-family	3,668	1.00	3,668
All Residential			11,920
Nonresidential			
Industrial/Warehousing	2,702	1.40	3,783
Commercial (General Office)	3,126	5.90	18,441
Retail	1,233	4.72	5,820
All Non-residential			28,043
Additional Capacity Attributable to Growth			39,963

[1] From Table 12 and Table 13. Nonresidential converted to 1,000 square foot increments.

[2] From Table 16.

As shown on the table above, new development over the 10-year period is forecasted to generate 39,963 vehicle miles of demand on the City's roadways. In order to accommodate this additional demand, the City identified several projects, as outlined in the roadway CIP, that will add lanes and other improvements to the roadways to supply additional capacity.

6.4.3. Additional Capacity Supplied by CIP

Information on the number of lanes, total length of each lane, and peak hour trips or capacity of the existing and expanded roadways for each eligible CIP project were identified. Using these capacity values, coupled with information on the length of the roadway being improved and the number of lanes being added, the total amount of vehicle miles that will be added by all eligible projects can be determined. These calculations are shown below in Table 18.

Table 18: Additional Lane Miles Added by FY 23 – FY 33 CIP

Project Name	Length (mi)	Existing # Lanes	Future # Lanes	Existing Capacity	Proposed Capacity	Existing Lane Miles	Proposed Lane Miles	Additional Lane Miles
	<i>a</i>	<i>B</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f = a x b x d</i>	<i>g = a x c x e</i>	<i>h = g - f</i>
Waterloo/Lang Intersection	0.41	2	3	290	400	241	498	257
Crawford (Lillis to Flora)	0.84	2	4	290	700	489	2,360	1,871
West Crawford (FM 131 to US 75)	1.05	2	4	290	800	606	3,345	2,739
Loy Lake Road (West of 75 to FM 131)	1.52	2	4	290	800	879	4,848	3,970
Ansley Lane (Crawford to 120)	0.80	2	4	290	800	461	2,545	2,084
W. Bullock (Armstrong to Armory)	0.74	2	4	290	700	428	2,068	1,640
Juanita (Morton to Railroad @ Helen)	0.83	2	4	290	700	483	2,333	1,850
Fannin and Square Dance Road	1.16	2	4	290	800	670	3,697	3,027
Total						4,258	21,695	17,438

As shown on the table above, the CIP projects identified will provide an additional 17,438 lane miles of capacity, which is less than the additional demand forecasted of 39,963 lane miles.

6.5. Impact Fee Calculation

Comparing the capacity required by new growth with the additional capacity supplied by eligible CIP projects provides a ratio for determining what amount of project costs can be included in the roadway impact fee calculation. In this case, dividing 39,963 by 17,438 is approximately 229 percent; therefore, since new demand will utilize all capacity supplied by the CIP, the City can recover 100 percent of eligible project costs. The allocated amount of roadway project costs, of the total project costs of \$39,883,783 from Table 19, is \$39,884,000 (rounded to the nearest \$1,000 increment). This amount will be recovered through the roadway impact fee from future development.

Table 19: Fee Calculation per Service Unit (VM)

Description	
Total Eligible Project Costs [1]	\$39,883,783
VM Added by Projects [2]	17,438
VM from Development [3]	39,963
VM Demands vs. Capacity Provided (max of 100%)	100%
Allocated Project Costs	\$39,883,783
\$ per VM	\$998

- [1] From Table 14.
- [2] From Table 18.
- [3] From Table 17.

To calculate the fee per service unit (per vehicle mile), the \$39.9 million is then divided by the number of total vehicle miles of new demand, 39,963, resulting in \$998 per vehicle mile. Finally, the fee per vehicle mile must be multiplied by each land uses’ specific transportation demand factor to calculate the maximum assessable impact fee for each land use type, as shown in Table 20.

Table 20: Maximum Assessable Fee per Demand Unit

Land Use	Maximum Assessable Fee per Vehicle Mile	Transportation Demand Factor	Maximum Assessable Fee per Demand Unit
	<i>a</i>	<i>b</i>	<i>a x b</i>
Residential			
Single family	\$998	1.73	1,727
Multi-family	998	1.00	998
Non-Residential			
Industrial/Warehousing	998	1.40	1,397
Commercial (General Office)	998	5.90	5,888
Retail	998	4.72	4,711

6.6. Sample Calculations

Sample calculations for various land uses are shown in the table below by multiplying the number of demand units by the maximum assessable fee per demand unit.

Table 21: Sample Calculation for Maximum Assessable Impact Fee

Land Use	Demand Units	Number of Demand Units	Maximum Assessable Fee per Demand Unit	Maximum Assessable Fee
		<i>a</i>	<i>b</i>	<i>a x b</i>
Single family:				
1 dwelling unit	1 dwelling unit	1	\$1,727	\$1,727
Multi-family:				
15 units	1 dwelling unit	15	\$998	\$14,970
Industrial/Warehousing:				
50,000 sq ft	1,000 sq ft	50	\$1,397	\$69,862
Commercial:				
20,000 sq ft.	1,000 sq ft	20	\$5,888	\$117,767
Retail: 10,000 sq ft	1,000 sq ft	10	\$4,711	\$47,107

6.7. Conclusions

The City is expected to grow substantially over the next ten years, thus increasing the need for an expanded roadway network. Given the land use assumptions and projected growth, new development is expected to demand 39,963 additional vehicle-miles. Eligible projects from the City's current roadway CIP should generate 17,438 additional lane miles. Since all of the additional roadway capacity will be utilized by new development, it is reasonable to allocate 100% of eligible CIP project costs to new growth through roadway impact fees, with the maximum assessable fee per service unit of \$998.

7. Conclusion

As stated in Section 1, the CIAC recommends adoption of the maximum allowable impact fees for water, wastewater, and roadway. The CIAC also recommends that the amount assessed be 50% of the maximum allowable impact fees as shown in Table 1.

APPENDIX:

**Capital Improvement Plan
Utilities and Utility
Neighborhood Improvement
Detail**



Water Utility and Utility Neighborhood Improvements	Year of Need	Cost
Utilities, Waterloo/Lang	2023	\$862,500
Utilities, Edwards (Crawford to Day)	2024	\$425,000
Utilities, West Crawford (131 to 75)	2024	\$825,000
Utilities, Crawford (Lillis to Flora)	2024	\$2,125,000
Utilities, Loy Lake Road Phase 2	2026	\$2,250,000
Utilities, Ansley Lane (Crawford to 120)	2026	\$1,500,000
Utilities, N. Chandler (Main to MLK)	2026	\$1,375,000
Utilities, Maurice (500 to 1300)	2027	\$1,950,000
Utilities, W. Bullock (Armstrong to Armory)	2028	\$1,250,000
Utilities, Randell Lake Road (Helen to 75)	2029	\$1,375,000
Utilities, Theresa Drive (503 to 691)	2029	\$1,125,000
Utilities, Juanita (Morton to Helen)	2030	\$1,500,000
Utilities, 6th and 7th	2031	\$1,250,000
Perrin Utility Neighborhood Improvements	2024	\$1,140,000
Northside Utility Neighborhood Improvements	2025	\$2,280,000
Eastside Utility Neighborhood Improvements	2026	\$1,143,000
Central Neighborhood Utility Improvements	2027	\$1,125,000

Wastewater Utility and Utility Neighborhood Improvements	Year of Need	Cost
Utilities, Waterloo/Lang	2023	\$431,250
Utilities, West Crawford (131 to 75)	2024	\$825,000
Utilities, Crawford (Lillis to Flora)	2024	\$2,125,000
Utilities, Edwards (Crawford to Day)	2024	\$425,000
Utilities, Loy Lake Road Phase 2	2026	\$2,250,000
Utilities, Ansley Lane (Crawford to 120)	2026	\$1,500,000
Utilities, N. Chandler (Main to MLK)	2026	\$1,375,000
Utilities, Maurice (500 to 1300)	2027	\$1,950,000
Utilities, W. Bullock (Armstrong to Armory)	2028	\$1,250,000
Utilities, Randell Lake Road (Helen to 75)	2029	\$1,375,000
Utilities, Theresa Drive (503 to 691)	2029	\$1,125,000
Utilities, Juanita (Morton to Helen)	2030	\$1,500,000
Utilities, 6th and 7th	2031	\$2,500,000
Perrin Utility Neighborhood Improvements	2024	\$2,280,000
Northside Utility Neighborhood Improvements	2025	\$1,140,000
Eastside Utility Neighborhood Improvements	2026	\$2,286,000
Central Neighborhood Utility Improvements	2027	\$1,125,000