

City of Josephine, Texas

Water Master Plan

March 2024



Prepared for:
City of Josephine

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1 Executive Summary

This water master plan report is prepared for the City of Josephine to present analysis, findings, and recommendations for implementation of a plan to meet the City of Josephine's infrastructure needs for the growth identified in the City by 2033 (10-year) and build-out. Growth and population projections were based on recommendations from the City as well as information from the City of Josephine Comprehensive Plan adopted July 10, 2023. The existing and proposed water system was analyzed using WaterCAD modeling software. Population projections for the City of Josephine water service area are summarized in **Table 1**. Water demand projections to build-out are listed in **Table 2**.

Table 1 - Population Projection Summary

Year	Total Population
2023 (Current)	8,209
2033 (10-Year)	36,248
2060 (Build-out)	100,095

Table 2 – Projected Water Demands

Year	Average Day Demand (MGD)	Max Day Demand (MGD)	Peak Hour Demand (MGD)
2023 (Existing)	1.14	2.72	3.41
2033 (10-year)	4.79	11.50	14.38
2060 (Build-out)	12.71	30.51	38.14

The City of Josephine currently operates on a single pressure plane. The existing infrastructure includes two pump stations and two elevated storage tanks, these are illustrated in **Appendix A – Existing Water System Map**. **Appendix D – 10-Year Capital Improvements Map** illustrates the water infrastructure needs over the next 10 years, including proposed water lines. **Table 3** includes a summary of proposed infrastructure required within the next 10 years to keep pace with population growth. The proposed improvements analyzed the following aspects of the water system against the established design criteria: supply, pumping, ground storage, elevated storage, and piping. Each project is accompanied by an opinion of probable construction cost (OPCC).

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Table 3 – 10-Year Capital Improvements Plan Summary

Project No.	Project Name	Project Cost	Market Scarcity Adjustment (1.5x)
1	EST Pressure Plane Study	\$70,000	\$105,000
2	PS #2 - 4 MG GST	\$6,940,000	\$10,410,000
3	T-03 - 1.5 MG EST	\$11,130,000	\$16,695,000
4	PS #2 - (2) 2,500 gpm Pumps	\$3,990,000	\$5,985,000
5	Water Master Plan Update Study	\$80,000	\$120,000
6	PS #2 - (1) 1,500 gpm Pump	\$500,000	\$750,000
7	T-04 - 2.0 MG EST	\$14,250,000	\$21,375,000
8	PS #2 - 3 MG GST	\$6,180,000	\$9,270,000
9	PS #2 - (1) 2,500 gpm Pump	\$540,000	\$810,000
10	Wildflower Outer Loop 12" Water Line	\$14,560,000	\$21,840,000
11	Wildflower 20" Water Line	\$3,890,000	\$5,835,000
12	Wildflower 16" Water Line	\$3,500,000	\$5,250,000
13	Wildflower 8" Water Line	\$2,620,000	\$3,930,000
14	Riverfield Outer Loop 12" Water Line	\$8,330,000	\$12,495,000
15	Riverfield 8" Water Line	\$2,530,000	\$3,795,000
16	Hunt County MUD No. 3 Outer Loop 12" Water Line	\$8,420,000	\$12,630,000
17	Hunt County MUD No. 3 8" Water Line	\$1,310,000	\$1,965,000
18	Waverly Estates 8" Water Line	\$3,690,000	\$5,535,000
19	Josephine 325 Outer Loop 8" Water Line	\$1,260,000	\$1,890,000
20	Future North EST 16" Water Line	\$1,250,000	\$1,875,000
21	Greenville St 12" Water Line	\$1,670,000	\$2,505,000
22	Cook St 16" Water Line	\$6,330,000	\$9,495,000
23	CR 2668 8"/12" Water Line	\$2,320,000	\$3,480,000
24	CR 596 36" Water Line	\$35,020,000	\$52,530,000
25	CR 596 12" Water Line	\$3,350,000	\$5,025,000
TOTAL		\$143,730,000	\$215,595,000

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2 Introduction

2.1 Description of Project Area

The City of Josephine is located in both Collin County and Hunt County, Texas. The current population is approximately 8,209 based on current connection counts provided by the City. The current City limits and CCN boundary for the water service area are shown in **Appendix B – Water Service Area Map**. The City of Josephine plans to expand their service area to approximately 9,390 acres and serve roughly 100,095 people at buildout by 2060. The rapid growth within the City of Josephine triggers the need for long term planning as the City continues to develop.

2.2 Objective and Scope of Study

The objective of this study is to evaluate the infrastructure compared to growing population demand. The method for evaluation is desktop analysis paired with hydraulic model analysis. The design criteria are established based on projected growth and TCEQ regulations. The model helps confirm that the identified infrastructure improvements function as expected with the projected demand.

2.3 Water System Definitions

The following terms are used throughout the report. The definitions and acronyms may be helpful in better understanding the subtle differences between several of these terms.

Average Daily Demand (ADD) – Annual water consumption divided by the number of days in a year. The average daily water demand a given water system experiences over a one-day period.

Capital Improvement Plan (CIP) – Recommended improvements to the water distribution system based on population and water demand projections for future conditions.

Demand (Consumptions) – Volume of water used for a given time period, typically measured in units of Million Gallons Per Day (MGD) or Gallons Per Minute (gpm).

Diurnal Curve – Typically a graph depicting water demand over 24-hour periods with water demand plotted on the y-axis and time plotted on the x-axis.

ETJ – Extra Territorial Jurisdiction

Firm Pumping Capacity – The total pumping capacity that a pump station can deliver with the largest pump out of service.

GPD – Gallons Per Day

LF – Linear Feet

Maximum Day Demand (MDD) – Water consumption, in volume of water, used on the highest consumption day in a year.

MGD – Million Gallons Per Day

MUD – Municipal Utility District

OPCC – Opinion of Probable Construction Costs

Peak Hour Demand (PHD) – The maximum one-hour water demand given in units of volume per day that a given distribution system experienced or would experience during a particular year or other time period.

Peaking Factor – The factor applied to the maximum day demand to determine peak hour and minimum hour demand during maximum day demand conditions.

Pressure Plane (Pressure Zone) – A network of water pipes having a common pressure range each plane may be separated from the other plane by closed valves, pressure-regulating valves, pump stations, and storage facilities.

PSI – Pound per square inch (U.S. customary units for pressure)

TCEQ – Texas Commission on Environmental Quality

NTMWD – North Texas Municipal Water District

Total Pumping Capacity – The total pumping capacity a pump station can deliver.

Transmission System (Piping) – Transmission piping typically consists of 12-inch diameter and larger piping and have a minimum service connection, if possible, and function primarily as the vehicle to move larger quantities of water throughout the water system. Distribution piping consists of 10-inch diameter and smaller piping.

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3 Data Collection and Land Use

3.1 Data Collection

Evaluation of the existing system and predictions for the future system required collection of information from the City of Josephine to accurately evaluate the existing and build-out system. The City of Josephine provided information such as existing infrastructure record drawings, meter records, connection counts, population information, future development plans, and system controls. In addition to this data, record drawings of the existing system were provided to show existing infrastructure and the need for future improvements. The provided record drawings are listed in **Table 4**.

Table 4 – Record Documents Provided

Document Title	Document Type	Date
Bradley Estates	Final Plat	August 2022
De Berry Heritage	Final Plat Record Drawings	January 2022 November 2022
Fountain View - Phase 1 - Phase 2 - Phase 2 Lots 2R, 3R, & 19R-1, Block F - Phase 3 - Phase 4	Final Plat	- August 2005 - August 2005 - July 2015 - July 2014 - July 2016
High Meadow Estates - Phase 1 - Phase 2	Final Plat	- April 2004 - April 2007
Magnolia Pointe - Phase 1 - 10 - Phase 5 Lift Station - Phase 10 Lift Station - County Road No. 2886 Improvements - Magnolia Pointe Offsite Water	Final Plats & Record Drawings	- June 2018 – Feb. 2023 - January 2020 - February 2023 - July 2020 - February 2022
Murray Manor Estates	Final Plat	August 2022
Riverfield - Phase 1 - Phase 2 - Riverfield MUD No. 1 Offsite Water and Sanitary Sewer Plans	Construction Plans Record Drawings	- February 2023 - July 2023 - May 2023
Wavery Estates - Phase 1 TXDOT Submittal - Phase 1A - Phase 1B - Phase 4	Record Drawings Construction Plans	- April 2023 - February 2023 - February 2023 - June 2023
Water Line Relocation for County Road 596 Improvements	Construction Plans	1989
8" Water Transmission Main	Construction Plans	1994
Water Distribution System	Construction Plans	1957

Document Title	Document Type	Date
CR 543 Pump Station Improvements	Construction Plans	December 2022
18" Water Main Improvements	Construction Plans	November 2022
CR 596 Pump Station Project	Construction Plans	September 2020
0.2 MG Elevated Storage Tank	Plan Sheets	November 2004
0.5 MG Elevated Storage Tank	Plan Sheets	December 2017
0.5 MG EST Operations & Maintenance Manual	O&M Manual	November 2018

3.2 Existing Land Use

Existing land use for the area was derived from the existing development information provided by the City of Josephine. Collin Central Appraisal Data was also utilized to identify which existing parcels were residential or non-residential. **Table 5** below shows a summary of acreage for the existing, current, and planned developments. The existing developments have been constructed, current developments are in active construction, and the planned development have not started construction yet or are future phases of existing or current developments.

Table 5 – Existing Land Use Acreage Summary, 2023 Comprehensive Plan

Place Type	Acreage (ac)	Residential Lot Counts
Existing Developments	845	2,306
Current & Planned Developments	3,159	10,642
Total	4,004	12,948

3.3 Future Land Use

The future land use for the City of Josephine was obtained from the City of Josephine Comprehensive Plan. The Comprehensive Plan uses 11 different place types. For each place type in the Comprehensive Plan where residents can dwell, a population per acre was provided. Those values, as well as total acreage for each future land use type, are shown in **Table 6**. The Comprehensive Plan is included as **Appendix G – City of Josephine Final Comprehensive Plan (July 2023)**.

Table 6 – Future Land Use Summary

Place Type	Acreage (ac)	DU per acre	Population per Acre
City Center	27.18	0	0
Commercial	108.11	0	0
Industrial	2.86	0	0
Institutional	107.05	0	0
Low Density Residential	2340.45	4	12.4
Medium Density Residential	65.67	6	18.6
Mixed Use	18.00	30	54
Multi-Family Residential	0.21	20	36
Neighborhood Services	44.27	0	0
Parks and Open Space	142.31	0	0
Utility	22.03	0	0

3.4 Population Projection

The population was projected using the existing land use and future land use assumptions, as well as lot takedown schedules for proposed developments provided by the City of Josephine and DR Horton. The existing population was determined using existing connection counts and a residential demand assumption of 3.1 people per unit for single family and 1.8 people per unit for multifamily. The existing population with the City of Josephine is estimated to be 8,209 people.

Takedown schedules providing estimates for ongoing and future development were provided by DR Horton for the following subdivisions:

- Magnolia Phase 10
- Riverfield
- Waverly Estates
- Wildflower

The takedown schedule provided by DR Horton is included in **Appendix F – DR Horton Takedown Schedule**.

The City of Josephine also provided total estimated lot counts for future development subdivisions where a takedown schedule or confirmed timeline was not available. In those cases, it was assumed that construction would begin shortly with residential lots requiring water service beginning in 2025. Development of the lots was assumed to take place at an equal rate over the course of five years with two exceptions. In the case of development by Hunt County MUD No. 3 and Josephine 325 developments, meetings with the City and developer indicated water and wastewater service would not be available to begin until 2028. Due to the sizes of those two developments, it was also assumed the construction would take place in phases over ten years instead of five. The subdivisions that were counted in this method are listed in **Table 7**.

Table 7 – Planned Future Subdivision Lot Counts

Subdivision	Total Lots
Grandstone	145
Hunt County MUD No. 3	2500
Josephine 325 Development	1400
Liberty Ranch	185
Liberty Ranch West	43
Meadow Ridge	141
Morningside Phase 1	215
Morgan Farms (Morningside Phase 2)	415
Shepherd Place (MF)	260

The projected population for the areas outside of confirmed subdivisions was determined using the land use summary acreage found in **Table 6**. For some areas within the proposed service area, a future land use was not assigned since it was outside of the ETJ and comprehensive planning boundary, yet within the water service area. In these situations, the assumption for the medium density residential place type was used with accompanying proposed acreage. Since the water and wastewater service areas are different, the identified 10-year water CIP population and the water buildout population are specific to the water

service area and not to Josephine's ETJ or city limits. The build-out population is estimated to be approximately 100,095 around the year 2060.

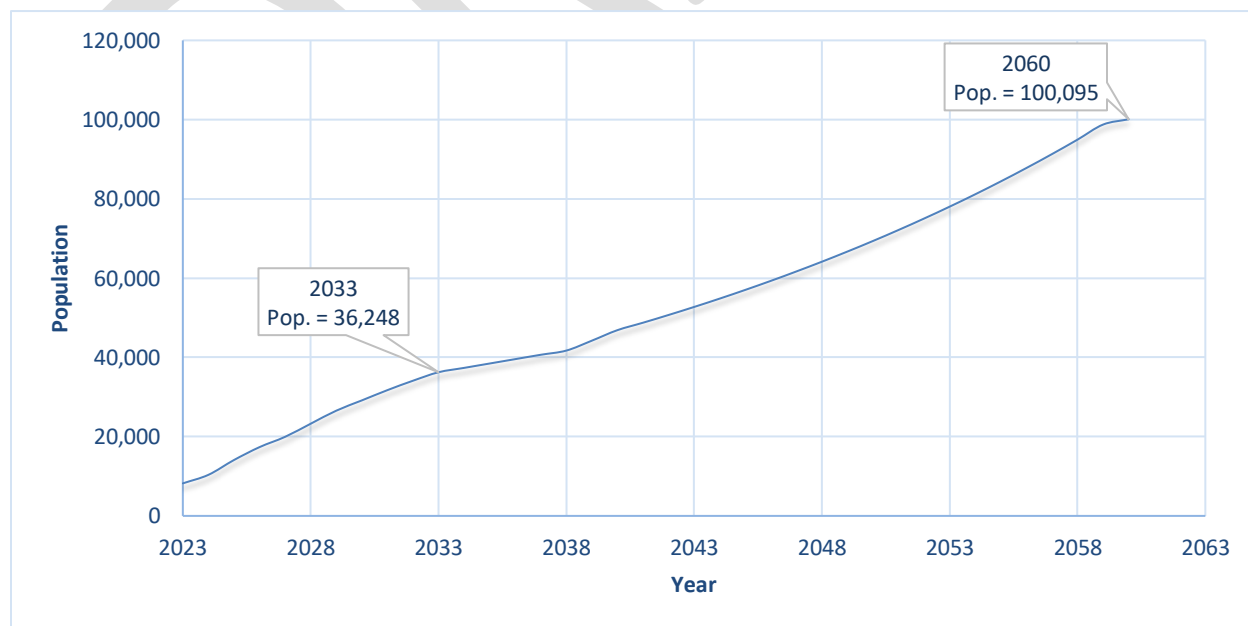
Table 8 shows the estimated population per year as well as the growth rate. These growth rates were determined using historical population information as well as proposed development timelines and takedown schedules provided by the City of Josephine and DR Horton. As the City continues to develop, the growth rate should be monitored and eventually re-evaluated to ensure the accuracy of this curve. Dramatic changes to the growth rate could accelerate the need for infrastructure.

Table 8 – 10-Year Population Growth

Year	Growth Rate	Population at End of Year
2023 (Current)	-	8,209
2024	26%	10,364
2025	36%	14,096
2026	23%	17,354
2027	15%	19,955
2028	22%	23,260
2029	19%	26,546
2030	14%	29,137
2031	12%	31,729
2032	11%	34,103
2033	12%	36,248

Figure 1 shows the estimated growth curve for the City of Josephine. Over the next 10 years, the City is projected to grow rapidly based on proposed developments already in the area and their estimated completion dates, as identified in **Appendix F – DR Horton Takedown Schedule**.

Figure 1 – City of Josephine Water Service Area Population to Build-Out



4 Water Demand Projections

4.1 Projected Water Demand

Projected water demands for the 10-year planning period were calculated using the population projections discussed in the previous Section 3.0. **Figure 2** shows total projected water demand for the City of Josephine to build-out. Current, 10-year, and build-out projected water demands are summarized in **Table 9**. **Figure 3** shows the system diurnal curve applied to simulate a 24-hour water usage cycle in the hydraulic water model. The peaking factor used to calculate peak hour demand was 1.8 and the max day peaking factor used was 2.40. These peak hour factors were selected based on criteria in TCEQ Chapter 290 definitions.

Figure 2 – Projected Water Demands

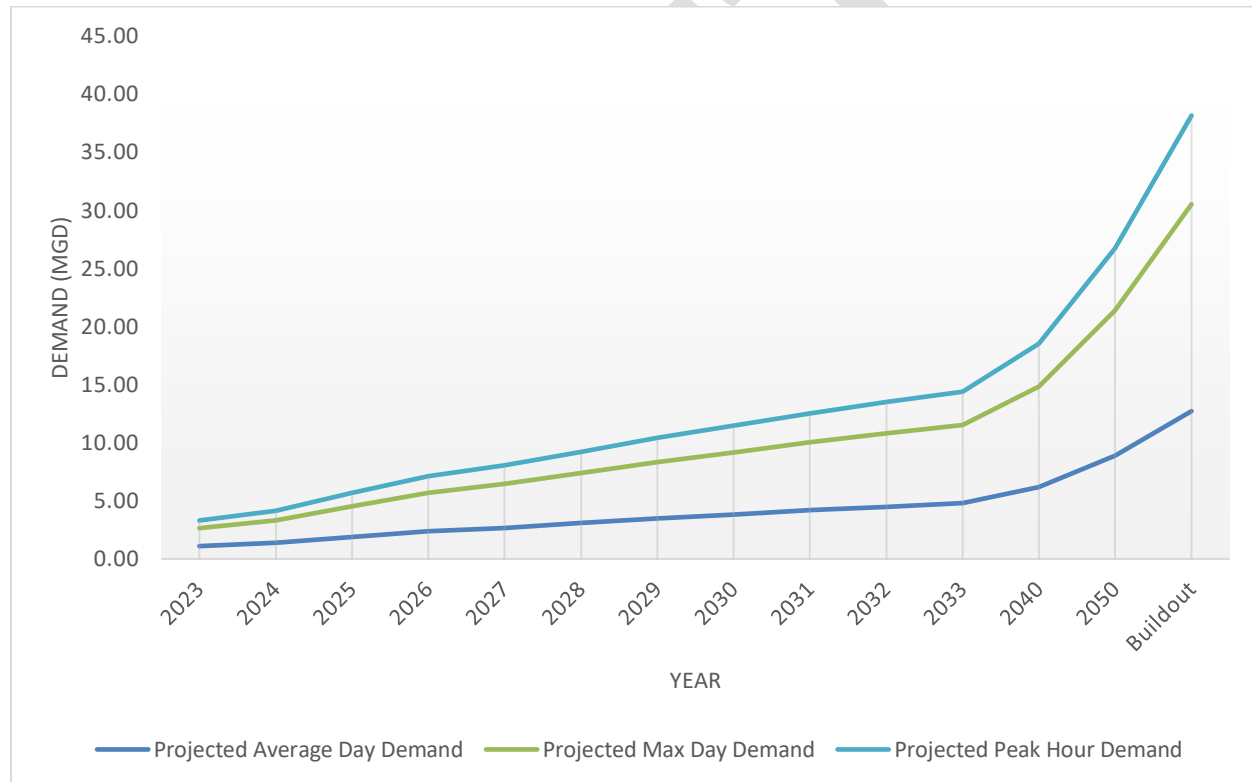
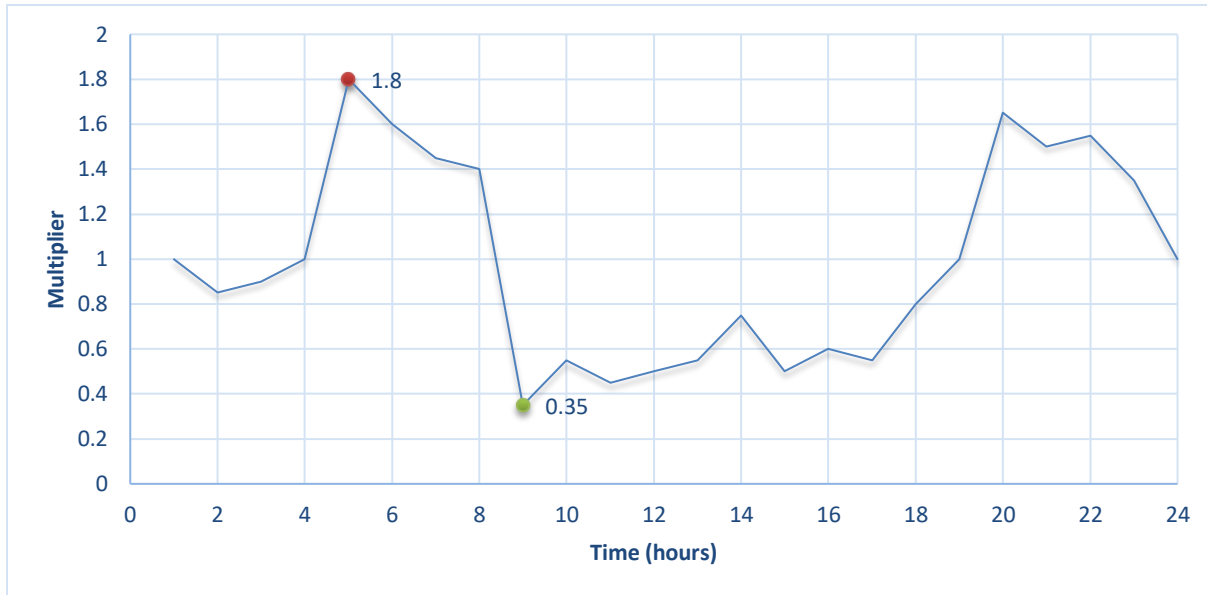


Table 9 – Projected Water Demands

Year	Average Day Demand (MGD)	Max Day Demand (MGD)	Peak Hour Demand (MGD)
2023 (Existing)	1.14	2.72	3.41
2033 (10-year)	4.79	11.50	14.38
2060 (Build-out)	12.71	30.51	38.14

Figure 3 – Hourly Hydraulic Pattern Diurnal Curve



4.2 Projected Connections

Projecting the number of future connections is important when evaluating the capacity of the system to ensure TCEQ requirements are being met. TCEQ requirements for pumping facilities and total storage are controlled by total number of connections in a system. The current connection count for the City of Josephine is approximately 2,681. **Table 10** shows projected connection counts. It is recommended that connection counts be re-evaluate annually to verify if adjustments are necessary.

Table 10 – Projected Connection Counts

Total Number of Connections	
2023	2,681
2024	3,265
2025	4,593
2026	5,785
2027	6,570
2028	7,569
2029	8,568
2030	9,442
2031	10,316
2032	11,120
2033	11,850
2040	15,101
2050	22,411
Build-out	32,719

5 Water System Modeling Methodology

A hydraulic model was created representing the Josephine water system to evaluate the existing infrastructure. The hydraulic analysis relies on a computer program (WaterCAD™) that solves a large set of simultaneous nonlinear equations representing hydraulic and geometric characteristics of the pipe network. Information required included pipe data, node data, storage data, and pump data. This data was obtained by Kimley-Horn from the Geographic Information System (GIS) database and record drawings provided by the City to create a 10-year water model scenario. Pipe data consisted primarily of pipe length, location, and diameter. Node data consisted of ground elevation determined from local topographic LIDAR data and flow demands determined by the population count and usage assumptions. Pump data was modeled by each pump's characteristic performance curve. Storage data was modeled by each facility's water surface elevation and tank diameter.

6 Design Criteria

The following criteria were established by Kimley-Horn and the City of Josephine as minimum standards from which to evaluate current and future water system components. These criteria were determined based on standard water industry values and water usage data in the City of Josephine from 2021 to 2023. These criteria could change over time based on demand patterns and regulatory mandates. **Table 11** below summarizes the various criteria used throughout this study.

Table 11 – Water Criteria Used

Assumption	Value	Units
Average Day Residential Demand	120	gpcd
Max Day Commercial Demand	2,000	gpad
Single Family Residential Density	3.1	Person/ unit
Multifamily Residential Density	1.8	Person/ unit
Max Day Peaking Factor	2.4	
Peak Hour Factor	1.8	
Non-Residential Flow		
Neighborhood Services	1,500	gal/acre/day
Commercial	1,600	gal/acre/day
Institutional	1,500	gal/acre/day
Industrial	1,400	gal/acre/day
City Center	1,800	gal/acre/day
Parks & Open Space	150	gal/acre/day
Utility	300	gal/acre/day

6.1 Contracted Water

The City of Josephine has a contract with the North Texas Municipal Water District (NTMWD) for the supply of treated water. The current contract allows for the City of Josephine to use 365 million gallons per year. The contracted amount roughly equates to 1 million gallons per day, however the City may have increased or reduced daily demand as long as the annual maximum isn't exceeded. The maximum delivery rate of water is limited to not exceed 2.2 times the highest historical average at the point of delivery. It is recommended that the City of Josephine maintain a contracted amount with NTMWD equal to projected maximum day water use for the full system. At a minimum, at least 0.6 gpm per connection must be supplied from NTMWD. Should the City exceed the annual maximum allowed by the contract, the City will need to renegotiate with NTMWD for a new or amended or restated contract within 60 days of the exceedance.

6.2 Pumping Facilities

Pumping capacity must be able to provide the peak hourly demand with the largest pump out of service at each station. If 200 gallons of storage per connection is met, then 0.6 gpm per connection is required at each pump station or pressure plane. If 200 gallons of storage per connection cannot be provided, 2.0 gpm per connection must be met. See further information below in the TCEQ requirements.

6.3 Ground Storage

Ground storage serves two purposes:

- Equalization for different feed rates between water supply and pumping to the system.
- Emergency capacity in the event of temporary loss of water supply.

Generally, ground storage facilities are located at water supply points or at each pump station within the water distribution system. Although ground and elevated storage facilities perform separate functions within the system, both are aimed at decreasing the impact of demand fluctuations. Their capacities are established based on knowledge of how demand varies seasonally and daily. Due to inaccuracies in estimating growth, occasional increases in usage exceeding design values; ground storage must provide sufficient capacity to supply any differences. It is a recommendation from Kimley-Horn that a ground storage capacity requirement of 50% max day demand be maintained in the system. This is not a requirement from the TCEQ.

6.4 Elevated Storage

Elevated storage serves three purposes:

- Functionally, elevated storage equalizes pumping rate to compensate for daily variation in demand and to maintain a constant pumping rate.
- Provides pressure maintenance and protection against surges created by instantaneous demands, such as fire flow and main breaks, and instantaneous change in supply, such as pumps turning on and off.
- Maintains a reserve capacity for fire protection and pressure maintenance in case of power failure to one or more pump stations. Sufficient storage should be maintained to provide for four hours of fire flow demand during a loss of power to a pump station or water treatment plant.

Elevated storage is evaluated separately for each pressure plane. Because elevated storage is more expensive than ground storage, an economical balance between elevated storage and pumping should be

sought. The design requirement, per TCEQ, for elevated storage capacity is 200 gallons per connection to qualify for the lower TCEQ requirement for pumping. See further information below in the TCEQ requirements.

6.5 Transmission System

The transmission system's function is to transfer water across the water system and fill the elevated storage tanks. There are three conditions for which the highest fluctuation in operational pressures is experienced:

- Peak Hour Demand – this is the maximum demand the system experiences. It is the condition under which lowest operational pressures are experienced.
- Tank Filling (minimum hour demand) – this is the period during which elevated tanks are replenished. This is the period of lowest demand during peak day. It normally occurs after midnight and is the condition under which highest operational pressures are experienced.
- Fire flow demand – during the maximum day demand, the local transmission lines are tested to ensure fire protection requirements are met. Pressures can fall below normal operational pressures but should not drop below 20 psi at any point in the system.

The transmission system should be sized to maintain a minimum pressure of 40 psi during normal operation conditions and a minimum of 20 psi during emergency operating conditions. The transmission system should also be sized to limit maximum velocity in the pipe to seven feet per second. The maximum pressure in emergency conditions should be limited to 120 psi because high operating pressure will result in increased system maintenance and increased operational cost.

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7 Texas Commission on Environmental Quality (TCEQ) Design Criteria

Chapter 290 of the Texas Administrative Code, Public Drinking Water, mandates minimum requirements for water systems operating in the State of Texas. **Table 12** provides a table summary of design criteria.

The minimum requirements are as follows:

- Total Storage Requirements should be equal to 200 gallons per connection.
- Elevated Storage should be equal to 100 gallons per connection or 200 gallons per connection to qualify for the lower pumping requirement.
- Minimum pressure under normal conditions should exceed 35 psi, while pressure during emergency events may not drop below 20 psi.
- Pumping Requirements state that facilities should have a total capacity of 2.0 gpm per connection or a total capacity of at least 1,000 gpm and the ability to meet peak hourly demands with the largest pump out of service at each pressure plane, whichever is less. For systems which provide an elevated storage capacity of 200 gallons per connection, two service pumps with a minimum combined capacity of 0.6 gpm per connection are required at each pump station or pressure plane.

Table 12 – Design Criteria Summary

City of Josephine Criteria		TCEQ Criteria
Contracted Water Supply	Overall capacity to meet max day demand	Overall capacity to meet max day demand
High Service & Booster Pumping Facilities	0.6 gpm per connection are required at each pump station or pressure plane	Total capacity of at least 2.0 gpm per connection or 1,000 gpm and the ability to meet peak hourly demands with the largest pump out of service at each pressure plane, whichever is less. For systems which provide an elevated storage capacity of 200 gallons per connection, two service pumps with a minimum combined capacity of 0.6 gpm per connection are required at each pump station or pressure plane.
Ground Storage	50% of max day demand	None
Elevated Storage	None	Equal to 100 gallons per connection or 200 gallons per connection to qualify for lower pumping requirement.
Total Storage	200 gallons per connection	Equal to 200 gallons per connection
Transmission System	Normal conditions = minimum 40 psi Emergency conditions = minimum 20 psi	Normal conditions = minimum 35 psi Emergency conditions = minimum 20 psi

8 Existing Infrastructure

8.1 Water Supply

The City of Josephine's current water supply comes from an NTMWD delivery point located on the southwest corner of CR 543 and Corry Ln. The City's current contracted amount from NTMWD is 365 million gallons per year. **Table 13** summarizes NTMWD supply locations.

Table 13 – Existing Water Supply Source

Location	Supply
NTMWD Delivery Point	
Entry Point 1	365 million gal/year

8.2 Pressure Planes

The City of Josephine currently operates with one pressure plane. The pressure plane is served by two elevated storage tanks and two pumping facilities. Currently, the City is able to operate the pressure plane without low pressure complaints from customers.

8.3 Pumping Facilities

The City of Josephine currently has two pump stations in service. Pump Station #1 is located along County Road 543, just west of Linda Marie Drive. The City is currently working on upgrades to Pump Station #1 that include a 0.5 MG GST that has already been designed and will go under construction in 2024. Water is delivered from the City of Josephine NTMWD delivery point through an 18" line approximately 4,200 feet to Pump Station #1. There, a 6" meter vault monitors City water usage before it is delivered to the existing 0.2 MG ground storage tank built at grade. From Pump Station #1, water is pumped directly to Pump Station #2, located approximately 18,000 feet away through another 18" pipeline. Pump Station #2 was constructed in 2021 and consists of a 0.5 MG GST built below grade and a vertical turbine pump gallery. Pump Station #2 is responsible for distributing water to the distribution system and elevated storage tanks.

Table 14 summarizes the pumping capacity at each pump station. **Table 15** summarizes the ground storage facilities at each station as well.

Table 14 – Existing Pump Station Summary

Pump #	Total Capacity (MGD)	Total Capacity (gpm)	Head (ft)	Status
Pump Station #1				
1	0.86	600	170	Active
2	0.86	600	170	Active
Pump Station #2				
1	2.16	1500	221	Active
2	2.16	1500	221	Active

Table 15 – Existing Ground Storage Facilities

Location	Capacity (MG)	Diameter (ft)	Head Range (ft)	Overflow Elevation (ft)	Status
Pump Station #1					
PS #1 T-1	0.2	40	17.8	593.9	Active
PS #1 T-2	0.5	65	Unknown	Unknown	In Construction (Expected 2024)
Pump Station #2					
PS #2 T-1	0.5	65	19.5	593.5	Active

Evaluation of the existing water distribution system has identified limitations in the sizing and layout of the two pump stations that serve the City.

As the main delivery point from NTMWD, Pump Station #1 should maintain capacity equal to serving the maximum day demands of the system. NTMWD recommends at least 8 hours of storage capacity, or 1/3 of the max day demand, at take points for emergency supply scenarios. The 0.5-MG GST currently under construction will bring the total storage capacity of Pump Station #1 to 0.7 MG. This allows for the Pump Station #1 to have approximately 6 hours of storage capacity for current demands.

The City of Josephine operates the two pump stations in series. Water is delivered to the take point by NTMWD into the existing GST at Pump Station #1. Pump Station #1 pumps the water to the existing GST at Pump Station #2. Pump Station #2 then pumps the water out into the Josephine distribution system. Operating the stations in series is both redundant and costly. In the event of an emergency or shutdown at Pump Station #1, the storage and pumping capacity at Pump Station #2 becomes disconnected from the NTMWD supply. There is no other way to transfer water from the delivery point to the distribution system without first going through Pump Station #1.

Pump Station #2, located on the northwest corner of intersection of County Road 640 and W Hubbard Rd, consists of a buried 0.5 MG GST and a vertical turbine pump gallery. The site at Pump Station #2 also has its own limitations for expansion. Due to the current hydraulics of the NTMWD supply pipeline, there is not enough head available to bypass Pump Station #1 and deliver water to Pump Station #2 without additional pumping. The existing 0.5 MG tank was also buried below grade. If Pump Station #2 is selected to be the main pumping and storage facility for the City of Josephine's buildout plans, options for how future tanks will be built would need to be analyzed. Burying a ground storage tank is both costly and requires more spacing between other infrastructure and facilities. In addition, a vertical turbine pump, used in a buried ground tank scenario, is more costly than a horizontal end suction pump used for tanks built at grade. Tanks built at grade allow for less costly construction, however, hydraulics from the NTMWD supply system would need to be analyzed to ensure that there is enough head to fill the tanks.

8.4 Elevated Storage Tank Facilities

The City currently has two elevated storage tanks. **Table 16** summarizes existing elevated storage tanks in service for the City of Josephine.

Table 16 – Elevated Storage Facilities

Name	Capacity (MG)	Diameter (ft)	Head Range (ft)	Base Elevation (ft)	Low Water Level Elevation (ft)	Overflow Elevation (ft)	Status
Sebastian Lane EST	0.2	40	21	603	715	736	Active
CR 1777 EST	0.5	55	30	581	706	736	Active

8.5 Distribution System

The current distribution system for the City of Josephine ranges from 1" lines to 18" transmission lines. **Table 17** summarizes the existing City of Josephine water lines.

Table 17 - Existing City of Josephine Water Lines

Size	Total Linear Feet
4"	18,517
6"	47,143
8"	136,574
12"	15,607
16"	6,395
18"	23,216
Total:	262,476

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9 Future Infrastructure Analysis and Recommendations

9.1 Water Supply

The City of Josephine will need to significantly increase their water supply as projected growth occurs within the planning boundary. **Table 18** summarizes the max day demand until build-out. For the build-out scenario, the NTWMD delivery point is recommended to be located at the Pump Station #2 site. Further coordination and analysis with NTMWD for the feasibility of a relocated delivery site will be required and should begin after the acceptance of this report. The build-out goal is to continue to have all required supply provided by NTMWD; therefore, the City will not have to rely on any groundwater well capacity.

Table 18 – Projected Max Day Demand

Year	Maximum Water Use (MGD)
2023	2.7
2033	11.5
2040	14.8
2050	21.4
Build-out	30.5

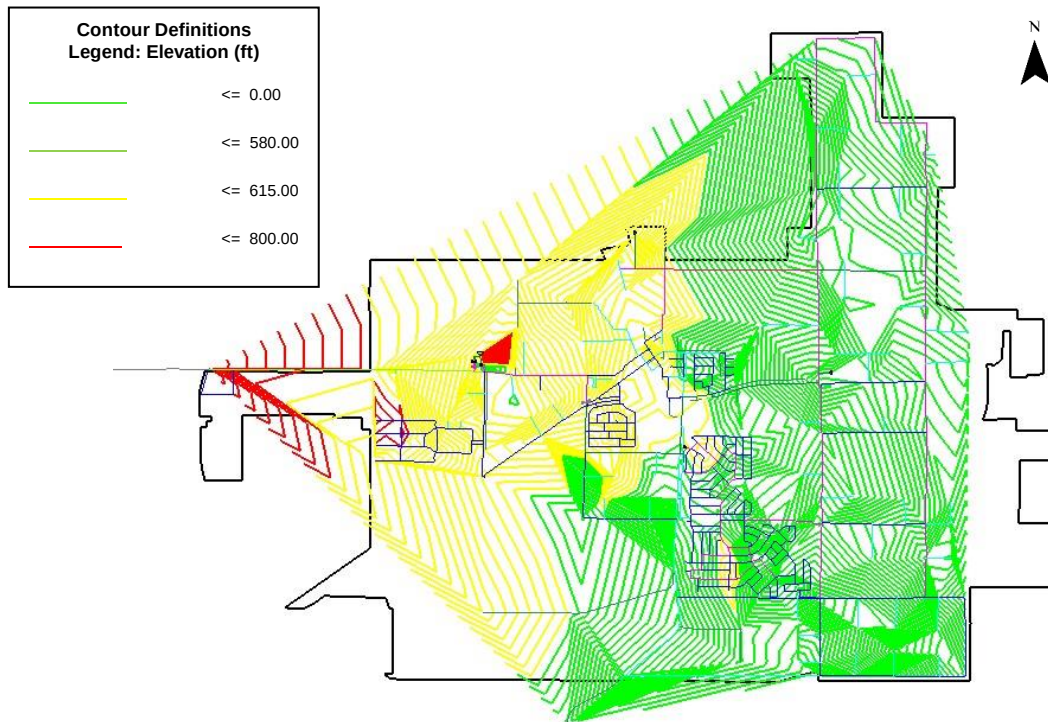
9.2 Pressure Planes

Under a buildout scenario, development located in the west half of the service area will not be able to be served by the existing elevated storage tanks. Due to the height of the low water level on the existing elevated storage tank, the high elevation areas will not be served at the minimum 35 psi required by TCEQ. It is recommended that the water system operates with pressures at a minimum of 40 psi to avoid customer complaints of low pressure. An existing pressure map of the entire water service area can be seen in **Appendix B**. Build-out conditions will require the addition of a pressure plane. Therefore, the ultimate condition for the City of Josephine may need to be a total of 2 pressure planes.

The topography of the proposed water service area shows lower elevations on the eastern side of the service area, and higher elevations on the western side of the service area. This is illustrated in **Figure 4 - Pressure Contour Map**.

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Figure 4 - Pressure Contour Map



The two pressure planes will have to operate independently of each other. As the two planes are separated, they both are subject to TCEQ storage and pumping requirements as if they were their own system. It is not the purpose of this master plan to identify where the service area shall be split or how the systems shall be run operationally upon buildout. However, future infrastructure planning for elevated storage capacity should be discussed as planned developments have elevated storage tanks designed already. The Wildflower development is an example of growth on the east side of the City's service area with projects that include 2 elevated storage tanks located within the development. Since the eastern side of the service area is at a lower elevation, it is recommended that the planned ESTs within the Wildflower development are built at an elevation where they match the hydraulics of the existing ESTs in the City of Josephine's water system. Since there are several more developments planned in the City of Josephine, a pressure plane study is recommended for the first project in the CIP list.

The buildout scenario will need an additional two elevated storage tanks per TCEQ elevated storage capacity requirements. It is recommended that the two future tanks are to be built at a higher elevation to allow for increased static pressures for the high side of the water service area. Initially, before a true pressure plane split is underway, the first EST that is constructed may need to be a part of the existing water system and operate under the existing pressure plane. In this case, the proposed EST will have a higher overflow than the two existing tanks and will require additional head from the pumps to fill. Additionally, filling the proposed elevated storage tank would overflow the existing tanks unless valve control is introduced. Control valves should be used in the intermediate period between the proposed Tank #3 coming online and the pressure plane split occurring.

When it is determined where exactly the pressure plane split will occur, both ground storage and pumping will need to be reevaluated to ensure all TCEQ requirements are met, and that proper pump selections are made.

9.3 Pumping Facilities

Currently, the Pump Station #1 site is already limited on available open spacing. The site, owned by the City of Josephine will have no additional room for future ground storage tanks after completion of the 0.5 MG GST under construction. Expansion of the site is limited as it is surrounded by residences. Acquiring the property just south of CR 543 could help increase capacity for the time being, but the buildout ground storage tanks required will not be able to fit at this site. As the city continues to grow, so will the required pumping capacity, this is summarized in **Table 19**.

Table 19 - Required Pump Capacity

Year	Total Capacity (gpm)	Required Capacity (gpm) ¹ *0.6 gpm per connection	Additional Required Capacity (gpm) ¹ *0.6 gpm per connection	Required Capacity (gpm) ² *2.0 gpm per connection	Additional Required Capacity (gpm) ² *2.0 gpm per connection
2023 (Existing)	4,200	1,609	-	5,362	1,162
2033 (10-Year)	12,000	7,178	-	23,927	11,927
2060 (Buildout)	32,000	19,631	-	65,438	33,438

¹ For systems which provide an elevated storage capacity of 200 gallons per connection, two service pumps with a minimum combined capacity of 0.6 gpm per connection are required at each pump station or pressure plane.

² If elevated storage capacity of 200 gallons per connection is not met, a total capacity of 2 gpm per connection is required. Additional details are discussed in Section 7.0.

To parallel the growth of the next 10 years, the City should have at least 4 MG of storage at Pump Station #1 by 2033. The recommended buildout scenario for the City of Josephine is the construction of one (1) pump station building at the PS#2 site with the capability to isolate and supply two pressure planes from one location. Two pump skids supplying two independent transmission mains to each pressure plane. Removing Pump Station #1 from the system will ultimately result in an easier and more efficient system for the City to maintain. This also minimizes the limitations of the existing pumping scenario described in the previous section (8.3). Before this proposed system operation can be executed, an analysis on the relocation of the NTMWD delivery point is required.

Table 20 summarizes the pumps required at build-out and what years they will be needed. **Table 21** has a similar summary for ground storage facilities required by build-out.

Table 20 – Build-out Pumping at Each Station

Phase #	Total Capacity (MGD)	Total Capacity (gpm)	Year to be Completed
Pump Station #1*			
Existing	1.73	1,200	-
Pump Station #2			
Existing	4.32	3,000	-
Phase 1	11.52	8,000	2028
Phase 2	13.68	9,500	2030
Phase 3	17.28	12,000	2033
Phase 4	38.88	27,000	2050
Phase 5	46.08	32,000	Buildout

**Pump Station #1 is recommended to be abandoned in place in 2028*

Table 21 – Build-out Ground Storage Facilities at Each Station

Phase #	Capacity (MG)	Year to be Completed
Pump Station #1		
Existing	0.2	-
In-Construction	0.5	2024
Pump Station #2		
Existing	0.5	-
Phase 1	4.0	2026
Phase 3	3.0	2032
Phase 4	4.0	2050
Phase 5	4.0	Buildout

9.4 Elevated Storage

A summary of elevated storage facilities in the build-out scenario for the City of Josephine is shown in **Table 22**. At build-out, the City of Josephine will need a total of at least 3.5 MG of elevated storage capacity. To reduce the amount of pumping required per connection, TCEQ's minimum design criteria calls for 100 gallons of elevated storage per connection. This requires the higher pumping requirement of meeting peak hour demands with firm pumping capacity.

Table 22 – Build-out Elevated Storage Facilities

Name	Capacity (MG)	Year Completed
Sebastian Lane	0.2	Existing
CR 1777	0.5	Existing
T-03	1.5	2026
T-04	2.0	2031

9.5 Total Storage

TCEQ does not have a specific requirement for ground storage, only that 200 gallons per connection of total storage should be supplied. Ground storage is important for providing emergency storage and provides a buffer between demand of the system and available supply water. Due to the importance of ground storage, it is a recommendation that 50% of max day demand be supplied in volume of ground storage. This is summarized in **Table 23**.

Table 23 – 50% of Max Day Demand

Year	50% of Max Day Demand (MG)	Total Ground Storage (MG)	Planned Infrastructure
2023	1.36	0.70	
2024	1.65	1.20	
2025	2.28	1.20	
2026	2.84	5.20	4 MG GST @ PS #2
2027	3.22	5.20	
2028	3.69	4.50	Abandon PS #1 GSTs
2029	4.17	4.50	
2030	4.59	4.50	
2031	5.01	4.50	
2032	5.40	7.50	3 MG GST @ PS #2
2033	5.75	7.50	
2040	7.40	7.50	
2050	10.68	11.50	4 MG GST @ PS #2
Build-out	15.25	15.50	4 MG GST @ PS #2

Combining this principle with the requirement of 200 gallons per connection elevated storage capacity, as described above, the total storage requirement, by TCEQ standards, is more than sufficiently met. **Table 24** summarizes the total storage provided until build-out in relation to the TCEQ requirement of 200 gallons per connection. As summarized in previous sections and in the 10-year CIP map shown in **Appendix D – 10-Year Capital Improvements Map**, in the next 10 years the City will need to install two elevated storage tanks for a total of 3.3 MG of additional elevated storage and four additional ground storage tanks for a total of 14.3 MG of additional ground storage. At build-out, the City of Josephine will have to provide a total of 19.50 MG of storage.

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Table 24 – Build-Out Total Storage Summary

Year	Total Number of Connections	TCEQ Required Storage (200 gallons/connection) (MG)	Ground Storage (MG)	Elevated Storage (MG)	Total Provided Storage (MG)
2023	2,681	0.54	0.70	0.70	1.4
2024	3,265	0.65	1.20	0.70	1.9
2025	4,593	0.92	1.20	0.70	1.9
2026	5,785	1.16	5.20	2.00	7.2
2027	6,570	1.31	5.20	2.00	7.2
2028	7,569	1.51	4.50	2.00	6.5
2029	8,568	1.71	4.50	2.00	6.5
2030	9,442	1.89	4.50	2.00	6.5
2031	10,316	2.06	4.50	4.00	8.5
2032	11,120	2.22	7.50	4.00	11.5
2033	11,850	2.37	7.50	4.00	11.5
2040	15,101	3.02	7.50	4.00	11.5
2050	22,411	4.48	11.50	4.00	15.5
Build-out	32,719	6.54	15.50	4.00	19.5

9.6 Transmission Lines

Transmission system sizes were determined to maintain a minimum pressure of 40 psi during normal operational conditions and a minimum of 20 psi during emergency conditions. The system has also been sized to limit maximum velocity to seven feet per second with a maximum pressure of 120 psi in emergency conditions. These requirements are to limit system maintenance costs. **Table 25** summarizes linear feet of additional water lines needed in the 10-year scenario.

Table 25 - Proposed City of Josephine 10-Year Water Lines

Size	Total Linear Feet
8"	50,802
12"	54,916
16"	12,520
24"	6,647
36"	22,959
Total:	147,844

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10 Capital Improvements Plan

From the creation of the water master plan, a list of recommended projects in the 10-year planning phase has been developed. Projects within both the 10-year and build-out lists may need to be accelerated based on future growth rates as well as future appetite for development in certain areas of the City. All 10-year improvements are shown in **Appendix D** and a detailed opinion of probable construction cost for each 10-year project is shown in **Appendix E – 10-Year Capital Improvements Opinion of Probable Construction Cost. Table 26** summarizes the 10-year capital improvement plan. The opinions of probable construction cost assume no design has been completed, are based on 2023 pricing, do not account for any inflation, and do not include any property acquisitions unless specifically noted.

10.1 10- Year Capital Improvements Plan Projects

Table 26 – 10-Year Capital Improvements Plan Summary

Project No.	Project Name	Project Cost	Market Scarcity Adjustment (1.5x)
1	EST Pressure Plane Study	\$70,000	\$105,000
2	PS #2 - 4 MG GST	\$6,940,000	\$10,410,000
3	T-03 - 1.5 MG EST	\$11,130,000	\$16,695,000
4	PS #2 - (2) 2,500 gpm Pumps	\$3,990,000	\$5,985,000
5	Water Master Plan Update Study	\$80,000	\$120,000
6	PS #2 - (1) 1,500 gpm Pump	\$500,000	\$750,000
7	T-04 - 2.0 MG EST	\$14,250,000	\$21,375,000
8	PS #2 - 3 MG GST	\$6,180,000	\$9,270,000
9	PS #2 - (1) 2,500 gpm Pump	\$540,000	\$810,000
10	Wildflower Outer Loop 12" Water Line	\$14,560,000	\$21,840,000
11	Wildflower 20" Water Line	\$3,890,000	\$5,835,000
12	Wildflower 16" Water Line	\$3,500,000	\$5,250,000
13	Wildflower 8" Water Line	\$2,620,000	\$3,930,000
14	Riverfield Outer Loop 12" Water Line	\$8,330,000	\$12,495,000
15	Riverfield 8" Water Line	\$2,530,000	\$3,795,000
16	Hunt County MUD No. 3 Outer Loop 12" Water Line	\$8,420,000	\$12,630,000
17	Hunt County MUD No. 3 8" Water Line	\$1,310,000	\$1,965,000
18	Waverly Estates 8" Water Line	\$3,690,000	\$5,535,000
19	Josephine 325 Outer Loop 8" Water Line	\$1,260,000	\$1,890,000
20	Future North EST 16" Water Line	\$1,250,000	\$1,875,000
21	Greenville St 12" Water Line	\$1,670,000	\$2,505,000
22	Cook St 16" Water Line	\$6,330,000	\$9,495,000
23	CR 2668 8"/12" Water Line	\$2,320,000	\$3,480,000
24	CR 596 36" Water Line	\$35,020,000	\$52,530,000
25	CR 596 12" Water Line	\$3,350,000	\$5,025,000
TOTAL		\$143,730,000	\$215,595,000

#1 – EST Pressure Plane Study

Project cost: \$105,000

Notes: This project consists of the planning and analysis necessary to determine the pressure plane split feasibility and proposed infrastructure changes necessary.

#2 – 4 MG GST at Pump Station #2

Project cost: \$10,410,000

Notes: This project consists of installing (1) 4 MG GST at the existing Pump Station #2.

#3 – T-03 – 1.50 MG EST

Project cost: \$16,695,000

Notes: This project consists of constructing one elevated storage tank within the water service area planning boundary to follow the recommendation of the EST pressure plane study.

#4 – (2) 2,500 gpm Pumps at Pump Station #2

Project cost: \$5,985,000

Notes: This project consists of installing (2) 2,500 gpm pumps at Pump Station #2 within a new pump station building. The future ground storage tanks shall be installed at grade allowing for horizontal end suction pumps to be utilized.

#5 – Water Master Plan Update Study

Project cost: \$120,000

Notes: This project consists of an update to the water master plan following an additional 5 years of growth to update population projections, water demands, and project planning.

#6 – (1) 1,500 gpm Pump at Pump Station #2

Project cost: \$750,000

Notes: This project consists of installing (1) 1,500 gpm pump at Pump Station #2.

#7 – T-03 – 2.00 MG EST

Project cost: \$21,375,000

Notes: This project consists of constructing one elevated storage tank within the water service area planning boundary to follow the recommendation of the EST pressure plane study.

#8 – 3 MG GST at Pump Station #2

Project cost: \$9,270,000

Notes: This project consists of installing (1) 3 MG GST at the existing Pump Station #2.

#9 – (1) 2,500 gpm Pump at Pump Station #2

Project cost: \$810,000

Notes: This project consists of installing (1) 2,500 gpm pump at Pump Station #2.

#10 – Wildflower Outer Loop 12" Water Line

Project cost: \$21,840,000

Notes: This project consists of approximately 20,969 linear feet of 12" water line around the Wildflower development.

#11 – Wildflower 20” Water Line

Project cost: \$5,835,000

Notes: This project consists of approximately 6,647 linear feet of 20” water line from the future North 1.5 MG EST to the Wildflower development.

#12 – Wildflower 16” Water Line

Project cost: \$5,250,000

Notes: This project consists of approximately 3,948 linear feet of 16” water line within the Wildflower development.

#13 – Wildflower 8” Water Line

Project cost: \$3,930,000

Notes: This project consists of approximately 4,028 linear feet of 8” water line within the Wildflower development.

#14 – Riverfield Outer Loop 12” Water Line

Project cost: \$12,495,000

Notes: This project consists of approximately 11,948 linear feet of 12” water line around the Riverfield development.

#15 – Riverfield 8” Water Line

Project cost: \$3,795,000

Notes: This project consists of approximately 3,901 linear feet of 8” water line within the Riverfield development.

#16 – Hunt County MUD No. 3 Outer Loop 12” Water Line

Project cost: \$12,630,000

Notes: This project consists of approximately 12,044 linear feet of 12” water line around the Hunt County MUD No. 3 development.

#17 – Hunt County MUD No. 3 8” Water Line

Project cost: \$1,965,000

Notes: This project consists of approximately 1,958 linear feet of 8” water line within the Hunt County MUD No. 3 development.

#18 – Waverly Estates 8” Water Line

Project cost: \$5,535,000

Notes: This project consists of approximately 5,766 linear feet of 8” water line around the Waverly Estates development.

#19 – Josephine 325 Outer Loop 8” Water Line

Project cost: \$1,890,000

Notes: This project consists of approximately 1,887 linear feet of 8” water line around the Josephine 325 development.

#20 – Future North EST 16” Water Line

Project cost: \$1,875,000

Notes: This project consists of approximately 1,334 linear feet of 16” water line to the future North 1.5 MG EST.

#21 – Greenville St 12” Water Line

Project cost: \$2,505,000

Notes: This project consists of approximately 2,285 linear feet of 12” water line along Greenville St.

#22 – Cook St 16” Water Line

Project cost: \$9,495,000

Notes: This project consists of approximately 7,238 linear feet of 16” water line along Cook St from CR 1777 EST to the Riverfield development.

#23 – CR 2668 8”/12” Water Line

Project cost: \$3,480,000

Notes: This project consists of approximately 870 linear feet of 8” & 2,964 linear feet of 12” water line along CR 2668.

#24 – CR 596 36” Water Line

Project cost: \$52,530,000

Notes: This project consists of approximately 22,959 linear feet of 36” water line along CR 596 between the Josephine NMTWD delivery site and Pump Station #2.

#25 – CR 596 12” Water Line

Project cost: \$5,025,000

Notes: This project consists of approximately 4,706 linear feet of 12” water line along CR 596 between Pump Station #2 and the Sebastian Lane EST.

11 Appendices

Appendix A – Existing Water System Map

Appendix B – Water Service Area Map

Appendix C – Elevated Storage Pressure Map

Appendix D – 10-Year Capital Improvements Map

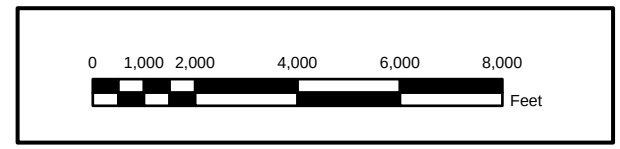
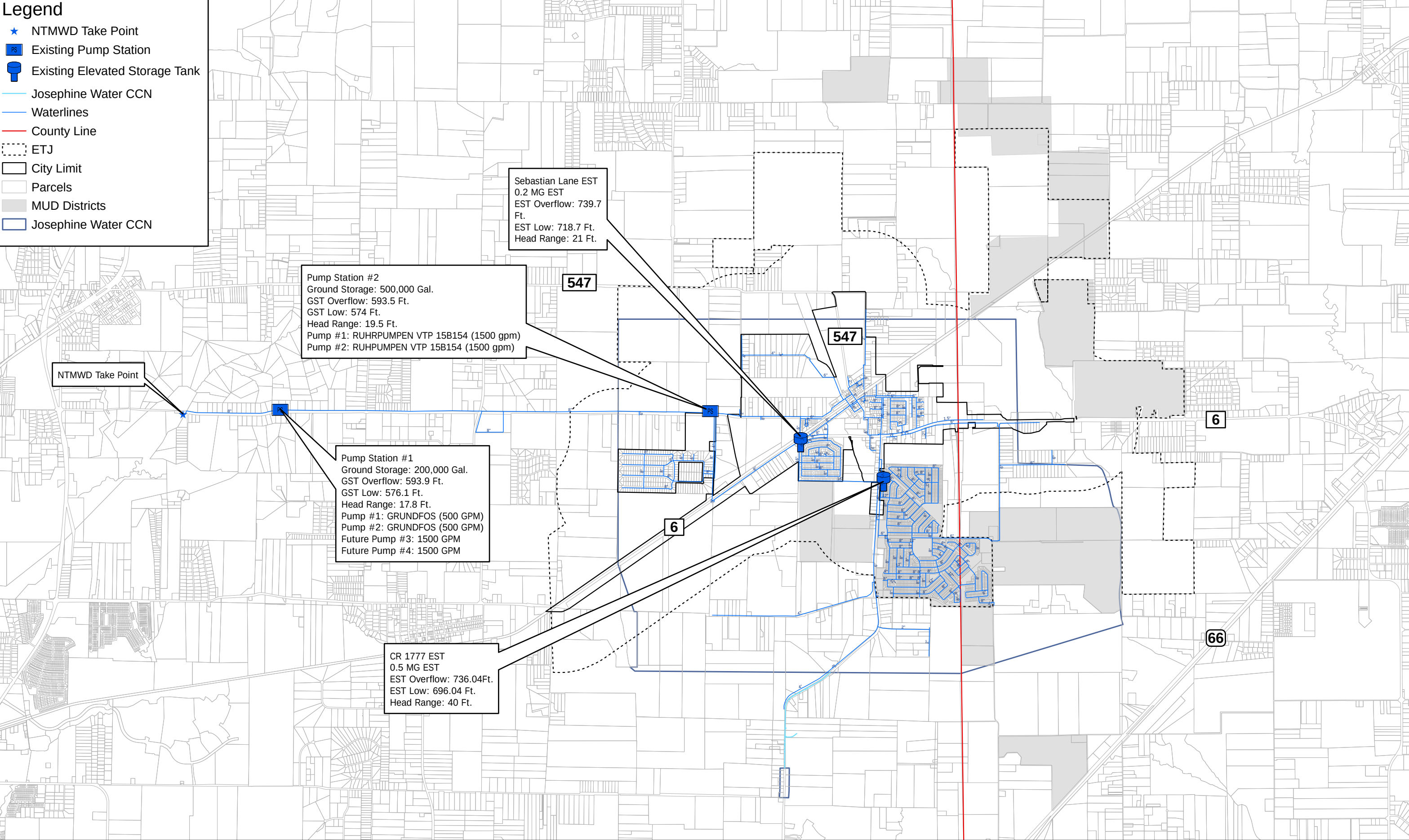
Appendix E – 10-Year Capital Improvements Opinion of Probable Construction Cost

Appendix F – DR Horton Takedown Schedule

Appendix G – City of Josephine Final Comprehensive Plan (July 2023)

Appendix A – Existing Water System Map

- Legend**
- ★ NTMWD Take Point
 - PS Existing Pump Station
 - Existing Elevated Storage Tank
 - Josephine Water CCN
 - Waterlines
 - County Line
 - ETJ
 - City Limit
 - Parcels
 - MUD Districts
 - Josephine Water CCN



EXISTING WATER SYSTEM



CITY OF JOSEPHINE
WATER MASTER PLAN

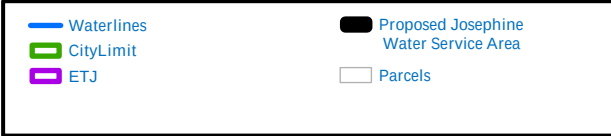
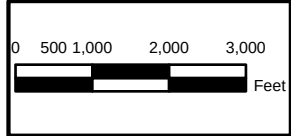
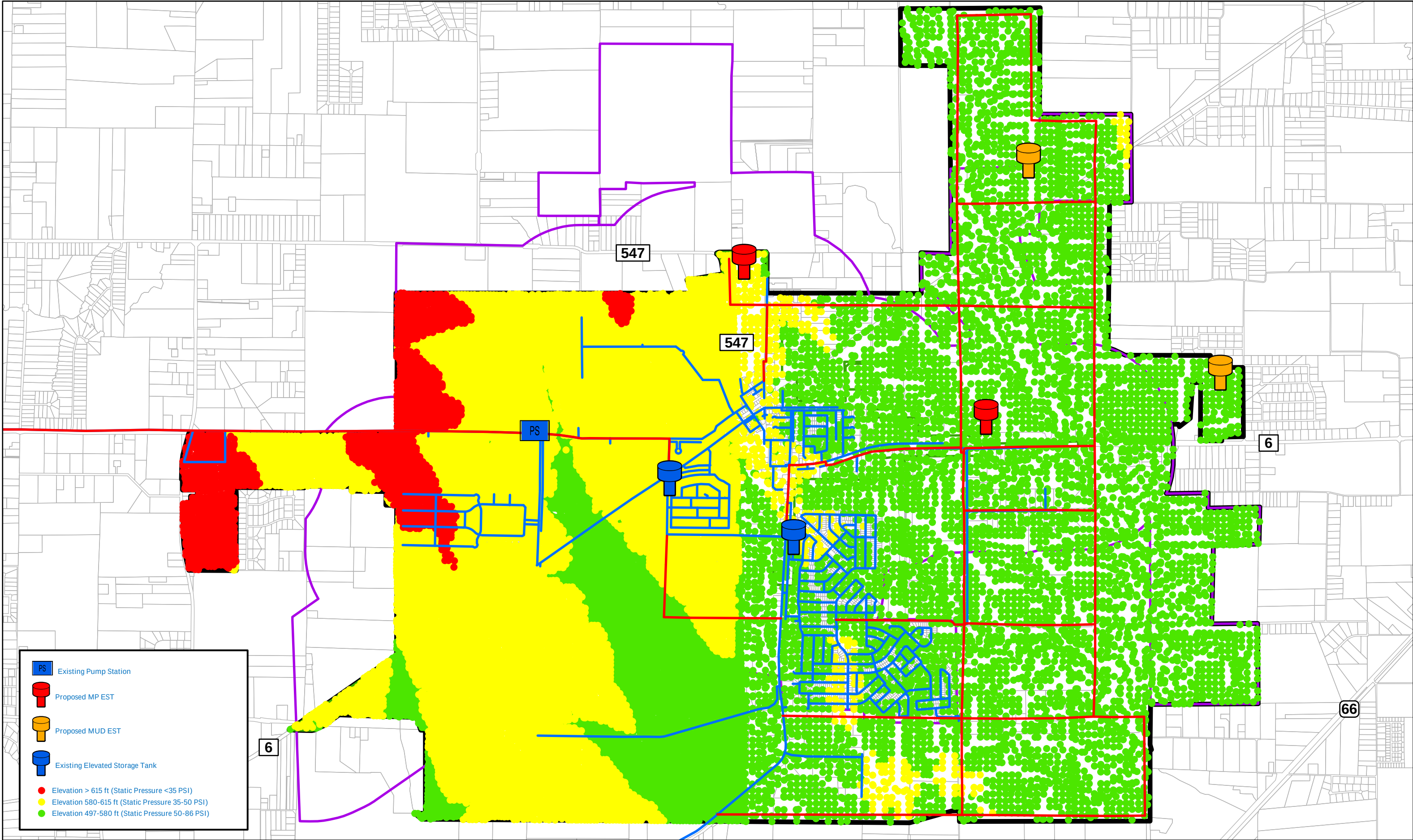
APPENDIX
A

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Appendix B – Water Service Area Map

Appendix C – Elevated Storage Pressure Map

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ELEVATED STORAGE PRESSURE MAP



CITY OF JOSEPHINE WATER MASTER PLAN

Appendix D – 10-Year Capital Improvements Map

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PUMP STATION 2 EXISTING:

- 0.5 MG GST
- (2) 1,500 GPM PUMPS

PROPOSED:

- 4 MG GST (2026)
- 3 MG GST (2032)
- (2) 2,2500 GPM PUMPS (2028)
- (1) 1,500 GPM PUMP (2030)
- (1) 2,500 GPM PUMP (2033)

PUMP STATION 1 (PLANNED ABANDONMENT 2028)
EXISTING:

- 0.2 MG GST
- 0.5 MG GST
- (2) 600 GPM PUMPS

- PROJECT LIST KEY
- 001 - EST Pressure Plane Study

002 - Pump Station #2 4 MG GST

003 - T-03 - 1.5 MG EST

004 - Pump Station #2 (2) 2,500 gpm Pumps

005 - Water Master Plan Study Update

006 - Pump Station #2 (1) 1,500 gpm Pumps

007 - T-04 0 2.0 MG EST

008 - Pump Station #2 3 MG GST

009 - Pump Station #2 (1) 2,500 gpm Pumps

010 - Wildflower Outer Loop 12" Water Line

011 - Wildflower 20" Water Line

012 - Wildflower 16" Water Line

013 - Wildflower 8" Water Line

014 - Riverfield Outer Loop 12" Water Line

015 - Riverfield 8" Water Line

016 - Hunt County MUD No. 3 12" Water Lines

017 - Hunt County MUD No. 3 8" Water Lines

018 - Waverly Estates 8" Water Line

019 - Josephine 325 Outer Loop 8" Water Line

020 - Future North EST 16" Water Line

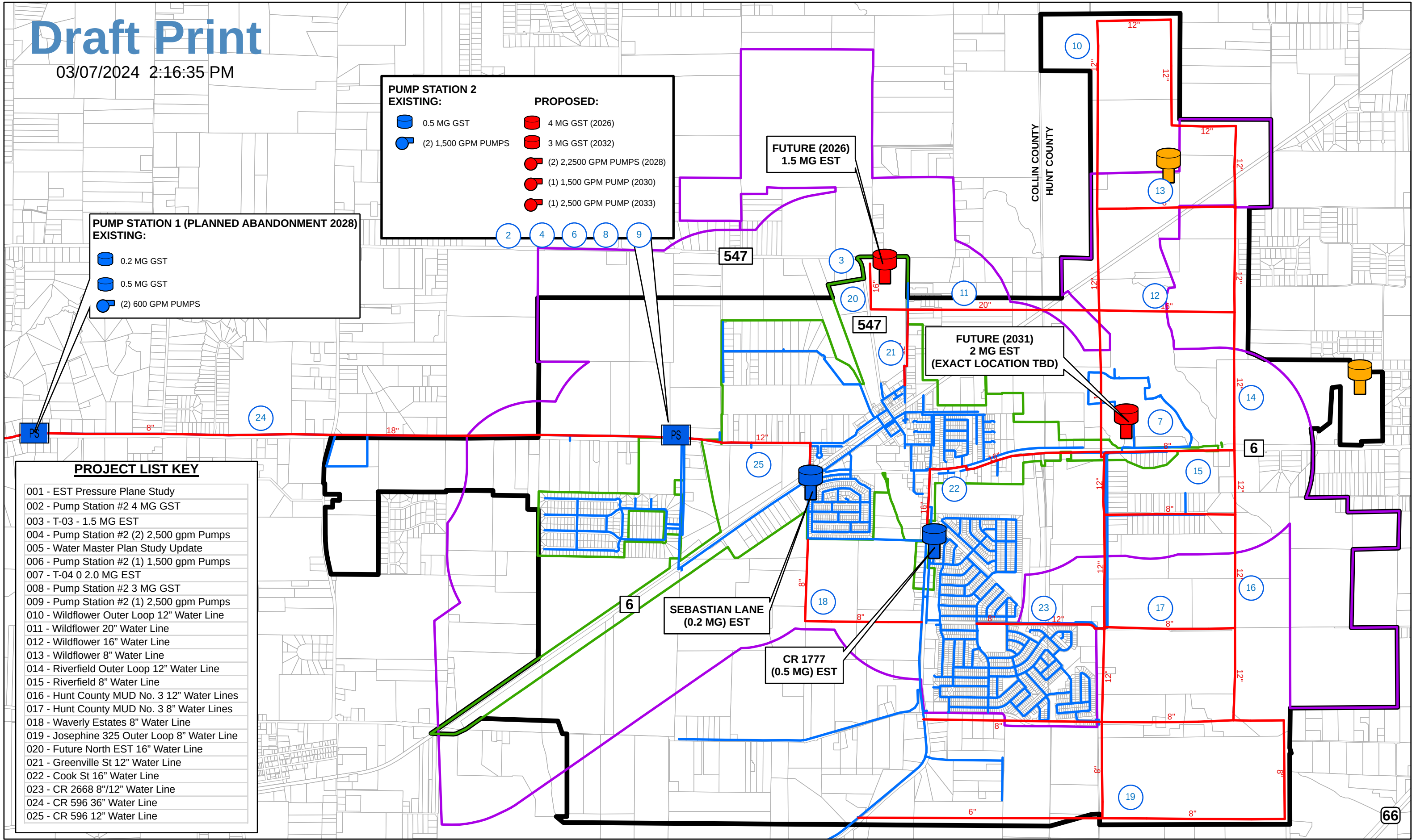
021 - Greenville St 12" Water Line

022 - Cook St 16" Water Line

023 - CR 2668 8"/12" Water Line

024 - CR 596 36" Water Line

025 - CR 596 12" Water Line



N

0 500 1,000 2,000 3,000 Feet

10YR Proposed Water Lines

Waterlines

CityLimit

ETJ

Proposed Josephine Water Service Area

Parcels

10-YEAR CIP PLAN



CITY OF JOSEPHINE WATER MASTER PLAN

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**Appendix E – 10-Year Capital Improvements
Opinion of Probable Construction Cost**

Client: City of Josephine	Date: 1/26/2024
Project: City of Josephine Water Master Plan	Prepared By: MWG
KHA No.: 064611415	Checked By: HMM

Title: 002 - Pump Station #2 4 MG GST

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 140,000	\$ 140,000
2	4.0 Million Gallon Type III Concrete GST	1	LS	\$ 4,000,000	\$ 4,000,000
3	Mixer	1	LS	\$ 50,000	\$ 50,000
4	Tank Excavation and Subgrade Prep	1	LS	\$ 200,000	\$ 200,000
5	Stabilization of Tank Construction Area	1	LS	\$ 90,000	\$ 90,000
6	Yard Piping	1	LS	\$ 200,000	\$ 200,000
7	Site Paving	1	LS	\$ 100,000	\$ 100,000
8	Erosion Control	1	LS	\$ 5,000	\$ 5,000
9	Site Grading	1	LS	\$ 20,000	\$ 20,000
Basis for Cost Projection:		Subtotal:			\$ 4,810,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 970,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 1,160,000
☐	Final Design	Total:			\$ 6,940,000

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Client: City of Josephine	Date: 1/26/2024
Project: City of Josephine Water Master Plan	Prepared By: MWG
KHA No.: 064611415	Checked By: HMM

Title: 003 - T-03 - 1.5 MG EST

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 225,000	\$ 225,000
2	1.5 Million Gallon Composite Elevated Water Storage Tank	1	LS	\$ 6,000,000	\$ 6,000,000
3	Yard Piping	1	LS	\$ 200,000	\$ 200,000
4	Inlet/Outlet Control Valve & Bypass	1	LS	\$ 80,000	\$ 80,000
5	Washdown Riser Piping	1	LS	\$ 20,000	\$ 20,000
6	Water Quality Sampling Piping & Equipment	1	LS	\$ 30,000	\$ 30,000
7	Pedestal Cable Hoist Equipment	1	LS	\$ 5,000	\$ 5,000
8	Site Grading	1	LS	\$ 20,000	\$ 20,000
9	Site Paving	1	LS	\$ 100,000	\$ 100,000
10	Motorized Gate	1	LS	\$ 20,000	\$ 20,000
11	Electrical and SCADA	1	LS	\$ 200,000	\$ 200,000
12	Generator	1	LS	\$ 100,000	\$ 100,000
13	Antenna Provisions (Roof & Pedestal Mounted)	1	LS	\$ 50,000	\$ 50,000
14	Security & Surveillance	1	LS	\$ 75,000	\$ 75,000
15	Site Lighting	1	LS	\$ 25,000	\$ 25,000
16	Tank Mixer	1	LS	\$ 50,000	\$ 50,000
17	Ornamental Fencing	1	LS	\$ 150,000	\$ 150,000
18	Landscape & Irrigation	1	LS	\$ 100,000	\$ 100,000
19	City of Josephine Tank Logos	1	LS	\$ 50,000	\$ 50,000
20	Future Telecommunication Site Provisions	1	LS	\$ 20,000	\$ 20,000
21	Cathodic Protection	1	LS	\$ 25,000	\$ 25,000
22	Erosion Control	1	LS	\$ 20,000	\$ 20,000
23	16" PVC (C900 DR 18) Water Line	250	LF	\$ 230	\$ 57,500
24	16" Gate Valve	3	EA	\$ 15,000	\$ 45,000
25	Fire Hydrant Assembly	1	EA	\$ 8,000	\$ 8,000
26	SWPPP	1	LS	\$ 20,000	\$ 20,000
27	Block Sod, Fertilization, & Site Restoration	250	LF	\$ 10	\$ 2,500
28	Traffic Control	1	LS	\$ 20,000	\$ 20,000
29	Trench Safety	250	LF	\$ 3	\$ 750
30	Hydrostatic Test and Disinfection	250	LF	\$ 4	\$ 1,000
Basis for Cost Projection:		Subtotal:			\$ 7,720,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 1,550,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 1,860,000
☐	Final Design	Total:			\$ 11,130,000

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Client:	City of Josephine	Date:	1/26/2024
Project:	City of Josephine Water Master Plan	Prepared By:	MWG
KHA No.:	064611415	Checked By:	HMM

Title: 004 - Pump Station #2 (2) 2,500 gpm Pumps

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 81,000	\$ 81,000
2	2,500 GPM Horizontal Split Case Pumps	2	EA	\$ 100,000	\$ 200,000
3	Yard Piping and Valves	1	LS	\$ 200,000	\$ 200,000
4	Split Faced CMU Building	1	LS	\$ 950,000	\$ 950,000
5	Monorail Crane System	1	LS	\$ 100,000	\$ 100,000
6	Site Grading	1	LS	\$ 50,000	\$ 50,000
7	Site Paving	1	LS	\$ 150,000	\$ 150,000
8	Mororized Gate	1	LS	\$ 20,000	\$ 20,000
9	Electrical and SCADA	1	LS	\$ 500,000	\$ 500,000
10	Generator	1	LS	\$ 500,000	\$ 500,000
11	Site Restoration	1	LS	\$ 10,000	\$ 10,000
Basis for Cost Projection:		Subtotal:			\$ 2,760,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 560,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 670,000
☐	Final Design	Total:			\$ 3,990,000

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Client:	City of Josephine	Date:	1/26/2024
Project:	City of Josephine Water Master Plan	Prepared By:	MWG
KHA No.:	064611415	Checked By:	HMM

Title:	005 - Water Master Plan Study Update
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Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Water Master Plan Study Update	1	LS	\$ 80,000	\$ 80,000
Basis for Cost Projection:		Total:			\$ 80,000

- ☒ No Design Completed
☐ Preliminary Design
☐ Final Design

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Client:	City of Josephine	Date:	1/26/2024
Project:	City of Josephine Water Master Plan	Prepared By:	MWG
KHA No.:	064611415	Checked By:	HMM

Title: 006 - Pump Station #2 (1) 1,500 gpm Pump

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 10,000	\$ 10,000
2	1,500 GPM Horizontal Split Case Pumps	1	EA	\$ 75,000	\$ 75,000
3	Piping and Valves	1	LS	\$ 100,000	\$ 100,000
4	Electrical and SCADA	1	LS	\$ 150,000	\$ 150,000
Basis for Cost Projection:		Subtotal:			\$ 340,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 70,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 90,000
☐	Final Design	Total:			\$ 500,000

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Client: City of Josephine	Date: 1/26/2024
Project: City of Josephine Water Master Plan	Prepared By: MWG
KHA No.: 064611415	Checked By: HMM

Title: 007 - T-04 0 2.0 MG EST

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 288,000	\$ 288,000
2	2 Million Gallon Composite Elevated Water Storage Tank	1	LS	\$ 8,100,000	\$ 8,100,000
3	Yard Piping	1	LS	\$ 200,000	\$ 200,000
4	Inlet/Outlet Control Valve & Bypass	1	LS	\$ 80,000	\$ 80,000
5	Washdown Riser Piping	1	LS	\$ 20,000	\$ 20,000
6	Water Quality Sampling Piping & Equipment	1	LS	\$ 30,000	\$ 30,000
7	Pedestal Cable Hoist Equipment	1	LS	\$ 5,000	\$ 5,000
8	Site Grading	1	LS	\$ 20,000	\$ 20,000
9	Site Paving	1	LS	\$ 100,000	\$ 100,000
10	Motorized Gate	1	LS	\$ 20,000	\$ 20,000
11	Electrical and SCADA	1	LS	\$ 200,000	\$ 200,000
12	Generator	1	LS	\$ 100,000	\$ 100,000
13	Antenna Provisions (Roof & Pedestal Mounted)	1	LS	\$ 50,000	\$ 50,000
14	Security & Surveillance	1	LS	\$ 75,000	\$ 75,000
15	Site Lighting	1	LS	\$ 25,000	\$ 25,000
16	Tank Mixer	1	LS	\$ 50,000	\$ 50,000
17	Ornamental Fencing	1	LS	\$ 150,000	\$ 150,000
18	Landscape & Irrigation	1	LS	\$ 100,000	\$ 100,000
19	City of Josephine Tank Logos	1	LS	\$ 50,000	\$ 50,000
20	Future Telecommunication Site Provisions	1	LS	\$ 20,000	\$ 20,000
21	Cathodic Protection	1	LS	\$ 25,000	\$ 25,000
22	Erosion Control	1	LS	\$ 20,000	\$ 20,000
23	16" PVC (C900 DR 18) Water Line	250	LF	\$ 230	\$ 57,500
24	16" Gate Valve	3	EA	\$ 15,000	\$ 45,000
25	Fire Hydrant Assembly	1	EA	\$ 8,000	\$ 8,000
26	SWPPP	1	LS	\$ 20,000	\$ 20,000
27	Block Sod, Fertilization, & Site Restoration	250	LF	\$ 10	\$ 2,500
28	Traffic Control	1	LS	\$ 20,000	\$ 20,000
29	Trench Safety	250	LF	\$ 3	\$ 750
30	Hydrostatic Test and Disinfection	250	LF	\$ 4	\$ 1,000
Basis for Cost Projection:		Subtotal:			\$ 9,890,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 1,980,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 2,380,000
☐	Final Design	Total:			\$ 14,250,000

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Client: City of Josephine	Date: 1/26/2024
Project: City of Josephine Water Master Plan	Prepared By: MWG
KHA No.: 064611415	Checked By: HMM

Title: 008 - Pump Station #2 3 MG GST

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 125,000	\$ 125,000
2	3.0 Million Gallon Type III Concrete GST	1	LS	\$ 3,500,000	\$ 3,500,000
3	Mixer	1	LS	\$ 50,000	\$ 50,000
4	Tank Excavation and Subgrade Prep	1	LS	\$ 200,000	\$ 200,000
5	Stabilization of Tank Construction Area	1	LS	\$ 90,000	\$ 90,000
6	Yard Piping	1	LS	\$ 200,000	\$ 200,000
7	Site Paving	1	LS	\$ 100,000	\$ 100,000
8	Erosion Control	1	LS	\$ 5,000	\$ 5,000
9	Site Grading	1	LS	\$ 20,000	\$ 20,000
Basis for Cost Projection:		Subtotal:			\$ 4,290,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 860,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 1,030,000
☐	Final Design	Total:			\$ 6,180,000

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Client:	City of Josephine	Date:	1/26/2024
Project:	City of Josephine Water Master Plan	Prepared By:	MWG
KHA No.:	064611415	Checked By:	HMM

Title: 009 - Pump Station #2 (1) 2,500 gpm Pump

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 11,000	\$ 11,000
2	2,500 GPM Horizontal Split Case Pumps	1	EA	\$ 100,000	\$ 100,000
3	Piping and Valves	1	LS	\$ 100,000	\$ 100,000
4	Electrical and SCADA	1	LS	\$ 150,000	\$ 150,000
Basis for Cost Projection:		Subtotal:			\$ 370,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 80,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 90,000
☐	Final Design	Total:			\$ 540,000

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Client: City of Josephine	Date: 1/26/2024
Project: City of Josephine Water Master Plan	Prepared By: MWG
KHA No.: 064611415	Checked By: HMM

Title: 010 - Wildflower Outer Loop 12" Water Line

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 142,000	\$ 142,000
2	12" PVC (C900 DR 18) Water Line	20,969	LF	\$ 150	\$ 3,145,350
3	12" Gate Valve	105	EA	\$ 8,000	\$ 840,000
4	Fire Hydrant Assembly	42	EA	\$ 8,000	\$ 336,000
5	SWPPP	1	LS	\$ 20,000	\$ 20,000
6	Block Sod, Fertilization, & Site Restoration	20,969	LF	\$ 10	\$ 209,690
7	Traffic Control	1	LS	\$ 20,000	\$ 20,000
8	Trench Safety	20,969	LF	\$ 3	\$ 62,907
9	Hydrostatic Test and Disinfection	20,969	LF	\$ 4	\$ 83,876
Basis for Cost Projection:		Subtotal:			\$ 4,860,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 980,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 1,170,000
☐	Final Design	Easement Acquisition (\$/SF) 12			\$ 7,550,000
		Total:			\$ 14,560,000

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Client:	City of Josephine	Date:	1/26/2024
Project:	City of Josephine Water Master Plan	Prepared By:	MWG
KHA No.:	064611415	Checked By:	HMM

Title: 011 - Wildflower 20" Water Line

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 79,000	\$ 79,000
2	20" PVC (C900 DR 18) Water Line	6,647	LF	\$ 270	\$ 1,794,690
3	20" Butterfly Valve	34	EA	\$ 16,500	\$ 561,000
4	Fire Hydrant Assembly	14	EA	\$ 8,000	\$ 112,000
5	SWPPP	1	LS	\$ 20,000	\$ 20,000
6	Block Sod, Fertilization, & Site Restoration	6,647	LF	\$ 10	\$ 66,470
7	Traffic Control	1	LS	\$ 20,000	\$ 20,000
8	Trench Safety	6,647	LF	\$ 3	\$ 19,941
9	Hydrostatic Test and Disinfection	6,647	LF	\$ 4	\$ 26,588
Basis for Cost Projection:		Subtotal:			\$ 2,700,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 540,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 650,000
☐	Final Design	Total:			\$ 3,890,000

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Client:	City of Josephine	Date:	1/26/2024
Project:	City of Josephine Water Master Plan	Prepared By:	MWG
KHA No.:	064611415	Checked By:	HMM

Title: 012 - Wildflower 16" Water Line

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 42,000	\$ 42,000
2	16" PVC (C900 DR 18) Water Line	3,948	LF	\$ 230	\$ 908,040
3	16" Gate Valve	20	EA	\$ 15,000	\$ 300,000
4	Fire Hydrant Assembly	8	EA	\$ 8,000	\$ 64,000
5	SWPPP	1	LS	\$ 20,000	\$ 20,000
6	Block Sod, Fertilization, & Site Restoration	3,948	LF	\$ 10	\$ 39,480
7	Traffic Control	1	LS	\$ 20,000	\$ 20,000
8	Trench Safety	3,948	LF	\$ 3	\$ 11,844
9	Hydrostatic Test and Disinfection	3,948	LF	\$ 4	\$ 15,792
Basis for Cost Projection:		Subtotal:			\$ 1,430,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 290,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 350,000
☐	Final Design	Easement Acquisition (\$/SF) 12			\$ 1,430,000
		Total:			\$ 3,500,000

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Client: City of Josephine	Date: 1/26/2024
Project: City of Josephine Water Master Plan	Prepared By: MWG
KHA No.: 064611415	Checked By: HMM

Title: 013 - Wildflower 8" Water Line

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 24,000	\$ 24,000
2	8" PVC (C900 DR 18) Water Line	4,028	LF	\$ 120	\$ 483,360
3	8" Gate Valve	21	EA	\$ 5,000	\$ 105,000
4	Fire Hydrant Assembly	9	EA	\$ 8,000	\$ 72,000
5	SWPPP	1	LS	\$ 20,000	\$ 20,000
6	Block Sod, Fertilization, & Site Restoration	4,028	LF	\$ 10	\$ 40,280
7	Traffic Control	1	LS	\$ 20,000	\$ 20,000
8	Trench Safety	4,028	LF	\$ 3	\$ 12,084
9	Hydrostatic Test and Disinfection	4,028	LF	\$ 4	\$ 16,112
Basis for Cost Projection:		Subtotal:			\$ 800,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 160,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 200,000
☐	Final Design	Easement Acquisition (\$/SF) 12			\$ 1,460,000
		Total:			\$ 2,620,000

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Client:	City of Josephine	Date:	1/26/2024
Project:	City of Josephine Water Master Plan	Prepared By:	MWG
KHA No.:	064611415	Checked By:	HMM

Title: 014 - Riverfield Outer Loop 12" Water Line

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 82,000	\$ 82,000
2	12" PVC (C900 DR 18) Water Line	11,948	LF	\$ 150	\$ 1,792,200
3	12" Gate Valve	60	EA	\$ 8,000	\$ 480,000
4	Fire Hydrant Assembly	24	EA	\$ 8,000	\$ 192,000
5	SWPPP	1	LS	\$ 20,000	\$ 20,000
6	Block Sod, Fertilization, & Site Restoration	11,948	LF	\$ 10	\$ 119,480
7	Traffic Control	1	LS	\$ 20,000	\$ 20,000
8	Trench Safety	11,948	LF	\$ 3	\$ 35,844
9	Hydrostatic Test and Disinfection	11,948	LF	\$ 4	\$ 47,792
Basis for Cost Projection:		Subtotal:			\$ 2,790,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 560,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 670,000
☐	Final Design	Easement Acquisition (\$/SF) 12			\$ 4,310,000
		Total:			\$ 8,330,000

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Client: City of Josephine	Date: 1/26/2024
Project: City of Josephine Water Master Plan	Prepared By: MWG
KHA No.: 064611415	Checked By: HMM

Title: 015 - Riverfield 8" Water Line

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 23,000	\$ 23,000
2	8" PVC (C900 DR 18) Water Line	3,901	LF	\$ 120	\$ 468,120
3	8" Gate Valve	20	EA	\$ 5,000	\$ 100,000
4	Fire Hydrant Assembly	8	EA	\$ 8,000	\$ 64,000
5	SWPPP	1	LS	\$ 20,000	\$ 20,000
6	Block Sod, Fertilization, & Site Restoration	3,901	LF	\$ 10	\$ 39,010
7	Traffic Control	1	LS	\$ 20,000	\$ 20,000
8	Trench Safety	3,901	LF	\$ 3	\$ 11,703
9	Hydrostatic Test and Disinfection	3,901	LF	\$ 4	\$ 15,604
Basis for Cost Projection:		Subtotal:			\$ 770,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 160,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 190,000
☐	Final Design	Easement Acquisition (\$/SF) 12			\$ 1,410,000
		Total:			\$ 2,530,000

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable construction costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

Client: City of Josephine	Date: 1/26/2024
Project: City of Josephine Water Master Plan	Prepared By: MWG
KHA No.: 064611415	Checked By: HMM

Title: 016 - Hunt County MUD No. 3 12" Water Lines

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 83,000	\$ 83,000
2	12" PVC (C900 DR 18) Water Line	12,044	LF	\$ 150	\$ 1,806,600
3	12" Gate Valve	61	EA	\$ 8,000	\$ 488,000
4	Fire Hydrant Assembly	25	EA	\$ 8,000	\$ 200,000
5	SWPPP	1	LS	\$ 20,000	\$ 20,000
6	Block Sod, Fertilization, & Site Restoration	12,044	LF	\$ 10	\$ 120,440
7	Traffic Control	1	LS	\$ 20,000	\$ 20,000
8	Trench Safety	12,044	LF	\$ 3	\$ 36,132
9	Hydrostatic Test and Disinfection	12,044	LF	\$ 4	\$ 48,176
Basis for Cost Projection:		Subtotal:			\$ 2,830,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 570,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 680,000
☐	Final Design	Easement Acquisition (\$/SF) 12			\$ 4,340,000
		Total:			\$ 8,420,000

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable construction costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

Client: City of Josephine	Date: 1/26/2024
Project: City of Josephine Water Master Plan	Prepared By: MWG
KHA No.: 064611415	Checked By: HMM

Title: 017 - Hunt County MUD No. 3 8" Water Lines

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 12,000	\$ 12,000
2	8" PVC (C900 DR 18) Water Line	1,958	LF	\$ 120	\$ 234,960
3	8" Gate Valve	10	EA	\$ 5,000	\$ 50,000
4	Fire Hydrant Assembly	4	EA	\$ 8,000	\$ 32,000
5	SWPPP	1	LS	\$ 20,000	\$ 20,000
6	Block Sod, Fertilization, & Site Restoration	1,958	LF	\$ 10	\$ 19,580
7	Traffic Control	1	LS	\$ 20,000	\$ 20,000
8	Trench Safety	1,958	LF	\$ 3	\$ 5,874
9	Hydrostatic Test and Disinfection	1,958	LF	\$ 4	\$ 7,832
Basis for Cost Projection:		Subtotal:			\$ 410,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 90,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 100,000
☐	Final Design	Easement Acquisition (\$/SF) 12			\$ 710,000
		Total:			\$ 1,310,000

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable construction costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

Client: City of Josephine	Date: 1/26/2024
Project: City of Josephine Water Master Plan	Prepared By: MWG
KHA No.: 064611415	Checked By: HMM

Title: 018 - Waverly Estates 8" Water Line

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 33,000	\$ 33,000
2	8" PVC (C900 DR 18) Water Line	5,766	LF	\$ 120	\$ 691,920
3	8" Gate Valve	29	EA	\$ 5,000	\$ 145,000
4	Fire Hydrant Assembly	12	EA	\$ 8,000	\$ 96,000
5	SWPPP	1	LS	\$ 20,000	\$ 20,000
6	Block Sod, Fertilization, & Site Restoration	5,766	LF	\$ 10	\$ 57,660
7	Traffic Control	1	LS	\$ 20,000	\$ 20,000
8	Trench Safety	5,766	LF	\$ 3	\$ 17,298
9	Hydrostatic Test and Disinfection	5,766	LF	\$ 4	\$ 23,064
Basis for Cost Projection:		Subtotal:			\$ 1,110,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 230,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 270,000
☐	Final Design	Easement Acquisition (\$/SF) 12			\$ 2,080,000
		Total:			\$ 3,690,000

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Client: City of Josephine	Date: 1/26/2024
Project: City of Josephine Water Master Plan	Prepared By: MWG
KHA No.: 064611415	Checked By: HMM

Title: 019 - Josephine 325 Outer Loop 8" Water Line

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 12,000	\$ 12,000
2	8" PVC (C900 DR 18) Water Line	1,887	LF	\$ 120	\$ 226,440
3	8" Gate Valve	10	EA	\$ 5,000	\$ 50,000
4	Fire Hydrant Assembly	4	EA	\$ 8,000	\$ 32,000
5	SWPPP	1	LS	\$ 20,000	\$ 20,000
6	Block Sod, Fertilization, & Site Restoration	1,887	LF	\$ 10	\$ 18,870
7	Traffic Control	1	LS	\$ 20,000	\$ 20,000
8	Trench Safety	1,887	LF	\$ 3	\$ 5,661
9	Hydrostatic Test and Disinfection	1,887	LF	\$ 4	\$ 7,548
Basis for Cost Projection:		Subtotal:			\$ 400,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 80,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 100,000
☐	Final Design	Easement Acquisition (\$/SF) 12			\$ 680,000
		Total:			\$ 1,260,000

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Client:	City of Josephine	Date:	1/26/2024
Project:	City of Josephine Water Master Plan	Prepared By:	MWG
KHA No.:	064611415	Checked By:	HMM

Title: 020 - Future North EST 16" Water Line

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 15,000	\$ 15,000
2	16" PVC (C900 DR 18) Water Line	1,334	LF	\$ 230	\$ 306,820
3	16" Gate Valve	7	EA	\$ 15,000	\$ 105,000
4	Fire Hydrant Assembly	3	EA	\$ 8,000	\$ 24,000
5	SWPPP	1	LS	\$ 20,000	\$ 20,000
6	Block Sod, Fertilization, & Site Restoration	1,334	LF	\$ 10	\$ 13,340
7	Traffic Control	1	LS	\$ 20,000	\$ 20,000
8	Trench Safety	1,334	LF	\$ 3	\$ 4,002
9	Hydrostatic Test and Disinfection	1,334	LF	\$ 4	\$ 5,336
Basis for Cost Projection:		Subtotal:			\$ 520,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 110,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 130,000
☐	Final Design	Easement Acquisition (\$/SF) 12			\$ 490,000
		Total:			\$ 1,250,000

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Client: City of Josephine	Date: 1/26/2024
Project: City of Josephine Water Master Plan	Prepared By: MWG
KHA No.: 064611415	Checked By: HMM

Title: 021 - Greenville St 12" Water Line

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 17,000	\$ 17,000
2	12" PVC (C900 DR 18) Water Line	2,285	LF	\$ 150	\$ 342,750
3	12" Gate Valve	12	EA	\$ 8,000	\$ 96,000
4	Fire Hydrant Assembly	5	EA	\$ 8,000	\$ 40,000
5	SWPPP	1	LS	\$ 20,000	\$ 20,000
6	Block Sod, Fertilization, & Site Restoration	2,285	LF	\$ 10	\$ 22,850
7	Traffic Control	1	LS	\$ 20,000	\$ 20,000
8	Trench Safety	2,285	LF	\$ 3	\$ 6,855
9	Hydrostatic Test and Disinfection	2,285	LF	\$ 4	\$ 9,140
Basis for Cost Projection:		Subtotal:			\$ 580,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 120,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 140,000
☐	Final Design	Easement Acquisition (\$/SF) 12			\$ 830,000
		Total:			\$ 1,670,000

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Client:	City of Josephine	Date:	1/26/2024
Project:	City of Josephine Water Master Plan	Prepared By:	MWG
KHA No.:	064611415	Checked By:	HMM

Title: 022 - Cook St 16" Water Line

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 76,000	\$ 76,000
2	16" PVC (C900 DR 18) Water Line	7,238	LF	\$ 230	\$ 1,664,740
3	16" Gate Valve	37	EA	\$ 15,000	\$ 555,000
4	Fire Hydrant Assembly	15	EA	\$ 8,000	\$ 120,000
5	SWPPP	1	LS	\$ 20,000	\$ 20,000
6	Block Sod, Fertilization, & Site Restoration	7,238	LF	\$ 10	\$ 72,380
7	Traffic Control	1	LS	\$ 20,000	\$ 20,000
8	Trench Safety	7,238	LF	\$ 3	\$ 21,714
9	Hydrostatic Test and Disinfection	7,238	LF	\$ 4	\$ 28,952
Basis for Cost Projection:		Subtotal:			\$ 2,580,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 520,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 620,000
☐	Final Design	Easement Acquisition (\$/SF) 12			\$ 2,610,000
		Total:			\$ 6,330,000

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Client: City of Josephine	Date: 1/26/2024
Project: City of Josephine Water Master Plan	Prepared By: MWG
KHA No.: 064611415	Checked By: HMM

Title: 023 - CR 2668 8"/12" Water Line

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 25,000	\$ 25,000
2	8" PVC (C900 DR 18) Water Line	870	LF	\$ 120	\$ 104,400
3	8" Gate Valve	5	EA	\$ 5,000	\$ 25,000
4	12" PVC (C900 DR 18) Water Line	2,964	LF	\$ 150	\$ 444,600
5	12" Gate Valve	15	EA	\$ 8,000	\$ 120,000
6	Fire Hydrant Assembly	6	EA	\$ 8,000	\$ 48,000
7	SWPPP	1	LS	\$ 20,000	\$ 20,000
8	Block Sod, Fertilization, & Site Restoration	2,964	LF	\$ 10	\$ 29,640
9	Traffic Control	1	LS	\$ 20,000	\$ 20,000
10	Trench Safety	2,964	LF	\$ 3	\$ 8,892
11	Hydrostatic Test and Disinfection	2,964	LF	\$ 4	\$ 11,856
Basis for Cost Projection:		Subtotal:			\$ 860,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 180,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 210,000
☐	Final Design	Easement Acquisition (\$/SF) 12			\$ 1,070,000
		Total:			\$ 2,320,000

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable construction costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

Client:	City of Josephine	Date:	1/26/2024
Project:	City of Josephine Water Master Plan	Prepared By:	MWG
KHA No.:	064611415	Checked By:	HMM

Title: 024 - CR 596 36" Water Line

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 541,000	\$ 541,000
2	36" PVC (C900 DR 18) Water Line	22,959	LF	\$ 500	\$ 11,479,500
3	36" Butterfly Valve	115	EA	\$ 50,000	\$ 5,750,000
4	Fire Hydrant Assembly	46	EA	\$ 8,000	\$ 368,000
5	SWPPP	1	LS	\$ 20,000	\$ 20,000
6	Block Sod, Fertilization, & Site Restoration	22,959	LF	\$ 10	\$ 229,590
7	Traffic Control	1	LS	\$ 20,000	\$ 20,000
8	Trench Safety	22,959	LF	\$ 3	\$ 68,877
9	Hydrostatic Test and Disinfection	22,959	LF	\$ 4	\$ 91,836
Basis for Cost Projection:		Subtotal:			\$ 18,570,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 3,720,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 4,460,000
☐	Final Design	Easement Acquisition (\$/SF) 12			\$ 8,270,000
		Total:			\$ 35,020,000

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable construction costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

Client:	City of Josephine	Date:	1/26/2024
Project:	City of Josephine Water Master Plan	Prepared By:	MWG
KHA No.:	064611415	Checked By:	HMM

Title: 025 - CR 596 12" Water Line

Item No.	Item Description	Quantity	Unit	Unit Price	Item Cost
1	Mobilization, Bonds, and Insurance	1	LS	\$ 33,000	\$ 33,000
2	12" PVC (C900 DR 18) Water Line	4,706	LF	\$ 150	\$ 705,900
3	12" Gate Valve	24	EA	\$ 8,000	\$ 192,000
4	Fire Hydrant Assembly	10	EA	\$ 8,000	\$ 80,000
5	SWPPP	1	LS	\$ 20,000	\$ 20,000
6	Block Sod, Fertilization, & Site Restoration	4,706	LF	\$ 10	\$ 47,060
7	Traffic Control	1	LS	\$ 20,000	\$ 20,000
8	Trench Safety	4,706	LF	\$ 3	\$ 14,118
9	Hydrostatic Test and Disinfection	4,706	LF	\$ 4	\$ 18,824
Basis for Cost Projection:		Subtotal:			\$ 1,140,000
☒	No Design Completed	Conting. (%,+/-) 20			\$ 230,000
☐	Preliminary Design	Eng/Survey/CCA (%,+/-) 20			\$ 280,000
☐	Final Design	Easement Acquisition (\$/SF) 12			\$ 1,700,000
		Total:			\$ 3,350,000

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Appendix F – DR Horton Takedown Schedule

DR Horton - Home Closing Project - Josephine - at 3/31/23

Closings (inception to date):		1,571	-	-	-	-	-	-	-	1,571	1,571
Initial Closing Est		ongoing	7/23	4/23	7/23	1/24	1/25	4/25			
Year	DHI Qtr	Magnolia 1-9	Mag 10	Waverly 1a,1b,2	Riverfield 1-4	Waverly 4,3	Wildflower	Waverly VIg	Total by Qtr	Total by Year	
	Est units left to close	17	330	416	821	368	3,600	64			
jan - mar	2023	2Q	-	-	-	-	-	-	-	-	
apr - jun	2023	3Q	-	-	-	-	-	-	-	-	
jul - sep	2023	4Q	-	30	15	-	-	-	-	45	
oct - dec	2023	1Q	-	65	30	30	-	-	-	125	170
jan - mar	2024	2Q	-	65	30	60	-	-	-	155	
apr - jun	2024	3Q	17	65	30	90	-	-	-	202	
jul - sep	2024	4Q	-	65	30	90	-	-	-	185	
oct - dec	2024	1Q	-	40	30	90	10	-	-	170	712
jan - mar	2025	2Q	-	-	30	90	30	40	-	190	
apr - jun	2025	3Q	-	-	30	90	30	90	24	264	
jul - sep	2025	4Q	-	-	30	90	30	90	24	264	
oct - dec	2025	1Q	-	-	30	90	30	90	16	256	974
jan - mar	2026	2Q	-	-	30	90	30	120	-	270	
apr - jun	2026	3Q	-	-	30	11	30	120	-	191	
jul - sep	2026	4Q	-	-	30	-	30	120	-	180	
oct - dec	2026	1Q	-	-	30	-	30	120	-	180	821
jan - mar	2027	2Q	-	-	11	-	30	120	-	161	
apr - jun	2027	3Q	-	-	-	-	30	120	-	150	
jul - sep	2027	4Q	-	-	-	-	30	120	-	150	
oct - dec	2027	1Q	-	-	-	-	28	120	-	148	609
jan - mar	2028	2Q	-	-	-	-	-	120	-	120	
apr - jun	2028	3Q	-	-	-	-	-	120	-	120	
jul - sep	2028	4Q	-	-	-	-	-	120	-	120	
oct - dec	2028	1Q	-	-	-	-	-	120	-	120	480
jan - mar	2029	2Q	-	-	-	-	-	120	-	120	
apr - jun	2029	3Q	-	-	-	-	-	120	-	120	
jul - sep	2029	4Q	-	-	-	-	-	120	-	120	
oct - dec	2029	1Q	-	-	-	-	-	120	-	120	480
jan - mar	2030	2Q	-	-	-	-	-	120	-	120	
apr - jun	2030	3Q	-	-	-	-	-	120	-	120	
jul - sep	2030	4Q	-	-	-	-	-	120	-	120	
oct - dec	2030	1Q	-	-	-	-	-	120	-	120	480
jan - mar	2031	2Q	-	-	-	-	-	120	-	120	
apr - jun	2031	3Q	-	-	-	-	-	120	-	120	
jul - sep	2031	4Q	-	-	-	-	-	120	-	120	
oct - dec	2031	1Q	-	-	-	-	-	120	-	120	480
Subtotal:		17	330	416	821	368	3,190	64	-	5,206	5,206
At Buildout:		1,588	330	416	821	368	3,190	64	-	6,777	6,777

Appendix G – City of Josephine Final Comprehensive Plan (July 2023)

Josephine's Journey

A Comprehensive Plan for Growth



The City of
Josephine
TEXAS

Acknowledgments

The Citizens of the City of Josephine

Josephine Comprehensive Plan Steering Committee

Bethanie Wallgren

Bob Fries

Carri Crawford

Dale Davenport

Dawn Balch

Jessica Ward

Joel Elam

Katrina Heifner-Donihoo

Kevin Bowman

Lloyd D. Brown

Pam Sardo

The City Council of the City of Josephine

Mayor: Jason Turney

Mayor Pro-Tem: Doug Ewing

Place 2: Jane Ridgway

Place 3: Bryan Piccola

Place 4: Doug Thomas

Place 5: Joyce Miller

The Planning and Zoning Commission of the City of Josephine

Chairman: Lloyd D. Brown

Gary Chappell

Greg Garcia

Kodi Wallgren

Patrick Cusic

City Staff

City Administrator: Lisa Palomba

City Secretary: Patti Brooks

Dunaway Team

Project Manager: Stephen A. Cook, AICP

Planning Senior Discipline Lead: Barry Hudson, AICP, CNU-A

Planner: Ellen Soward, AICP



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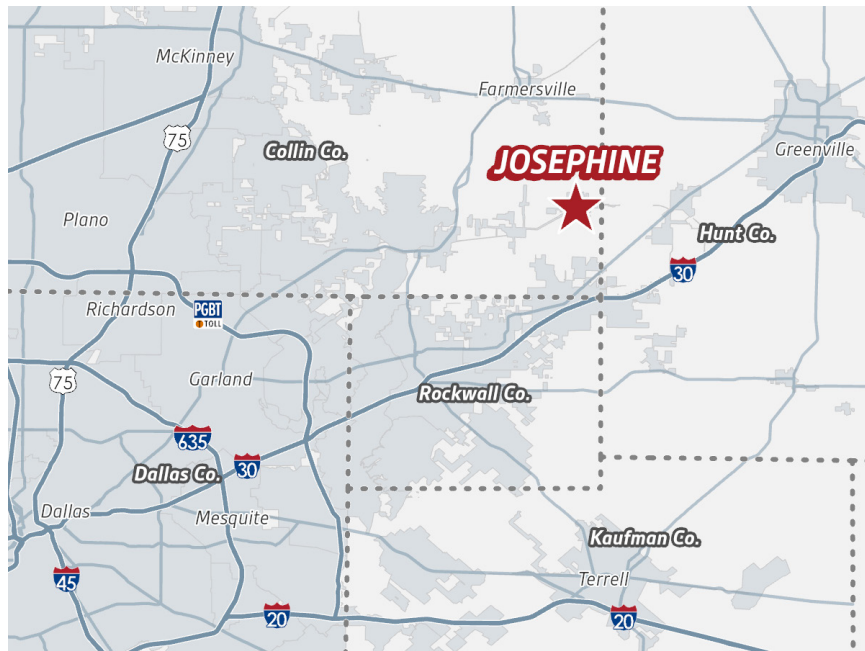
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Vision and Introduction to Plan

Chapter 1

Josephine, Texas, lies within the North Texas Region in an area of great potential change. Located in eastern Collin County and western Hunt County, the community has experienced significant population and housing growth in the past ten years as more commuters seek housing on the urban / rural boundaries of an expanding North Texas Region.



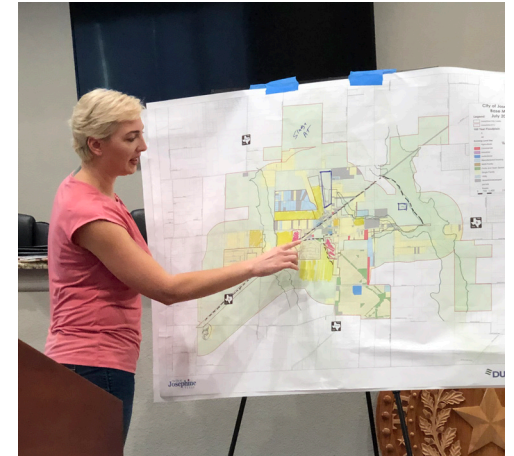
Regional location map of Josephine.

A part of any comprehensive planning process is the creation of a vision and the involvement of community leaders and residents. The public involvement process is important in that the plan is ultimately defined by the residents and elected and appointed officials. The process allows input and feedback on past decisions regarding zoning, land use, capital improvements, and growth. The visioning process helps shape an articulated basis in which future decisions can be made.

Development of the Vision

On July 12, 2022, a Steering Committee made of local leaders, elected and appointed officials, and city staff assembled in Josephine's City Hall to discuss the issues important for the positive growth of the city. Various visioning exercises were conducted with the attendees in order to formulate the vision of Josephine. The objective of the meeting was to inform the assembled group of the planning process, explain the purpose of the comprehensive plan, gather feedback on the vision, and begin marking areas on maps of Josephine for future growth. Attendees were split into groups and tasked to draw areas of growth in the city.

On September 14, 2022, the Steering Committee met online to review and provide feedback on goals and objectives. A public meeting was then held on November 30, 2022, in City Hall. In this come-and-go public forum, the Steering Committee and community were provided an opportunity to discuss the goals, objectives, strategies, and maps.



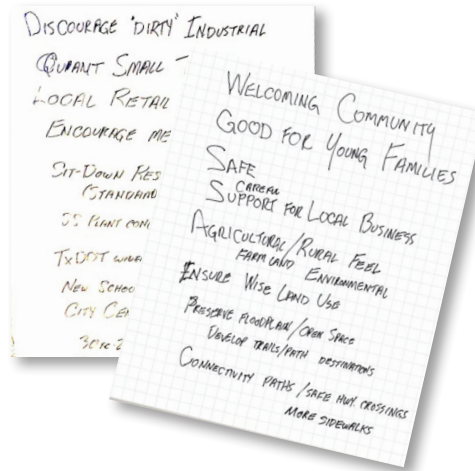
The Steering Committee used maps, among other tools, to craft a vision for the city.

Vision

The city's vision is an expression of its values. This vision guides all of the city's goals, objectives, and strategies and will be the basis on which decisions are made for the future. During the meeting of the Steering Committee on July 12th, the committee was asked to provide language and words which came to mind when considering Josephine and its

future. The following were the active words provided by the Committee during the meeting:

- » Welcoming Community
- » Good for Young Families
- » Safe
- » Careful Support for Local Business
- » Agricultural / Rural Feel
- » Ensure Wise Land Use
- » Preserve Floodplain and Open Space – Develop Trails / Paths and Destinations
- » Quaint Small Town



Vision words formulated by the Steering Committee.

The discussion also listed several types of land uses which should be encouraged in the community. These include local retail (not big box), medical and professional offices, sit-down family restaurants, and a civic center with governmental uses. Following the discussion, a vision statement was drafted and then re-worked by the Steering Committee. Below is the vision statement for the City of Josephine Comprehensive Plan.

“Josephine is a welcoming community with a vision to manage new growth while strengthening neighborhoods.

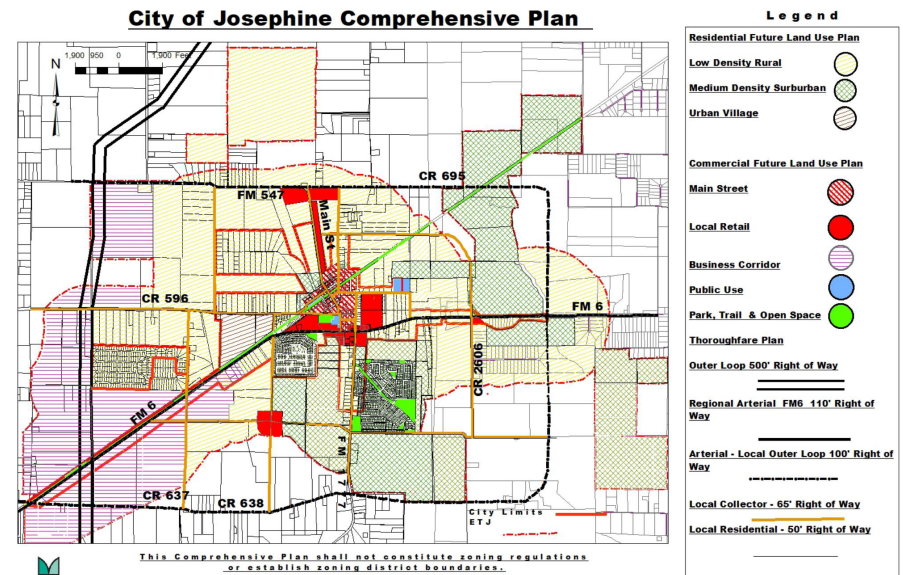
- » It is a thriving community supported by investment in people and encouraging an increase in the quality of life.
- » Josephine will continue to invest in water and wastewater utilities, roads, and sidewalks.
- » The city is a safe, vibrant place with opportunities to build new schools, and encourage locally responsive commercial development.”

Prior Comprehensive Planning Efforts

A previous comprehensive planning effort was completed in 2015 with a future land use plan. Focus was made on creating local retail efforts within the main street areas of the community at the intersection of FM 1777 and FM 6. Additionally, a business corridor was indicated on the west side of the city with the potential of the Collin County Outer Loop projected to be constructed connecting US 380 to Interstate 30. While residential development shown on the 2015 map has begun to fulfill the vision from that time, retail and commercial development has not increased significantly in the intervening eight years.

Comprehensive Plans in Texas

The State of Texas has established laws which govern how municipalities are able to regulate land use, provide for basic services, and construct and maintain public infrastructure. In Chapter 213 of the Texas Local Government Code, the text allows the governing body of a community



Future land use plan from previous comprehensive planning effort in 2015. Source: Mundo 2015

to adopt a comprehensive plan for the long-range development of the municipality. A municipality may define the content and design of the comprehensive plan. Further, the plan can include, but is not limited to provisions on land use, transportation, and public facilities.

A comprehensive plan is not a zoning ordinance. The comprehensive plan does, however, serve as a basis on which zoning decisions are made, as specified in Chapter 211 of the Texas Local Government Code. Zoning changes should be compatible with the vision and goals of the plan, but a comprehensive plan does not constitute zoning regulations or establish zoning district boundaries. For example, zoning districts do not have to be identical to what is shown in a future land use map. All in all, the comprehensive plan is an important tool for land use and development, serving as a guide for other processes and considerations.

Community Survey Results

As part of the public engagement process in developing a comprehensive plan for the City of Josephine, an online survey was developed asking questions about the level of service, quality of life, and functionality of the city. Residents, property owners, and stakeholders were invited to complete the survey. The purpose of the survey was to gain an initial understanding of how Josephine operates and what opportunities the city could offer.

The survey was live for a total of a month during October and November 2022. In that time period, a total of 285 responses were received. A majority of responses came from the Magnolia neighborhood that resides just outside the city limits of Josephine within its extra territorial jurisdiction (ETJ). Other responses were from the Fountain View and High Meadow neighborhoods or within the original townsite. There were a few responses from outside the city limits and ETJ.

The responses indicated that Josephine is generally a good place to live and raise children. The city could use additional vocational resources for more jobs within the area, but overall the survey respondents felt that Josephine maintained a high quality of life.

The population of the survey responses were mostly from young families between the ages of 25 and 35 and that population was reflected in many of the answers to the questions in the survey. Overall, quality of parks and recreation spaces scored strongly in the “very satisfied” or “satisfied” categories, while fewer positive responses were provided in regards to street maintenance and access to library services.

In regards to where the city might put forth effort to improve, more customized and larger single family residential lots were cited as the most desirable residential type. In commercial development, a grocery store, sit down restaurant, and fast food restaurants were the top three most requested.

As will be reflected in this plan, there is a strong desire from the survey respondents for a commercial center of the community. The results of the survey are attached to this plan within the appendix.



Brochure promoting the comprehensive plan survey to the community.



Josephine Background

Chapter 2

History

Josephine was established in 1888 with the St. Louis, Arkansas and Texas Railway as a part of the Cotton Belt Route bringing cotton from Missouri to Texas. The city was named in honor of J.C. Hubbard's daughter. The Cotton Belt Route had cargo and passenger traffic to and from Dallas to Texarkana and on to St. Louis. As the railroad was such a defining aspect of the community for such a long time period, there were sub-industries and products based in the community supporting the rail. In particular, this section of Collin County produced a product called Gumbo Gravel in making the base stabilization in which railroad ties were set for the track to be laid. Josephine was incorporated as a City with the State of Texas in 1955. The railroad right-of-way (ROW) is still found through the community; however the tracks have been removed and there is no active railroad use of the ROW. The ROW parallels FM 6 heading to the south and west of the city center. The ROW is now owned by the Northeast Texas Rural Rail Transportation District (NETEX) and could potentially be utilized for future commuter rail and trails.



Seal of the City of Josephine.

Education

The City of Josephine is served by the Community Independent School District, which comprises eighty-nine (89) square miles. Enrollment as of October 2022 was 4,143, according to the Texas Education Agency (TEA), and is expected to continue to grow along with the population growth of the area. The school district bond program projected that by the 2028/29 school district year, the district could have enrollment of

8,353. As part of the 2022 bond election, voters approved two new campuses in Josephine: Mildred B. Ellis Elementary and Community Creek Middle Schools are to be constructed near the intersection of Greenville Avenue and Main Street.

Among the adult population of the community, the U.S. Census Bureau estimates that 19.7% of people 25 years of age or older have a bachelor's degree or higher form of education, with over 98% of that group holding at least a high school diploma, equivalency, or degree of higher education. These numbers will have a tendency to increase over time as more households continue to purchase their residence in Josephine and make it their home.

Demographics

Figure 1:

City of Josephine Population Growth

Year	Population	% Increase
1960	296	-
1970	296	0.00%
1980	416	40.50%
1990	503	20.90%
2000	605	18.10%
2010	812	36.70%
2020	2,119	160.96%
2021	4,565*	115.43%

** As estimated for July 1, 2021 by the US Bureau of Census*

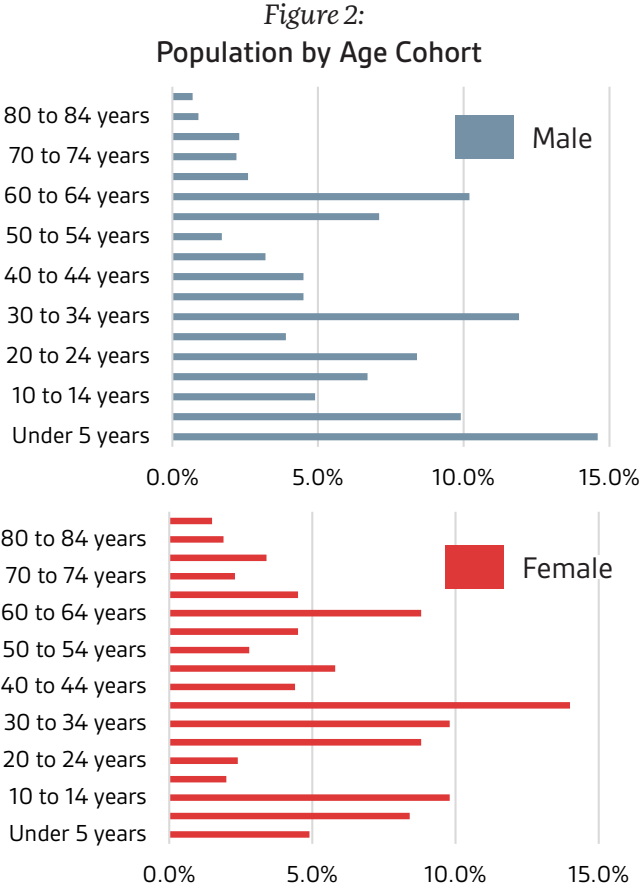
Source: U.S. Bureau of Census

Along with several other communities on the east side of the Dallas/Fort Worth (DFW) area, the community has been labeled as a "Boomtown" by the *Dallas Morning News* (DMN, October 14, 2022). After many decades

of slow growth, the city has been steadily increasing in population within the city limits and immediately adjacent within the ETJ. As the DFW area has experienced some of the highest growth anywhere in the United States since the housing market downturn in 2008-2010, developers have been purchasing and developing properties in the surrounding counties outside of Dallas and Tarrant Counties. The rapid amount of growth has made it difficult for historically smaller cities to provide adequate services in the form of utilities, emergency services, street capacity infrastructure, and parks and open spaces.

of age, Josephine is full of young families. There is also a significant bump in those of the 60-64 age group, indicating active retirees within the community.

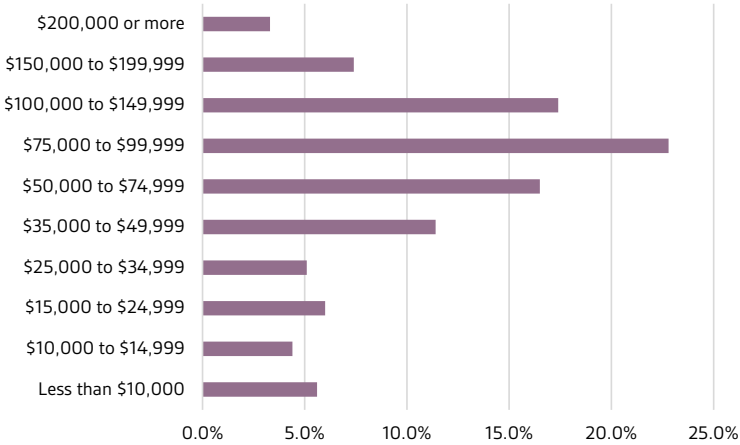
From the last decennial Census taken in 2020, the population of Josephine indicated that seventy-one (71%) percent of the population indicated that they identified as white; slightly less than six (5.89%) percent of the population identified as black or African American; and nine (8.8%) percent identified as more than one race. The remaining two percent were distributed among Native Americans, Asian, and Pacific Islander population.



Source: U.S. Bureau of Census 2020

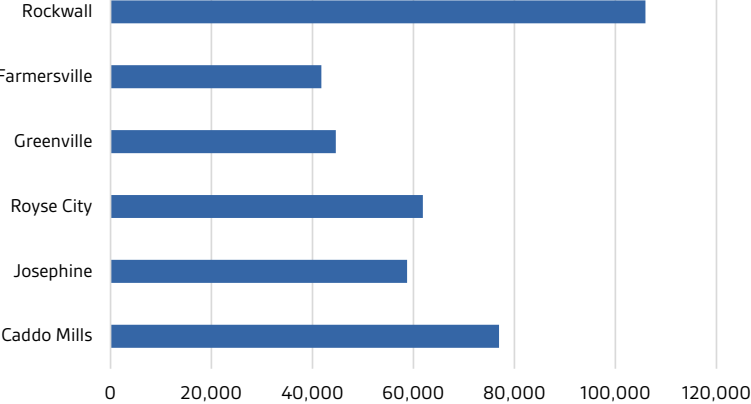
Figure 2 above breaks down Josephine’s age distribution by male and female residents. Split into 5-year cohorts, it serves as an indicator of a younger population. Showing significant higher percentages of children within school age and strong percentages of adults under 40 years

Figure 3:
Josephine Income Levels by Percentage of Households



Source: U.S. Bureau of Census ACS 2019

Figure 4:
Median Income Levels of Josephine and Surrounding Communities



Source: U.S. Bureau of Census ACS 2019

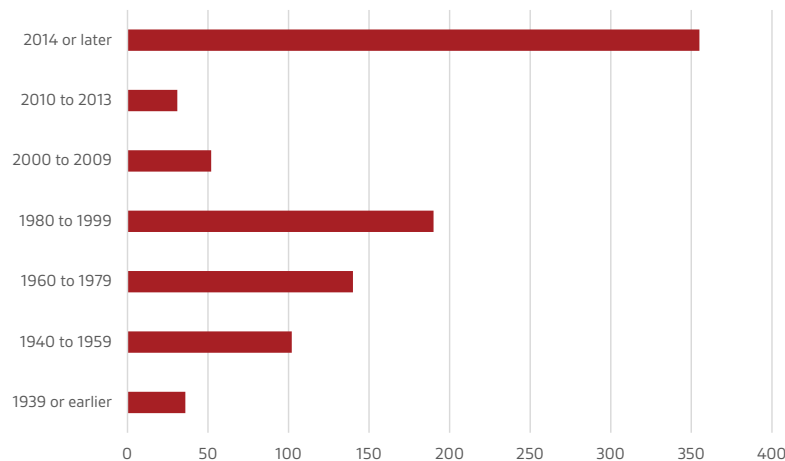
Income levels of a community can serve as indicators of the strength of existing employment and to show the level of potential retail growth. The greater amount of disposable income that is available to households, the more attractive retail environments can be. While Josephine's median income is within the center of the above grouping of neighboring communities in Hunt, Collin, and Rockwall Counties, that has not yet translated into significant retail opportunities within the community. Coupled with a rising number of younger families, retail opportunities are increasing for the community. Income level growth can be influenced by the increase of employment in the community. Living, working, and recreating in your own community is very attractive to residents.



The Magnolia development has brought many new homes to Josephine's ETJ. Source: City of Josephine

Figure 5:

Number of Housing Units Constructed by Year



Source: U.S. Bureau of Census ACS 2019, DALP

It is obvious through the examination of Figure 5 that the majority of housing growth in the City of Josephine has been in the last ten years.

New neighborhoods have been developed both north and south of FM 6 with major new developments occurring to the northeast of the city. The Magnolia development to the south of the city, within Josephine's extraterritorial jurisdiction, greatly impacts the level of service of the road network and demands of services throughout the city.

Figure 6:

Constructed and Proposed New Developments in Josephine (2023)

New and Proposed Developments	Number of Units	Potential Population (2.9 persons/DU) Per Development
Bradley Estates	26	75
DeBerry Heritage	100	290
High Meadow Estates Ph. 2	196	568
Liberty Ranch	185	537
Liberty Ranch West	43	125
Meadow Ridge	141	409
Morningside Ph. 1	219	635
Murray Manor	51	148
TOTAL PER CURRENT CITY	961	2,787
Harvest Bend	11	32
Hidden Creek Village*	350	1,015
Magnolia Ph. 1-4	656	1,902
Magnolia Ph. 5-9	932	2,703
Magnolia Ph. 10	330	957
Morningside Ph. 2	406	1,177
Riverfield	821	2,381
Waverly Estates	784	2,274
Wildflower	3,061	8,877
TOTAL FOR CURRENT ETJ	7,351	21,318
Hunt County Proposed Dev.	TBD	TBD
TOTAL FOR OUTSIDE ETJ	TBD	TBD
TOTAL FOR ALL NEW DEVELOPMENT	8,312	24,105

*Pending approval and annexation by City Council.



Single family home construction is driving Josephine's growth. Source: City of Josephine

if there is not an agreement or conflict with other municipalities' ETJs. Once the population of Josephine is officially over 5,000, the city may incorporate an expansion of the ETJ to one mile

New development within the community has the potential to add over 24,000 new residents within the city and immediate vicinity, if and when all of the potential developments build out. As will be shown in the following sections, the city has more opportunities for additional single family development and can choose to address how development occurs through appropriate growth management.

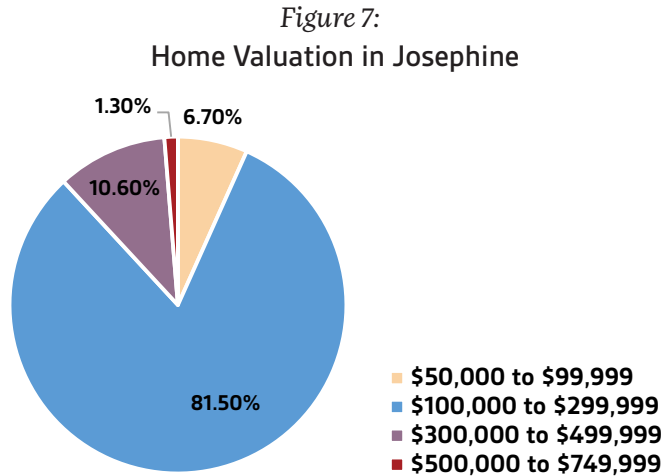
The table on page 11 outlines a total of over 8,000 housing units that have or have the potential to be constructed in and around Josephine. The extraterritorial jurisdiction (ETJ) is adjacent to the city and is an area in which the city may enforce subdivision regulations. At present, the ETJ may extend out one-half (1/2) mile from the existing city limits,

almost forty-eight (48%) percent. This has significant impact on new homebuyers' ability to purchase new homes within the area. Rising housing costs also impact the ability of aging adults who may transition to fixed incomes to purchase and maintain a home within a community. Understanding how different housing types may be utilized to respond to this need is crucial to ensuring that residents can age in place within the Josephine community.

Land Use

The Existing Land Use Map is provided in this plan. It shows the city limits and extraterritorial jurisdiction. The map indicates the locations of different land uses by category as well as the location of vacant and underused land. It is different from the Future Land Use Plan, which shows the desired land uses for the city. The acreage and percentage of total land devoted to these land uses is shown in the following figures. Initial classification of areas was completed using a windshield survey of properties in Josephine by driving through the city and noting the land uses. Additional interpretation of land uses was determined through recent aerial imagery and correlated to an extensive land use survey conducted by the North Central Texas Council of Governments in 2015.

See Figure 8: "Existing Land Use Map" on page 13.



Source: U.S. Bureau of Census ACS 2021

Figure 7 shows that as per the housing valuation, a majority of homes are within the \$100,000 to \$500,000 range. New housing growth and changing materials costs since 2020 have increased median home prices

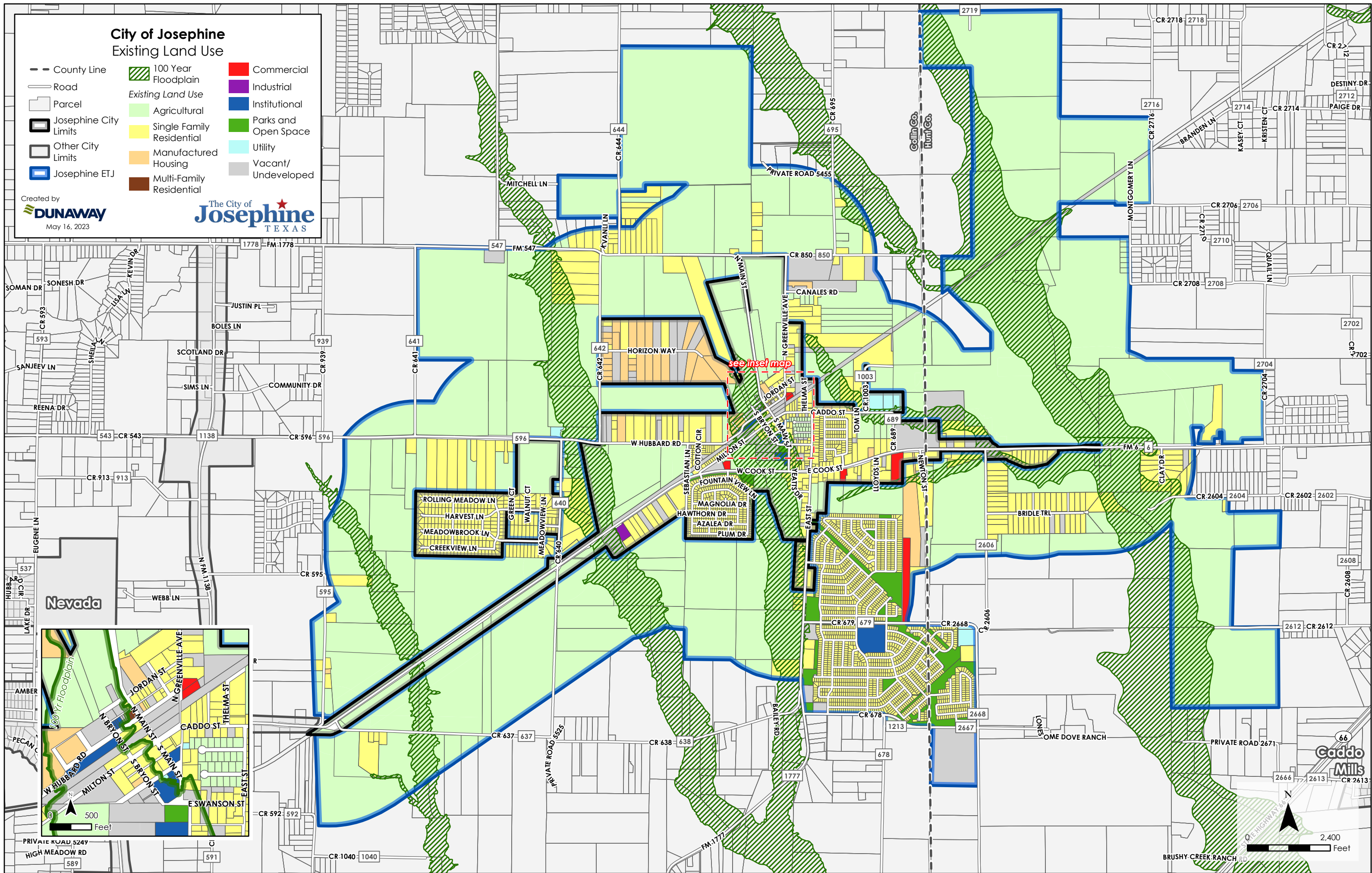


Figure 9:

Existing Land Uses Inside Josephine City Limits

Land Use	Acres	% of CL
Single Family	450.51	32.26%
Manufactured Housing	109.93	7.87%
Multifamily	0.25	0.02%
Commercial	10.38	0.74%
Institutional	6.75	0.48%
Industrial	2.97	0.21%
Utility	14.22	1.02%
Parks and Open Space	5.70	0.41%
Vacant/Undeveloped	157.29	11.26%
Agricultural	477.26	34.18%
Transportation*	161.23	11.55%
TOTAL	1,396.48	100%

Figure 10:

Existing Land Uses Within Josephine ETJ

Land Use	Acres	% of ETJ
Single Family	979.05	13.97%
Manufactured Housing	28.15	0.40%
Multifamily	-	0.00%
Commercial	11.76	0.17%
Institutional	14.90	0.21%
Industrial	-	0.00%
Utility	10.19	0.15%
Parks and Open Space	79.13	1.13%
Vacant/Undeveloped	178.94	2.55%
Agricultural	5,510.05	78.60%
Transportation*	197.68	2.82%
TOTAL	7,009.84	100%

* Includes roadway and railroad rights-of-way.

Land use in Josephine both inside the city limits and within the ETJ is predominated by agricultural land. Single Family residential is the other most prevalent land use type. The North Texas Municipal Water District (NTMWD) water treatment residuals monofill property

consisting of four hundred ten (410) acres within the northern section of Josephine's ETJ is a considerable land use and will be addressed further in the plan. Existing Land Use Map is not a zoning map of the city, but rather a snapshot of what types of land uses exist at this point of time and how will future growth change this map in the future.

Capacity for Growth Based on Existing Land Uses

A holding capacity model is a forecasting tool looking at available vacant land, current zoning, and at what density new growth could be built to accommodate population growth. Calculations for the holding capacity are made utilizing existing land uses and zoning district regulations. Existing land use data that is assigned as vacant and agricultural (potential to be developed) is compared with the zoning and its development properties. A sum of the total vacant land area and properties which may be agricultural now but could have future potential for development is created. For each area, a total potential number of housing units is assigned based on the maximum number of units (or minimum lot size) allowed. Each zoning district has its own density allowance. Housing units are then multiplied by the average household size from the U.S. Bureau of Census for owner occupied units to indicate a population capacity.

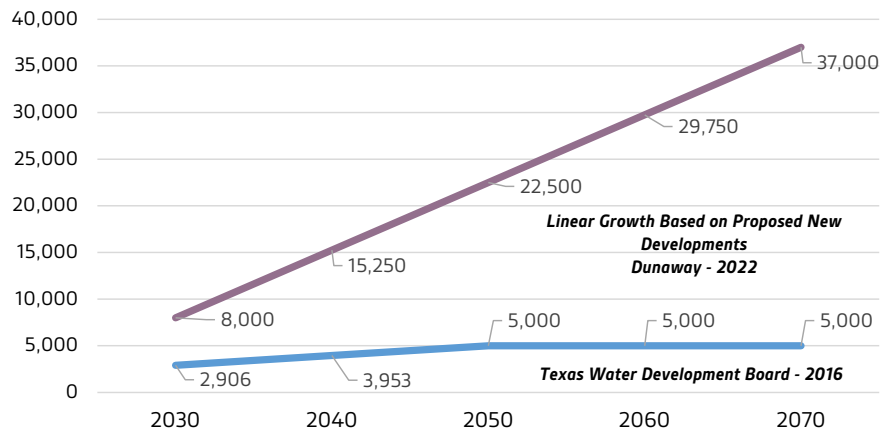
Certain assumptions must be made based on the ultimate additional build out number:

- » All future and existing residential properties are assumed to be 100% occupied. This means that subdivisions currently under development with vacant lots would be built out.
- » Existing areas zoned residential will remain unchanged throughout build out.
- » Large tract residential properties (one single family house with some agricultural uses) were labeled as Single Family residential and were not included for potential future subdivisions.
- » All vacant and agricultural land potentially used for residential would build out at maximum density as currently zoned. These are properties which do not have a specific development plan but are zoned for future development.
- » Areas labeled as vacant but had floodplain over 50% of the parcel were eliminated from the study.
- » Potential population on build out utilized 2.9 persons per household as per the 2020 U.S. Census numbers for the City of Josephine.
- » Zoning districts not zoned for residential and containing vacant land were eliminated from this calculation.

Figure 11:
Holding Capacity for City of Josephine

Zoning	Vacant Acres	Vacant Acres within Floodplain	Developable Acres	DU/Ac	DU Allowed	Persons
SF-1	288.97	26.66	262.31	4.0	1,049.24	3,042.80
SF-2	13.76	3.29	10.47	6.0	62.84	182.23
MH-1	43.00	-	43.00	6.0	257.97	748.13
MF	2.13	2.13	-	15.0	-	-
PD Morningside	55.07	11.44	43.63	4.8	210.00	609.00
PD Murray Manor	13.85	0.66	13.19	3.9	51.00	147.90
				TOTAL	1,631.05	4,730.05

Figure 12:
Population Projections City of Josephine



Source: Dunaway, Texas Water Development Board

Population Projections

The Texas Water Board is charged with projecting water consumption rates and demand for the future population of Texas. The agency creates a county-by-county population projection through the cohort survival method. This method takes population by age group or cohort and “ages” them progressively year-by-year. It also factors in the birth and death

rates of each individual county and then factors in the emigration rate (movement into and out of the county). Each individual subgroup of the county (cities and municipal utility districts) are then provided a “share-of-the-growth” of the county. The share each city or municipal utility district is assigned is usually based on the historical percentage of the county as a whole.

As is shown with Figure 6 on page 11, the potential of growth within the current city limits of Josephine could result in over 900 new housing units, translating into over 2,500 new residents. Additional growth of new subdivisions on the periphery of the city in the ETJ could, through appropriate negotiation and agreements with the city, be annexed into the community and contribute additional population. Based on these factors, the population projections into the future of the city have been reflected in a linear progression of approximately 3,500 new residents per every ten years. Population forecasts are only an estimate of the city’s potential population growth.

Development Constraints

Constraints to development are either inherent to the land itself or represent a limitation placed on the property. Examples of constraints inherent to the land itself include steep topography, creeks, and floodplain. Limitations placed on the property include things such as zoning, rights-of-way, and political boundaries.

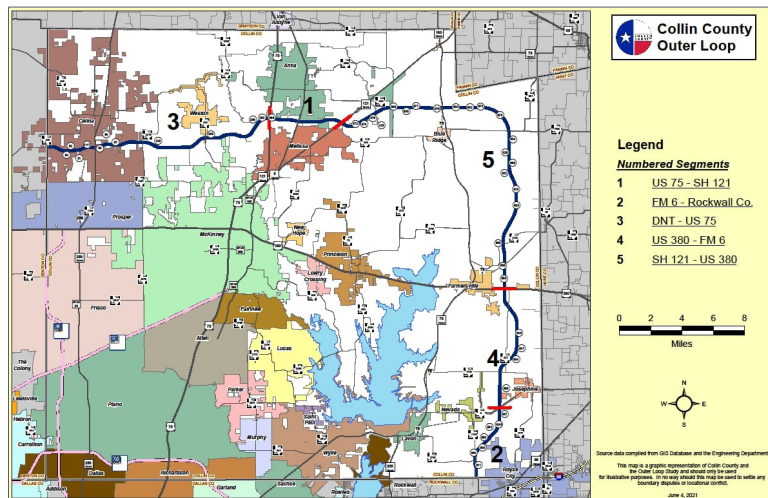
Josephine is situated on a relatively flat plain which was conducive in the construction of the railroad. Floodplains have been indicated on the Existing Land Use Map. Any development within floodplain is required to meet Federal Emergency Management Agency (FEMA) standards and is more costly and time consuming to develop. A major impediment to some of the key goals for the community is floodplain located immediately to the west of the intersection of FM 6 and FM 1777. This area, while attractive as a center point for the community, will need to be specifically designed to accommodate new commercial and housing growth while maintaining enough drainage capacity to ensure the safe maintenance of surrounding properties.

Provision of infrastructure such as water, sewer, and roads is the most significant enabling and constrictive force in city development. The railroad, FM 6, and FM 1777 connected the community to commerce and trade. The railroad right-of-way continues to affect the potential for development as new construction begins adjacent to the right-of-way. Additionally, the Collin County Outer Loop project – a regional highway envisioned to connect Interstate 30 with US 30 through eastern portions of the county – has the potential to impact several of the existing neighborhoods in Josephine directly if original alignments determined over a decade ago hold fast as part of the final design.

available in much of the community through investment in elevated storage facilities. Even with these investments, development pressure is considerable, and some developments are seeking alternatives to city-provided utilities and are investigating municipal utility districts as the primary source of water and wastewater. Coordination of all the types of city services expected by residents can be complicated with multiple municipality organizations.

With this in mind, political boundaries represent an additional constraint on managed growth. Texas municipalities have limited ability to annex property. Only through negotiation with developers are cities able to have new development voluntarily annex into the city. Cities may only annex within their extraterritorial jurisdiction. In 2022, as a general law city, Josephine's population restricts the ETJ of the city to a boundary of 0.5 miles from existing city boundaries. There are areas to the east and south where the limits of the ETJ is based on request from landowners.

See Figure 13: “Existing Zoning Districts Map” on page 17 and Figure 14: “Development Constraints Map” on page 18.



Overview map of the Collin County Outer Loop project alignments. Source: Collin County 2021

Like streets and roads, utilities also affect development. Josephine has made investments in the wastewater system. Water utilities are

City of Josephine Existing Zoning Districts

- County Line

Road

Parcel

Josephine City Limits

Other City Limits

Zoning Districts

A, Agricultural

SF-E, Single-Family Residential - Estate

SF-1, Single-Family Residential - 1

SF-2, Single-Family Residential - 2

TF, Two-Family Residential (Duplex)

MH-1, Manufactured Home

MF, Multifamily

C, General Commercial Business other than Retail

LR, Local Retail

M-1, Manufacturing/Industrial - Light

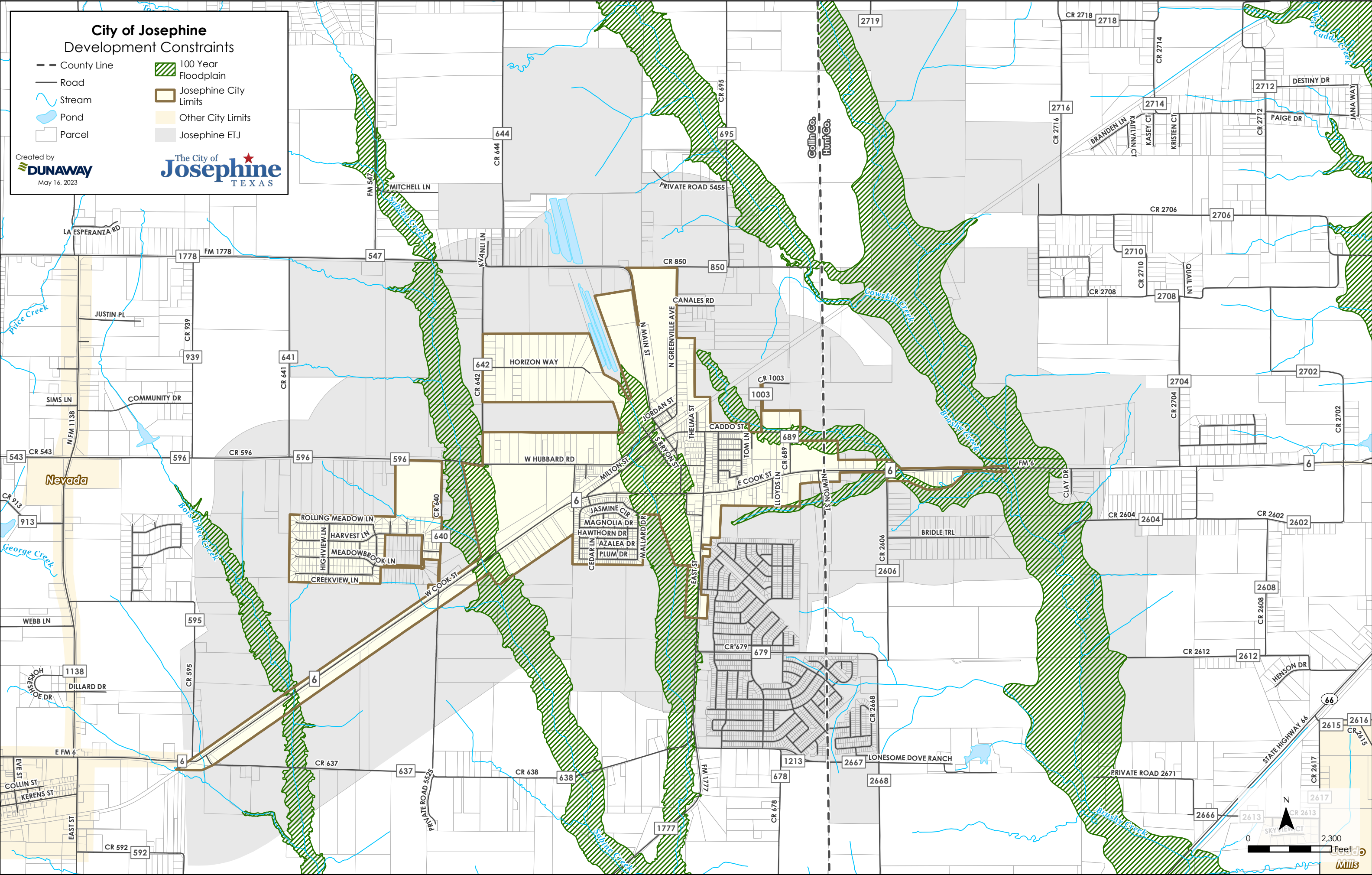
PD, Planned Development

Created by
DUNAWAY
June 5, 2023

DISCLAIMER:
This is **NOT** the City's official zoning map and should be only used as reference in the context of the Comprehensive Plan. No development decisions should be made based on this map and all zoning information should be confirmed with the City.

The map displays the existing zoning districts for the City of Josephine, Texas. The city limits are outlined in black. The map is divided into several colored zones: yellow for SF-1 (Single-Family Residential - 1), orange for SF-2 (Single-Family Residential - 2), light orange for TF (Two-Family Residential - Duplex), light brown for MH-1 (Manufactured Home), dark brown for MF (Multifamily), red for C (General Commercial Business other than Retail), pink for LR (Local Retail), light gray for M-1 (Manufacturing/Industrial - Light), and purple for PD (Planned Development). The map includes a legend, a disclaimer, and a scale bar. The map also shows the county line between Collin County and Hunt County, and the city limits of Josephine. The map is titled "City of Josephine Existing Zoning Districts" and was created by Dunaway on June 5, 2023.

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Growth Management

Chapter 3

Growth Management Goal:

Josephine will have residential and commercial growth while retaining its agricultural community feel.

As seen in Chapter 2, population growth prior to the last several years in Josephine has been slow. However, Josephine is now embracing its “Boomtown” status, and management of growth is important to the city. Residential and small, locally-owned commercial growth is desired, but must not be developed in a haphazard manner. It should not impede the opportunity of redevelopment of areas in and about the original townsite of Josephine but should be appropriate and sustainable for many years after construction. These qualifications on growth translate into rate and quality.

Growth will continue to occur in Josephine, and the rate of growth will likely accelerate in the near future. Proactive planning is considered the preferable approach, defining the rules by which growth will benefit the most people. Proactive planning requires preparation and an investment in resources in anticipation of growth.

Anticipation of the adverse impact of growth is a key element in proactive planning. In reactive planning, preparation is not necessary. Without proactive planning, growth is solely driven by consumer demand, and planning for governmental services and utility systems is done after the fact. The growth management strategy contains objectives that keep Josephine a step ahead. All other goals and objectives in the comprehensive plan must adhere to the growth management goals.

Objective 1: Manage observed increase in single family residential units according to the Future Land Use Plan.

The Future Land Use Map is located further in this document. The map indicates the desired location for growth. Infrastructure and zoning are

vital to making sure that residential growth is located in appropriate places in relationship to utility lines and roads.

The plan encourages residential development to occur in low densities of less than four (4) units to the acre or less. Some areas may develop at a medium density of five (5) units to the acre. Higher density development such as townhomes, single family attached structures, and multifamily development should



Much of Josephine's future growth will come from new single family home construction. Source: City of Josephine

occur in mixed use developments with adequate public facilities or in stand-alone developments near to open space amenities with access to higher capacity traffic patterns. These developments, in accordance with the city's current zoning tolerances, should be limited to a maximum of twenty (20) units to the acre. *Mixed use* refers to a development style that creates areas which combine a mix of land uses within one defined zoning district. Residential, retail, restaurants, office, and public uses may be allowed within the same building, same lot, tract, or zoning district. By mixing uses, public infrastructure efficiency can be maximized, costing the city and developers less in development costs. When designed correctly, mixed use areas can increase pedestrian movement and minimize land consumption. These types of densities can be attractive for

starter homes or for those who no longer wish to maintain a large yard, but want to stay within a community and continue to participate in their social, religious, and community life.

Strategies:

- a. Examine ultimate densities for residential housing in the city's zoning ordinance. Understand where flexibility for densities might be advantageous for development. Modify zoning ordinance to allow mixing of uses based on appropriate design.
- b. Accommodate multifamily residential development in limited forms. Multifamily development should be located in areas which provide transitions between lower and higher intensity uses, and in a manner that will not negatively impact surrounding uses. Multifamily uses should be located in small groupings around the city in a manner that provides a mix of uses and densities, rather than concentrating multifamily uses in one area which can have negative impacts upon the city.

Objective 2: Increase the number of commercial and retail uses to provide more shopping opportunities for residents and visitors.



New retail areas can bring more local options for residents and visitors.

Commercial development is a significant part of the health of a community. Virtually all commercial uses provide employment, while retail and hotel uses also provide revenue for the city through sales and occupancy taxes which can be used to ensure high quality services to the community. Enough of these types of revenues can provide stability in the city's property tax rate. Commercial

development growth should, like residential, be located where the infrastructure investment has been made by the city and in logical locations, such as where wastewater installation does not require new lift stations and where water systems can be maintained charged and looped.

Strategies:

- a. Accommodate future commercial uses at key nodes throughout the city. It is recommended that commercial development and uses not be located along corridors in a "strip" manner.
- b. Accommodate businesses in several activity centers. At the intersection of FM 1777 and FM 6, a newly purchased area comprised of undeveloped land and floodplain has the potential for commercial development. This City Center should be focused on local retail, potentially containing restaurants, and local medical or office based services.
- c. In other commercial nodes, specifically at the intersections of FM 6 and County Roads 640 and 595, a variety of regionally-oriented medical facilities and retail would be appropriate. Development around these intersections will need to accommodate the railroad right-of-way on the northwest side of FM 6.

Objective 3: Recognize Josephine's unique characteristics which should be preserved and incorporated into potential design recommendations for new structures.

Future residential development within established residential areas would be developed in a manner that responds to the existing residential development with compatible land uses and development patterns.

Strategies:

- a. The center of any infill development surrounding the original Josephine city core, including the open spaces and surrounding neighborhoods, should provide a focus on preservation of what is historically important. Restoration, redevelopment, and infill in these areas could provide a more central location for the community along the FM 6 and FM 1777 intersection.



In the historic city core, Josephine has a unique character that should be considered while planning for new development.

- b. The development standards of the zoning ordinance will be examined to ensure that new development will be in compliance with appropriate architectural, landscaping, and setback design standards which are keeping with the vision of Josephine.

Objective 4: The city will work with Municipal Utility Districts (MUDs) and Public Improvement Districts (PIDs) in order to create synergistic relationships to provide adequate public services – including water, wastewater, and transportation – which is efficient and safe.

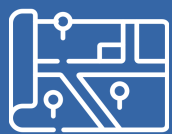
Josephine has made very strong investments in its public infrastructure by extending water and wastewater services. Tying into these existing facilities can greatly reduce the development costs for new development and manage where positive growth can occur. With demand of new residential subdivisions in the community at a high rate, it is in the city's interest to strongly work with existing property owners and new developers to have standard development agreements to manage the timing of growth in the community.



Coordination with MUDs and PIDs will be crucial as new developments are built in and around Josephine. Source: City of Josephine

Strategies:

- a. The city should prepare an annexation strategy and coordinate the availability of municipal services with areas likely to experience development pressure with higher densities. The strategy will require coordination with other master plans that address water, wastewater, transportation, parks, and capital improvement programs.
- b. The city will not encourage development at the far edges of its ETJ, in recognition of the higher costs of “leapfrog” development and haphazard sprawl. Incentives such as partnering with new development for capital improvements and infill development should be implemented, particularly within existing city limits.
- c. Properly manage development in new growth areas through development agreements, annexation policies, and the application of zoning regulations that support the recommended land uses plan.
- d. The city will work with adjacent municipalities to determine shared boundaries and will execute interlocal agreements based upon mutual agreement that will benefit affected property owners.



Future Land Use

Chapter 4

Future Land Use Goal:

Josephine will have safe and convenient places to live, work, worship, and play.

Expectations for future land uses of property are important for residents and businesses. Future land uses play an important role in infrastructure investment, guiding decisions on where to place additional utilities and streets. Most communities provide distinct places for residents to live that are separate from places where they shop and work. Historically, this has taken place to avoid conflicts of traffic, noise, and, in some cases, odors and vibrations. In recent years, value has been placed on finding ways to mix residential, retail, and office uses in a way that avoids conflict.

The Future Land Use Plan is a guide. It does not establish any regulations. It is a best guess as to where future land uses should go and can provide the Planning and Zoning Commission and City Council information as to whether they should modify zoning and the arrangement of new development. The Future Land Use Plan has been developed through the City of Josephine Steering Committee and public input. It focuses on creating spaces for new commercial, retail, and employment growth; providing opportunities for the right kind of mixed uses of commercial, office, and higher density residential; and preserving a large amount of land for low and medium density residential uses.

The community's vision for future land use is depicted in the Future Land Use Map and described on the following pages.

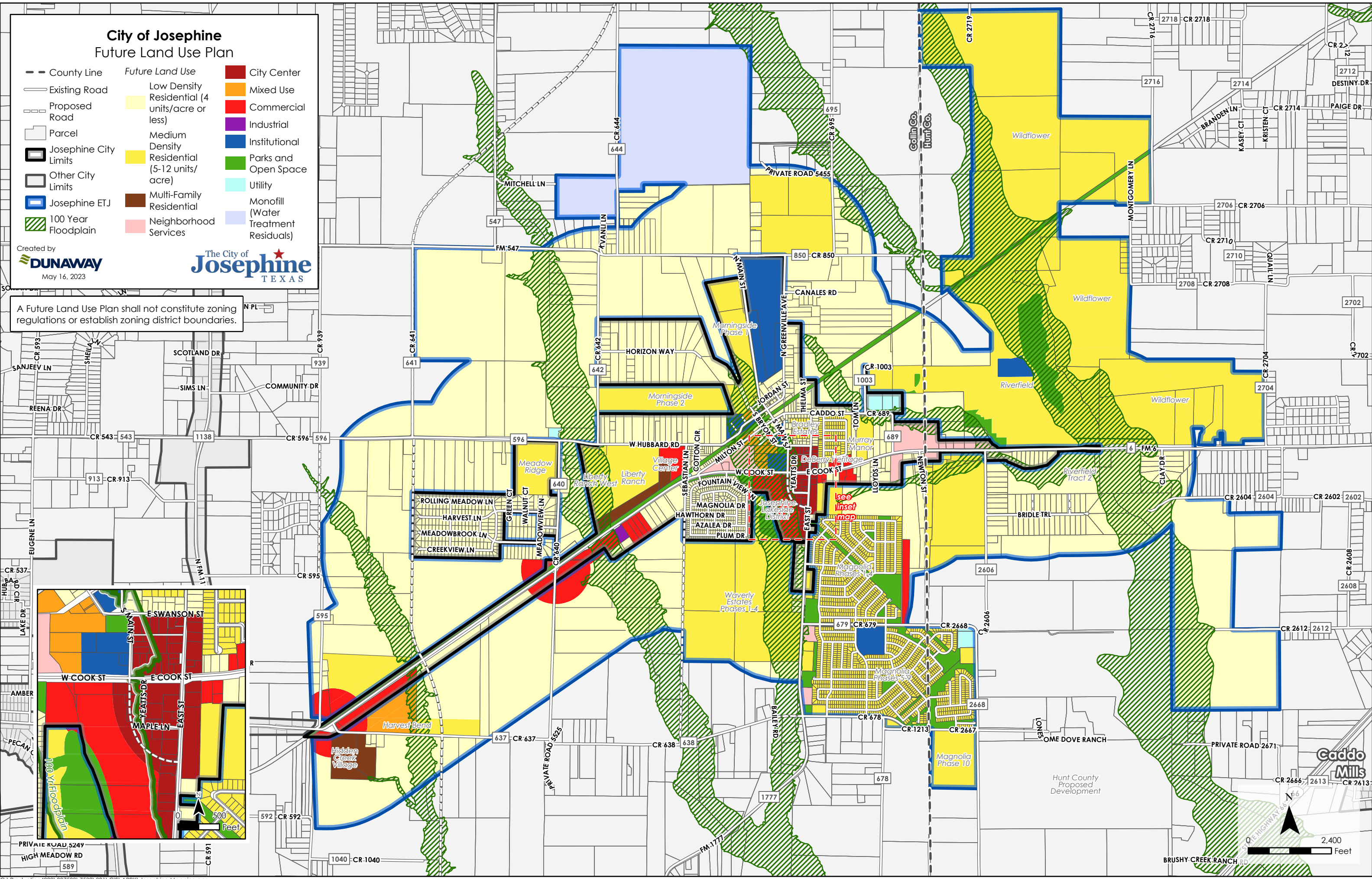
Figure 15:
Future Land Use Typologies

	Low Density Residential — Single-family detached residential structures are examples of low-density residential uses. Typically speaking, low-density residential land uses will include density of less than four (4) units to the acre. These are estate style lots. Low-density residential is the primary land use within the City of Josephine.	
	Medium Density Residential - The medium density residential can support a variety of housing types, including small-lot single family detached, patio homes, and limited townhomes in a more compact network of streets that are easy to navigate. Density can be between five (5) units to the acre for single family detached and twelve (12) units to the acre for townhomes.	
	Multifamily Residential — This land use recognizes the need for housing at more affordable price points and to accommodate younger families and mature adults wishing to live in the community without the burden of maintaining a home and a yard. These units range from duplexes to apartment complexes. Densities should be at a maximum of up to a range of twenty (20) units to the acre.	

	Mixed-Use — This category combines single family, multifamily residential, and low intensity commercial uses designed to co-exist side-by-side without adverse impacts. Examples are apartments, townhouses, retail shops, restaurants, office, and public uses, which may be allowed in the same building, same lot, same tract, or block. These areas could be located within the City Center through a specific planned development.	
	Neighborhood Service — Uses include small-scale retail and services that support the surrounding residential neighborhood. Locally-owned medical offices and dental practices, standalone businesses such as drug stores, and small shopping centers with several uses such as laundromats and retail shops all fit into the Neighborhood Service designation.	 Source: Binyamin Mellish (Pexels)
	Commercial — These uses are regionally-oriented commercial development with high traffic and high employment. Businesses may include grocery stores, hotel/motels, big box retail, restaurants, and commercial services.	
	Institutional — Uses in this category include city buildings, schools, community centers, or other public service-types of uses. Churches are considered institutional even if they are located within residential areas due to the potential traffic impact they may have on the community.	
	Industrial — Industrial uses may be business parks containing offices and light industrial uses which generate few objectionable conditions. Examples of light industrial uses include assembly, research and development, and warehousing and distribution. Focus should be on flex-industrial spaces which can be used for a variety of corporate functions, storage, and office spaces. Industrial uses would be appropriate on a very limited basis.	

	Josephine City Center — Josephine City Center is the confluence of the original community. This designation represents small-scale retail, office and dining opportunities.	
	Parks and Open Space — This category is reflective of existing and proposed park areas within Josephine and may include community ballparks, neighborhood parks with playgrounds, natural trails, Rails-to-Trails, and other open space areas.	
	Floodplains — Areas designated on the map that are within a federally identified floodplain. Portions of these areas may develop under the correct circumstances, but the majority of this area will remain open and provide opportunity for open spaces and trails.	

See Figure 16: “Future Land Use Plan” on page 24.



Future Land Use Areas

The following tables illustrate the future land use areas for the community.

Figure 17:

Future Land Uses Inside Josephine City Limits

Land Use	Acres	% of CL
Low Density Residential	608.75	43.59%
Medium Density Residential	236.91	16.96%
Multifamily Residential	19.63	1.41%
Neighborhood Services	58.70	4.20%
City Center	37.15	2.66%
Mixed Use	14.15	1.01%
Commercial	100.36	7.19%
Industrial	2.97	0.21%
Institutional	95.28	6.82%
Parks and Open Space	47.45	3.40%
Utility	14.22	1.02%
Transportation*	160.91	11.52%
TOTAL	1,396.48	100%

Figure 18:

Future Land Uses Within Josephine ETJ

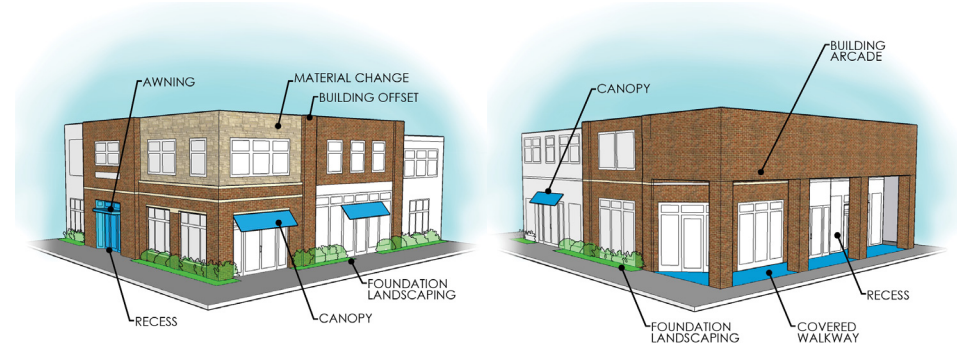
Land Use	Acres	% of ETJ
Low Density Residential	3,597.32	51.32%
Medium Density Residential	2,440.37	34.81%
Multifamily Residential	36.27	0.52%
Neighborhood Services	7.22	0.10%
City Center	-	0.00%
Mixed Use	34.21	0.49%
Commercial	75.61	1.08%
Industrial	-	0.00%
Institutional	26.64	0.38%
Parks and Open Space	175.65	2.51%
Utility	10.19	0.15%
NTMWD Monofill	408.69	5.83%
Transportation*	197.68	2.82%
TOTAL	7,009.84	100%

* Includes roadway and railroad rights-of-way.

The Future Land Use Plan for the city indicates that the majority of land within the city limits and within the ETJ will still be oriented to low and medium density residential. Some areas have been designated as potential sites for multifamily residential with a new city center focused on the intersection of FM 6 and FM 1777.

Urban Design in Future Land Uses

Urban design is a term used to define how a community manages the physical and visual character of its built environment. The design of new development within the city and ETJ of Josephine has become increasingly more important as new neighborhoods and the potential of commercial development increases. The design quality of the built environment can have a profound effect on the economic and social health of a city. The quality of the surroundings where people work, live, and play affects the city's image and attractiveness to developers searching for high quality business and residential locations. By contrast, a poorly designed urban environment can be a barrier to investment and economic development. Urban design should be included with the arrangement of land uses and is included in this plan with aims to substantially raise the quality of Josephine's urban environment.

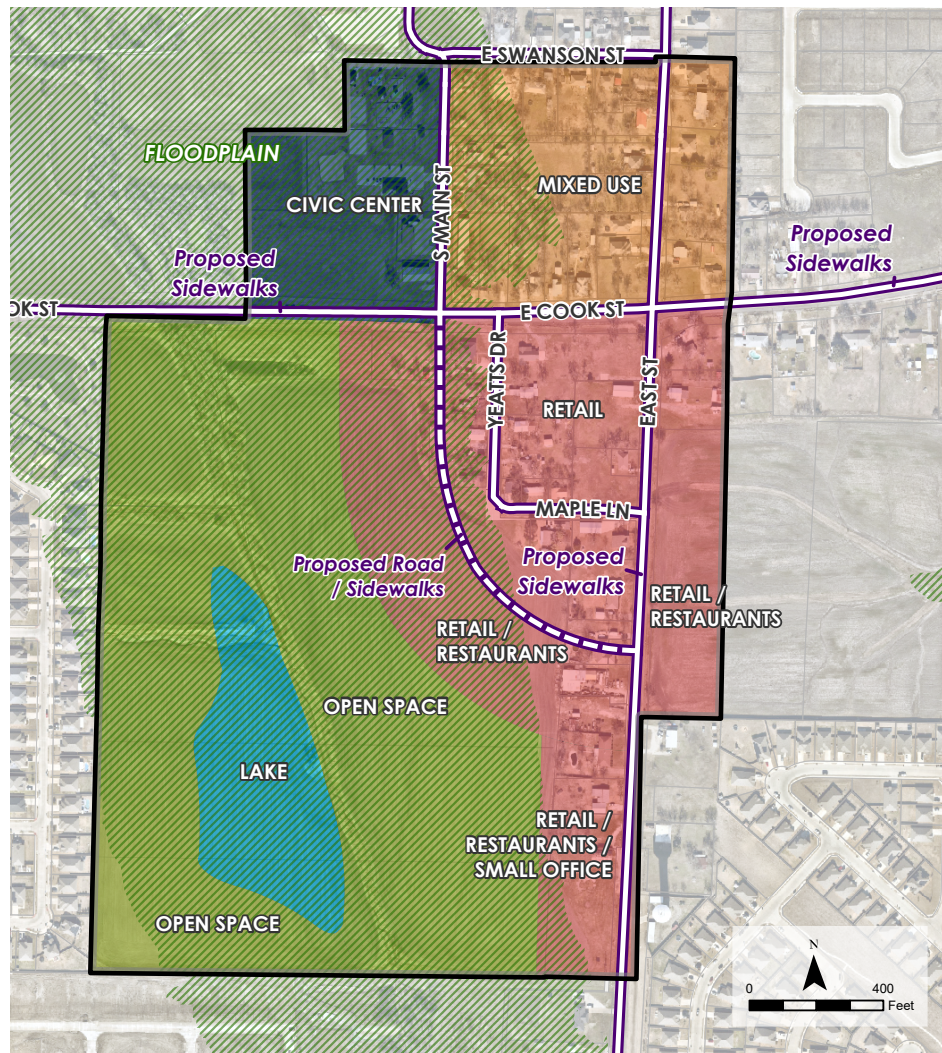


Attention to elements of urban design can create an attractive built environment.

Urban design and future land use planning strategies need to acknowledge economic realities and functional necessities. Practical and reasonable expectations require that urban design efforts are concentrated on the “public environment,” referring specifically to areas that are either physically accessible or visually prominent to the members of the general public. Josephine seeks to maximize both the public and private benefits by improving visual quality.

In order to improve the urban design of new development, the city will strive to review the design context of residential, commercial, institutional, and industrial development. Site analysis will be considered an important aspect during the development, design, and construction proposals, and will include:

- » Careful consideration of proportions, details, and context of the buildings in relationship to the property and adjacent properties.



This **concept example** illustrates how the new City Center could feature a mixture of land uses and attract desired development.

- » Mixed use and compatibility. Mixed uses that meet pre-determined standards may be permitted within neighborhoods and provide a variety of housing for people in different stages of their lives. Buildings may have a variety of functions but must be compatible with one another in size and their relationship to the street. Uses may change within the buildings both horizontally and vertically. Neighborhood services should be accessible within a five-minute walk. Retail may be integrated with residential but should be specifically designed to enhance a neighborhood rather than detract from it.
- » Public spaces should be integrated with new development. Buildings should be sited carefully to create defined public space. Build-to-lines should be utilized to establish a consistent series of building facades and to promote regular alignment. The street is an important form of public space that is shaped by design standards.

City Center

Josephine has a grand vision for the future of creating a new city center, and it will take an effort by the community to realize the vision. The city, partnering with property owners and developers along with the Texas Department of Transportation, will need to be involved in nearly every aspect of implementing the City Center.

Property owners and future businesses will need to understand their role of connecting to the rest of the community and of developing in an environment which will have environmental and transportation constraints.

Guiding principles of developing a city center:

- » Investment will have sustained value and reflect the character of Josephine.
- » Regulations or development standards intended to create community and connectivity of the City Center may increase development costs which could be offset through corresponding economic incentives or capital improvements.
- » Uses in the City Center should be marketed and maintained as a single district and be branded and provided signage for any open spaces or civic gathering places.

- » Capital improvements will reflect ease of vehicular and pedestrian movement through the City Center.
- » Shops, restaurants, and small office uses may be located within the core area of the City Center. This area is intended to be the core area. Adjacent to the core, mixing of uses may occur incorporating some mixed density housing and open spaces to accommodate floodplain. Trails and sidewalks will interconnect the City Center.

Objective 1: Develop land in accordance with the Future Land Use Plan.

Throughout the planning process, Josephine expressed strong support for preserving existing neighborhoods and character while encouraging appropriate growth.

Josephine has identified an opportunity to work with a developer of an area on the southwest corner of FM 6 and FM 1777 intersection. This area, identified as the City Center, would enhance the community by bringing a variety of commercial uses which would be oriented toward the surrounding existing and new residential development. The intent of this area would be to include local retail, restaurants, public open space, and new roads and sidewalks. The city should ensure that public improvements and private investments are oriented and improved to complement the surrounding land uses and to include privately-owned public spaces such as plazas or green spaces to make the development attractive for people to stay and enjoy multiple locations within the site.

Strategies:

- a. Use the Future Land Use Map categories and areas to establish and communicate clear guidelines and refine regulations consistent with the vision for future development with the public and potential developers.
- b. Maintain a continuous and coordinated public planning process that involves citizens, the Planning and Zoning Commission and City Council, local public and private entities, and regional organizations in policy development and decision making.
- c. Rezone properties in accordance with the Future Land Use Plan.
- d. Encourage multifamily development in locations which make sense for the traffic accessibility and market.

- e. Encourage the types of non-residential uses which provide retail and services desirable by the community to locate in Josephine. Through the planning process, initial feedback suggests interest in locally-oriented retail and medical offices, a grocery store or supermarket, entertainment, and family friendly type activities.
- f. Encourage a thematic design that can be easily transformed into sustainable new developments as uses may come and go within the development.
- g. Develop a unified internal streetscape and signage plan with recommendations for the incorporation of sidewalks, pedestrian seating, thematic public lighting, and signage and wayfinding.
- h. Coordinate between transportation planning and land use planning to ensure that potential impacts of the site development on roadway congestion (stacking of cars, turn lanes, intersections) are carefully considered and that uses and transportation improvements are mutually beneficial.

Objective 2: Develop a set of expectations for the Extraterritorial Jurisdiction and Voluntary Annexation.

One of the contributing factors of the high growth of Josephine is the development of new neighborhoods just outside of the city limits. The city has worked extensively with these developers to understand their development goals and housing yield and has provided access to city services where available. Voluntary annexation, where the developer of property chooses to annex into a city, is the only option available to municipalities in the State of Texas. Josephine has the strong tool of water and wastewater services that can leverage the location, timing, and quality of growth in the city.

Strategies:

- a. Encourage housing development in an orderly manner building on existing and future water and wastewater systems to naturally increase the infrastructure.

Objective 3: Ensure new development compatibility with existing neighborhoods in Josephine.

Strategies:

- a. Development regulations which include zoning and the subdivision ordinances of the city must be revised to place greater emphasis on the importance of urban design. These can include:
 - » The relationship between different buildings;
 - » The relationship between buildings and the street, parks, and other spaces which make up the public domain.
- b. Visual quality objectives and a healthy business environment should not be considered mutually exclusive. Urban design should be incorporated into private development plans early in the development process.
- c. The impact of public features such as signage, utility locations, valve boxes, utility risers, solid waste containers, sidewalks, landscaping, and parking lots should be recognized as important factors in affecting community appearance.



Utility poles, lines, and boxes are important factors in community appearance and should be considered in urban design standards.

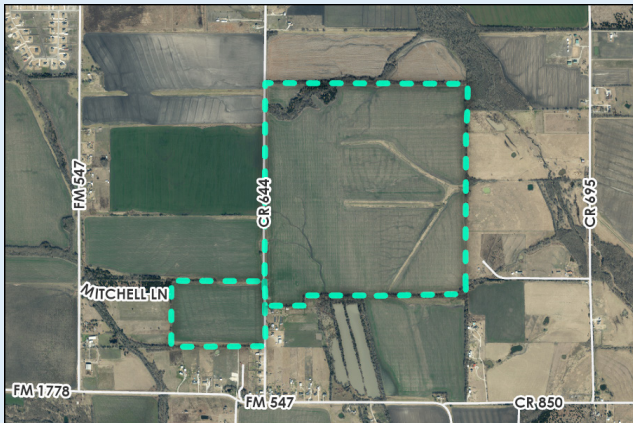
North Texas Municipal Water District (NTMWD) Monofill

NTMWD plans to construct a Water Treatment Residuals Monofill on their 410-acre property within Josephine's ETJ. The planned site is half a mile north of Josephine city limits and on both sides of County Road 644. The monofill itself is proposed to take up 310 acres, while the remaining acreage will be used for supporting activities, including a temporary storage area and a building to house dewatering equipment.

A “monofill” is a landfill for one type of waste – in this case, the byproducts (or “residuals”) removed from lake water while treating it for drinking water. The site in Josephine will be exclusively used for the disposal of water treatment residuals.

According to the current plan, NTMWD will build a pipeline to convey the water treatment residuals from the Wylie Water Treatment Plant (WTP) to the Monofill. Residuals will arrive in a sludge-like state and will be dewatered before being permanently disposed into the Monofill. The draft permit from Texas Commission on Environmental Quality (TCEQ) would allow up to 100,000 dry tons of residual disposal per year. If issued, the TCEQ permit would be up for renewal in

five years.



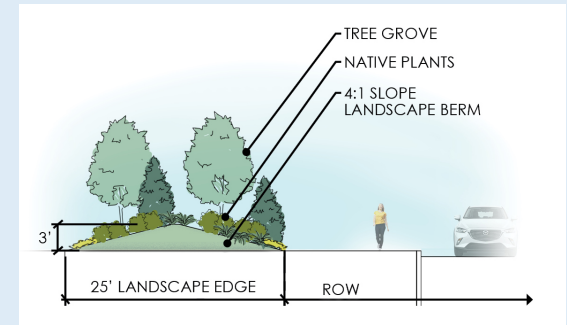
Aerial map of planned site of NTMWD Water Treatment Residuals Monofill. Source: NCTCOG 2021

Construction of the pipeline from the Wylie WTP could start as early as 2025, with the monofill operations beginning in 2027 or 2028. If the pipeline is not built as planned, NTMWD has stated that the alternative would be transporting the residuals via trucks – with an estimated average of 50 trucks a day coming and going from the site. The city should work with NTMWD and Collin County to establish a preferred truck route and to plan for any necessary roadway improvements to handle the increased truck traffic if a pipeline is not constructed in time for the site's opening.

As with any land use, it is critical to examine the impacts to the Josephine community and what potential nuisances may arise. On a positive note, the Monofill

will not generate biogas or methane, since the water treatment residuals do not contain significant amounts of organic material. With the planned pipeline, traffic impacts should be minimal. Additionally, the TCEQ permit and regulations do not allow any contamination of local surface and ground waters. Stormwater run-off will be controlled through surrounding berms and a clay liner under the disposal areas. TCEQ also requires that nuisances (such as insect infestations and odors) be controlled. NTMWD has stated that any potential odor would smell like lake water and that any issues would be addressed through proven technologies.

Visual impacts of a large facility like the Monofill are also important considerations. According to the NTMWD, the site will be designed to blend into its surroundings by use of green spaces, screening, landscaping, and buffering from the fence line. These visual barriers will be key to helping maintain the existing rural / agricultural character of the area. At first, the Monofill will not be visible from the right-of-way or adjacent properties. Over time, as the residuals disposal compounds, it will appear like a gradual sloping hill.



Example of landscaping and berm design that can provide an aesthetically-pleasing buffer between uses.

The city should maintain a conversation with NTMWD during the site planning process to ensure a final design that will minimize impacts to current and future development. As new residential communities are built in the area, the city and developers should consider the Monofill when reviewing site layout, landscaping, and buffering. For example, aesthetically, it may be preferable to keep the Monofill out of the line of sight from homes as much as possible. Additionally, lots that are developed along the boundary edges of the site should be at low-density rural style lots of at least one acre or more with homesites setback as far from the boundary of the site as possible to reduce the potential of negative impacts.

The Monofill's expected lifespan is over 100 years. Once it reaches capacity, the land could likely be transitioned to other uses, such as parks and recreation. However, it is difficult to predict what community preferences and needs will be that far in the future, especially since the City of Josephine and available technologies will look very different from today.



Transportation

Chapter 5

Transportation Goal:

Josephine will have a transportation network which meets basic needs for movement, access, safety, and reasonably rapid travel for people and goods through and within the city.

Because roads do not stop at the city limits, coordination with neighboring cities, Collin County, Hunt County, and TxDOT is vital to encourage connectivity between developments throughout the community as well as ensuring safe travel for cars, trucks, bicycles, and pedestrians. Josephine is transitioning from a primarily rural community to a more suburban style community. It is dependent on primary and secondary arterial roads that are maintained by Collin County and TxDOT for much of the access to developed property throughout the community. Josephine residents indicated in the city survey that there is also a need and desire for sidewalks, bike paths, and trails. There needs to be walkable areas connecting the neighborhoods to their open spaces (either public or private); to schools; and to the potential new City Center.

Traffic and Congestion

Two of the three common components of traffic congestion are based on the physical construction of the roadway (number of lanes and demand, known as volume and capacity). The function of a roadway is impacted by the number of cars traveling at any given time and the number of available lanes. The third aspect has to do with the potential hazards at key intersections and access points to private property, also known as driveways. Analysis of the existing and future road network revealed that Josephine roads will have challenges in both capacity and the volume needed for estimated future demand. The Level of Service (LOS) for FM 6 has been estimated from level D or E and the intersection with FM 1777 at level F.

This term, LOS, is commonly used by transportation planners to study and make recommendations for the road network. Level of Service

(also called Quality of Service or Service Quality) refers to the speed, convenience, comfort, and security of transportation facilities and services as experienced by users. Level of Service (LOS) ratings, typically from A (best) to F (worst), are widely used to evaluate problems and potential solutions.

Level of Service (LOS)

The following travel flow characteristics (V/C Ratio) are used to determine needs and deficiencies during the planning process:

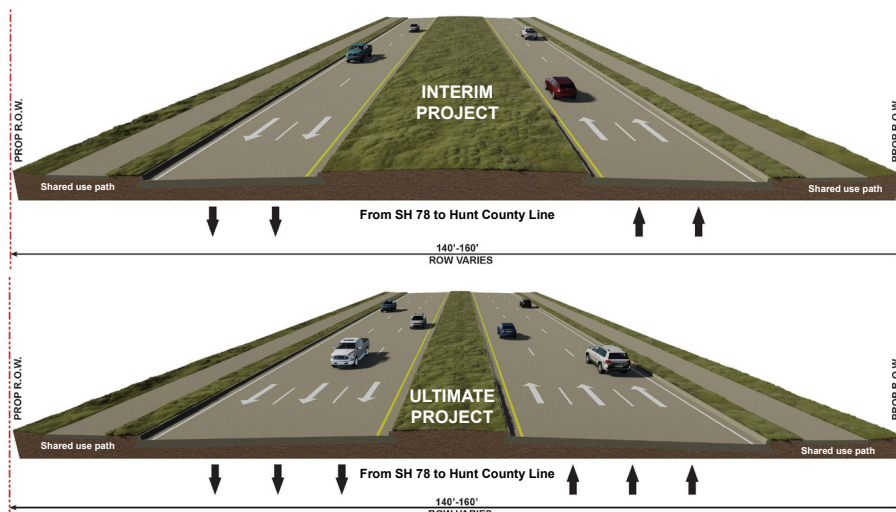
A	Virtually free flow; completely unimpeded: Volume/Capacity ratio less than or equal to .60.
B	Stable flow with slight delays; reasonably unimpeded: Volume/capacity ratio .61 to .70.
C	Stable flow with delays, less freedom to maneuver: Volume/Capacity ratio .71 to .80.
D	High density but stable flow: Volume/Capacity ratio .81 to .90.
E	Operating conditions at or near capacity; unstable flow: Volume/Capacity ratio .91 to 1.00.
F	Forced flow, breakdown conditions: Volume/Capacity ratio greater than 1.00.

Such ratings systems can be used to identify problems, evaluate potential solutions, compare locations, and track trends. Current planning tends to evaluate transportation system performance based primarily on motor vehicle traffic speed and delay (also known as “traffic”). Note the focus on motor vehicle mobility, which contributes to continued automobile dependency. This plan also considers other forms of mobility as result of community input – addressed in both this plan and, potentially, a future Parks and Trails Master Plan.

Texas Department of Transportation (TxDOT) and County Proposed Improvements

Two major roadway improvements in Josephine are intended for the city:

- » *Increased Capacity for FM 6.* TxDOT intends to improve FM 6 in a two-stage capacity improvement. Initially four lane with an ultimate of six lanes, it will be constructed with curb and gutter with a raised median along the length. Additional right-of-way will be acquired along FM 6 which will impact some of the existing land uses (predominantly single family residential) along the southern right-of-way. The proposed ROW width is 140 feet. The intention of the plan is to install ten (10') foot wide multi-use paths on the roadway alignment. This project has been designed from the City of Nevada to the Hunt County line through the City of Josephine. The project is estimated to cost \$131 million. The project has been designed but not yet funded.



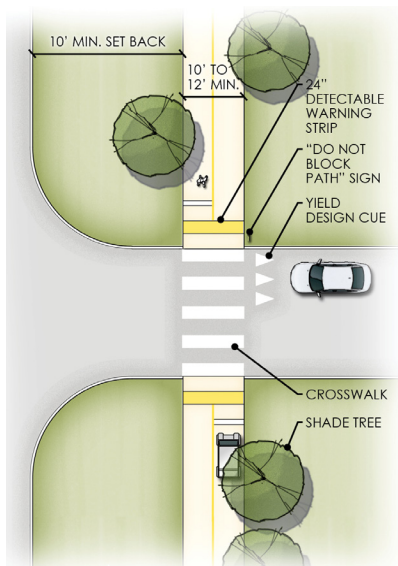
Proposed typical sections for TxDOT's FM 6 project. Source: TxDOT 2022

Median openings will be limited along this stretch of highway. The Hunt County Thoroughfare Plan adopted in January 2022 cites that FM 6 will be improved to a six lane rural principal arterial as a short-term project. The plan defines a short-term project as those which would provide the greatest immediate benefit to support existing development, economic growth, reduce congestion, or redistribute travel demand.

TxDOT has not placed this project on their statewide planning map, but intends to initially fortify the roadway through a seal coat. In order to move potential projects forward on the TxDOT funding schedule, the city should involve the North Central Texas Council of Governments' service as the regional Metropolitan Planning Organization (MPO). The MPO is designated for each urbanized area to carry out a continuing, cooperative, and comprehensive multimodal transportation planning process, including the development of a Metropolitan Transportation Plan (MTP) and a Transportation Improvement Program (TIP). These are the long-range planning documents for transportation improvement in the region. Every two years, a Unified Planning Work Program is formulated for future fiscal years to apply federal and state funding toward transportation improvement projects that have been requested from representatives of the regional transportation agencies and local governments.

- » *Increased Capacity for FM 1777.* In a similar manner to FM 6, TxDOT intends to improve FM 1777 in a two-stage capacity improvement. Initially four lane with an ultimate of six lanes, it will be constructed with curb and gutter with a raised median along the length. The intention of the plan is to install a ten (10') foot wide multi-use paths on the east side of the highway and a six (6') foot sidewalk on the west side. This project has been designed from Royse City to the intersection of FM 6 in the City of Josephine and has not been funded by TxDOT.

Improvements to both of these prime corridors will necessitate the need to improve the intersection of FM 6 and FM 1777. TxDOT traffic data from 2020 and 2021 show approximately 7700 annual average daily trips passing through this intersection accounting for both directions. This amount has increased significantly from previously observed counts which from 2017-2019 only had observations of 4,235 trips. Currently FM 6 has unrestricted movement through the intersection while FM 1777 has both north and southbound stop signs awaiting gaps in FM 6 vehicles for traffic movement. The intersection is planned for signalization



Example design standards for development along highway expansion projects.

to assist in the controlling of traffic through both corridors. However, with the planned increase of commercial development as part of the City Center, care must be taken into consideration with the design of the intersection to accommodate drive approaches into surrounding commercial development and future pedestrian activity.

Driveway approaches on an ultimate six lane, divided highway will be required to be setback at a minimum distance of two hundred (200') feet or even greater. Right hand deceleration lanes may be required for adjacent development in order to not interfere with free flow traffic on the highways. Josephine should encourage the use of mutual access easements (MAE) interconnect-

ing commercial development within these surrounding developments to manage traffic outside of the highway and interconnect parking areas.

The traffic signalization itself should incorporate highly visible pedestrian crossing elements including signage, street markings, and pedestrian demand signalization. Sidewalks should be wider (ten to twelve feet) to accommodate spacing as a multi-use path and have enough separation from the main lanes of traffic to keep pedestrians safe.

Objective 1: Use concepts for Context Sensitive Design when improving existing streets and building new streets, interconnections, and sidewalks.

Build-to-lines should be utilized to establish a consistent series of building facades and to promote regular alignment along the street. The street is an important form of public space, and the buildings that define it should be expected to reinforce and enhance the streetscape corridor. Therefore, as new streets are designed and existing ones are increased in capacity, the design of the street should be reflective of the types of uses adjacent to that particular section.

In order to design for neighborhoods and pedestrian-oriented areas, decision makers must understand the key relationship between

transportation and land use. In particular, flexibility may be needed in roadway design to accommodate a changing urban form within the community. Understanding key community objectives for land use within the community is also important in order to ensure that public infrastructure investments are in line with ultimate land use objectives. One way to do this is through context sensitive solutions.

Context sensitive solutions (CSS) is the practice of developing transportation projects that serve all users and meet the needs of the neighborhoods through which they pass. Developing solutions must be a collaborative process that involves all stakeholders in street designs which fit into the character of surrounding neighborhoods while maintaining safety and mobility. The key is making sure that elements of streets complement surrounding or adjacent development in order to generate a neighborhood or "roadway experience."

The process of designing CSS roadways is similar to the process of designing traditional thoroughfares: automobile traffic is considered with traffic counts, traffic demand, and level of service information-gathering efforts. The difference is that, in addition to automobile traffic, other elements – such as pedestrian traffic, built environment, and land use – are also carefully considered.

The most notable publication and guidebook for CSS is *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach* published by the Institute of Transportation Engineers (ITE). This publication includes information on balancing the transportation needs of the community with adjacent land uses. In particular, the CSS approach recommends designing thoroughfares based upon:

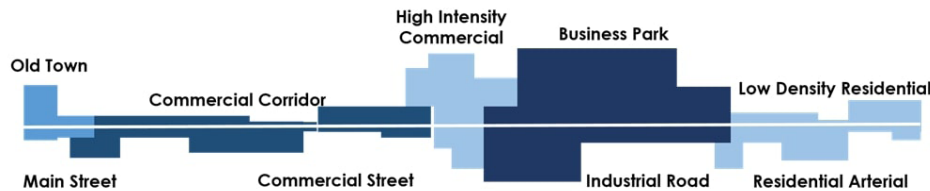
- » Community objectives
- » Functional classes
- » Thoroughfare types
- » Adjacent land use



CSS might include wide sidewalks and street furniture in more walkable areas.

New streets, sidewalks, and bikeways as well as street upgrades should be planned with the recommendations of CSS. The below graphic shows how one road could be designed to have different capacity and profile based on the intensity of land uses abutting the road.

Figure 19:
Context Sensitive Corridor Example



As a street winds through the city, its function and street section may change based on the surrounding land uses – rather than a one-size-fits-all pattern.

As Josephine grows, a larger road network containing more lane miles will need to be maintained. Most of Josephine’s existing network contains asphalt surface materials which over time will deteriorate through use, heavy loads, edge encroachment by grass, and stresses through extreme temperature change. A Pavement Management System is an organized effort to index the surface and subsurface condition of all the city’s roads and, based on a numerical grade on those conditions, provide an annual plan for crack repair, pothole repair, mill and overlay techniques, and eventual roadway and subsurface replacement. The Pavement Management System allows the community to move from a demand response model of road repair to a standardized, quantitative program of repair so that labor and material costs can be normalized and repair activities can be focused on extending the lifetime of road surfaces. The system also allows communities to save capital expenses for future expansion and replacement.

Strategies:

- Integrate the concept of context sensitive design into all transportation project design standards.

Objective 2: Fund and build improvements to existing streets as shown on the Master Thoroughfare Plan.

Strategies:

- Continue to fund improvements through the city’s Capital Improvements Program (CIP) and available grants and loans.

- Create a Pavement Management System which extends existing roadway life and manages the CIP for future roadway replacement.
- Continue to coordinate with the Texas Department of Transportation, Collin County, and Hunt County to address long-range transportation needs.
- Organize a formal opposition to the proposed alignment of the Collin County Outer Loop that would travel through the western section of the City of Josephine. Provide feedback that a more preferred route would be to improve SH 78 along the east side of Lake Lavon. This process should be made through coordination with the Collin County Transportation Plan, NCTCOG, and TxDOT.

Figure 20:
Roadway Functional Classification System

Functional System	Service Provided	
Arterial		Provides the highest level of service at the greatest speed for the longest uninterrupted distance with some degree of access control.
Collector		Provides a less highly developed level of service at a lower speed for shorter distances by collecting traffic from local roads and connecting them with arterials.
Local		Consists of all roads not defined as arterials or collectors; primarily providing access to land with little or no through movement.

Source: FHWA - Flexibility in Highway Design

Objective 3: Require developers to dedicate right-of-way and construct collector and arterial streets as shown on the Master Thoroughfare Plan.

The Federal Highway Administration (FHWA) functional classification system of roadways is the predominant method for roadway classification used by transportation planners. This classification ranges from

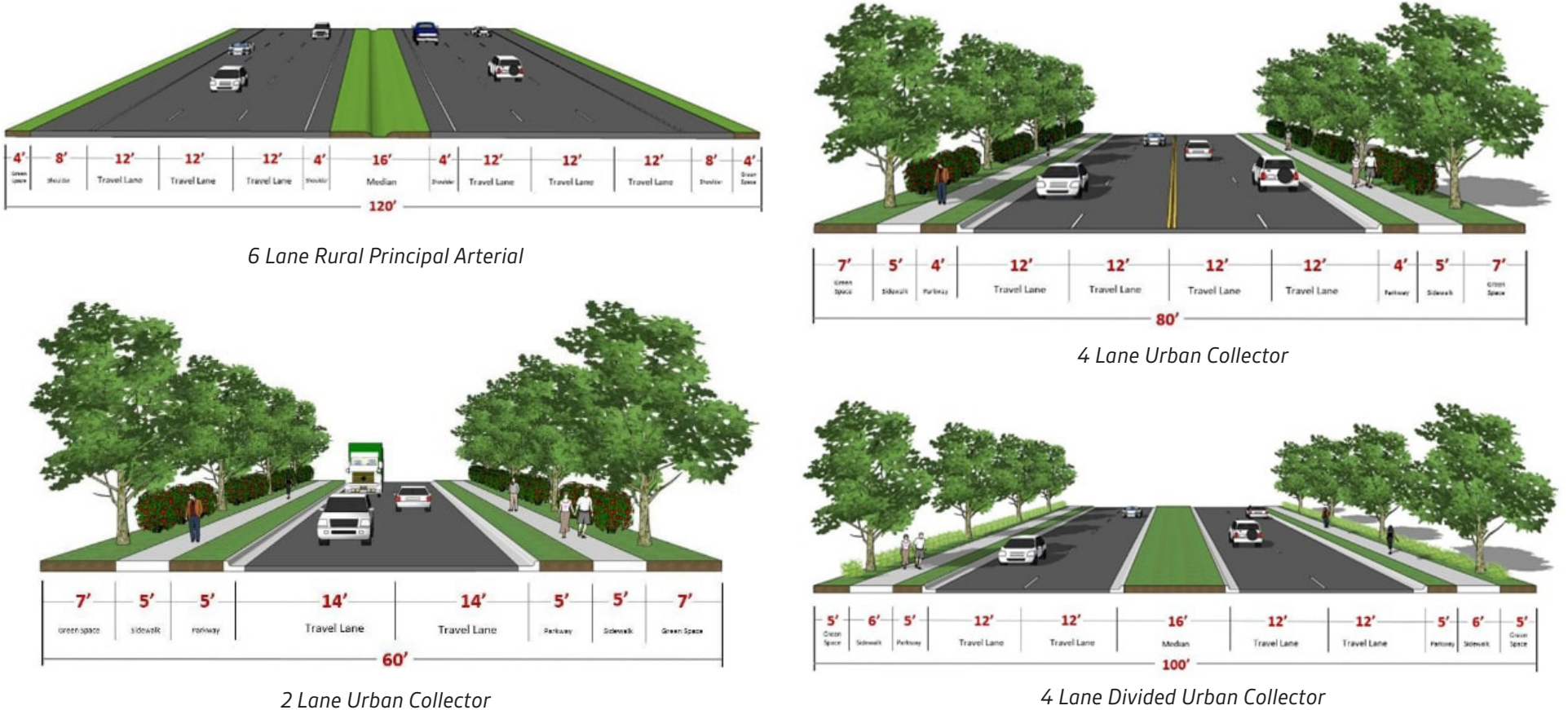
arterials that are streets meant for high speed, long distance travel, carrying large volumes, and not hindered by local access. And at the other end of the spectrum, a local street, meant to feed other streets, carries small volumes at low speeds. In between is a collector street that collects traffic from local streets, maybe has fronting commercial uses like commercial, and feeds the arterial system.

Each of the roadway types has a consistent right-of-way width and sidewalk/buffer improvements. Figure 21 shows typical functional classification rights-of-way. While not including every scenario, these graphics

help illustrate capacity improvements in the community. Through the Capital Improvement Program budget, the city should consider how much of their network should be improved and at what time.

New developments to the community may propose alternative street designs and capacities based on their traffic demand and density. Figure 23 on page 38 delineates where these roadway types may be assigned to roads in Josephine. Future roads on this Master Thoroughfare Plan Map are suggested locations and connections. Specific engineering and land planning will determine the final location of the roadways.

Figure 21:
Example Typical Street Sections



Source: Hunt County Thoroughfare Plan 2022

Objective 4: Make important interconnections of streets to activity centers.

Activity centers, such as places of worship, schools, business, and industry, thrive when access is made easy. Street connections are important for residents and businesses alike. Dead-end streets impede movement, especially for school buses and emergency services.

Strategies:

- Minimize use of cul-de-sacs in new neighborhoods so that emergency services can be provided as quickly as possible when needed.
- Design right-of-way through the City Center project to interconnect with FM 1777 and provide access internal to the site.

Objective 5: Improve existing sidewalks and construct new sidewalks for pedestrian access and citizen health.

Citizen health largely depends on access to food, medical support, and exercise. Sidewalks can improve citizen health by promoting walking, especially to schools and parks. Persons who cannot drive a car are especially helped by having sidewalks. In the heat of the summer, these sidewalks can still be used in the morning and evening.

Strategies:

- Fund and build sidewalks to help create an interconnected sidewalk system throughout the city.
- When designing new sidewalks along existing streets, recognize that right-of-way may not be sufficient for the ideal street cross-section shown in the typical street section examples. In these circumstances, provide the widest sidewalk possible for pedestrians.

Objective 6: Consider using unused railroad right-of-way for new trails as part of an interconnected trail system.

Josephine was originally built around a traditional urban core based on the growth of the railroad which previously passed through the town. This railroad right-of-way corridor can continue to contribute to the health, transportation, and well-being in the community. There are national programs through active organizations which provide a set

of financial and policy tools to assist communities in identifying and securing resources when there may be limited appropriate space for multi-use trails.

One organization, Rails-to-Trails, enhances local transportation networks by providing non-motorized local connections that are sometimes preferable to on-road bike lanes or sidewalks located on congested, dangerous roadways. Rails-to-Trails benefit railroads, too. In most cases, the trail manager purchases a use easement or license from the railroad, providing financial compensation and, in some cases, reducing liability responsibility and cost to the railroad. In some instances, a fully developed trail can also provide the railroad with improved access for maintenance vehicles.

The railroad right-of-way in Josephine is owned by the Northeast Texas Rural Rail Transportation District (NETEX). The district is a subdivision of the state similar to a municipality and has the authority under Texas Transportation Code to issue bonds and generate revenue for economic development purposes. While the district was formed to preserve existing rail corridors for redevelopment and potentially connect new rail lines for passenger and cargo transportation, the right-of-way through Josephine is of significant size and location that could serve as a trail connection between communities. When trails are built in the corridor, care should be given to preserve future commuter rail traffic to the DFW center.

Strategies:

- Work with the railroad right-of-way owner and nearby property owners to develop a plan for new trails in railroad right-of-way.
- Provide direct access to adjacent properties with minimal interference to movement and safety of traffic on public roadways.



No longer containing tracks, the railroad right-of-way (evident through the tree lines) could potentially be used as part of a trail system.

Objective 7: Evaluate floodplains for the construction of trails.

Josephine has several floodplains connecting the city north to south. These floodplains, when preserved and protected, can ensure the protection of property from flooding and provide natural connections between neighborhoods and areas of the city.

Strategies:

- a. Discourage and/or prevent construction of permanent structures in the floodplain to help protect property and environmental quality. If construction in existing floodplain is deemed necessary for any project, then measures should be taken to raise the land out of the floodplain and to amend the flood zone map.
- b. Encourage the siting of trails based on natural topography of slope to ensure the lowest impact of the existing conditions by trail construction.
- c. Look at opportunities to construct trails within floodplain areas which are grade separated from high-capacity roads.
- d. Examine opportunities in new developments where natural connections can be made to trails through floodplain corridors connecting each neighborhood to another. Plan into the design of new neighborhoods trailhead connections to the full trail system.



Floodplain corridors often provide opportunities for trails.

Objective 8: Adopt transportation impact fees to assist in the funding of systemwide roadway improvements.

Funding Sources

The implementation of any transportation program, whether it be improvement to the road network or the creation of opportunities for pedestrian movement through the city or the Josephine original town-site area, is going to need to be based on practical demands for additional sources of funding. As discussed in Objective 8, the creation of a transportation impact fee can allow the city to keep up with funding capacity improvements in a manner directly related to the growth the community is experiencing. The table in Figure 22 on page 37 identifies other various funding sources and opportunities to leverage the amount of growth Josephine is experiencing to the availability of funding for which the city could be eligible.

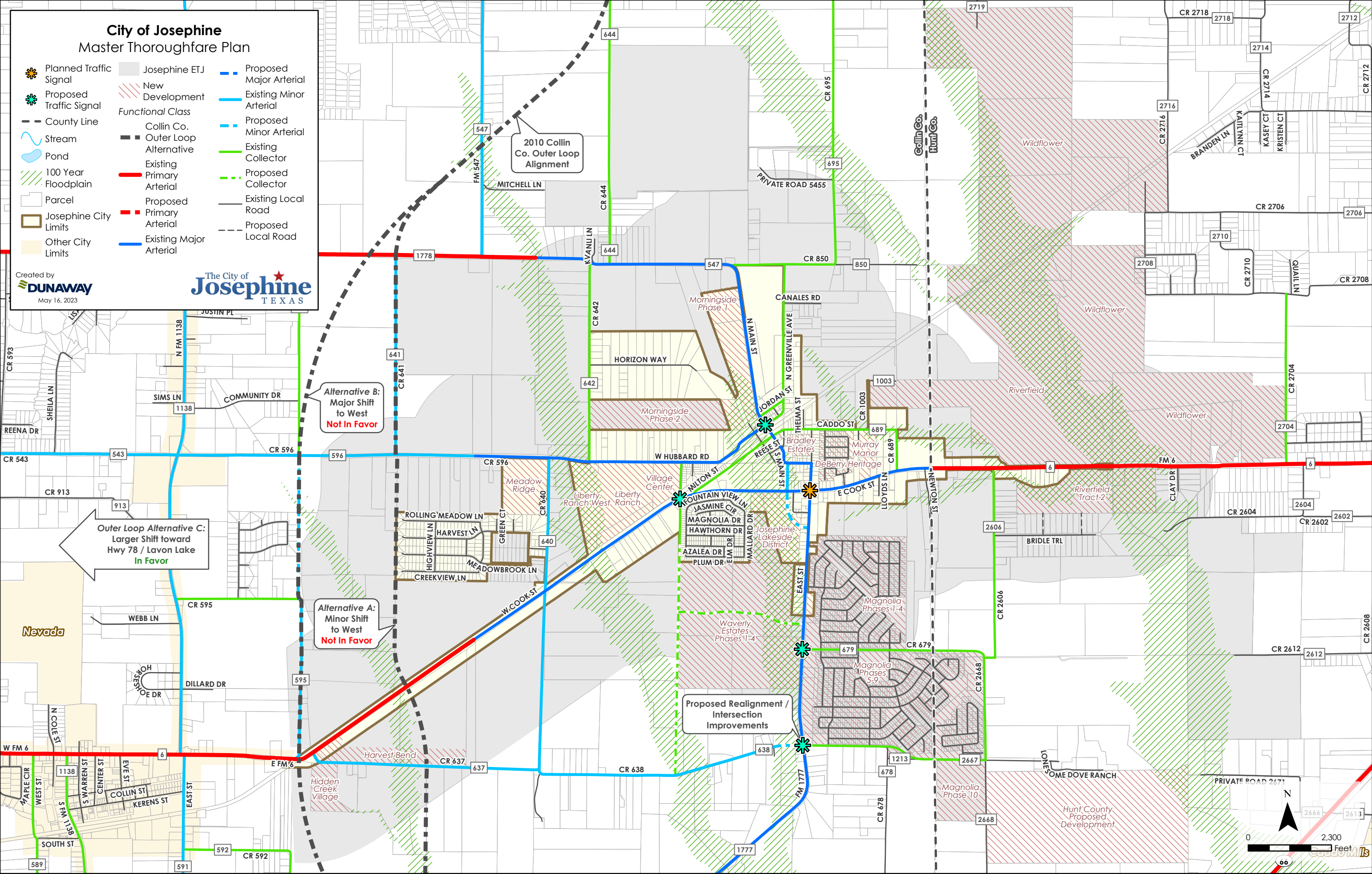
Strategies:

- a. Implement a roadway impact fee study, separating out the different roadway areas of the community in order to accurately charge and relate the fee to those growth areas.

Figure 22:
Potential Transportation System Funding Sources

Program	Agency	Purpose	Eligibility	Use of Funds
Highway Safety Improvement Program (HSIP)	TxDOT (from the Federal Highway Administration)	For highway safety projects that eliminate or reduce the number of fatalities and serious injuries on all public roads.	Any local agency that owns, operates, and maintains public roadways.	Improvements that address the crash types identified in the Texas Strategic Highway Safety Plan (SHSP). Funds are provided for construction and operational improvements both on and off the state highway system.
Transportation Infrastructure Finance and Innovation Act (TIFIA)	Build America Bureau, US Department of Transportation	To fill market gaps and leverage substantial private co-investment by providing supplemental and subordinate capital.	State and local governments, transit agencies, railroad companies, special authorities, special districts, and private entities.	Highway projects and transit capital projects are eligible.
Transportation Alternatives Set-Aside Program	Federal Highway Administration – administered by TxDOT	Preserve historic, archaeological, scenic, and environmental resources related to surface transportation and to facilitate bicycle and pedestrian use.	Local governments, school districts, natural resource or public land agencies, non-profit entities responsible for the administration of local transportation safety programs.	Bicycle infrastructure improvements; shared use paths; sidewalk improvements; infrastructure related projects to improve safety for non-motorized transportation.
Rails-to-Trails Conservancy	Assistance with finding funding and designing rails-to-trails projects	Find excess or unused rights-of-way to develop regional and local trail systems.	State and Local Governments usually partnered with a railroad right-of-way owner.	Assists in the design, grant writing, and finding funding sources for these projects.

See Figure 23: “Master Thoroughfare Plan Map” on page 38.





Economic Development

Chapter 6

Economic Development Goal: Josephine will develop a resilient economic base.

Josephine has a long history with the railroad and the connectivity to surrounding land and neighboring communities. The city's current economy consists primarily of revenues from its property tax base. The community desires a greater diversity of business and industry. It aspires to be a unique place that is more than a bedroom community. To that end, the city is more involved in economic development activities through the Josephine Community Development Corporation (JCDC), a Texas Type B Economic Development organization authorized by the voters of the City of Josephine. Economic development corporations' missions are to stimulate investment and development opportunities while preserving the aspects of their cities which makes them home. Focus by the JCDC is to leverage the rural nature of the community with its proximity to the greater Dallas/Fort Worth regional area and the high amount of growth which is occurring within eastern Collin County. Typical activities that an economic development corporation may wish to continue in the community include:

- » Increase innovation and entrepreneurship for local businesses in the community.
- » Brand and market the city.
- » Increase access to capital for new and existing businesses.
- » Foster key economic development catalyst projects.

The Future Land Use Plan supports notable areas of key development. These can be defined as catalyst sites. These areas are intended to attract diverse development that do not compete with one another. These areas are intended to create a portfolio of assets for the City of Josephine.

City Center

The City Center of Josephine is rebuilding the historical center of the city and is intended to be a large economic driver for the community. In the Future Land Use Plan, the City Center has its own land use designation. Development of a city center can be very special to the community, and therefore should be designated as such. Diversity of land uses can be capitalized on by providing key destinations and employment opportunities for residents and visitors. Introduction of diverse housing types are planned in the surrounding area to support the growth of the City Center. The City Center should include diverse retail and restaurant opportunities.

Objective 1: Encourage neighborhood professional and medical offices to service the local community.



Neighborhood medical offices can provide an important local service. Source: Binyamin Mellish (Pexels)

Many communities across the country diversify their economic base to reduce exposure to risk. The growth of locally-owned or operated businesses often generates a substantial share of revenue that is recirculated and spent locally, ultimately reinvesting in a city's economy.

Strategies:

- a. Strengthen and diversify the office / employment space offerings in Josephine to include more varied opportunities for emerging needs such as co-working, small businesses, and entrepreneur incubator space.
- b. Encourage the expansion of local, community serving retail and service industries. Consider developing a “new resident” guide to provide information on community resources and local businesses.
- c. Foster public/private partnerships that both enhance the local quality of life and strengthen the economy. Invest in public spaces and facilities co-located with private development.

Objective 2: Concentrate efforts on attracting destination-based local-oriented retail, grocery stores, and restaurants.

To invigorate and support retail growth that will sustain residents of Josephine and reduce their commute time for daily essentials and attract new retail and employment, the community should focus on the accessibility and development opportunities of the FM 6 corridor. The retail encouraged within this area must be destination-driven and market appropriate.



Destination restaurants can contribute to local employment and economic development.

The timeline for measuring the successful implementation of this strategy must take a long-term outlook.

One of the major changes in municipalities in Texas in recent years is the increase of local option elections for the creation of package alcohol sales storefronts (Liquor Stores). Because the local option petition is a grassroots, community-based effort and not driven by the city, the city has to take a balanced reactive/proactive approach to the potential election. Package alcohol sales can be limited to certain zoning districts

within a permitted use table and those zoning districts limited to prime locations within the city for retail use. The Texas Alcoholic Beverage Commission (TABC) allows cities to regulate the minimum distance that a package alcohol sales store is from schools, churches, hospitals, and playgrounds. The sale of alcohol in a community can bring sales tax revenue, but through land use tools such as zoning, the city can ensure that the uses remain well designed, safe, and do not become a nuisance to the rest of the community.

Strategies:

- a. Work to attract predominantly convenience-based Class A retail spaces along the FM 6 corridor – specifically at the City Center, CR 640, and CR 595/CR 637 intersections.
 1. Design standards must remain focused on traffic movement and landscaping as this is the visual entry to the community from neighboring communities.
 2. Although convenience-based retail is easier to attract with demographics than destination-driven retail, the city can focus on some types of criteria as to what tenants would find appropriate. This includes reducing development permitting costs, creating potential tax incentives, and providing public infrastructure capital improvements.
 3. Family-based retail needs traffic, land, infrastructure, and visibility to be sustainable. Providing these elements can bring restaurants, larger retail, and ancillary entertainment venues. The community has expressed interest at bringing a full-service grocery store to the city.
- b. Commercial and neighborhood service land uses in Josephine should reflect a combination of visitor and resident-based retail availability especially in the City Center.

The retail environment will be heavily dependent on the development of the City Center. Additional employment density will be required to make any retail sustainable. To provide the required demand, the Center should have employment opportunities as well. The International Council of Shopping Centers estimates that workers with easy access to retail spend an average of \$2,350 annually near their workplaces. Most of this spending is food and beverage purchases (about 61%), while the remaining are neighborhood goods and services and general merchandise

sales. Clustering the local and destination retail environments with civic and cultural uses gives restaurants and retail shops a broad-based market. Civic and cultural events and uses increase retail demand.

- c. Concentrate efforts on retail attraction and retention. The catalyst for retail attraction and retention is customers, whether they are local or visiting. Workforce retail demand can be generated by focusing efforts on developing a local office park adjacent to local neighborhoods.

Objective 3: Consider how the branding of the city may bring economic development and create a streetscape made up of streetlights, gateway elements, and wayfinding signs in the community.

Having grown along the railroad corridor, Josephine is a fairly linear community. Access to the community typically comes from FM 6 and FM 1777. A distinctive logo such as the current city logo or brand (which can be a graphic icon or other easily repeatable image) carefully sited throughout the city is needed to help tourists and travelers identify Josephine as different from other communities.

Branding of a community can:

- » Create a common vision for the future of the community and its potential.
- » Provide a consistent representation of the place.
- » Enhance its local, regional, and/or global awareness and position.
- » Become a recognizable and repeatable icon for tying a community together physically through signage.

The Josephine city logo has been placed on the city's elevated storage tanks. Combined with the potential logos of new schools in the community, the logo and/or color could be a basis for the brand. A brand can be made to make the connection between the physical location of the community and the actions that the community is undertaking to bring new investment, development, and residents to the city. Additional signage, marketing materials, city communications, and online presence should all be coordinated.

Wayfinding is a method to help direct residents and visitors to significant places in a community. The term "wayfinding" was first used in 1960 by architect Kevin Lynch in *The Image of the City*, in reference to maps, street numbers, directional signs, and other elements as "wayfinding" devices. Effective wayfinding tools include appropriately scaled signs, clearly delineated roads, distinctly identified transit corridors, and consistent lighting. These tools help to furnish cognitive maps that allow

people to quickly grasp an environment. In addition, it can be used to highlight and inform observers of significant historical/cultural sites within a particular district. Pointing out major institutions, for example, makes them easier to find and engenders pride in the residents, business owners, and customers that inhabit the community.

Highway signs and markers issued by TxDOT to identify Josephine as a community, but they do not direct customers to the heart of Josephine. They do not indicate that there is the potential for available retail along any of the major arterials. Therefore, future customers unfamiliar with the area could have difficulty finding the City Center. The addition of limited access by way of a median will increase the need to specify turning movements from the FM roads to significant points in the community.

Strategies:

- a. Focus on signage at the entry points of the city through entry gateway signs at both the northern and southern ends of the community. Ideally these would be placed near the city limits. These entrances are the first opportunity that the city has to capture the imagination and interest of pass-through traffic made up of consumers and people looking for a new community in which to work and to live. The gateway entrances should incorporate the unique brand identifier and include appropriately designed signage that directs people to the amenities within the city, but also informs them of the relevance of the community to the region as a whole.



While TxDOT signage identifies the community, it does not communicate the city's brand nor provide guidance to area attractions. Source: Waymarking.com

- b. Develop a design plan for public lighting, median design, signage, and landscaping near the City Center then repeat the design in other focused areas such as the gateway signage and future entry features to new communities.

Objective 4: Develop standard practices in the use of cooperative 380 agreements for the incentivization of new commercial growth.

Chapter 380 agreements are allowed under the Texas Local Government Code and are the most broadly defined agreement between municipalities and private entities. Cities can incentivize developers, landowners, and businesses to perform in a way that is of most benefit to the community. The Texas Supreme Court provided a test of public purpose for these types of agreements. In short, the agreement must have the intent to accomplish a public purpose, rather than benefit a private party. Forms of acceptable incentives include programs that grant or loan public funds and provide city personnel and services. Public control over the funds must be retained to ensure the public purpose is accomplished, to protect the public's investment, and to see that the city receives a sufficient return for the funds or property.

Strategies:

- a. Work with the school district and Collin and Hunt Counties to understand possibilities of coordinating 380/381 agreements to increase the draw for economic development possibilities within Josephine.
- b. Develop guidelines for the negotiation of a 380 agreement on behalf of the city including sales tax incentives levels; performance benchmarks; and offset levels on the benefit of the recipient for costs associated with construction and infrastructure.
- c. Ensure reporting to the Texas State Comptroller's office all 380 agreements and their status.

Objective 5: Consider the development of a Municipal Development District.

A Municipal Development District (MDD) is a special purpose district created for the purpose of generating economic development and growth opportunities within the boundaries of the district. In 1997, the Texas Legislature recognized cities located in two neighboring counties

may not be able to take advantage of other economic development tools allowed within the state because some cities are already at the two-percent sales tax "cap" in some portion of the city but not others. The MDD is funded through a local sales tax. State law permits a tax rate of one-eighth to one-half of one percent. MDDs only affect the purchase of taxable items within the MDD.

The state authorizes expenditures of MDD funds for a variety of economic development activities, including:

- » Certain infrastructure improvement projects;
- » Recreational or community facilities;
- » Projects related to business enterprises that create or retain primary jobs;
- » Projects that promote new or expanded business development;
- » Convention center facilities and related improvements; and
- » Hiring of necessary staff for authorized activities.

The MDD, if formed, is governed by a board which may be appointed by the City Council. Policies and guidelines that will govern the actions of the MDD board should be approved by the City Council.

Strategies:

- a. Determine the boundary of a Municipal Development District based on the desired placement of commercial development generating the greatest opportunity for sales tax.
- b. Establish a rate and preliminary budget plan which will provide guidance to positive results from election and implementation of the MDD.



Housing

Chapter 7

Housing Goal:

Josephine will have a variety of housing types available to all incomes. All housing will be safe and decent for residents.

Josephine's dominant housing type is single family detached dwellings, although there are a few options of higher density housing being proposed in the city. Through the survey and in discussions with the community, the city has identified the need for a greater variety of housing types to support lifestyles of all ages and income levels.

Having a variety of housing types allows for residents to choose the type of home they can both afford and prefer. Housing needs are different throughout different stages of life. Providing for all types of housing allows residents to gracefully age in place.

Elements of housing relates to three generalized areas – Affordability, Preservation, and Diversity of housing type:

- » *Affordability* refers to the overall housing costs and ensuring that a range of price options exist in the city. Home valuation in Josephine has increased significantly with the housing boom of new homes in the area.
- » *Preservation* refers to the ability to maintain and retain existing homes and neighborhoods of Josephine, as well as ensuring the ability of residents to stay in their homes over time. Aging housing in the original city core has caused some removal of homes in the area, while adjacent underdeveloped areas have become new residential neighborhoods.
- » *Diversity of housing* is related to affordability; it also refers to the needs of the household through different stages of life. Younger families have different housing needs than retirement age people

wishing to spend less time and resources on maintenance of a structure or on a yard.

Neighborhoods are important to the community. Creating strong neighborhoods with connections to the civic life of the city, to schools, and to recreation opportunities is vital to sustaining a healthy environment. The following are some common characteristics of neighborhoods which can enhance development in the city.



Life-Cycle Housing

Allow a variety of housing types and sizes to accommodate different stages of life within Josephine. Ensure that all housing types are built to the highest possible quality.



Connectivity

Encourage connected neighborhoods, emphasizing both internal and external connectivity. Neighborhoods should be linked to each other as well as to the community as a whole.



Society

Encourage events (such as Fourth of July), block parties, and other neighborhood events to promote social interaction among neighbors and to foster a sense of community.



Recreational Access

Create parks in order to provide outdoor recreational opportunities for both neighborhoods and the community.

			
Quality Development	Neighborhood Conveniences	Open Space	Neighborhood Signage
Consider minimum residential standards that reduce maintenance and preserve long-term appearance.	Incorporate neighborhood retail centers in strategic locations which optimize convenience for adjacent neighborhoods. Encourage walkability and connectivity to adjacent neighborhoods.	In addition to parks and trails, neighborhoods should include open space in order to preserve some rural aspects of Josephine.	Delineate different neighborhoods through entrance features and signage.

A variety of lot sizes results in a mix of housing options. Requiring minimum lot sizes sets the character of the neighborhood by determining the type of development intended for the neighborhood; however, it does not limit homes to be the same size and style. Regulations for new subdivisions should account for the existing character of the area. Policy considerations should be made to ensure that lot sizes are distributed among small, medium, and large estates within each neighborhood.

Josephine's housing stock also includes older homes surrounding the original townsite area and brand new single family housing throughout subdivisions in the ETJ. Some properties have a lack of property maintenance with overgrown yards and planted materials, storage of debris, and some dilapidated structures which can contribute to the degradation of the community's appearance and has a strong effect on self-image. For health, safety, and community pride, efforts to improve property maintenance are key to a successful future.

Objective 1: Promote development of all housing types: single family detached units, attached units, townhouses, and apartments.

As mentioned above, most of Josephine's housing stock is single family detached units. To have a diversity of ages, incomes, and affordable housing in the community, a variety housing types are needed. In particular,

more multifamily housing is needed in the form of apartments and townhouses. The Existing Land Use Map shows where existing houses have been developed. The Future Land Use Plan shows areas for greater density in housing.

Strategies

- Support development of new areas for attached housing, townhouses, and apartments as shown on the Future Land Use Plan and where there is access to existing or planned services, jobs, and retail. These can be found within medium density, high density, or mixed use areas.
- To the extent possible, allow for a mixture of housing types within larger neighborhoods to support a variety of age groups and income levels.
- Redevelop existing residential lots where buildings have been removed. Doing so would provide opportunities for homebuilders looking for lower-cost land to build homes based on traditional Texas style architecture.
- Promote replatting of lots to make sure that housing meets minimum lot standards for zoning districts.
- Modify the zoning ordinance to improve opportunities for multifamily housing in appropriate locations and designs to serve younger populations.



Much of Josephine's existing housing stock should continue to be maintained, as it contributes to the unique feel of the community.

Objective 2: Maintain and improve the existing housing stock.

Before the housing boom of the last several years, most of the housing stock in Josephine was built between 1970 and 2000. Almost all is well maintained but as housing ages, maintenance needs increase. Not all property owners can afford to keep up with needed improvements, but assistance can be made available.

Strategies:

- a. Expand programs to maintain the existing housing stock such as those offered by Habitat for Humanity and other organizations and agencies.
- b. Use the development review process to evaluate private projects and their contributions to urban design.
- c. Align zoning and future land use allocation to ensure housing is located where it can be served by infrastructure without creating a burden on city services.

Objective 3: Promote the ability to provide a variety of mixed housing densities to allow residents to age-in-place through senior age-restricted housing and assisted living development.

Strategies:

- a. Develop zoning land use categories and design standards for age-restricted and assisted living development within medium and high density zoning districts.
- b. Support the nonprofit community in creating housing opportunities for seniors and people with disabilities.
- c. Negotiation with development agreements and the creation of planned developments can provide opportunities to include various housing options.



By providing senior living housing, a community enables older residents to transition to appropriate accommodations while remaining near their existing social network. Source: cottonbro studio (Pexels)



Parks and Recreation

Chapter 8

Parks, Recreation, and Open Space Goal:

Have excellent parks and recreational areas and preserve important natural resources.

Attractive, safe, and well-maintained public parks, open spaces, and recreation facilities are essential elements of Josephine's future in image and quality of life. When strategically placed and equitably distributed, parks provide a wide array of opportunities for both individual and community enrichment. In addition, parks and open spaces protect environmentally sensitive lands from potentially harmful effects of new development, while preserving their recreation and transportation benefits.

Parks and open spaces are places to play, to relax, to enjoy the natural environment, and to connect socially with others in the community. They can define a neighborhood and provide cultural focal points. If properly designed and maintained, parks enhance the economic value of nearby properties. Linear open spaces knit together neighborhoods with other important elements of the city including schools, city centers, and commercial development. These areas can also serve as effective buffers between incompatible land uses.



Spraygrounds offer fun and recreation in the hot summers.

The City of Josephine has an existing park system that includes the Josephine City Park in the original townsite area of the city. Located at 201 S. Main Street, the park features playground equipment, a backstop for baseball/softball, basketball courts, a splash pad playground opened in 2022, and public restrooms. The park, while centrally located to the community, does not feature



Josephine City Park is part of the city's existing park system.

opportunities for organized sports activities or a large community gathering. There are a few parking spaces available for off-street parking.

There are privately maintained open spaces and playground structures in the new neighborhoods being constructed in Josephine. These are modern in design and safety, but are restricted to use by the residents of the particular neighborhood. They are fenced in with a keycode access point. These facilities are typically maintained by homeowners associations of the residential neighborhoods.

Of all the city-provided services, parks and recreation appears to be the most desired improvement that is reflected in the community survey.

Three-quarters of the respondents were either neutral, dissatisfied with, or unaware of recreational facilities in the community.

Developing a Tiered Park System

The City of Josephine is in the process of developing a new community center at the site of a former church building. The community center, supported by the JCDC, will be a place of gathering and recreation for a wide range of ages and skill levels. Development of parks within a tiered system allows for a variety of experiences and uses. The following park typologies are commonly used in a tiered park system.

- » *Open Space Preserve* – Typically acquired and managed in accordance with land use, preservation, and environmental objectives.
- » *Urban Open Space* – Typically 2,500 square feet to 1 acre. Servicing the immediate area (less than 1/8-mile radius), it can be a public or private park. Typical development within the park may be passive or limited recreation. These parks include squares, plazas, gardens, formal spaces, and public art.
- » *Linkages, Greenways, and Trails* – These can be any size but will serve several neighborhoods. Ideally these parks serve an entire jurisdiction. They may include hard and soft trails for hiking, bicycles, or skating. They connect neighborhood areas to schools, parks, civic buildings, and commercial areas.
- » *Neighborhood Parks* – Sized to provide 2.5 acres per 1,000 residents, these parks are usually 5 to 20 acres in area. These will have playgrounds, picnic areas, court games, trails, and minimal parking. Roughly half of the park should be set aside for passive recreation areas.
- » *Community Park* – Sized to provide 3 acres per 1,000 residents and may be 30 to 50 acres. These serve several neighborhoods and include “drive to” recreation facilities as well as facilities found in neighborhood parks. Recreational multi-purpose centers, competitive sports fields, and water areas are typically located within a community park. They may serve as the trailhead for community-wide trail systems.
- » *City-wide Park* – Sized to provide 7 acres per 1,000 residents and may be greater than 50 acres. These serve the entire jurisdiction with unique, one-of-a-kind amenities such as garden centers, water parks, outdoor theaters, civic centers, fitness centers, senior centers, and multi-field athletic complexes.

Figure 24:
Tiered Park System Summary

Type	Size/Acres	Service Area	Acres per 1,000 Population
Open Space Preserve	Variable	Variable	Variable
Urban Open Space	2500 S.F. - 1 Acre	Less than 1/8-Mile Radius	Variable
Linkages, Greenways, and Trails	Variable	Several Neighborhoods	Variable
Neighborhood Park	5-20 Acres	Local Neighborhood	2.5 Acres / 1,000
Community Park	30-50 Acres	Several Neighborhoods	3 Acres / 1,000
City-wide Park	Greater than 50 Acres	Entire Jurisdiction	7 Acres / 1,000

Objective 1: Assess the community needs and desires for additional public passive and active parks in a tiered park system located throughout the community in a parks, recreation, and open space master plan.

Strategies:

- a. Creation of a tiered park system based on serving a variety of uses and purposes including open space preserve, linkages and greenways, neighborhood parks, community parks, and city-wide parks. Prepare a Parks, Recreation & Open Space Master Plan, and apply for a Texas Parks & Wildlife parks grant.
- b. Parks and open spaces may be located in or adjacent to floodplains, where possible, to aid in floodplain conservation efforts and to enhance recreational opportunities. Such areas may be developed with recreation facilities or set aside as open space to preserve sensitive areas. Use of floodplains should be an amenity to the parks system and an option, not the primary source of parkland.
- c. The city should acquire and develop parks in combination with other public facilities to provide the most cost-effective public

services. Park property could be developed jointly with new schools, storm water detention basins, drainage channels, or new city facilities. This strategy should not contradict the spatial distribution objective of parks and recreation facilities to be located throughout the community.

Objective 2: Provide community programming at the new community center which is responsive to a variety of age groups and activity levels.

By seeking and identifying new recreation programming which will provide the highest quality recreation experience, the city can improve the physical, mental, and emotional well-being of the community through the community center.



Community centers can provide activities for all ages.
Source: Yan Krukau (Pexels)

Strategies:

- a. Improve partnerships with recreation providers to give residents access to a wide variety of cost-effective programs.
- b. Be flexible in program offerings to respond to the changing needs of residents.
- c. Increase program offerings to attract residents to the community center.
- d. Evaluate opportunities to co-locate programming for indoor and outdoor activities for more program offerings.

Objective 3: Protect the floodplain for property preservation, water and environmental quality, and the inclusion of a trail system.

Preserving floodplains has great value for a community. Limiting development helps to protect lives and property. In addition, the floodplain can act as a filter for water entering creeks, streams, rivers, and lakes. It can also provide a location for passive recreation and trails and paths.

Strategies:

- a. Discourage and/or prevent construction of permanent structures in the floodplain or reducing the size of natural floodplain by engineering and construction to help protect lives and property. If construction in existing floodplain is deemed necessary for any project, then measures should be taken to raise the land out of the floodplain and to amend the flood zone map.
- b. Encourage planting of trees and shrubs in the floodplain (but not in floodway) to help improve water quality.

Objective 4: Influence new development to provide public spaces in addition to private amenity centers.

Strategies:

- a. Develop additional community parks on the eastern and southern sides of Josephine to expand publicly-owned parkland acreage and balance the spatial distribution of recreation facilities in the community.
- b. Develop multi-use trails to meet high demand for recreation and connectivity in the community.
- c. Develop additional nature areas, picnic/pavilion facilities, a community garden, and a dog park.
- d. Obtain dedicated parklands in new residential subdivisions and for the purpose of neighborhood and community parks to provide recreation options for residents.
- e. Acquire parklands for the development of publicly-owned indoor recreation facilities.
- f. Require parkland dedication in new subdivisions.

Figure 25:
Potential Funding Sources for Parkland Improvements

Program	Agency	Purpose	Eligibility	Use of Funds
National Recreational Trail Fund	Federal Highway Administration, administered by Texas Parks and Wildlife	To fund motorized and non-motorized trail projects	Local governments	Funds can be spent on both motorized and non-motorized recreational trail projects such as the construction of new recreational trails, to improve existing trails, to develop trailheads or trailside facilities, and to acquire trail corridors.
National Parks Service – Rivers, Trails, and Conservation Alliance (RTCA)	National Parks Service (NPS)	Building healthy communities, conservation, engaging youth in outdoor recreation and facilitating between NPS and communities	State and local governments, non-profits, or citizen organizations	This program provides technical assistance to community led conservation and outdoor recreation projects throughout the country. The types of assistance include: community outreach strategies, developing concept plans for trails and parks, creating project management and action plans, engaging collaborative partners and stakeholders, and other consulting services that can be tailored toward the needs of the project.
Local Parks Grants	Texas Parks and Wildlife Department (TPWD)	Assist local governments with the acquisition and/or development of public recreation areas and facilities	Small communities less than 20,000 in population; for non-urban outdoor recreation, less than 500,000 in population	Basic outdoor facilities and related support facilities. Developed new, renovated, or redeveloped on owned land. Playgrounds, trails, golf courses, sports courts, community gardens.
Recreational Trails Grants	Texas Parks and Wildlife Department (TPWD)	With FHWA paid for on gas taxes	Local governments	Funds for motorized and non-motorized trails projects. Including maintenance, signage, and to acquire trail corridors.

See Figure 26: “Parks and Open Space Map” on page 50.





Utilities, Infrastructure, and City Services

Chapter 9

Utilities, Infrastructure, and City Services Goal:

Josephine will have high quality infrastructure and service provision to support residents, businesses, and institutions in the city.

City government exists to ensure that the needs of residents, property owners, businesses, and visitors are adequately addressed. These needs include public safety, streets, water and sewer facilities, libraries, public safety, and other services. The City of Josephine has invested millions of dollars over the years to provide the highest quality services and facilities to its residents.

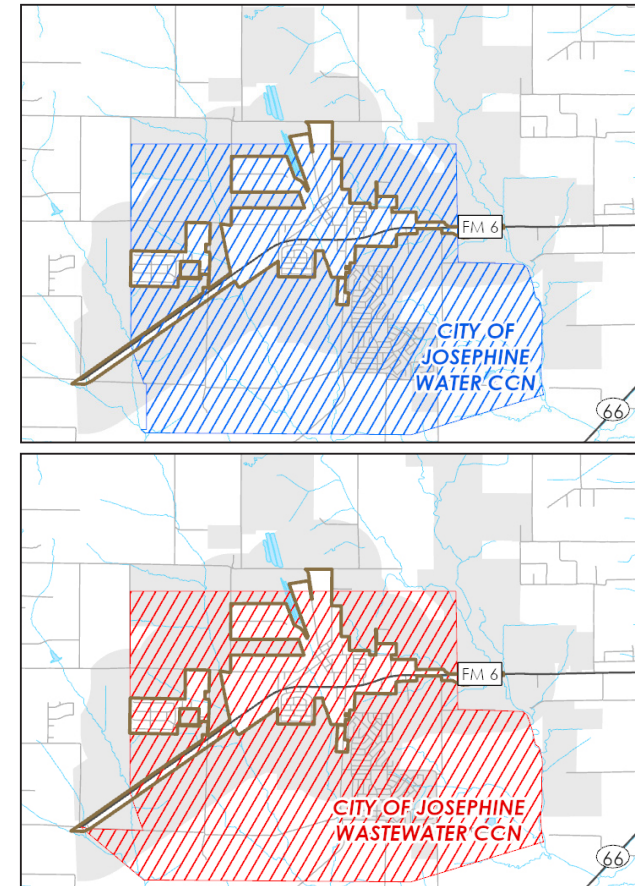
This chapter on community facilities covers provision of water, wastewater treatment, stormwater management, solid waste management, libraries, and other services and facilities owned and managed by the City of Josephine. These buildings and activities contribute in large part to the quality of life for all residents, businesses, and visitors to Josephine.

The City of Josephine has its own water and wastewater Certificates of Convenience and Necessity (CCN) districts. The water CCN boundary is generally centered on the original townsite and then to the south of the community. Other water local government entities exist within the area, including the Caddo Basin Special Utility District, the Nevada Special Utility District, and the BHP District. Josephine provides water supplied from the North Texas Municipal Water District, specifically from the Wylie Water Treatment Plant. The city maintains 50.6 linear miles of water lines and has two concrete-composite elevated water storage tanks. The first is a 500,000 gallon capacity and the second a 200,000 gallon capacity.

The wastewater CCN boundary is very similar to the water CCN boundary. The city maintains 31.1 linear miles of wastewater lines. There are two wastewater treatment plants in the city. The north plant is located east of County Road 1003 and has a current capacity of 80,000 gallons

Figure 27:

City of Josephine Water and Wastewater CCN Boundaries



per day. The plant has the ability to be expanded to a future 750,000 gallons a day. The Magnolia treatment plant is on County Road 679, east of FM 1777, and carries a 500,000 gallon a day capacity which may be expanded to 1,500,000 gallon a day capacity in the future. The city currently maintains five (5) wastewater lift stations in order to provide continuous flow over ridge points. The density of development in the city is a direct result of the city's ability to provide wastewater systems. Without this system, new residential development would be required to develop a large lot subdivision with individual septic systems.

Objective 1: Continue to foster strong relationships with surrounding municipal utility districts through shared information about new development and adequate service provision.

A Municipal Utility District (MUD) is a type of special district that allows a developer to fund development typically outside of a city's corporate boundary. While typically residential or mixed-use in nature, a MUD can also be commercial or industrial. Once established, a MUD may issue bonds to fund water, wastewater, drainage, electrical services, roads, or other infrastructure and services within the MUD boundary pursuant to Article III, Section 52 or Article XVI, Section 59 of the Texas Constitution. MUDs are established through application to and approval by the Texas Commission on Environmental Quality (TCEQ) or through the Texas legislature.

The following strategies apply to MUDs within the city's extraterritorial jurisdiction (ETJ). The city should not permit MUDs to be created within the city limits. The city is committed to working with MUDs toward an equitable agreement that allows both the city and the MUD to achieve their goals. The following strategies should:

- » Guide discussions between the city and the MUD;
- » Outline the city's goals, expectations, and priorities;
- » Act as a resource to evaluate MUDs; and
- » Provide a basis for development agreement between the city and the MUD, if the agreement is beneficial.

Strategies:

- a. Josephine's goals, objectives, and strategies for future development as set out in this plan will be guiding principles for new

development to achieve equivalent or better quality of development undertaken within potential MUDs.

- b. The city will establish an equitable arrangement between the MUD and the city in order to influence the development as much as possible.
- c. Establish clear guidelines with respect to MUDs for the benefit of City Council, city staff, and the MUD, and to ensure collaboration with Collin and Hunt Counties and neighboring communities as applicable.
- d. Encourage alignment with the city's technical design standards, including by not limited to: roads, water, wastewater, and storm-water standards.
- e. Verify the long-term fiscal sustainability of the MUD in order to protect the residents' investments and ensure that a financial burden is not placed on the residents of the MUD or the City of Josephine.



*Josephine will need to continue investing in water infrastructure.
Source: City of Josephine*

Objective 2: Through Capital Improvement Project (CIP) planning, provide sufficient quantity and quality of water for the existing community and to promote new development and growth.

Strategies:

- a. Examine all long-range agreements for the procurement of water. Make sure the quantity is scalable to meet future demand by new development growth.
- b. Utilize capital improvement programming to indicate appropriate new system construction for the promotion of new growth and land development.
- c. Maintain active participation with the development process of properties within and adjacent to the city's CCN boundaries to

anticipate new growth and negotiate development agreements, potential system tie-in, and construction of new mains.

Objective 3: Through Capital Improvement Project (CIP) planning, provide wastewater collection and treatment to meet all state and federal standards.

Strategies:

- a. Utilize capital improvement programming to indicate appropriate new system construction for the promotion of new growth and land development.
- b. Maintain active participation with the development process of properties within and adjacent to the city's CCN boundaries to anticipate new growth and negotiate development agreements, potential system tie-in, and construction of new mains.



Objective 4: Provide for stormwater management that prevents flooding and siltation of creeks and streams and meets all state and federal regulations.

Strategy:

- a. Develop a stormwater management plan to ensure that flooding does not occur in the city.

Objective 5: Continue to provide solid waste disposal service in the city.

Solid waste collection in the city is provided through a contract with Homeland Waste Management. Recycling is not currently provided to residents but would be an added service to the community. Commercial services have to be independently contracted.

Strategies:

- a. Promote the use of recycling to reduce the volume of waste deposited in landfills and therefore keep the cost of disposal at a reasonable level.
- b. Monitor the needs of the community for solid waste disposal options and act in a timely fashion to meet these needs.

- c. Promote mulching and composting of green wastes, such as leaves, tree limbs, grass clippings, brush, etc., as part of the recycling and waste minimization efforts.

Objective 6: Continue to provide police services and programs to create a safe environment for all citizens in Josephine.

The City of Josephine maintains a professional police department of officers and administrators. Dispatch services are provided through the Collin County Sheriff's Office.

Strategies:

- a. Foster the development of an emergency response summit including city, county, and state policing entities to determine the best organization for redefining inter-local agreements regarding jurisdictional boundaries; mutual response to emergent situations; and cross jurisdictional communication systems in both radio and dispatch technologies.
- b. Develop and maximize the use of human resources through effective management and training. These human resources include police personnel, other governmental agencies, the private sector, and the citizens of Josephine.
- c. Evaluate the need for additional personnel and implement procedures to select only the most qualified personnel.
- d. Update and advance technology to meet increasing challenges and legal requirements.
- e. Monitor pay for police officers and adjust as needed to attract well-qualified personnel.

Objective 7: Continue and enhance the relationship with the Josephine Volunteer Fire District for firefighting and protection services through the development of a new joint facility housing both city-provided and volunteer emergency professionals.

Josephine Volunteer Fire District (JVFD) is a volunteer emergency response organization which responds to fire, EMS, and rescue incidents within the city limits of Josephine.

The District is comprised of approximately twenty-two (22) personnel with firefighting and emergency medical technician experience. The area the JVFD covers is approximately forty-two (42) square miles surrounding the community. Currently, the district operates through the facility located to the north of the railroad right-of-way in the original townsite of the community. The City of Josephine is in the process of designing the new public safety building. This structure will help provide faster response times, better office environment for emergency personnel, and higher security for city assets.



JVFD responds to over 600 calls a year with volunteers and equipment such as this firetruck. Source: Josephine Volunteer Fire Department

Strategies:

- a. Assure relationships that ensure adequate fire protection facilities, equipment, and water pressure to respond to and fight a fire in any part of the community in a timely and efficient fashion.
- b. Monitor the need for additional personnel, equipment, and facilities to provide timely response in all areas as the community increases in land area and population.
- c. Continue to upgrade the emergency medical services so as to provide the highest level of service possible to the residents of Josephine/Collin County.

- d. Focus on education of the public in areas of fire prevention and accident prevention.
- e. Establish an Emergency Operations Center (EOC).
- f. Consider additional fire stations in various parts of the city as the community grows in greater land area.
- g. Consider economic and demographic growth factors in the future development of a mixed career / volunteer fire department for the city. These factors may include general fund revenues, service demand of taller buildings, or buildings closer together requiring specialized emergency equipment. Studies have shown that when administration costs for fire protection increase enough, mixed and career departments have lower costs than a volunteer department.

Objective 8: Explore ways to provide additional library services to residents.

A public library provides books, newspapers, magazines, and access to the internet to help meet the need for information and answers to questions on a broad range of topics. Currently, the City of Josephine does not provide a public library. The cities of Royse City, Farmersville, and Greenville maintain public libraries within a short distance of Josephine. In the future, the city should explore whether additional library services are needed including building a library in Josephine.

Objective 9: Continue to provide city administrative services from City Hall.

Josephine's public buildings are located in the original townsite area. For a growing community, there may be a lack of enough office space and parking in the primary city building. The city should examine opportunities for additional civic office opportunities within the central city development. In the interim, the current city facility continues to operate as the administration building for city services and programs. It provides chambers for the elected City Council and appointed committees to conduct meetings.

Strategies:

- a. Conduct a facilities demand study based on future human resource budget for operational office space needs.

- b. Keep the City Hall building in a good state of repair so that it continues to be an asset and an example of good stewardship for the community.



The city might need more facilities, in addition to City Hall, to provide sufficient services for the growing community.

Objective 10: Practice good stewardship of all city-owned properties.

The city owns a number of properties used for city functions and by the community. In order to provide for future use, maintenance is key. However, some of these properties are vacant and currently have no programmed use. Banking of properties may be important to prevent the need to purchase new properties in the future.

Strategies:

- a. Assure that city-owned property is adequately maintained and landscaped.
- b. Dispose of public property which has no foreseeable use or which other types of development could better utilize.

See Figure 28: “Josephine Water Utility System Map” on page 56 and Figure 29: “Josephine Wastewater Utility System Map” on page 57.

City of Josephine Water Utility System

The legend is organized into two columns. The left column includes symbols for a Pump Station (blue circle), Elevated Storage Tank (blue square), Water Lines (labeled 'Diameter'), and three line styles for pipe sizes: 'Less than 6"' (thin blue line), '6" - 8"' (medium blue line), and 'More than 8"' (thick blue line). It also includes symbols for County Line (dashed black line) and Road (solid black line). The right column includes symbols for a Stream (blue wavy line), Pond (blue irregular shape), Parcel (white rectangle with black border), 100 Year Floodplain (green diagonal lines), New Development (red diagonal lines), Josephine City Limits (brown rectangle), Other City Limits (yellow rectangle), and Josephine ETJ (gray rectangle).

- Pump Station
- Elevated Storage Tank
- Water Lines*
Diameter
 - Less than 6"
 - 6" - 8"
 - More than 8"
- - County Line
- Road
- ~ Stream
- ☞ Pond
- Parcel
- ▨ 100 Year Floodplain
- ▨ New Development
- ▭ Josephine City Limits
- ▭ Other City Limits
- ▭ Josephine ETJ

Created by
 **DUNAWAY**
May 16, 2023

The City of
Josephine
TEXAS

The City of  **Josephine**
TEXAS



City of Josephine Wastewater Utility System

The legend is organized into two columns. The left column contains symbols for infrastructure: a red circle for Lift Station, a red square for Wastewater Treatment Plant, a solid black line for Sewer Main, a dashed black line for Diameter, a solid black line for 8" or less, a solid black line for More than 8", a dashed black line for County Line, a solid black line for Road, and a blue wavy line for Stream. The right column contains symbols for geographical and administrative features: a light blue cloud-like shape for Pond, a white rectangle with a black border for Parcel, green diagonal lines for 100 Year Floodplain, red diagonal lines for New Development, a brown rectangle with a black border for Josephine City Limits, a yellow rectangle for Other City Limits, and a grey rectangle for Josephine ETJ.

- Lift Station
- Wastewater Treatment Plant
- Sewer Main
- Diameter
- 8" or less
- More than 8"
- - County Line
- Road
- ~ Stream
- ☁ Pond
- Parcel
- /// 100 Year Floodplain
- /// New Development
- ▭ Josephine City Limits
- ▭ Other City Limits
- ▭ Josephine ETJ

The City of  **Josephine**
TEXAS





Implementation Summary & Table

Chapter 10

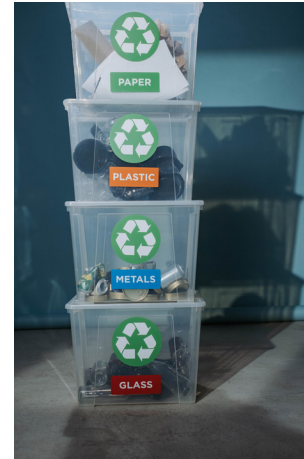
The Josephine Comprehensive Plan provides information about the city and a list of goals, objectives, and strategies to achieve those points. Creating a plan can provide for the protection of private property and ensures future development occurs in a coordinated and organized manner consistent with the plan. Based on this plan, decisions will be made that will influence many aspects of the city's built and social environments. The plan can provide a very important tool for city staff to communicate with property owners and new development in the community.

Implementation of plans and policies takes place in many ways. Voluntary measures, staffing, capital improvements, regulations, consistent application of policy, and overall budgetary support represent the ways most localities implement their Plan. The strategies in each chapter of the Plan are recommendations which utilize different tools available to Texas cities. Each tool is described in more detail below.

Voluntary Measures

The largest role in implementation occurs by residents and property owners. They make conscious decisions related to where they live, what programs they financially support, which businesses they frequent, and what changes they make to land they own or on which they reside. They can develop habits such as recycling, water conservation, carpooling, and lower energy consumption that will ultimately have an effect on landfill costs and the environment. When residents support local businesses, local dollars go back into Josephine's economy.

Land developers also play a part in the implementation of the city's Comprehensive Plan. For example, when developers adhere to best management practices for water quality, they help the environment. When developers make conscious decisions to respond to recommendations and requests by staff and property owners, they help to implement the Plan.



Individual voluntary measures for cost reductions include recycling and water conservation. Source: Cottonbro Studios, Miriam Alonso (Pexels)

Through partnering with the city on several levels, various area organizations also help to implement the Comprehensive Plan. Through these partnerships, both parties complete work that helps to further individual goals. For instance, the city can partner with a local housing non-profit on a new multifamily development by providing a

portion of necessary funding, assisting with grant applications, or helping with placement of qualified residents. By working together, a considerable amount of work is lessened by shared responsibility and participation.

Regulatory Measures

Implementation sometimes requires more than voluntary action and regulatory measures must be taken. Many of these regulatory measures have been in place for decades, such as state and local building codes and floodplain protection. Two key sets of measures are the Zoning Ordinance and Subdivision Ordinance.

Zoning Ordinance

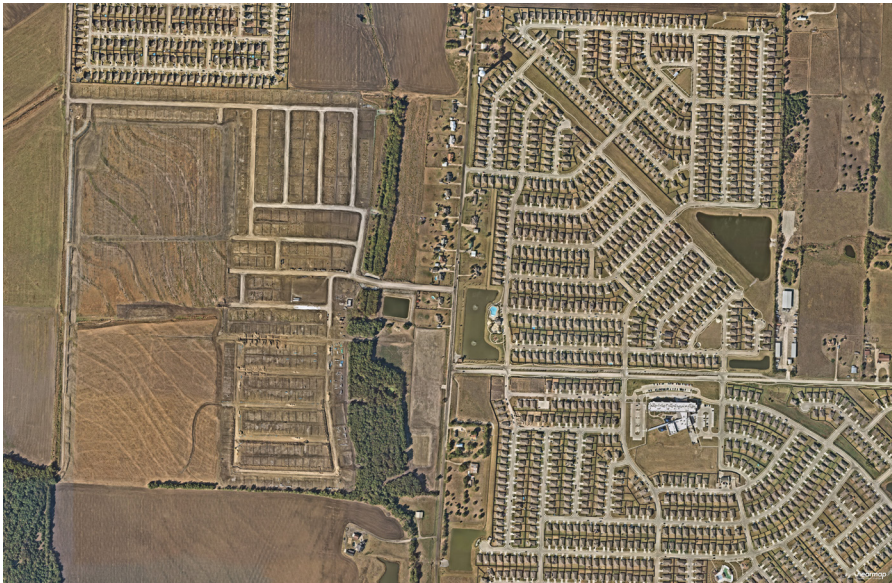
Zoning is another implementation tool used to ensure that activities in a community are properly located in relation to each other. Zoning also attempts to provide for residential density where houses and residents

can be adequately served by roads, schools, and utilities. The Zoning Ordinance places other controls on development to protect the health, safety, and general welfare of city residents. Zoning is intended to ensure light, air, and compatibility of uses and to provide regulations for land use, building use, building heights, and setbacks. It ensures safety and uniformity of site development. Zoning use and development regulations only apply to properties within the city limits.

Future decisions about zoning changes should be compatible with the vision and goals of this comprehensive plan. However, a comprehensive plan does not constitute zoning regulations or establish zoning district boundaries. Zoning districts do not have to be identical to what is shown in the future land use map for a particular area.

Subdivision Ordinance

The Subdivision Ordinance sets the parameters for physical development such as the creation of lots and blocks. Subdividing is the process of splitting a parcel of land into two or more parcels. This process is regulated to make sure the pattern of development recommended in the Comprehensive Plan actually occurs. During the subdivision process,



This aerial shows the Magnolia and Waverly Estates subdivisions, where the pattern of development is clear when seen from above. Source: Nearmap 2022

streets and blocks are surveyed and designed to adequately support expected uses and forms of development. Lot size is largely determined

by zoning regulations, but the shape, location, ability to be served by utilities, drainage improvements such as storm sewers, and construction of sidewalks occur through application of subdivision regulations.

As mentioned above, other measures include floodplain protection and building codes. State stormwater regulations, TxDOT road requirements, and other engineering requirements ensure safe and orderly development. Subdivision Ordinance regulations apply to all properties within the Josephine city limits and in the ETJ.

Consistent Application of Policies

Consistent application of city policies protects the integrity of the Comprehensive Plan. The Comprehensive Plan is like a muscle in the body – the more it is exercised, the stronger it becomes. Regular use of the Comprehensive Plan in decision making provides the City Council with strong legal backing. It also sends a message to residents and future developers that the vision for the city is not a lofty thought, but an expected reality.

Funding

One of the most important ways the city implements its plan is through funding staff and programs, construction, and maintenance. City revenues come from property taxes, sales taxes, permits, fees and licenses, and funding from the state or federal government.

Capital Improvements Program

The Capital Improvements Program (CIP) is the way in which the city determines, schedules, and prioritizes major public facilities and services needed to implement the Comprehensive Plan. This program is critical to the success of implementing the Plan.

State and Federal Funds

While both state and federal governmental financial support for localities has diminished over time, these sources of funding still provide for programs. Through a wide variety of grant making programs, many governmental agencies assist the city in work related to achieving the Comprehensive Plan goals. For instance, the federal Department of Housing and Urban Development provides programs to help with housing and recreation for low income facilities. However, federal and state funds are expected to continue diminishing over time.

Bonds

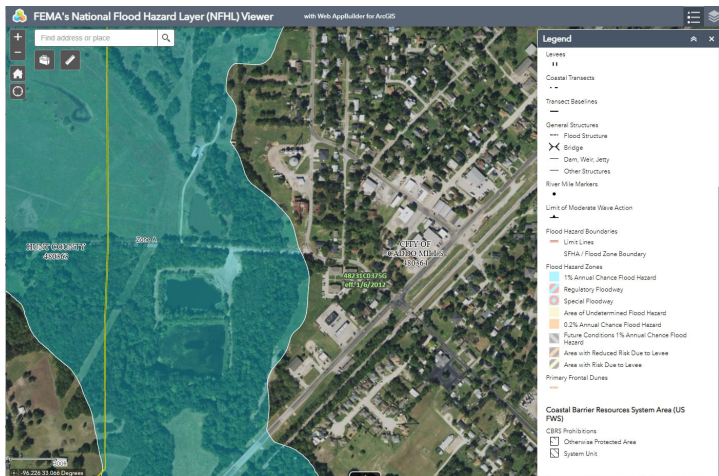
Many communities issue bonds to help fund infrastructure improvements. High bond ratings are important for cities to create more ease in issuing bonds for funding.

Grants

There are many non-governmental or semi-governmental grant programs for the enhancement of city facilities. An example is the Rails-to-Trails program. Independently funded through donations and a foundation, the program assists communities in small trail projects which can utilize excess railroad rights-of-way. Some grants and other sources of funding for Parks and Transportation have been listed in the individual chapters.

Maps and Mapping Tools

Maps are tools that can be used to help implement the Comprehensive Plan. The Federal Emergency Management Administration (FEMA) floodplain maps are used by most localities help prevent flood damage to life and property. They are essential to helping property owners know when flood insurance is required. They also help the city identify where land development should and should not take place.



FEMA's National Flood Hazard Layer Viewer is a valuable online resource. Source: FEMA

Strategic Planning

Strategic planning is a tool that helps decision makers prioritize projects and spending. It is the next step after development of the Comprehensive Plan to make objectives and strategies a reality. Strategic plans provide a specific roadmap for implementation to occur during real time. A strategic plan for the City of Josephine will ensure that progress is made in a regular and orderly fashion that can respond to changes in priorities and the funding environment.

See the following pages for the implementation table, summarizing the goals, objectives, and strategies of this Comprehensive Plan.

Growth Management Goal: Josephine will have residential and commercial growth while retaining its agricultural community feel.

Objective	Strategies	Responsibility	Time Frame
Objective 1: Manage observed increase in single family residential units according to the Future Land Use Plan.	a. Examine ultimate densities for residential housing in the city's zoning ordinance. Understand where flexibility for densities might be advantageous for development. Modify zoning ordinance to allow mixing of uses based on appropriate design.	City Staff P&Z City Council	1-3 years
	b. Accommodate multifamily residential development in limited forms. Multifamily development should be located in areas which provide transitions between lower and higher intensity uses, and in a manner that will not negatively impact surrounding uses. Multifamily uses should be located in small groupings around the city in a manner that provides a mix of uses and densities, rather than concentrating multifamily uses in one area which can have negative impacts upon the city.	City Staff P&Z City Council	1-5 years
Objective 2: Increase the number of commercial and retail uses to provide more shopping opportunities for residents and visitors.	a. Accommodate future commercial uses at key nodes throughout the city. It is recommended that commercial development and uses not be located along corridors in a "strip" manner.	City Staff P&Z City Council JCDC	1-3 years
	b. Accommodate businesses in several activity centers. At the intersection of FM 1777 and FM 6, a newly purchased area comprised of undeveloped land and floodplain has the potential for commercial development. This City Center should be focused on local retail, potentially containing restaurants, and local medical or office based services.	City Staff P&Z City Council JCDC	1-3 years
	c. In other commercial nodes, specifically at the intersections of FM 6 and County Roads 640 and 595, a variety of regionally-oriented medical facilities and retail would be appropriate. Development around these intersections will need to accommodate the railroad right-of-way on the northwest side of FM 6.	City Staff P&Z City Council JCDC	3-10 years
Objective 3: Recognize Josephine's unique characteristics which should be preserved and incorporated into potential design recommendations for new structures.	a. The center of any infill development surrounding the original Josephine city core, including the open spaces and surrounding neighborhoods, should provide a focus on preservation of what is historically important. Restoration, redevelopment, and infill in these areas could provide a more central location for the community along the FM 6 and FM 1777 intersection.	City Staff JCDC	5-10 years
	b. The development standards of the zoning ordinance will be examined to ensure that new development will be in compliance with appropriate architectural, landscaping, and setback design standards which are keeping with the vision of Josephine.	City Staff P&Z City Council JCDC	5-10 years

Objective 4: The city will work with Municipal Utility Districts (MUDs) and Public Improvement Districts (PIDs) in order to create synergistic relationships to provide adequate public services – including water, wastewater, and transportation – which is efficient and safe.	a. The city should prepare an annexation strategy and coordinate the availability of municipal services with areas likely to experience development pressure with higher densities. The strategy will require coordination with other master plans that address water, wastewater, transportation, parks, and capital improvement programs.	City Staff	1-3 years
	b. The city will not encourage development at the far edges of its ETJ, in recognition of the higher costs of “leapfrog” development and haphazard sprawl. Incentives such as partnering with new development for capital improvements and infill development should be implemented, particularly within existing city limits.	City Staff P&Z City Council	1-3 years
	c. Properly manage development in new growth areas through development agreements, annexation policies, and the application of zoning regulations that support the recommended land uses plan.	City Staff P&Z City Council	1-3 years
	d. The city will work with adjacent municipalities to determine shared boundaries and will execute interlocal agreements based upon mutual agreement that will benefit affected property owners.	City Staff City Council	1-3 years

Future Land Use Goal: Josephine will have safe and convenient places to live, work, worship, and play.

<i>Objective</i>	<i>Strategies</i>	<i>Responsibility</i>	<i>Time Frame</i>
Objective 1: Develop land in accordance with the Future Land Use Plan.	a. Use the Future Land Use Map categories and areas to establish and communicate clear guidelines and refine regulations consistent with the vision for future development with the public and potential developers.	City Staff P&Z City Council	1-3 years
	b. Maintain a continuous and coordinated public planning process that involves citizens, the Planning and Zoning Commission and City Council, local public and private entities, and regional organizations in policy development and decision making.	City Staff P&Z City Council	1-3 years
	c. Rezone properties in accordance with the Future Land Use Plan.	City Staff P&Z City Council	1-3 years
	d. Encourage multifamily development in locations which make sense for the traffic accessibility and market.	City Staff P&Z City Council	1-3 years
	e. Encourage the types of non-residential uses which provide retail and services desirable by the community to locate in Josephine. Through the planning process, initial feedback suggests interest in locally-oriented retail and medical offices, a grocery store or supermarket, entertainment, and family friendly type activities.	City Staff P&Z City Council	1-5 years

P&Z = Planning & Zoning Commission

Objective 1: Develop land in accordance with the Future Land Use Plan. (continued)	f. Encourage a thematic design that can be easily transformed into sustainable new developments as uses may come and go within the development.	City Staff P&Z City Council JCDC	1-3 years
	g. Develop a unified internal streetscape and signage plan with recommendations for the incorporation of sidewalks, pedestrian seating, thematic public lighting, and signage and wayfinding.	City Staff P&Z City Council	1-3 years
	h. Coordinate between transportation planning and land use planning to ensure that potential impacts of the site development on roadway congestion (stacking of cars, turn lanes, intersections) are carefully considered and that uses and transportation improvements are mutually beneficial.	City Staff P&Z City Council TxDOT Collin County	1-3 years
Objective 2: Develop a set of expectations for the Extraterritorial Jurisdiction and Voluntary Annexation.	a. Encourage housing development in an orderly manner building on existing and future water and wastewater systems to naturally increase the infrastructure.	City Staff Public Works P&Z City Council	1-3 years
Objective 3: Ensure new development compatibility with existing neighborhoods in Josephine.	a. Development regulations which include zoning and the subdivision ordinances of the city must be revised to place greater emphasis on the importance of urban design. These can include: • The relationship between different buildings; • The relationship between buildings and the street, parks, and other spaces which make up the public domain.	City Staff P&Z City Council	1-3 years
	b. Visual quality objectives and a healthy business environment should not be considered mutually exclusive. Urban design should be incorporated into private development plans early in the development process.	City Staff P&Z City Council	1-3 years
	c. The impact of public features such as signage, utility locations, valve boxes, utility risers, solid waste containers, sidewalks, landscaping, and parking lots should be recognized as important factors in affecting community appearance.	City Staff Public Works	1-3 years

P&Z = Planning & Zoning Commission | JCDC = Josephine Community Development Corporation | TxDOT = Texas Department of Transportation

Transportation Goal: Josephine will have a transportation network which meets basic needs for movement, access, safety, and reasonably rapid travel for people and goods through and within the city.

Objective	Strategies	Responsibility	Time Frame
Objective 1: Use concepts for Context Sensitive Design when improving existing streets and building new streets, interconnections, and sidewalks.	a. Integrate the concept of context sensitive design into all transportation project design standards.	City Staff Collin County Hunt County TxDOT	5-10 years
Objective 2: Fund and build improvements to existing streets as shown on the Master Thoroughfare Plan.	a. Continue to fund improvements through the city's Capital Improvements Program (CIP) and available grants and loans.	City Staff Public Works	1-3 years
	b. Create a Pavement Management System which extends existing roadway life and manages the CIP for future roadway replacement.	City Staff Public Works	5-10 years
	c. Continue to coordinate with the Texas Department of Transportation, Collin County, and Hunt County to address long-range transportation needs.	City Staff Collin County Hunt County TxDOT	1-3 years
	d. Organize a formal opposition to the proposed alignment of the Collin County Outer Loop that would travel through the western section of the City of Josephine. Provide feedback that a more preferred route would be to improve SH 78 along the east side of Lake Lavon. This process should be made through coordination with the Collin County Transportation Plan, NCTCOG, and TxDOT.	City Staff Collin County TxDOT	1-3 years
Objective 3: Require developers to dedicate right-of-way and construct collector and arterial streets as shown on the Master Thoroughfare Plan.		City Staff Developers	1-3 years
Objective 4: Make important interconnections of streets to activity centers.	a. Minimize use of cul-de-sacs in new neighborhoods so that emergency services can be provided as quickly as possible when needed.	City Staff Developers	1-3 years
	b. Design right-of-way through the City Center project to interconnect with FM 1777 and provide access internal to the site.	City Staff Developers	1-3 years
Objective 5: Improve existing sidewalks and construct new sidewalks for pedestrian access and citizen health.	a. Fund and build sidewalks to help create an interconnected sidewalk system throughout the city.	City Staff Public Works	5-7 years
	b. When designing new sidewalks along existing streets, recognize that right-of-way may not be sufficient for the ideal street cross-section shown in the typical street section examples. In these circumstances, provide the widest sidewalk possible for pedestrians.	City Staff Collin and Hunt Counties TxDOT	1-3 years

Objective 6: Consider using unused railroad right-of-way for new trails as part of an interconnected trail system.	a. Work with the railroad right-of-way owner and nearby property owners to develop a plan for new trails in railroad right-of-way.	City Staff NETEX	5-7 years
	b. Provide direct access to adjacent properties with minimal interference to movement and safety of traffic on public roadways.	City Staff	5-7 years
Objective 7: Evaluate floodplains for the construction of trails.	a. Discourage and/or prevent construction of permanent structures in the floodplain to help protect property and environmental quality. If construction in existing floodplain is deemed necessary for any project, then measures should be taken to raise the land out of the floodplain and to amend the flood zone map.	City Staff	1-3 years
	b. Encourage the siting of trails based on natural topography of slope to ensure the lowest impact of the existing conditions by trail construction.	City Staff	1-3 years
	c. Look at opportunities to construct trails within floodplain areas which are grade separated from high-capacity roads.	City Staff Collin and Hunt Counties TxDOT	5-7 years
	d. Examine opportunities in new developments where natural connections can be made to trails through floodplain corridors connecting each neighborhood to another. Plan into the design of new neighborhoods trailhead connections to the full trail system.	City Staff Developers	1-3 years
Objective 8: Adopt transportation impact fees to assist in the funding of systemwide roadway improvements.	a. Implement a roadway impact fee study, separating out the different roadway areas of the community in order to accurately charge and relate the fee to those growth areas.	City Staff Public Works	1-3 years

Economic Development Goal: Josephine will develop a resilient economic base.			
Objective	Strategies	Responsibility	Time Frame
Objective 1: Encourage neighborhood professional and medical offices to service the local community.	a. Strengthen and diversify the office / employment space offerings in Josephine to include more varied opportunities for emerging needs such as co-working, small businesses, and entrepreneur incubator space.	City Staff JCDC	1-3 years
	b. Encourage the expansion of local, community serving retail and service industries. Consider developing a "new resident" guide to provide information on community resources and local businesses.	City Staff JCDC	1-3 years
	c. Foster public/private partnerships that both enhance the local quality of life and strengthen the economy. Invest in public spaces and facilities co-located with private development.	City Staff JCDC	1-3 years

NETEX = Northeast Texas Rural Rail Transportation District | TxDOT = Texas Department of Transportation | JCDC = Josephine Community Development Corporation

Objective 2: Concentrate efforts on attracting destination-based local-oriented retail, grocery stores, and restaurants.	a. Work to attract predominantly convenience-based Class A retail spaces along the FM 6 corridor – specifically at the City Center, CR 640, and CR 595/CR 637 intersections. 1. Design standards must remain focused on traffic movement and landscaping as this is the visual entry to the community from neighboring communities. 2. Although convenience-based retail is easier to attract with demographics than destination-driven retail, the city can focus on some types of criteria as to what tenants would find appropriate. This includes reducing development permitting costs, creating potential tax incentives, and providing public infrastructure capital improvements. 3. Family-based retail needs traffic, land, infrastructure, and visibility to be sustainable. Providing these elements can bring restaurants, larger retail, and ancillary entertainment venues. The community has expressed interest at bringing a full-service grocery store to the city.	City Staff JCDC	5-7 years
	b. Commercial and neighborhood service land uses in Josephine should reflect a combination of visitor and resident-based retail availability especially in the City Center.	City Staff JCDC	1-3 years
	c. Concentrate efforts on retail attraction and retention. The catalyst for retail attraction and retention is customers, whether they are local or visiting. Workforce retail demand can be generated by focusing efforts on developing a local office park adjacent to local neighborhoods.	City Staff JCDC	5-7 years
Objective 3: Consider how the branding of the city may bring economic development and create a streetscape made up of streetlights, gateway elements, and wayfinding signs in the community.	a. Focus on signage at the entry points of the city through entry gateway signs at both the northern and southern ends of the community. Ideally these would be placed near the city limits. These entrances are the first opportunity that the city has to capture the imagination and interest of pass-through traffic made up of consumers and people looking for a new community in which to work and to live. The gateway entrances should incorporate the unique brand identifier and include appropriately designed signage that directs people to the amenities within the city, but also informs them of the relevance of the community to the region as a whole.	City Staff JCDC	1-3 years
	b. Develop a design plan for public lighting, median design, signage, and landscaping near the City Center then repeat the design in other focused areas such as the gateway signage and future entry features to new communities.	City Staff JCDC	1-3 years
Objective 4: Develop standard practices in the use of cooperative 380 agreements for the incentivization of new commercial growth.	a. Work with the school district and Collin and Hunt Counties to understand possibilities of coordinating 380/381 agreements to increase the draw for economic development possibilities within Josephine.	City Staff JCDC School District Collin County Hunt County	1-3 years

JCDC = Josephine Community Development Corporation

Objective 4: Develop standard practices in the use of cooperative 380 agreements for the incentivization of new commercial growth. (continued)	b. Develop guidelines for the negotiation of a 380 agreement on behalf of the city including sales tax incentives levels; performance benchmarks; and offset levels on the benefit of the recipient for costs associated with construction and infrastructure.	City Staff JCDC	1-3 years
	c. Ensure reporting to the Texas State Comptroller's office all 380 agreements and their status.	City Staff JCDC	1-3 years

Housing Goal: Josephine will have a variety of housing types available to all incomes. All housing will be safe and decent for residents.

Objective	Strategies	Responsibility	Time Frame
Objective 1: Promote development of all housing types: single family detached units, attached units, townhouses, and apartments.	a. Support development of new areas for attached housing, townhouses, and apartments as shown on the Future Land Use Plan and where there is access to existing or planned services, jobs, and retail. These can be found within medium density, high density, or mixed use areas.	City Staff P&Z City Council	1-3 years
	b. To the extent possible, allow for a mixture of housing types within larger neighborhoods to support a variety of age groups and income levels.	City Staff P&Z City Council	1-3 years
	c. Redevelop existing residential lots where buildings have been removed. Doing so would provide opportunities for homebuilders looking for lower-cost land to build homes based on traditional Texas style architecture.	City Staff P&Z City Council	3-5 years
	d. Promote replatting of lots to make sure that housing meets minimum lot standards for zoning districts.	City Staff P&Z City Council	1-3 years
	e. Modify the zoning ordinance to improve opportunities for multifamily housing in appropriate locations and designs to serve younger populations.	City Staff P&Z City Council	1-3 years
Objective 2: Maintain and improve the existing housing stock.	a. Expand programs to maintain the existing housing stock such as those offered by Habitat for Humanity and other organizations and agencies.	City Staff P&Z City Council	1-3 years
	b. Use the development review process to evaluate private projects and their contributions to urban design.	City Staff P&Z City Council	1-3 years
	c. Align zoning and future land use allocation to ensure housing is located where it can be served by infrastructure without creating a burden on city services.	City Staff P&Z City Council	1-3 years

P&Z = Planning & Zoning Commission | JCDC = Josephine Community Development Corporation

Objective 3: Promote the ability to provide a variety of mixed housing densities to allow residents to age-in-place through senior age-restricted housing and assisted living development.	a. Develop zoning land use categories and design standards for age-restricted and assisted living development within medium and high density zoning districts.	City Staff P&Z City Council	1-3 years
	b. Support the nonprofit community in creating housing opportunities for seniors and people with disabilities.	City Staff P&Z City Council	1-3 years
	c. Negotiation with development agreements and the creation of planned developments can provide opportunities to include various housing options.	City Staff P&Z City Council	1-3 years

Parks, Recreation, and Open Space Goal: Have excellent parks and recreational areas and preserve important natural resources.

<i>Objective</i>	<i>Strategies</i>	<i>Responsibility</i>	<i>Time Frame</i>
Objective 1: Assess the community needs and desires for additional public passive and active parks in a tiered park system located throughout the community in a parks, recreation, and open space master plan.	a. Creation of a tiered park system based on serving a variety of uses and purposes including open space preserve, linkages and greenways, neighborhood parks, community parks, and city-wide parks. Prepare a Parks, Recreation & Open Space Master Plan, and apply for a Texas Parks & Wildlife parks grant.	City Staff City Council Consultant	1-3 years
	b. Parks and open spaces may be located in or adjacent to floodplains, where possible, to aid in floodplain conservation efforts and to enhance recreational opportunities. Such areas may be developed with recreation facilities or set aside as open space to preserve sensitive areas. Use of floodplains should be an amenity to the parks system and an option, not the primary source of parkland.	City Staff City Council	5-7 years
	c. The city should acquire and develop parks in combination with other public facilities to provide the most cost-effective public services. Park property could be developed jointly with new schools, storm water detention basins, drainage channels, or new city facilities. This strategy should not contradict the spatial distribution objective of parks and recreation facilities to be located throughout the community.	City Staff Public Works City Council	5-7 years
Objective 2: Provide community programming at the new community center which is responsive to a variety of age groups and activity levels.	a. Improve partnerships with recreation providers to give residents access to a wide variety of cost-effective programs.	City Staff	1-3 years
	b. Be flexible in program offerings to respond to the changing needs of residents.	City Staff	1-3 years
	c. Increase program offerings to attract residents to the community center.	City Staff	1-3 years
	d. Evaluate opportunities to co-locate programming for indoor and outdoor activities for more program offerings.	City Staff	1-3 years

Objective 3: Protect the floodplain for property preservation, water and environmental quality, and the inclusion of a trail system.	a. Discourage and/or prevent construction of permanent structures in the floodplain or reducing the size of natural floodplain by engineering and construction to help protect lives and property. If construction in existing floodplain is deemed necessary for any project, then measures should be taken to raise the land out of the floodplain and to amend the flood zone map.	City Staff Public Works	5-7 years
	b. Encourage planting of trees and shrubs in the floodplain (but not in floodway) to help improve water quality.	City Staff	5-7 years
Objective 4: Influence new development to provide public spaces in addition to private amenity centers.	a. Develop additional community parks on the eastern and southern sides of Josephine to expand publicly-owned parkland acreage and balance the spatial distribution of recreation facilities in the community.	City Staff City Council	5-7 years
	b. Develop multi-use trails to meet high demand for recreation and connectivity in the community.	City Staff City Council	1-3 years
	c. Develop additional nature areas, picnic/pavilion facilities, a community garden, and a dog park.	City Staff City Council	5-7 years
	d. Obtain dedicated parklands in new residential subdivisions and for the purpose of neighborhood and community parks to provide recreation options for residents.	City Staff City Council	5-7 years
	e. Acquire parklands for the development of publicly-owned indoor recreation facilities.	City Staff City Council	5-7 years
	f. Require parkland dedication in new subdivisions.	City Staff City Council	1-3 years

Utilities, Infrastructure, and City Services Goal: Josephine will have high quality infrastructure and service provision to support residents, businesses, and institutions in the city.

Objective	Strategies	Responsibility	Time Frame
Objective 1: Continue to foster strong relationships with surrounding municipal utility districts through shared information about new development and adequate service provision.	a. Josephine's goals, objectives, and strategies for future development as set out in this plan will be guiding principles for new development to achieve equivalent or better quality of development undertaken within potential MUDs.	City Staff Water Department	1-3 years
	b. The city will establish an equitable arrangement between the MUD and the city in order to influence the development as much as possible.	City Staff Water Department	1-3 years
	c. Establish clear guidelines with respect to MUDs for the benefit of City Council, city staff, and the MUD, and to ensure collaboration with Collin and Hunt Counties and neighboring communities as applicable.	City Staff Water Department	1-3 years

Objective 1: Continue to foster strong relationships with surrounding municipal utility districts through shared information about new development and adequate service provision. (continued)	d. Encourage alignment with the city's technical design standards, including by not limited to: roads, water, wastewater, and stormwater standards.	City Staff Water Department Public Works	1-3 years
	e. Verify the long-term fiscal sustainability of the MUD in order to protect the residents' investments and ensure that a financial burden is not placed on the residents of the MUD or the City of Josephine.	City Staff Water Department	1-3 years
Objective 2: Through Capital Improvement Project (CIP) planning, provide sufficient quantity and quality of water for the existing community and to promote new development and growth.	a. Examine all long-range agreements for the procurement of water. Make sure the quantity is scalable to meet future demand by new development growth.	City Staff Water Department	1-3 years
	b. Utilize capital improvement programming to indicate appropriate new system construction for the promotion of new growth and land development.	City Staff Water Department	5-7 years
	c. Maintain active participation with the development process of properties within and adjacent to the city's CCN boundaries to anticipate new growth and negotiate development agreements, potential system tie-in, and construction of new mains.	City Staff Water Department	5-7 years
Objective 3: Through Capital Improvement Project (CIP) planning, provide wastewater collection and treatment to meet all state and federal standards.	a. Utilize capital improvement programming to indicate appropriate new system construction for the promotion of new growth and land development.	City Staff Water Department	1-3 years
	b. Maintain active participation with the development process of properties within and adjacent to the city's CCN boundaries to anticipate new growth and negotiate development agreements, potential system tie-in, and construction of new mains.	City Staff Water Department	5-7 years
Objective 4: Provide for stormwater management that prevents flooding and siltation of creeks and streams and meets all state and federal regulations.	a. Develop a stormwater management plan to ensure that flooding does not occur in the city.	City Staff	1-3 years
Objective 5: Continue to provide solid waste disposal service in the city.	a. Promote the use of recycling to reduce the volume of waste deposited in landfills and therefore keep the cost of disposal at a reasonable level.	City Staff	1-3 years
	b. Monitor the needs of the community for solid waste disposal options and act in a timely fashion to meet these needs.	City Staff	5-7 years
	c. Promote mulching and composting of green wastes, such as leaves, tree limbs, grass clippings, brush, etc., as part of the recycling and waste minimization efforts.	City Staff	1-3 years

Objective 6: Continue to provide police services and programs to create a safe environment for all citizens in Josephine.	a. Foster the development of an emergency response summit including city, county, and state policing entities to determine the best organization for redefining inter-local agreements regarding jurisdictional boundaries; mutual response to emergent situations; and cross jurisdictional communication systems in both radio and dispatch technologies.	City Staff Collin and Hunt Counties	1-3 years
	b. Develop and maximize the use of human resources through effective management and training. These human resources include police personnel, other governmental agencies, the private sector, and the citizens of Josephine.	City Staff	1-3 years
	c. Evaluate the need for additional personnel and implement procedures to select only the most qualified personnel.	City Staff	5-7 years
	d. Update and advance technology to meet increasing challenges and legal requirements.	City Staff	5-7 years
	e. Monitor pay for police officers and adjust as needed to attract well-qualified personnel.	City Staff	1-3 years
Objective 7: Continue and enhance the relationship with the Josephine Volunteer Fire District for firefighting and protection services through the development of a new joint facility housing both city-provided and volunteer emergency professionals.	a. Assure relationships that ensure adequate fire protection facilities, equipment, and water pressure to respond to and fight a fire in any part of the community in a timely and efficient fashion.	City Staff Vol. Fire District	1-3 years
	b. Monitor the need for additional personnel, equipment, and facilities to provide timely response in all areas as the community increases in land area and population.	City Staff Vol. Fire District	1-3 years
	c. Continue to upgrade the emergency medical services so as to provide the highest level of service possible to the residents of Josephine/Collin County.	City Staff Vol. Fire District	1-3 years
	d. Focus on education of the public in areas of fire prevention and accident prevention.	City Staff Vol. Fire District	1-3 years
	e. Establish an Emergency Operations Center (EOC).	City Staff Vol. Fire District	5-7 years
	f. Consider additional fire stations in various parts of the city as the community grows in greater land area.	City Staff Vol. Fire District	5-7 years
	g. Consider economic and demographic growth factors in the future development of a mixed career / volunteer fire department for the city. These factors may include general fund revenues, service demand of taller buildings, or buildings closer together requiring specialized emergency equipment. Studies have shown that when administration costs for fire protection increase enough, mixed and career departments have lower costs than a volunteer department.	City Staff Vol. Fire District	5-7 years
Objective 8: Explore ways to provide additional library services to residents.		City Staff	5-7 years

Objective 9: Continue to provide city administrative services from City Hall.	a. Conduct a facilities demand study based on future human resource budget for operational office space needs.	City Staff	1-3 years
	b. Keep the City Hall building in a good state of repair so that it continues to be an asset and an example of good stewardship for the community.	City Staff	1-3 years
Objective 10: Practice good stewardship of all city-owned properties.	a. Assure that city-owned property is adequately maintained and landscaped.	City Staff	Ongoing
	b. Dispose of public property which has no foreseeable use or which other types of development could better utilize.	City Staff	5-7 years

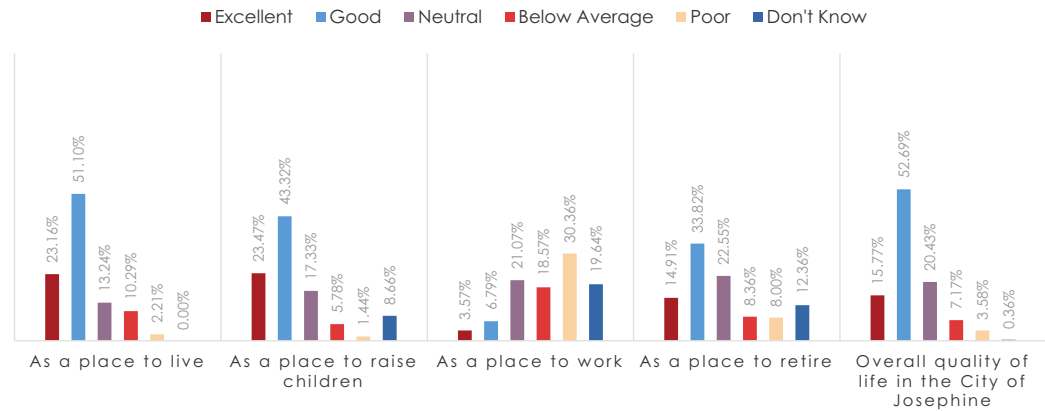
Appendix

Community Survey Results

Q1: Quality of Life in the City of Josephine

Please rate the City of Josephine:

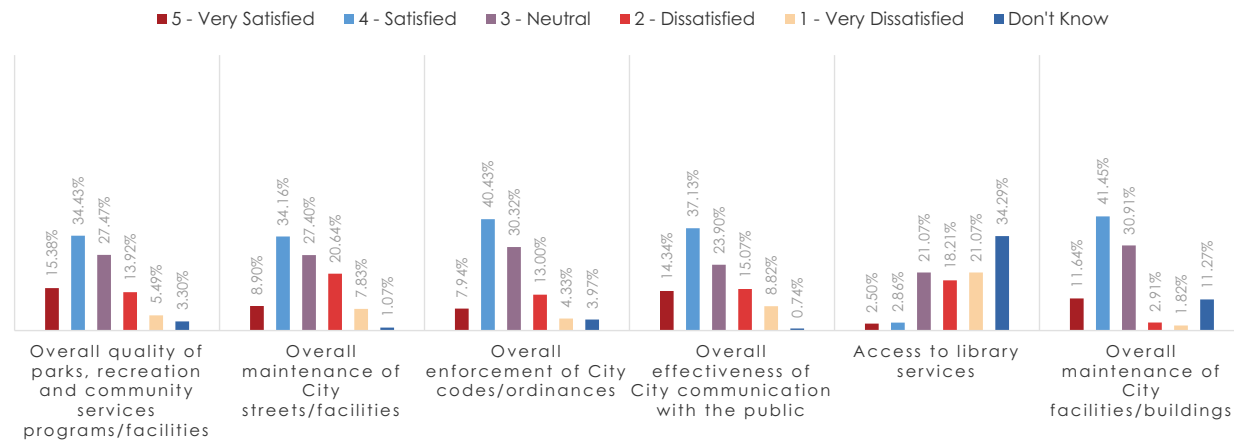
Answered: 285 Skipped: 0



Q2: Overall Satisfaction with Major City Services

Please rate your satisfaction with the following:

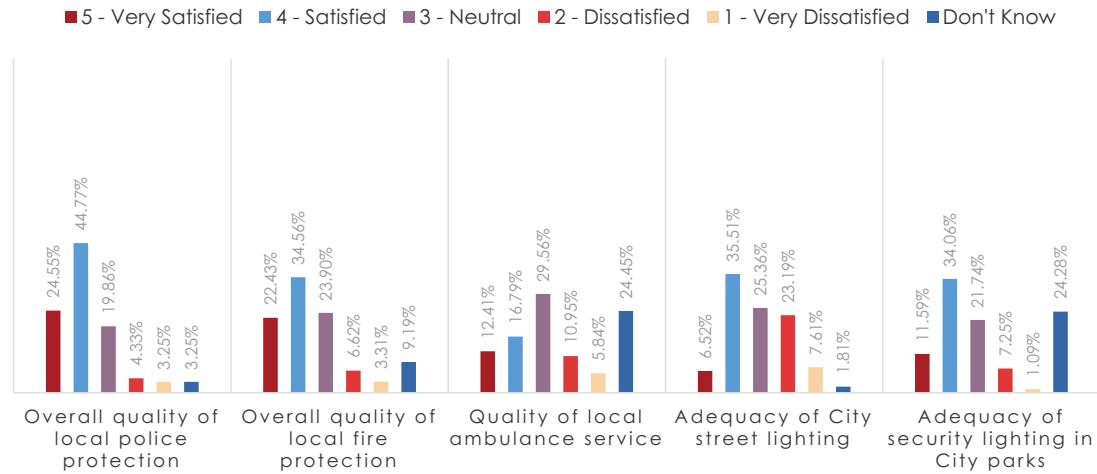
Answered: 285 Skipped: 0



Q3: Public Safety Services

Please rate your satisfaction with the following:

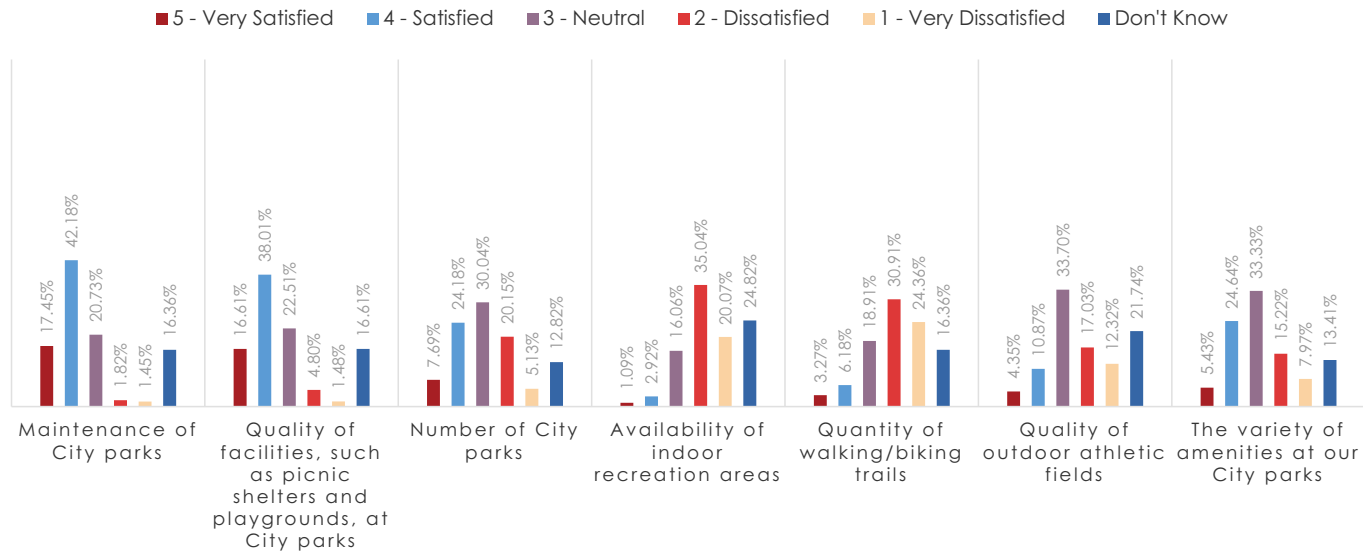
Answered: 283 Skipped: 2



Q4: Parks and Recreation Services

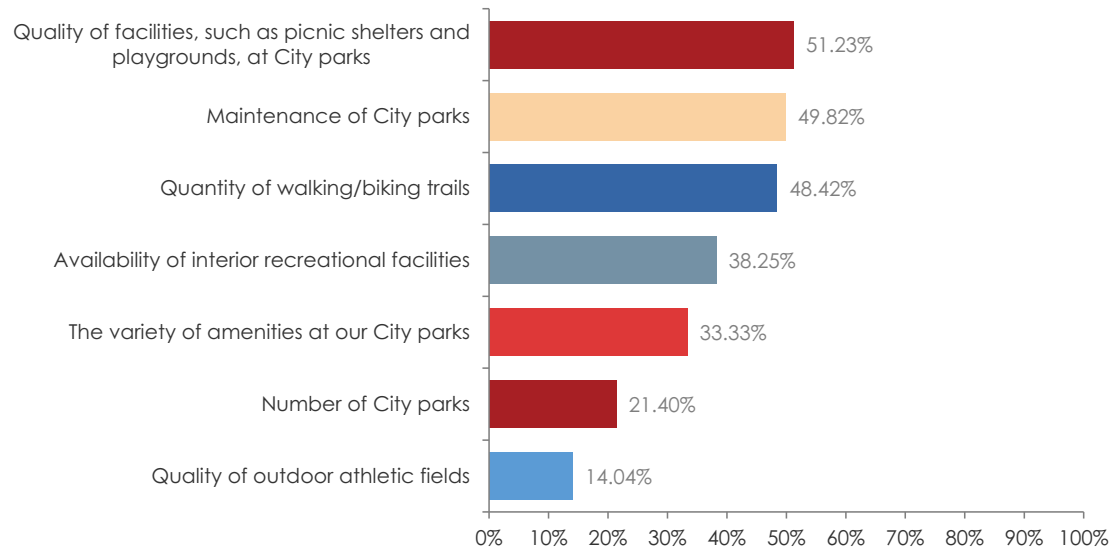
Please rate your satisfaction with the following:

Answered: 281 Skipped: 4



Q5: Which THREE of the parks and recreation services in Question #4 do you think are MOST IMPORTANT for the City to provide?

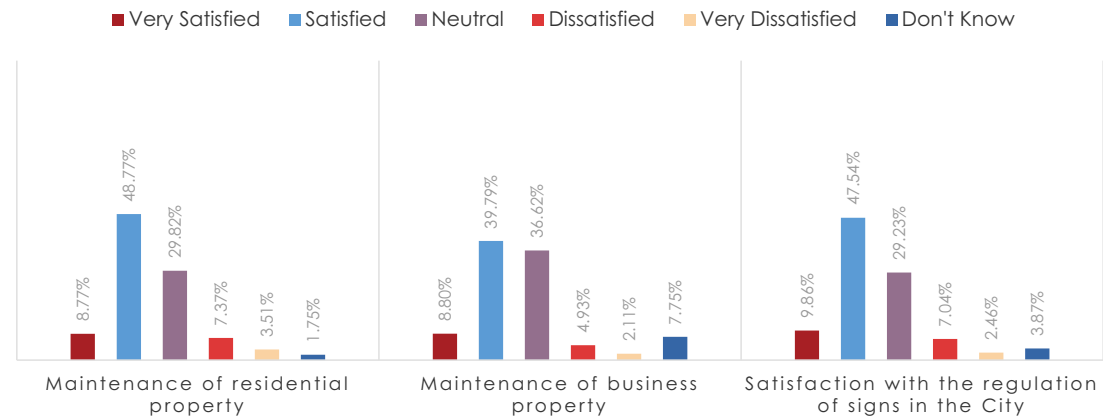
Answered: 285 Skipped: 0



Q6: Maintenance and Appearance of the City

Please rate your satisfaction with the following:

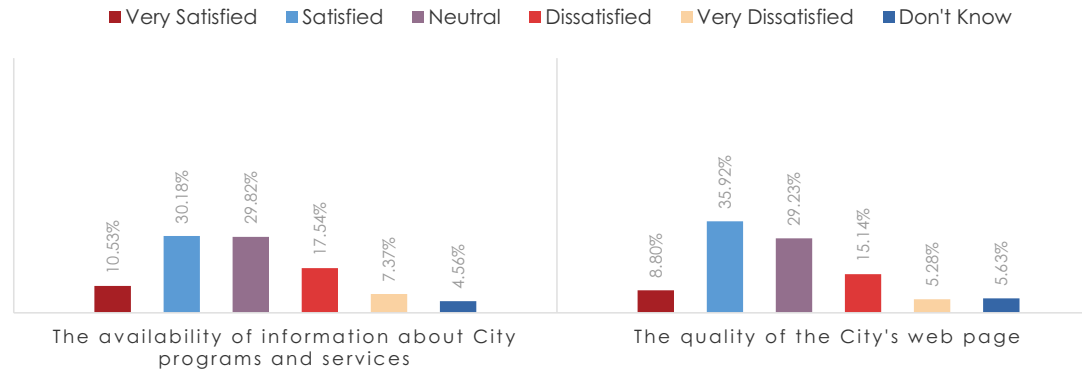
Answered: 285 Skipped: 0



Q7: City Communication

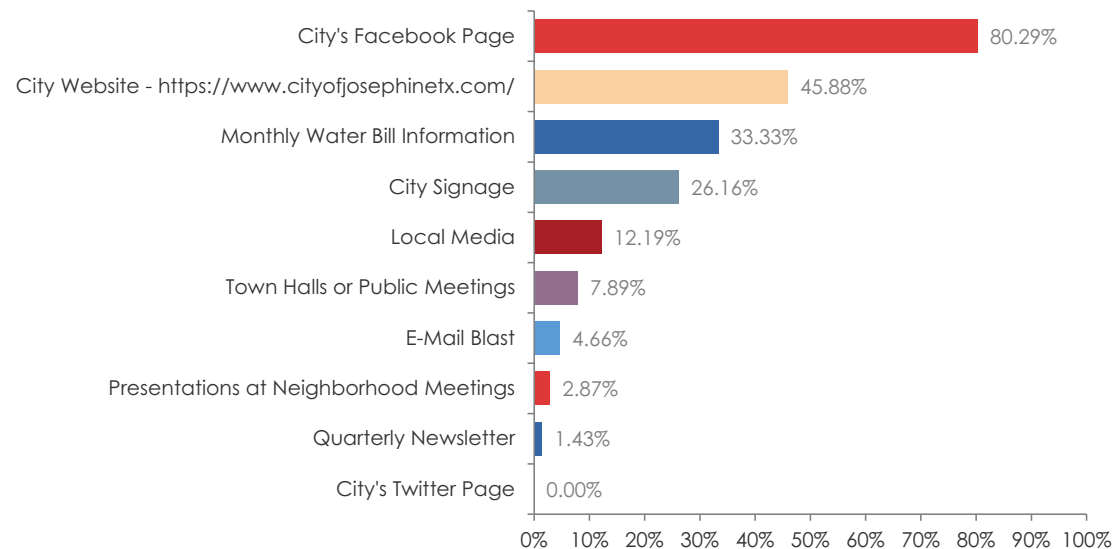
Please rate your satisfaction with the following:

Answered: 285 Skipped: 0



Q8: From which of the following sources do you receive news and information about the City? (Check all that apply)

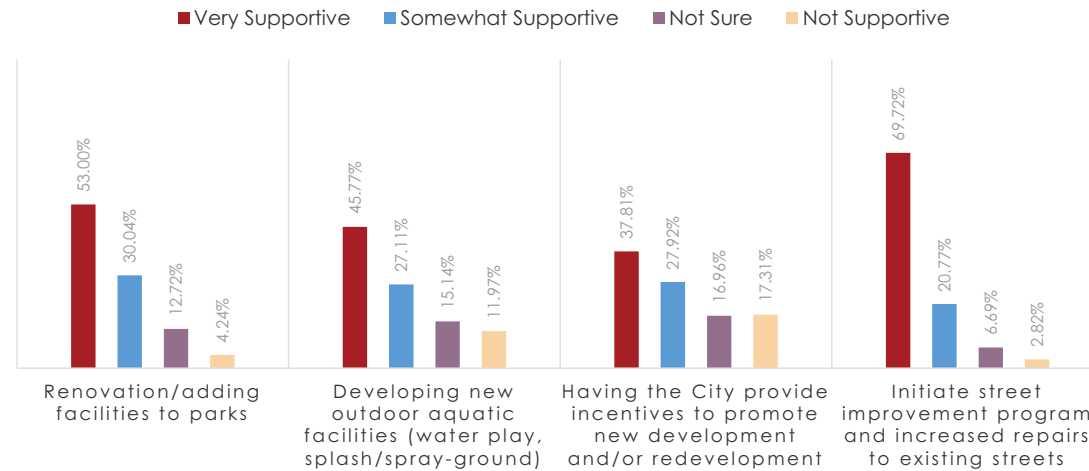
Answered: 279 Skipped: 6



Q9: Support for Various Initiatives

Please rate your satisfaction with the following:

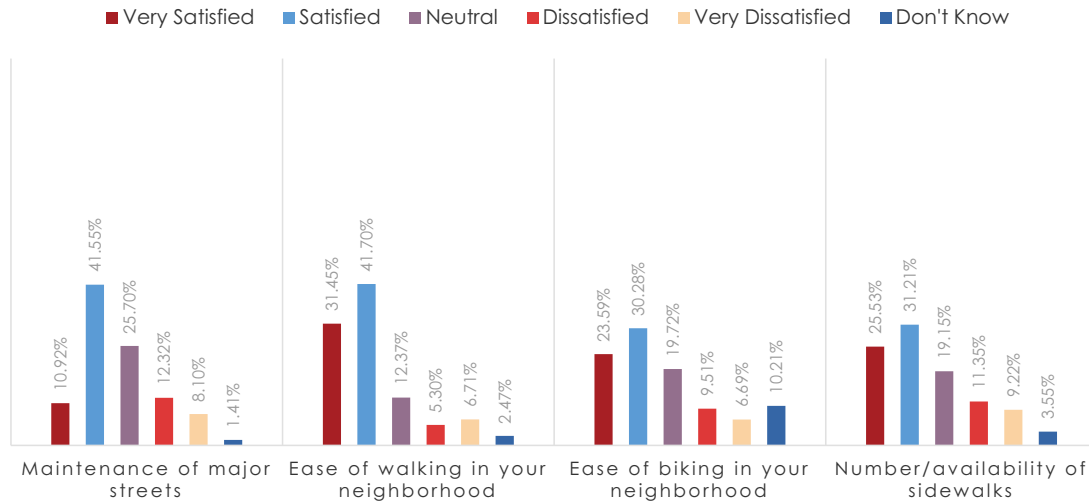
Answered: 285 Skipped: 0



Q10: Traffic & Transportation Services

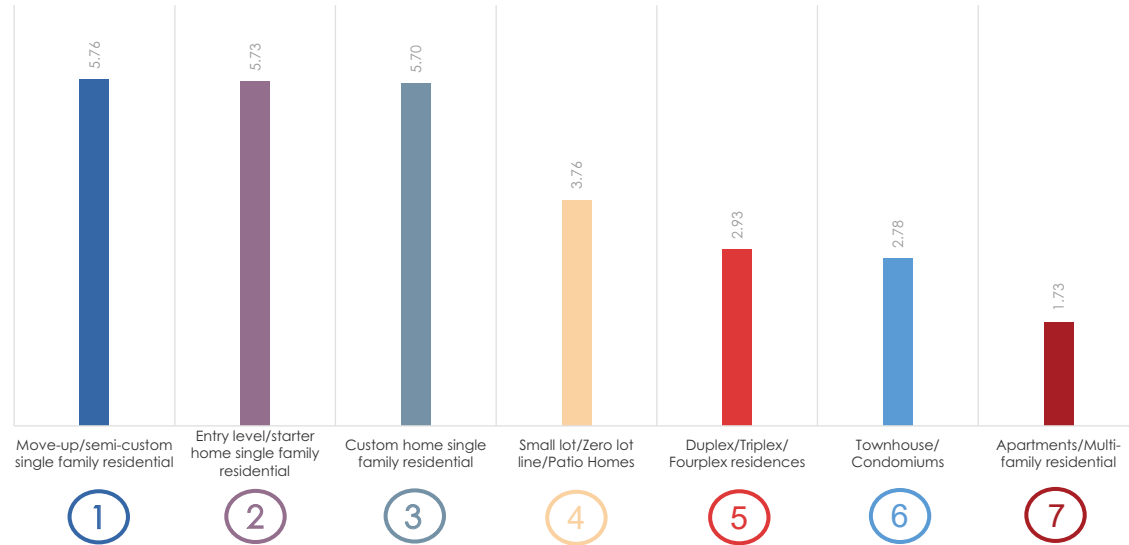
Please rate your satisfaction with the following facilities in the neighborhood where you live using a scale of 1 to 5 where 5 means "Very Satisfied" and 1 means "Very Dissatisfied."

Answered: 284 Skipped: 1



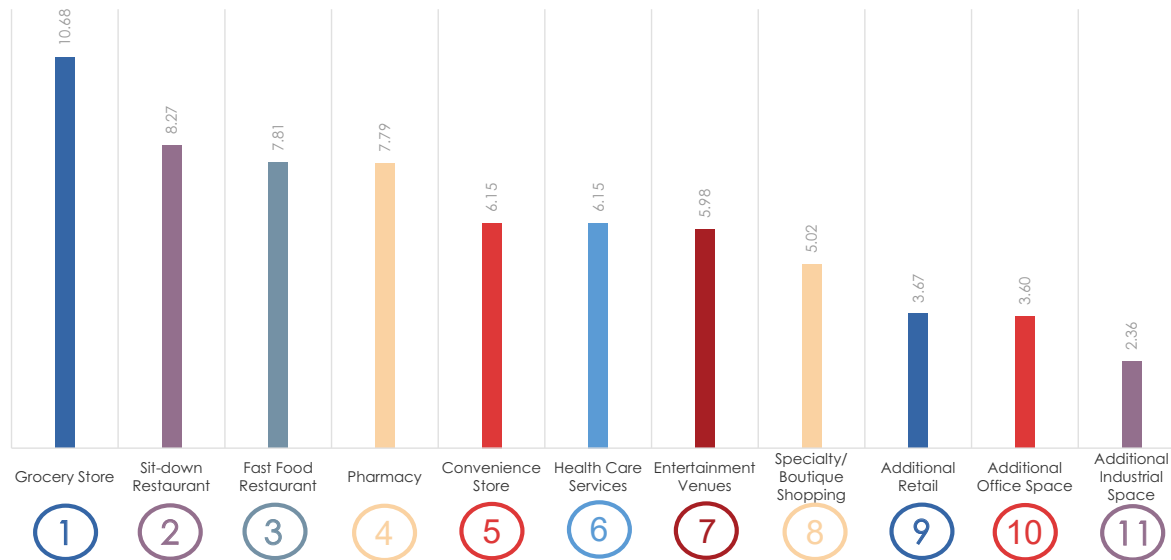
Q11: Please rank the top three Housing needs in the City of Josephine, with 1 being the most needed, 2 being the second most needed, and 3 being the third most needed.

Answered: 278 Skipped: 7



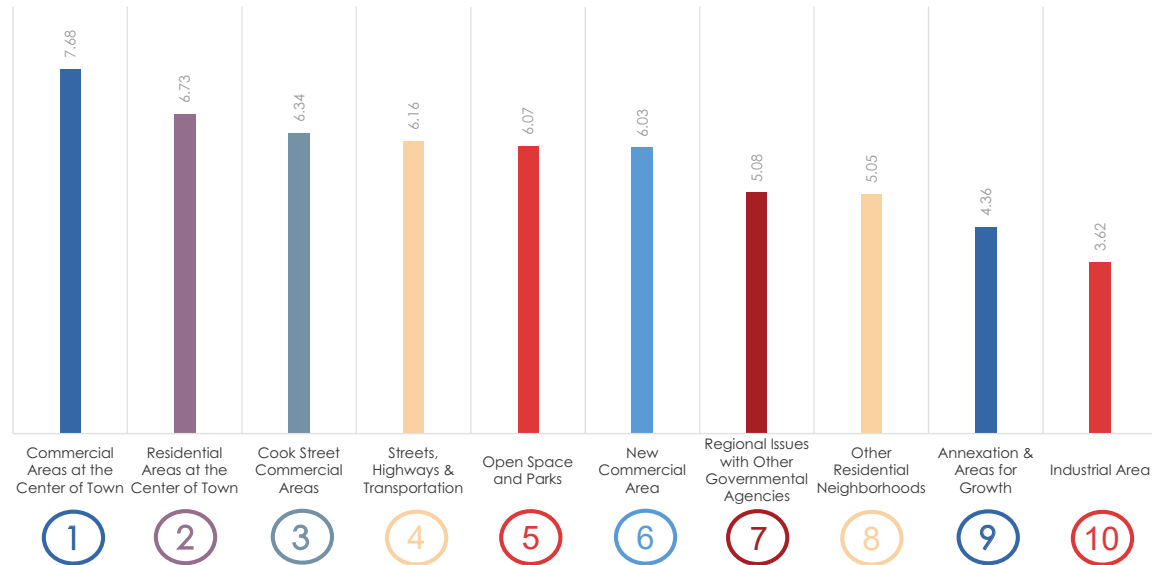
Q12: Please rank the top three Retail/Service/Employment needs in the City of Josephine with 1 being the most needed, 2 being the second most needed, and 3 being the third most needed.

Answered: 280 Skipped: 5



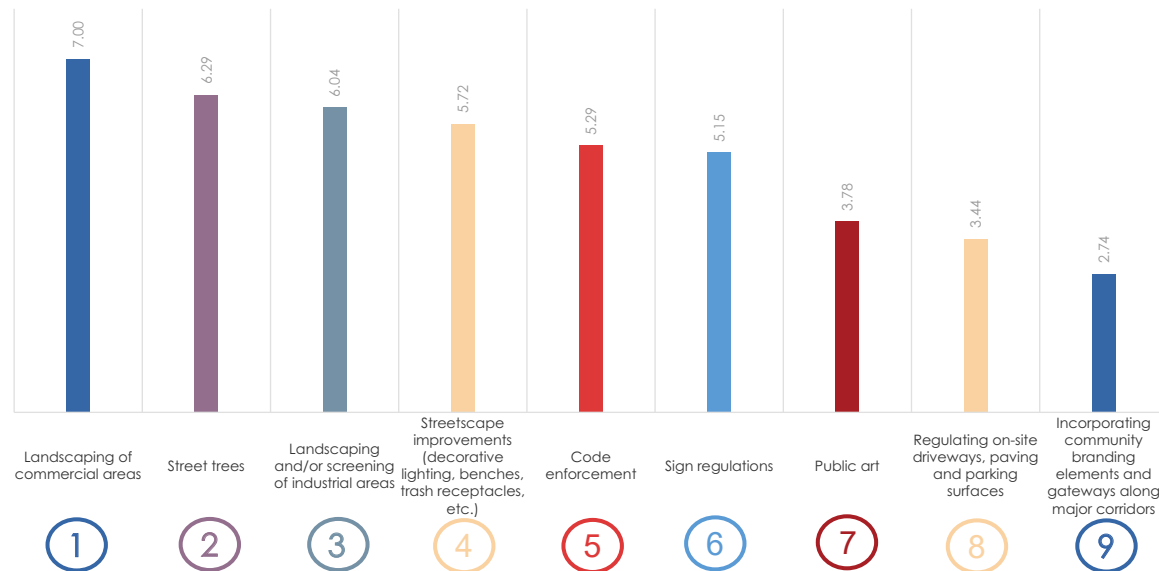
Q13: Please rank the top three areas in the City of Josephine where the Comprehensive Plan should direct the most focus, with 1 being the most needed, 2 being the second most needed, and 3 being the third most needed.

Answered: 272 Skipped: 13



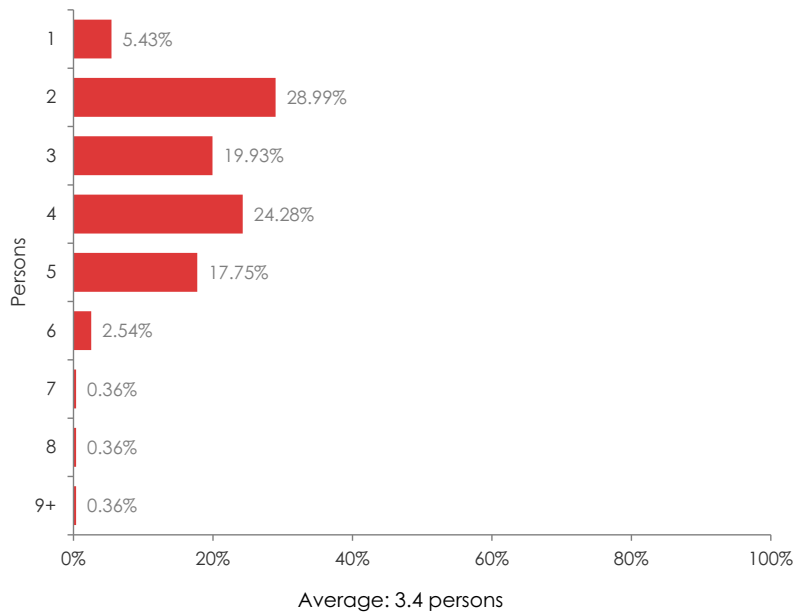
Q14: Please rank from 1 to 10 the importance of various aesthetic considerations in the City of Josephine where the city should direct the most focus, with 1 being the most important and 10 being the least important.

Answered: 257 Skipped: 28



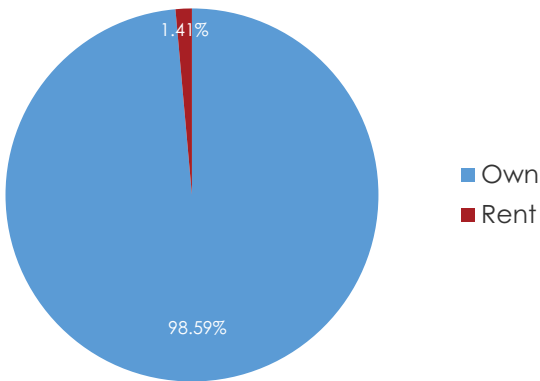
Q15: How many persons live in your household?

Answered: 277 Skipped/Indeterminate: 8



Q16: Do you own or rent your home?

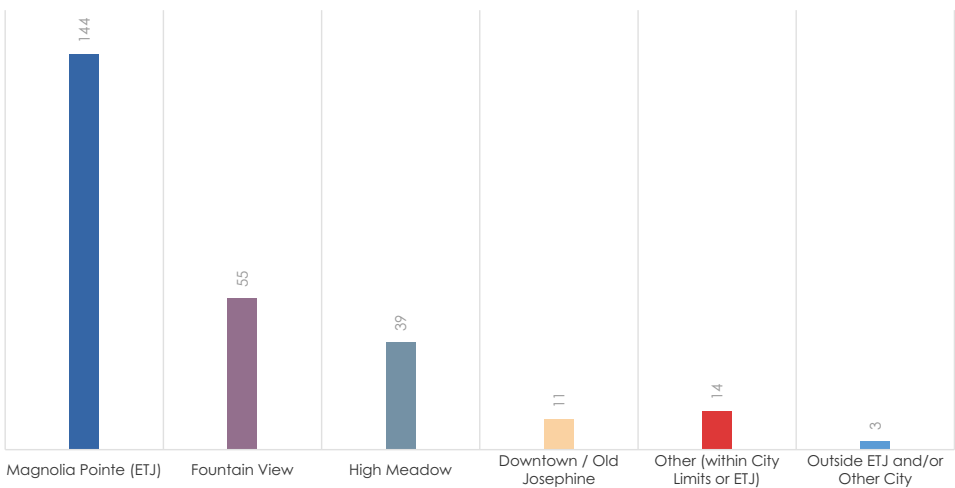
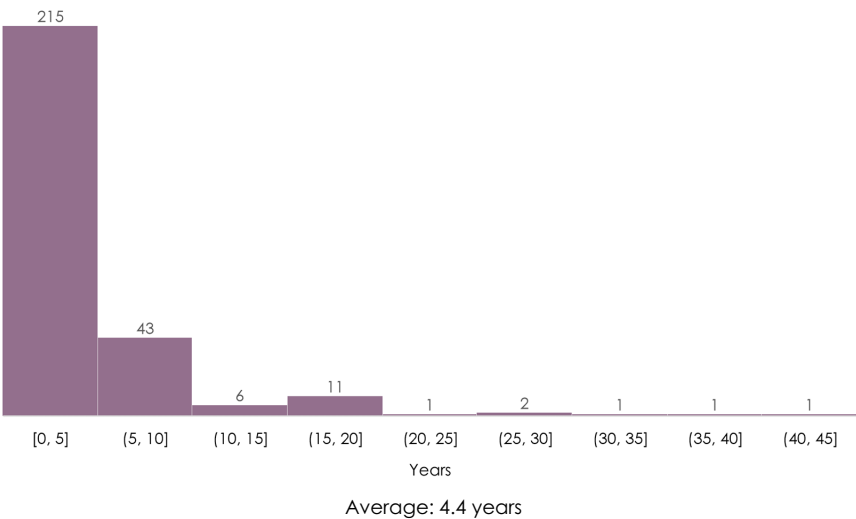
Answered: 284 Skipped: 1



Q17: Approximately how many years have you lived in the City of Josephine? Q18: Which City of Josephine neighborhood do you live in?

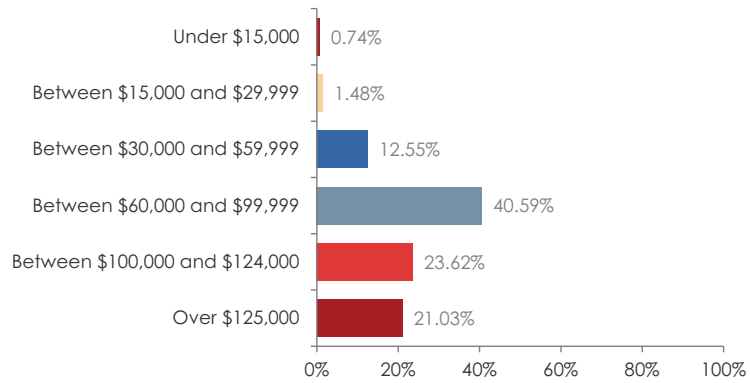
Answered: 281 Skipped/Indeterminate: 4

Answered: 266 Skipped/Indeterminate: 19



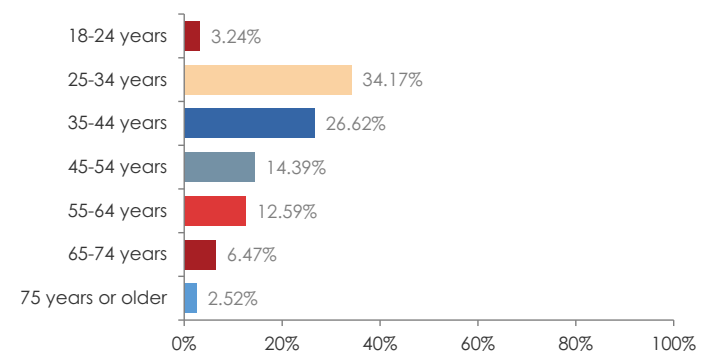
Q19: Which category is your total annual household income?

Answered: 271 Skipped: 14



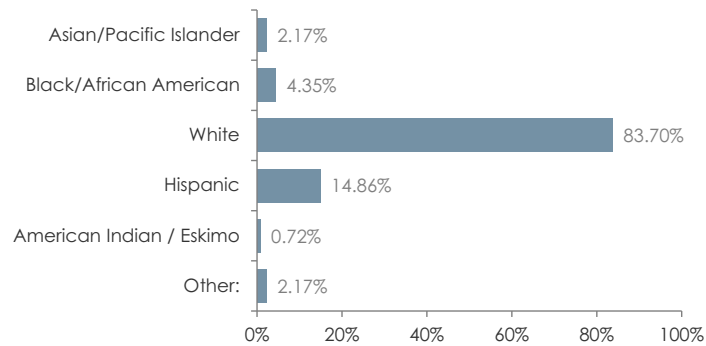
Q20: In which category is your age?

Answered: 278 Skipped: 7



Q21: Which of the following best described your race/ethnicity? (Check all that apply)

Answered: 276 Skipped: 9



Q22: Your gender:

Answered: 273 Skipped: 12

