

DRAFT
**Land Use Assumptions,
Infrastructure Improvements Plan,
and Development Fee Report**

**Prepared for:
El Mirage, Arizona**

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FISCAL | ECONOMIC | PLANNING

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TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	1
ARIZONA DEVELOPMENT FEE ENABLING LEGISLATION.....	1
Necessary Public Services	1
Infrastructure Improvements Plan	2
Qualified Professionals	2
Conceptual Development Fee Calculation.....	3
Evaluation of Credits/Offsets.....	3
Exemptions/Waivers.....	3
INTRODUCTION TO DEVELOPMENT FEES	3
REQUIRED FINDINGS	4
DEVELOPMENT FEE REPORT	6
DEVELOPMENT FEE COMPONENTS	7
CURRENT DEVELOPMENT FEES	7
PROPOSED DEVELOPMENT FEES	7
Non-Utility.....	8
Utility.....	8
LAND USE ASSUMPTIONS.....	9
SUMMARY OF GROWTH INDICATORS	9
SERVICE AREA.....	10
RESIDENTIAL DEVELOPMENT.....	10
Recent Residential Construction	10
Occupancy Factors.....	12
Occupancy by Bedroom Range.....	13
Occupancy by Housing Size	15
Residential Estimates	17
Residential Projections.....	17
NONRESIDENTIAL DEVELOPMENT.....	18
Nonresidential Demand Factors.....	18
Nonresidential Estimates	19
Nonresidential Projections	20
AVERAGE WEEKDAY VEHICLE TRIPS	21
Residential Trip Generation Rates.....	21
Nonresidential Trip Generation Rates.....	25
Residential Trip Generation Rates.....	25
Trip Rate Adjustments	26
Commuter Trip Adjustment	26
Adjustment for Pass-By Trips.....	27
Average Weekday Vehicle Trips.....	27
DEVELOPMENT PROJECTIONS.....	28
Average Weekday Vehicle Trips.....	29
FIRE FACILITIES	30
PROPORTIONATE SHARE	30
SERVICE UNITS	31
SERVICE AREA.....	31
RATIO OF SERVICE UNITS TO DEVELOPMENT UNITS.....	32
ANALYSIS OF CAPACITY, USAGE, AND COSTS OF EXISTING PUBLIC SERVICES	33
Fire Facilities – Plan Based	33
Fire Apparatus – Incremental Expansion.....	35

Development Fee Report – Plan Based.....	36
PROJECTED DEMAND FOR SERVICES AND COSTS	36
Fire Facilities – Plan Based	37
Fire Apparatus – Incremental Expansion.....	38
FIRE FACILITIES DEVELOPMENT FEES	39
Bond Credit/Offset.....	39
Fire Facilities Development Fees	40
FIRE FACILITIES DEVELOPMENT FEE REVENUE.....	42
PARKS AND RECREATIONAL FACILITIES IIP	43
PROPORTIONATE SHARE	43
SERVICE UNITS	44
SERVICE AREA.....	44
RATIO OF SERVICE UNITS TO DEVELOPMENT UNITS.....	44
ANALYSIS OF CAPACITY, USAGE, AND COSTS OF EXISTING PUBLIC SERVICES	45
Park Amenities – Incremental Expansion	45
Recreation Facilities – Plan Based	47
Development Fee Report – Plan Based.....	48
PROJECTED DEMAND FOR SERVICES AND COSTS	49
Park Amenities – Incremental Expansion	49
Recreation Facilities – Plan Based	50
PARKS AND RECREATION FACILITIES DEVELOPMENT FEES	51
Parks Bond Credit/Offset	51
Recreation Bond Credit/Offset.....	52
Parks and Recreational Facilities Development Fees	53
PARKS AND RECREATIONAL FACILITIES DEVELOPMENT FEE REVENUE.....	55
POLICE FACILITIES IIP.....	56
PROPORTIONATE SHARE	56
SERVICE UNITS	57
SERVICE AREA.....	57
RATIO OF SERVICE UNITS TO DEVELOPMENT UNITS.....	58
ANALYSIS OF CAPACITY, USAGE, AND COSTS OF EXISTING PUBLIC SERVICES	59
Police Facilities – Incremental Expansion.....	59
Police Vehicles – Incremental Expansion.....	61
Development Fee Report – Plan Based.....	63
PROJECTED DEMAND FOR SERVICES AND COSTS	63
Police Facilities – Incremental Expansion.....	64
Police Vehicles – Incremental Expansion.....	65
POLICE FACILITIES DEVELOPMENT FEES	66
Police Bond Credit/Offset.....	66
Police Facilities Development Fees.....	67
POLICE FACILITIES DEVELOPMENT FEE REVENUE.....	69
STREET FACILITIES IIP.....	70
PROPORTIONATE SHARE	70
SERVICE AREA.....	70
RATIO OF SERVICE UNITS TO DEVELOPMENT UNITS.....	70
Residential Trip Generation Rates.....	71
Residential Trip Generation Rates.....	75
Nonresidential Trip Generation Rates.....	75
Trip Rate Adjustments	76

Commuter Trip Adjustment	76
Adjustment for Pass-By Trips	77
Average Weekday Vehicle Trips	77
ANALYSIS OF CAPACITY, USAGE, AND COSTS OF EXISTING PUBLIC SERVICES	78
Arterial Improvements – Cost Recovery	78
Development Fee Report – Plan Based	79
PROJECTED DEMAND FOR SERVICES AND COSTS	79
STREET FACILITIES DEVELOPMENT FEES	81
Streets Bond Credit/Offset	81
Street Facilities Development Fees	81
STREET FACILITIES DEVELOPMENT FEE REVENUE	83
WASTEWATER FACILITIES IIP	84
PROPORTIONATE SHARE	84
SERVICE AREA	84
RATIO OF SERVICE UNITS TO DEVELOPMENT UNITS	84
ANALYSIS OF CAPACITY, USAGE, AND COSTS OF EXISTING PUBLIC SERVICES	85
Existing Flow	85
Equalization Basin – Plan Based	85
Development Fee Report – Plan-Based	86
PROJECTED DEMAND FOR SERVICES AND COSTS	87
Projected Flow	87
WASTEWATER FACILITIES DEVELOPMENT FEES	89
Wastewater Facilities Development Fees	89
WASTEWATER FACILITIES DEVELOPMENT FEE REVENUE	90
APPENDIX A: FORECAST OF REVENUES OTHER THAN FEES	91
REVENUE PROJECTIONS	91
APPENDIX B: PROFESSIONAL SERVICES	92
APPENDIX C: LAND USE DEFINITIONS	93
RESIDENTIAL DEVELOPMENT	93
NONRESIDENTIAL DEVELOPMENT	94

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EXECUTIVE SUMMARY

The City of El Mirage, Arizona, contracted with TischlerBise to document land use assumptions, prepare the Infrastructure Improvements Plan (hereinafter referred to as the “IIP”), and update development fees pursuant to Arizona Revised Statutes (“ARS”) § 9-463.05 (hereafter referred to as the “Enabling Legislation”). Municipalities in Arizona may assess development fees to offset infrastructure costs to a municipality for necessary public services. The development fees must be based on an Infrastructure Improvements Plan and Land Use Assumptions. The IIP for each type of infrastructure is in the middle section of this document. The proposed development fees are displayed in the Development Fee Report in the next section.

Development fees are one-time payments used to construct system improvements needed to accommodate new development. The fee represents future development’s proportionate share of infrastructure costs. Development fees may be used for infrastructure improvements or debt service for growth related infrastructure. In contrast to general taxes, development fees may not be used for operations, maintenance, replacement, or correcting existing deficiencies. This update of El Mirage’s Infrastructure Improvements Plan and associated update to its development fees includes the following necessary public services:

1. Fire Facilities
2. Parks and Recreational Facilities
3. Police Facilities
4. Street Facilities
5. Wastewater Facilities

This plan includes all necessary elements required to be in full compliance with the Enabling Legislation.

ARIZONA DEVELOPMENT FEE ENABLING LEGISLATION

The Enabling Legislation governs how development fees are calculated for municipalities in Arizona.

Necessary Public Services

Under the requirements of the Enabling Legislation, development fees may only be used for construction, acquisition or expansion of public facilities that are necessary public services. “Necessary public service” means any of the following categories of facilities that have a life expectancy of three or more years and that are owned and operated on behalf of the municipality: water, wastewater, storm water, library, street, fire, police, and parks and recreation. Additionally, a necessary public service includes any facility that was financed before June 1, 2011, and that meets the following requirements:

1. Development fees were pledged to repay debt service obligations related to the construction of the facility.
2. After August 1, 2014, any development fees collected are used solely for the payment of principal and interest on the portion of the bonds, notes, or other debt service obligations issued before June 1, 2011, to finance construction of the facility.

Infrastructure Improvements Plan

Development fees must be calculated pursuant to an IIP. For each necessary public service that is the subject of a development fee, by law, the IIP shall include the following seven elements:

1. A description of the existing necessary public services in the service area and the costs to update, improve, expand, correct or replace those necessary public services to meet existing needs and usage and stricter safety, efficiency, environmental or regulatory standards, which shall be prepared by qualified professionals licensed in this state, as applicable.
2. An analysis of the total capacity, the level of current usage and commitments for usage of capacity of the existing necessary public services, which shall be prepared by qualified professionals licensed in this state, as applicable.
3. A description of all or the parts of the necessary public services or facility expansions and their costs necessitated by and attributable to development in the service area based on the approved Land Use Assumptions, including a forecast of the costs of infrastructure, improvements, real property, financing, engineering and architectural services, which shall be prepared by qualified professionals licensed in this state, as applicable.
4. A table establishing the specific level or quantity of use, consumption, generation or discharge of a service unit for each category of necessary public services or facility expansions and an equivalency or conversion table establishing the ratio of a service unit to various types of land uses, including residential, commercial, and industrial.
5. The total number of projected service units necessitated by and attributable to new development in the service area based on the approved Land Use Assumptions and calculated pursuant to generally accepted engineering and planning criteria.
6. The projected demand for necessary public services or facility expansions required by new service units for a period not to exceed ten years.
7. A forecast of revenues generated by new service units other than development fees, which shall include estimated state-shared revenue, highway users revenue, federal revenue, ad valorem property taxes, construction contracting or similar excise taxes and the capital recovery portion of utility fees attributable to development based on the approved Land Use Assumptions and a plan to include these contributions in determining the extent of the burden imposed by the development.

Qualified Professionals

The IIP must be developed by qualified professionals using generally accepted engineering and planning practices. A qualified professional is defined as “a professional engineer, surveyor, financial analyst or planner providing services within the scope of the person’s license, education, or experience.” TischlerBise is a fiscal, economic, and planning consulting firm specializing in the cost of growth services. Our services include development fees, fiscal impact analysis, infrastructure financing analyses, user fee/cost of service studies, capital improvement plans, and fiscal software. TischlerBise has prepared over 800 development fee studies over the past 30 years for local governments across the United States.

Conceptual Development Fee Calculation

In contrast to project-level improvements, development fees fund growth-related infrastructure that will benefit multiple development projects, or the entire service area (usually referred to as system improvements). The first step is to determine an appropriate demand indicator for the particular type of infrastructure. The demand indicator measures the number of service units for each unit of development. For example, an appropriate indicator of the demand for parks is population growth and the increase in population can be estimated from the average number of persons per housing unit. The second step in the development fee formula is to determine infrastructure improvement units per service unit, typically called level-of-service (LOS) standards. In keeping with the park example, a common LOS standard is improved park acres per thousand people. The third step in the development fee formula is the cost of various infrastructure units. To complete the park example, this part of the formula would establish a cost per acre for land acquisition and/ or park amenities.

Evaluation of Credits/Offsets

Regardless of the methodology, a consideration of credits/offsets is integral to the development of a legally defensible development fee. There are two types of credits/offsets that should be addressed in development fee studies and ordinances. The first is a revenue credit/offset due to possible double payment situations, which could occur when other revenues may contribute to the capital costs of infrastructure covered by the development fee. This type of credit/offset is integrated into the fee calculation, thus reducing the fee amount. The second is a site-specific credit or developer reimbursement for dedication of land or construction of system improvements. This type of credit is addressed in the administration and implementation of the development fee program. For ease of administration, TischlerBise normally recommends developer reimbursements for system improvements.

Exemptions/Waivers

In the event the City opts to incentivize development in certain locations or for certain development types (e.g., schools, religious institutions, etc.), the City would have the option to waive development fees in those zones or for those types of development only if each specific Impact Fee Fund is made whole by from other funding sources (e.g., General Fund). By way of example, were the City to allow a religious institution to be built without paying development impact fees, the City would have to reimburse each specific Impact Fee Fund in the amount that would have been charged to said religious institution from the General Fund or some other City funding mechanism.

INTRODUCTION TO DEVELOPMENT FEES

Development fees are one-time payments used to fund capital improvements necessitated by future development. Development fees have been utilized by local governments in various forms for at least fifty years. Development fees do have limitations and should not be regarded as the total solution for infrastructure financing needs. Rather, they should be considered one component of a comprehensive portfolio to ensure adequate provision of public facilities with the goal of maintaining current levels of service in a community. Any community considering facility fees should note the following limitations:

- 1) Fees can only be used to finance capital infrastructure and cannot be used to finance ongoing operations and / or maintenance and rehabilitation costs.

- 2) Fees cannot be deposited in the General Fund. The funds must be accounted for separately in individual accounts and earmarked for the capital expenses for which they were collected.
- 3) Fees cannot be used to correct existing infrastructure deficiencies unless there is a funding plan in place to correct the deficiency for all current residents and businesses in the community.

REQUIRED FINDINGS

There are three reasonable relationship requirements for development fees that are closely related to “rational nexus” or “reasonable relationship” requirements enunciated by a number of state courts. Although the term “dual rational nexus” is often used to characterize the standard by which courts evaluate the validity of development fees under the U. S. Constitution, we prefer a more rigorous formulation that recognizes three elements: “impact or need,” “benefit,” and “proportionality.” The dual rational nexus test explicitly addresses only the first two, although proportionality is reasonably implied, and was specifically mentioned by the U.S. Supreme Court in the *Dolan* case. The reasonable relationship language of the statute is considered less strict than the rational nexus standard used by many courts. Individual elements of the nexus standard are discussed further in the following paragraphs.

Demonstrating an Impact. All future development in a community creates additional demands on some, or all, public facilities provided by local government. If the supply of facilities is not increased to satisfy that additional demand, the quality or availability of public services for the entire community will deteriorate. Development fees may be used to recover the cost of development-related facilities, but only to the extent that the need for facilities is a consequence of development that is subject to the fees. The *Nollan* decision reinforced the principle that development exactions may be used only to mitigate conditions created by the developments upon which they are imposed. That principle clearly applies to development fees. In this study, the impact of development on improvement needs is analyzed in terms of quantifiable relationships between various types of development and the demand for specific facilities, based on applicable level-of-service standards.

Demonstrating a Benefit. A sufficient benefit relationship requires that development fee revenues be segregated from other funds and expended only on the facilities for which the fees were charged. Fees must be expended in a timely manner and the facilities funded by the fees must serve the development paying the fees. However, nothing in the U.S. Constitution or the State enabling Act authorizing development fees requires that facilities funded with fee revenues be available *exclusively* to development paying the fees. In other words, existing development may benefit from these improvements as well.

Procedures for the earmarking and expenditure of fee revenues are typically mandated by the State Enabling Legislation, as are procedures to ensure that the fees are expended expeditiously or refunded. All requirements are intended to ensure that developments benefit from the fees they are required to pay. Thus, an adequate showing of benefit must address procedural as well as substantive issues.

Demonstrating Proportionality. The requirement that exactions be proportional to the impacts of development was clearly stated by the U.S. Supreme Court in the *Dolan* case (although the relevance of that decision to development fees has been debated) and is logically necessary to establish a proper nexus. Proportionality is established through the procedures used to identify development-related facility costs, and in the methods used to calculate development fees for various types of facilities and categories

of development. The demand for facilities is measured in terms of relevant and measurable attributes of development.

DEVELOPMENT FEE REPORT

Development fees for the necessary public services made necessary by new development must be based on the same level of service (LOS) provided to existing development in the service area. There are three basic methodologies used to calculate development fees. They examine the past, present, and future status of infrastructure. The objective of evaluating these different methodologies is to determine the best measure of the demand created by new development for additional infrastructure capacity. Each methodology has advantages and disadvantages in a particular situation and can be used simultaneously for different cost components.

Reduced to its simplest terms, the process of calculating development fees involves two main steps: (1) determining the cost of development-related capital improvements and (2) allocating those costs equitably to various types of development. In practice, though, the calculation of development fees can become quite complicated because of the many variables involved in defining the relationship between development and the need for facilities within the designated service area. The following paragraphs discuss basic methodologies for calculating development fees and how those methodologies can be applied.

- **Cost Recovery** (past improvements) - The rationale for recoupment, often called cost recovery, is that new development is paying for its share of the useful life and remaining capacity of facilities already built, or land already purchased, from which new growth will benefit. This methodology is often used for utility systems that must provide adequate capacity before new development can take place.
- **Incremental Expansion** (concurrent improvements) - The incremental expansion methodology documents current LOS standards for each type of public facility, using both quantitative and qualitative measures. This approach assumes there are no existing infrastructure deficiencies or surplus capacity in infrastructure. New development is only paying its proportionate share for growth-related infrastructure. Revenue will be used to expand or provide additional facilities, as needed, to accommodate new development. An incremental expansion cost method is best suited for public facilities that will be expanded in regular increments to keep pace with development.
- **Plan-Based** (future improvements) - The plan-based methodology allocates costs for a specified set of improvements to a specified amount of development. Improvements are typically identified in a long-range facility plan and development potential is identified by a land use plan. There are two basic options for determining the cost per demand unit: (1) total cost of a public facility can be divided by total demand units (average cost), or (2) the growth-share of the public facility cost can be divided by the net increase in demand units over the planning timeframe (marginal cost).

DEVELOPMENT FEE COMPONENTS

Shown below, Figure 1 summarizes service areas, methodologies, and infrastructure cost components for the proposed fees.

Figure 1: Proposed Development Fee Service Areas, Methodologies, and Cost Components

Necessary Public Service	Service Area	Cost Recovery	Incremental Expansion	Plan-Based	Cost Allocation
Fire Facilities	Citywide	N/A	Fire Apparatus	Fire Facilities, Development Fee Report	Population, Vehicle Trips
Parks and Recreational Facilities	Citywide	N/A	Park Amenities	Community Centers, Development Fee Report	Population, Jobs
Police Facilities	Citywide	N/A	Police Facilities, Police Vehicles	Development Fee Report	Population, Vehicle Trips
Transportation Facilities	Citywide	Street Improvements	N/A	Development Fee Report	Population, Vehicle Trips
Wastewater Facilities	Citywide	N/A	N/A	Wastewater Treatment, Development Fee Report	Gallons

Calculations throughout this report are based on an analysis conducted using Excel software. Most results are discussed in the report using two, three, and four decimal places, which represent rounded figures. However, the analysis itself uses figures carried to their ultimate decimal places; therefore, the sums and products generated in the analysis may not equal the sum or product if the reader replicates the calculation with the factors shown in the report (due to the rounding of figures shown, not in the analysis).

CURRENT DEVELOPMENT FEES

The City of El Mirage does not currently assess development impact fees on new developments.

PROPOSED DEVELOPMENT FEES

The proposed fees represent the maximum allowable fees based on the analysis outlined in this report. El Mirage may adopt fees that are less than the amounts shown; however, a reduction in development fee revenue will necessitate an increase in other revenues, a decrease in planned capital improvements, and/or a decrease in level-of-service standards. All costs in the Development Fee Report represent current dollars with no assumed inflation over time. If costs change significantly over time, development fees should be recalculated.

Non-Utility

Proposed non-utility development fees will be assessed per development unit. For residential development, the development unit is a housing unit, based on housing unit type and size. For nonresidential development, the development unit is a thousand square feet of floor area.

Figure 2: Proposed Development Fees

Residential Fees per Development Unit						
Development Type	Development Unit	Fire	Street	Parks & Recreation	Police	Proposed Fees
Single Family						
1,249 or less	Housing Unit	\$1,394	\$666	\$1,183	\$739	\$3,982
1,250 to 1,999	Housing Unit	\$2,814	\$1,105	\$2,387	\$1,492	\$7,798
2,000 to 2,499	Housing Unit	\$3,490	\$1,313	\$2,961	\$1,851	\$9,615
2,500 to 2,999	Housing Unit	\$4,041	\$1,483	\$3,428	\$2,143	\$11,095
3,000 or more	Housing Unit	\$4,500	\$1,627	\$3,818	\$2,386	\$12,331
Multi-Family						
749 or less	Housing Unit	\$2,346	\$726	\$1,990	\$1,244	\$6,306
750 to 999	Housing Unit	\$2,981	\$917	\$2,529	\$1,581	\$8,008
1,000 to 1,249	Housing Unit	\$3,465	\$1,064	\$2,939	\$1,837	\$9,305
1,250 or more	Housing Unit	\$3,866	\$1,184	\$3,279	\$2,050	\$10,379

Nonresidential Fees per Development Unit						
Development Type	Development Unit	Fire	Street	Parks & Recreation	Police	Proposed Fees
Industrial	1,000 Sq Ft	\$137	\$120	\$21	\$162	\$440
Commercial	1,000 Sq Ft	\$1,951	\$1,702	\$135	\$2,306	\$6,094
Office & Other Services	1,000 Sq Ft	\$866	\$756	\$206	\$1,024	\$2,852
Institutional	1,000 Sq Ft	\$861	\$752	\$181	\$1,018	\$2,812

Utility

Proposed utility development fees will be assessed per meter size. For both residential and nonresidential development, the development unit is a meter by size.

Figure 3: Proposed Development Fees

Fees per Meter	
Meter Size	Proposed Fees
0.75-inch	\$1,137
1.00-inch	\$1,898
1.50-inch	\$3,785
2.00-inch	\$6,058
3.00-inch	\$12,128
4.00-inch	\$18,948
6.00-inch	\$37,885
8.00-inch	\$60,618

LAND USE ASSUMPTIONS

Arizona's Development Fee Act requires the preparation of Land Use Assumptions, which are defined in Arizona Revised Statutes § 9-463.05(T)(6) as:

“projections of changes in land uses, densities, intensities and population for a specified service area over a period of at least ten years and pursuant to the General Plan of the municipality.”

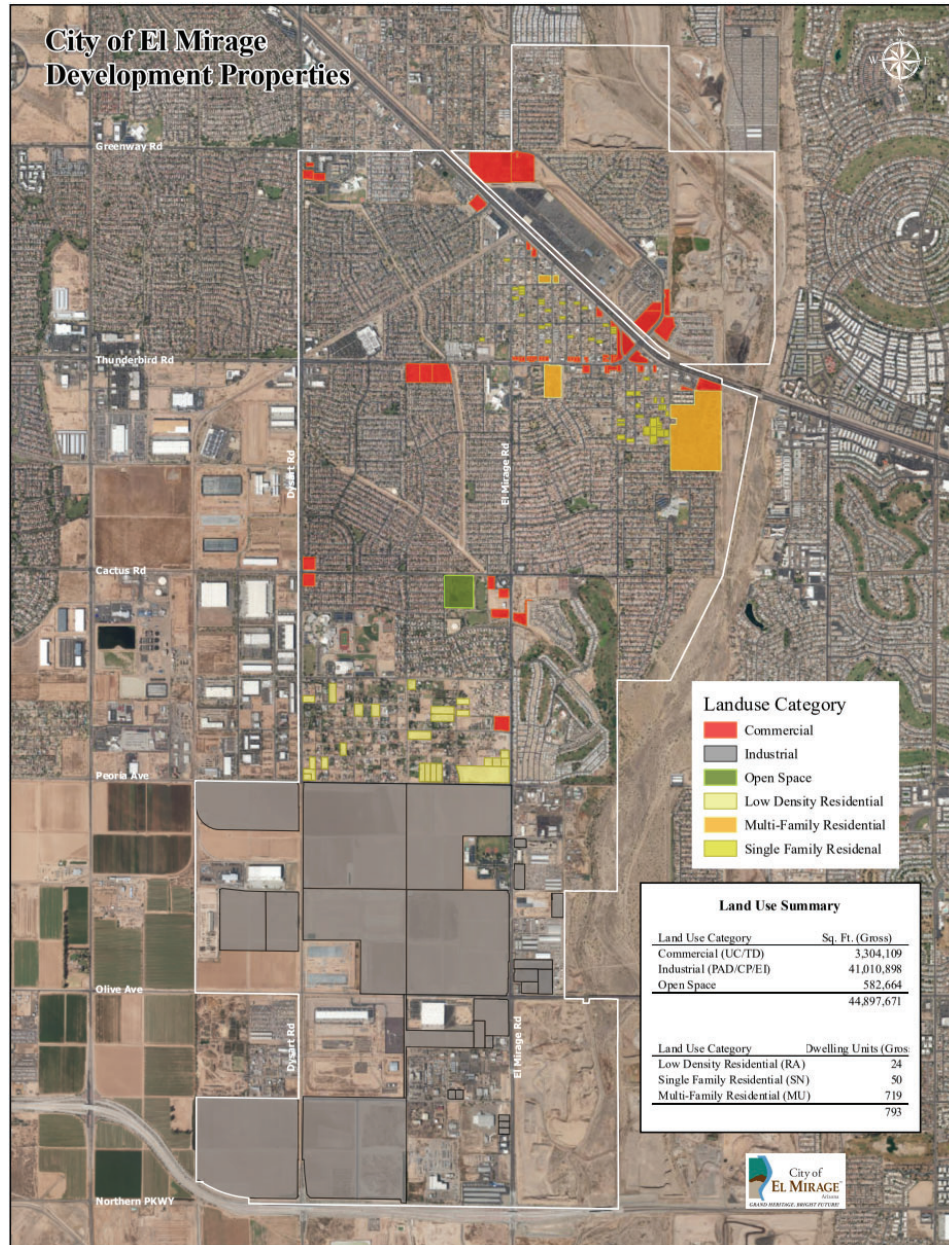
The estimates and projections of residential and nonresidential development in this Land Use Assumptions document are for all areas within El Mirage. The current demographic estimates and future development projections will be used in the Infrastructure Improvements Plan (IIP) and in the calculation of development fees. Current demographic data estimates for 2025 are used in calculating levels of service (LOS) provided to existing development in El Mirage. Arizona's Enabling Legislation requires fees to be updated at least every five years and limits the IIP to a maximum of 10 years.

SUMMARY OF GROWTH INDICATORS

Key land use assumptions include population, housing units, employment, and nonresidential floor area projections. TischlerBise projects development using on a combination of data published by the Maricopa Association of Governments (MAG) and recommendations from El Mirage staff based on recent and planned development. Development projections are summarized in Figure L20. These projections will be used to estimate fee revenue and to indicate the anticipated need for growth-related infrastructure. However, development fee methodologies are designed to reduce sensitivity to development projections in the determination of the proportionate share fee amounts. If actual development occurs at a slower rate than projected, fee revenue will decline, but so will the need for growth-related infrastructure. In contrast, if development occurs at a faster rate than anticipated, fee revenue will increase, but El Mirage will also need to accelerate infrastructure improvements to keep pace with the actual rate of development. During the next 10 years, residential development projections indicate a population increase of 900 persons in 327 housing units, and nonresidential development projections indicate an employment increase of 5,529 jobs in approximately 5,304,455 square feet of floor area.

SERVICE AREA

Figure L1: Development Fee Service Area



RESIDENTIAL DEVELOPMENT

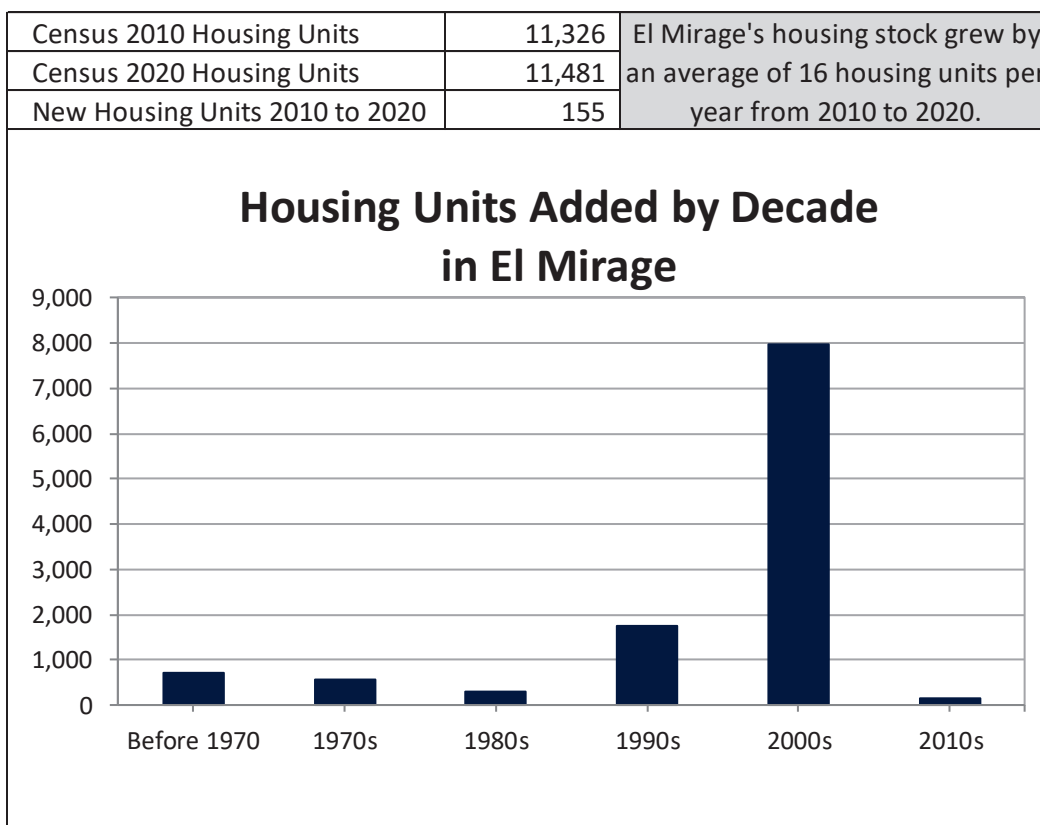
This section details current estimates and future projections of residential development including population and housing units.

Recent Residential Construction

Development fees require an analysis of current levels of service. For residential development, current levels of service are determined using estimates of population and housing units. Shown below, Figure L2 indicates the estimated number of housing units added by decade according to data obtained from the

U.S. Census Bureau. In the previous decade, El Mirage's housing stock grew by an average of 16 housing units per year.

Figure L2: Housing Units by Decade



Source: U.S. Census Bureau, Census 2020 Summary File 1, Census 2010 Summary File 1, 2019-2023 5-Year American Community Survey (for 2000s and earlier, adjusted to yield total units in 2010).

Occupancy Factors

According to the U.S. Census Bureau, a household is a housing unit occupied by year-round residents. Development fees often use per capita standards and persons per housing unit (PPHU) or persons per household (PPH) to derive proportionate share fee amounts. When PPHU is used in the fee calculations, infrastructure standards are derived using year-round population. When PPH is used in the fee calculations, the development fee methodology assumes a higher percentage of housing units will be occupied, thus requiring seasonal or peak population to be used when deriving infrastructure standards. TischlerBise recommends that development fees for residential development be imposed according to the number of persons per housing unit.

Occupancy calculations require data on population and the types of units by structure. The 2010 census did not obtain detailed information using a “long-form” questionnaire. Instead, the U.S. Census Bureau switched to a continuous monthly mailing of surveys, known as the American Community Survey (ACS), which has limitations due to sample-size constraints. For example, data on detached housing units are now combined with attached single units (commonly known as townhouses, which share a common sidewall, but are constructed on an individual parcel of land). For development fees in El Mirage, detached units, attached units, and mobile home units are included in the “Single-Family” category. The second residential category includes duplexes, all structures with two or more units on an individual parcel of land, recreation vehicles, and all other units.

Figure L3 below shows the occupancy estimates for El Mirage based on 2019-2023 American Community Survey 5-Year Estimates. Single-family units averaged 3.03 persons per housing unit and multi-family units averaged 2.72 persons per housing unit. The estimates shown below are used only to calculate occupancy factors and may not match population and housing unit estimates shown throughout this report.

Figure L3: Occupancy Factors

Housing Type	Persons	Households	Persons per Household	Housing Units	Persons per Housing Unit	Housing Mix	Vacancy Rate
Single-Family ¹	34,228	10,601	3.23	11,314	3.03	95.1%	6.30%
Multi-Family ²	1,583	535	2.96	582	2.72	4.9%	8.08%
Total	35,811	11,136	3.22	11,896	3.01	100.0%	6.39%

Source: U.S. Census Bureau, 2019-2023 American Community Survey 5-Year Estimates.

1. Includes detached, attached (i.e., townhouses), and mobile home units.

2. Includes dwellings in structures with two or more units or a boat, RV, van, etc.

Occupancy by Bedroom Range

Development fees must be proportionate to the demand for infrastructure. Averages per household have a strong, positive correlation to the number of bedrooms, so TischlerBise recommends a fee schedule where larger units pay higher development fees. Benefits of the proposed methodology include 1) a proportionate assessment of infrastructure demand using local demographic data and 2) a progressive fee structure (i.e., smaller units pay less, and larger units pay more).

Custom tabulations of demographic data by bedroom range can be created from individual survey responses provided by the U.S. Census Bureau in files known as Public Use Microdata Samples (PUMS). PUMS files are only available for areas of at least 100,000 persons. El Mirage is entirely within Arizona Public Use Microdata Area (PUMA) 00130.

Shown in Figure L4, cells with yellow shading indicate the unweighted survey results, which yield the unadjusted estimate of 2.05 persons per household. Unadjusted persons per housing unit estimates are adjusted to match the control total for El Mirage – 3.03 persons per housing unit (see Figure L3). Adjusted persons per housing unit estimates range from 2.45 persons per housing unit for single family units with zero to two bedrooms up to 5.27 persons per housing unit for single family units with four or more bedrooms. This is repeated for multi-family units, as shown in Figure L5.

Figure L4: Single Family Occupancy by Bedroom Range

Bedroom Range	Persons ¹	Vehicles Available ¹	Housing Units ¹	Housing Mix	Unadjusted PPHU	Adjusted PPHU ²	Unadjusted VPHU	Adjusted VPHU ²
0-2	2,826	2,348	1,705	61%	1.66	2.45	1.38	1.80
3	1,819	1,422	785	28%	2.32	3.42	1.81	2.37
4+	1,101	720	308	11%	3.57	5.27	2.34	3.06
Total	5,746	4,490	2,798	100%	2.05	3.03	1.60	2.10

National Averages According to ITE

ITE Code	AWVTE per Person	AWVTE per Vehicle	AWVTE per HU	Housing Mix
210 SFD	2.65	6.36	9.43	87%
220 Apt	1.86	5.10	6.74	13%
Wtd Avg	2.55	6.20	9.09	100%

Recommended AWVTE per Household

Bedroom Range	AWVTE per HU Based on Persons ³	AWVTE per HU Based on Vehicles ⁴	AWVTE per Housing Unit ⁵	
0-2	6.49	11.45	8.97	1. American Community Survey, Public Use Microdata Sample for AZ PUMA 00130 (2019-2023 5-Year unweighted data). 2. Adjusted multipliers are scaled to make the average PUMS values match control totals for El Mirage, based on American Community Survey 2019-2023 5-Year Estimates. 3. Adjusted persons per housing unit multiplied by national weighted average trip rate per person. 4. Adjusted vehicles available per housing unit multiplied by national weighted average trip rate per vehicle. 5. Average trip rates based on persons and vehicles per housing unit.
3	9.06	15.07	12.07	
4+	13.97	19.46	16.72	
Average	8.03	13.36	10.70	

Figure L5: Multi-Family Occupancy by Bedroom Range

Bedroom Range	Persons ¹	Vehicles Available ¹	Housing Units ¹	Housing Mix	Unadjusted PPHU	Adjusted PPHU ²	Unadjusted VPHU	Adjusted VPHU ²
0-1	258	162	208	47%	1.24	2.12	0.78	1.49
2	350	225	200	45%	1.75	2.98	1.13	2.15
3+	105	64	39	9%	2.69	4.59	1.64	3.14
Total	713	451	447	100%	1.60	2.72	1.01	1.93

National Averages According to ITE

ITE Code	AWVTE per Person	AWVTE per Vehicle	AWVTE per HU	Housing Mix
210 SFD	2.65	6.36	9.43	87%
220 Apt	1.86	5.10	6.74	13%
Wtd Avg	2.55	6.20	9.09	100%

Recommended AWVTE per Household

Bedroom Range	AWVTE per HU Based on Persons ³	AWVTE per HU Based on Vehicles ⁴	AWVTE per Housing Unit ⁵	
0-1	3.94	7.60	5.77	1. American Community Survey, Public Use Microdata Sample for AZ PUMA 00130 (2019-2023 5-Year unweighted data). 2. Adjusted multipliers are scaled to make the average PUMS values match control totals for El Mirage, based on American Community Survey 2019-2023 5-Year Estimates. 3. Adjusted persons per housing unit multiplied by national weighted average trip rate per person. 4. Adjusted vehicles available per housing unit multiplied by national weighted average trip rate per vehicle. 5. Average trip rates based on persons and vehicles per housing unit.
2	5.54	10.97	8.26	
3+	8.54	16.01	12.28	
Average	5.06	9.84	7.45	

Occupancy by Housing Size

To estimate square feet of living area by bedroom range, TischlerBise uses 2023 U.S. Census Bureau data for single family housing units constructed in the Census Mountain region and CoStar data for multi-family units in El Mirage.

Average square feet of living area and persons per housing unit by bedroom range for single family units are plotted in Figure L6 with a logarithmic trend line derived from U.S. Census Bureau estimates discussed in the previous paragraph and adjusted persons per housing unit estimates shown in Figure L4. Using the trendline formula shown in the figure, the number of persons per housing unit by square feet range of living area is derived (as shown in the gray shaded column). The formula allows localities to modify housing unit square feet ranges (used in impact fee schedules) to respond to changing market conditions. Average square feet of living area and persons per housing unit by bedroom range for multi-family units are plotted in Figure L7 with a logarithmic trend line derived from the CoStar data discussed in the previous paragraph and adjusted persons per housing unit estimates shown in Figure L5.

Figure L6: Single Family Occupancy by Housing Size

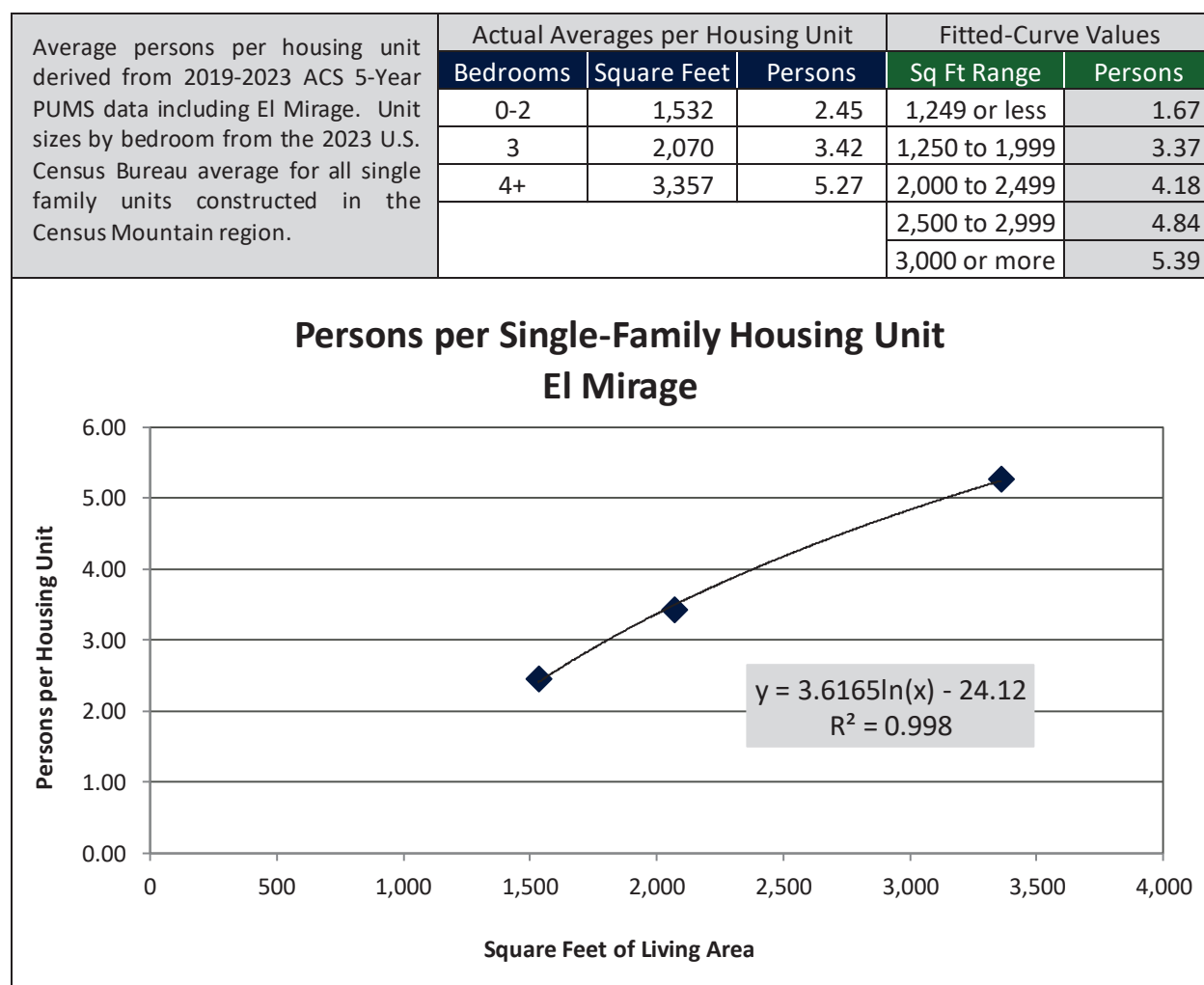
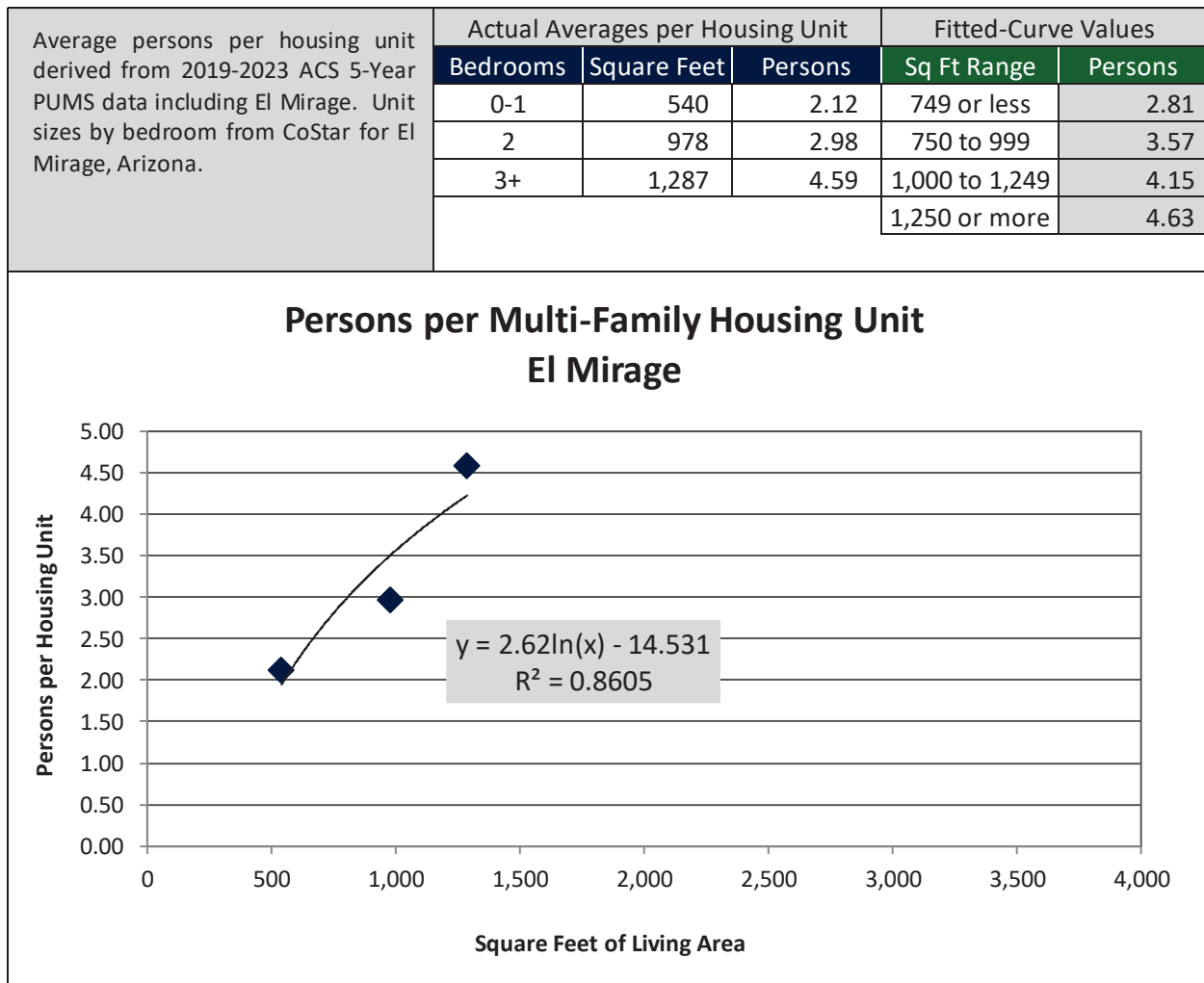


Figure L7: Multi-Family Occupancy by Housing Size



Residential Estimates

For 2020, data published by the U.S. Census Bureau includes 35,805 persons living in 11,481 housing units citywide. Using data published by the Maricopa Association of Governments (MAG), the 2025 population estimate includes 37,300 persons. Converting additional population to housing units using the occupancy factors shown in Figure L3 results in a 2025 housing unit estimate of 12,372 units. For this study, the analysis assumes all occupancy factors shown in Figure L3 other than housing mix will remain constant throughout the 10-year projection period. Future housing mix is projected based on the remaining development property land uses provided by City staff.

Residential Projections

Population and housing unit projections are used to illustrate the possible future pace of service demands, revenues, and expenditures. To the extent these factors change, the projected need for infrastructure will also change. If development occurs at a more rapid rate than projected, the demand for infrastructure will increase at a corresponding rate. If development occurs at a slower rate than projected, the demand for infrastructure will also decrease.

TischlerBise projects future residential development using a combination of data published by MAG and staff recommendations. MAG population projections released in 2023 include a 2025 population of 37,300 and a 2035 population of 38,200. Converting the population increase to housing units is done by using the occupancy factors shown in Figure L3 and the housing mix based on development information from City staff.

The housing unit projections, shown below, include 31 new single-family units and 297 new multi-family units for a 10-year increase of 327 units. Given the MAG projected population increase of 900 and the occupancy factors shown in Figure L3, there are 93 new residents from single-family units and 807 new residents from multi-family units ((31 single-family units X 3.03 persons per housing unit) and (297 multi-family units X 2.72 persons per housing unit)).

Figure L8: Residential Projections

El Mirage, Arizona	2025	2026	2027	2028	2029	2030	2035	10-Year Increase
	Base Year	1	2	3	4	5	10	
Single Family	35,651	35,672	35,672	35,682	35,692	35,703	35,744	93
Multi-Family	1,649	1,828	1,828	1,918	2,008	2,097	2,456	807
Population	37,300	37,500	37,500	37,600	37,700	37,800	38,200	900
Housing Units								
Single Family	11,766	11,773	11,773	11,776	11,780	11,783	11,797	31
Multi-Family	606	672	672	705	738	771	903	297
Total	12,372	12,445	12,445	12,481	12,518	12,554	12,700	327

NONRESIDENTIAL DEVELOPMENT

This section details current estimates and future projections of nonresidential development including jobs and nonresidential floor area.

Nonresidential Demand Factors

TischlerBise uses the term jobs to refer to employment by place of work. In Figure L9, gray shading indicates the nonresidential development prototypes used to derive employment densities. For nonresidential development, TischlerBise uses data published in Trip Generation, Institute of Transportation Engineers, 11th Edition (2021). The prototype for industrial development is Warehousing (ITE 150) with 2,953 square feet of floor area per employee. For office development, the proxy is General Office (ITE 710) with 307 square feet of floor area per employee. Institutional development uses Hospital (ITE 610) with 350 square feet of floor area per employee. The prototype for commercial development is Shopping Center (ITE 820) with 471 square feet of floor area per employee.

Figure L9: Nonresidential Demand Units

ITE Code	Land Use / Size	Demand Unit	Wkdy Trip Ends Per Dmd Unit ¹	Wkdy Trip Ends Per Employee ¹	Emp Per Dmd Unit	Sq Ft Per Emp
110	Light Industrial	1,000 Sq Ft	4.87	3.10	1.57	637
130	Industrial Park	1,000 Sq Ft	3.37	2.91	1.16	864
150	Warehousing	1,000 Sq Ft	1.71	5.05	0.34	2,953
254	Assisted Living	bed	2.60	4.24	0.61	na
310	Hotel	room	7.99	14.34	0.56	na
610	Hospital	1,000 Sq Ft	10.77	3.77	2.86	350
710	General Office (avg size)	1,000 Sq Ft	10.84	3.33	3.26	307
720	Medical-Dental Office	1,000 Sq Ft	36.00	8.71	4.13	242
730	Government Office	1,000 Sq Ft	22.59	7.45	3.03	330
750	Office Park	1,000 Sq Ft	11.07	3.54	3.13	320
820	Shopping Center (avg size)	1,000 Sq Ft	37.01	17.42	2.12	471

1. Trip Generation, Institute of Transportation Engineers, 11th Edition (2021).

Nonresidential Estimates

For 2025 employment, data from Esri estimates 2025 employment at 3,908 jobs. For 2025 nonresidential floor area, TischlerBise utilized CoStar to obtain a 2025 estimate of 3,040,660 square feet.

Shown in the bottom on Figure L10 is the 2025 jobs and nonresidential floor area estimates.

Figure L10: Nonresidential Estimates

Nonresidential Category	2025 Jobs ¹	2025 Estimated Floor Area ²
Industrial ²	1,253	1,406,203
Commercial ³	983	593,402
Office & Other Service ⁴	872	161,644
Institutional ⁵	800	879,411
Total	3,908	3,040,660

1. Esri Business Analyst, 2025.

1. CoStar Commercial Real Estate Database, 2025.

2. Major sectors include Manufacturing, Wholesale Trade.

3. Major sectors include Retail Trade, Accommodation & Food Services.

4. Major sectors include Health Care, Other Services.

5. Major sectors include Public Administration, Educational Services.

Nonresidential Projections

Employment and floor area projections are used to illustrate the possible future pace of service demands, revenues, and expenditures. To the extent these factors change, the projected need for infrastructure will also change. If development occurs at a more rapid rate than projected, the demand for infrastructure will increase at a corresponding rate. If development occurs at a slower rate than projected, the demand for infrastructure will also decrease.

TischlerBise projects nonresidential development using employment data published by MAG in the 2023 Socioeconomic Projections document. Projected employment growth over the next 10 years includes an additional 5,529 jobs. The projected employment growth was split according to development property land use information provided by the City.

To convert employment to nonresidential floor area, the analysis applies previous year's square footage per job factor to the employment projections shown below. For example, the 2026 industrial jobs estimate of 1,615 is multiplied by the 2025 industrial jobs estimate of 1,253 divided by the 2025 industrial square footage estimate of 1,406,203 to generate a 2026 industrial square footage estimate of 1,812,046. Based on these assumptions, the 10-year projections include an increase of approximately 5,304,455 square feet.

Figure L11: Nonresidential Projections

El Mirage, Arizona	2025	2026	2027	2028	2029	2030	2035	10-Year Increase
	Base Year	1	2	3	4	5	10	
Employment								
Industrial	1,253	1,615	2,031	2,509	3,060	3,693	4,656	3,403
Commercial	983	1,166	1,376	1,618	1,896	2,216	2,702	1,719
Office & Other Services	872	872	872	872	872	872	872	0
Institutional	800	843	893	951	1,017	1,092	1,208	408
Total	3,908	4,496	5,172	5,949	6,844	7,873	9,437	5,529
Nonres. Floor Area (x1,000)								
Industrial	1,406	1,812	2,279	2,816	3,434	4,145	5,225	3,819
Commercial	593	704	831	976	1,144	1,337	1,631	1,038
Office & Other Services	162	162	162	162	162	162	162	0
Institutional	879	927	982	1,045	1,117	1,201	1,328	448
Total	3,041	3,604	4,253	4,999	5,857	6,845	8,345	5,304

AVERAGE WEEKDAY VEHICLE TRIPS

El Mirage will use average weekday vehicle trips (AWVT) for fire facilities fees, police facilities fees, and transportation fees. Components used to determine AWVT include average weekday vehicle trip generation rates, adjustments for commuting patterns, and adjustments for pass-by trips.

Residential Trip Generation Rates

As an alternative to simply using national average trip generation rates for residential development, published by the Institute of Transportation Engineers (ITE), TischlerBise calculates custom trip rates using local demographic data. Key inputs needed for the analysis, including average number of persons and vehicles available per housing unit, are available from American Community Survey (ACS) data.

Vehicle Trip Ends by Bedroom Range

TischlerBise recommends a fee schedule where larger units pay higher development fees than smaller units. Benefits of the proposed methodology include: 1) proportionate assessment of infrastructure demand using local demographic data, and 2) progressive fee structure (i.e., smaller units pay less, and larger units pay more). TischlerBise creates custom tabulations of demographic data by bedroom range from individual survey responses provided by the U.S. Census Bureau in files known as Public Use Microdata Samples (PUMS). PUMS files are only available for areas of at least 100,000 persons, El Mirage is entirely within Public Use Microdata Area (AZ PUMA) 00130. Shown in Figure L12, cells with yellow shading indicate the survey results, which yield the unadjusted number of persons and vehicles available per housing unit. Unadjusted vehicles per housing unit are adjusted to El Mirage control totals of 2.10 vehicles per housing unit. Adjusted vehicles per housing unit estimates range from 1.80 vehicles per housing unit for single family units with zero to two bedrooms up to 3.06 vehicles per housing unit for single family units with four or more bedrooms. This is repeated for multi-family units, as shown in Figure L13.

Figure L12: Single Family Vehicle Trip Ends by Bedroom Range

Bedroom Range	Persons ¹	Vehicles Available ¹	Housing Units ¹	Housing Mix	Unadjusted PPHU	Adjusted PPHU ²	Unadjusted VPHU	Adjusted VPHU ²
0-2	2,826	2,348	1,705	61%	1.66	2.45	1.38	1.80
3	1,819	1,422	785	28%	2.32	3.42	1.81	2.37
4+	1,101	720	308	11%	3.57	5.27	2.34	3.06
Total	5,746	4,490	2,798	100%	2.05	3.03	1.60	2.10

National Averages According to ITE

ITE Code	AWVTE per Person	AWVTE per Vehicle	AWVTE per HU	Housing Mix
210 SFD	2.65	6.36	9.43	87%
220 Apt	1.86	5.10	6.74	13%
Wtd Avg	2.55	6.20	9.09	100%

Recommended AWVTE per Household

Bedroom Range	AWVTE per HU Based on Persons ³	AWVTE per HU Based on Vehicles ⁴	AWVTE per Housing Unit ⁵	
0-2	6.49	11.45	8.97	1. American Community Survey, Public Use Microdata Sample for AZ PUMA 00130 (2019-2023 5-Year unweighted data). 2. Adjusted multipliers are scaled to make the average PUMS values match control totals for El Mirage, based on American Community Survey 2019-2023 5-Year Estimates. 3. Adjusted persons per housing unit multiplied by national weighted average trip rate per person. 4. Adjusted vehicles available per housing unit multiplied by national weighted average trip rate per vehicle. 5. Average trip rates based on persons and vehicles per housing unit.
3	9.06	15.07	12.07	
4+	13.97	19.46	16.72	
Average	8.03	13.36	10.70	

Figure L13: Multi-Family Vehicle Trip Ends by Bedroom Range

Bedroom Range	Persons ¹	Vehicles Available ¹	Housing Units ¹	Housing Mix	Unadjusted PPHU	Adjusted PPHU ²	Unadjusted VPHU	Adjusted VPHU ²
0-1	258	162	208	47%	1.24	2.12	0.78	1.49
2	350	225	200	45%	1.75	2.98	1.13	2.15
3+	105	64	39	9%	2.69	4.59	1.64	3.14
Total	713	451	447	100%	1.60	2.72	1.01	1.93

National Averages According to ITE

ITE Code	AWVTE per Person	AWVTE per Vehicle	AWVTE per HU	Housing Mix
210 SFD	2.65	6.36	9.43	87%
220 Apt	1.86	5.10	6.74	13%
Wtd Avg	2.55	6.20	9.09	100%

Recommended AWVTE per Household

Bedroom Range	AWVTE per HU Based on Persons ³	AWVTE per HU Based on Vehicles ⁴	AWVTE per Housing Unit ⁵	
0-1	3.94	7.60	5.77	1. American Community Survey, Public Use Microdata Sample for AZ PUMA 00130 (2019-2023 5-Year unweighted data). 2. Adjusted multipliers are scaled to make the average PUMS values match control totals for El Mirage, based on American Community Survey 2019-2023 5-Year Estimates. 3. Adjusted persons per housing unit multiplied by national weighted average trip rate per person. 4. Adjusted vehicles available per housing unit multiplied by national weighted average trip rate per vehicle. 5. Average trip rates based on persons and vehicles per housing unit.
2	5.54	10.97	8.26	
3+	8.54	16.01	12.28	
Average	5.06	9.84	7.45	

Vehicle Trip Ends by Housing Size

To derive average weekday vehicle trip ends by dwelling size, TischlerBise uses 2023 U.S. Census Bureau data for single family housing units constructed in the Census Mountain region and CoStar data for multi-family housing units constructed in El Mirage.

Citywide average floor area and weekday vehicle trip ends by bedroom range for single family units are plotted in Figure L14 with a logarithmic trend line. TischlerBise uses the trend line formula to derive estimated trip ends, by housing unit size, for the size ranges shown below. Average square feet of living area and weekday vehicle trip ends by bedroom range for multi-family units are plotted in Figure L15 with a logarithmic trend line.

Figure L14: Single Family Vehicle Trip Ends by Housing Size

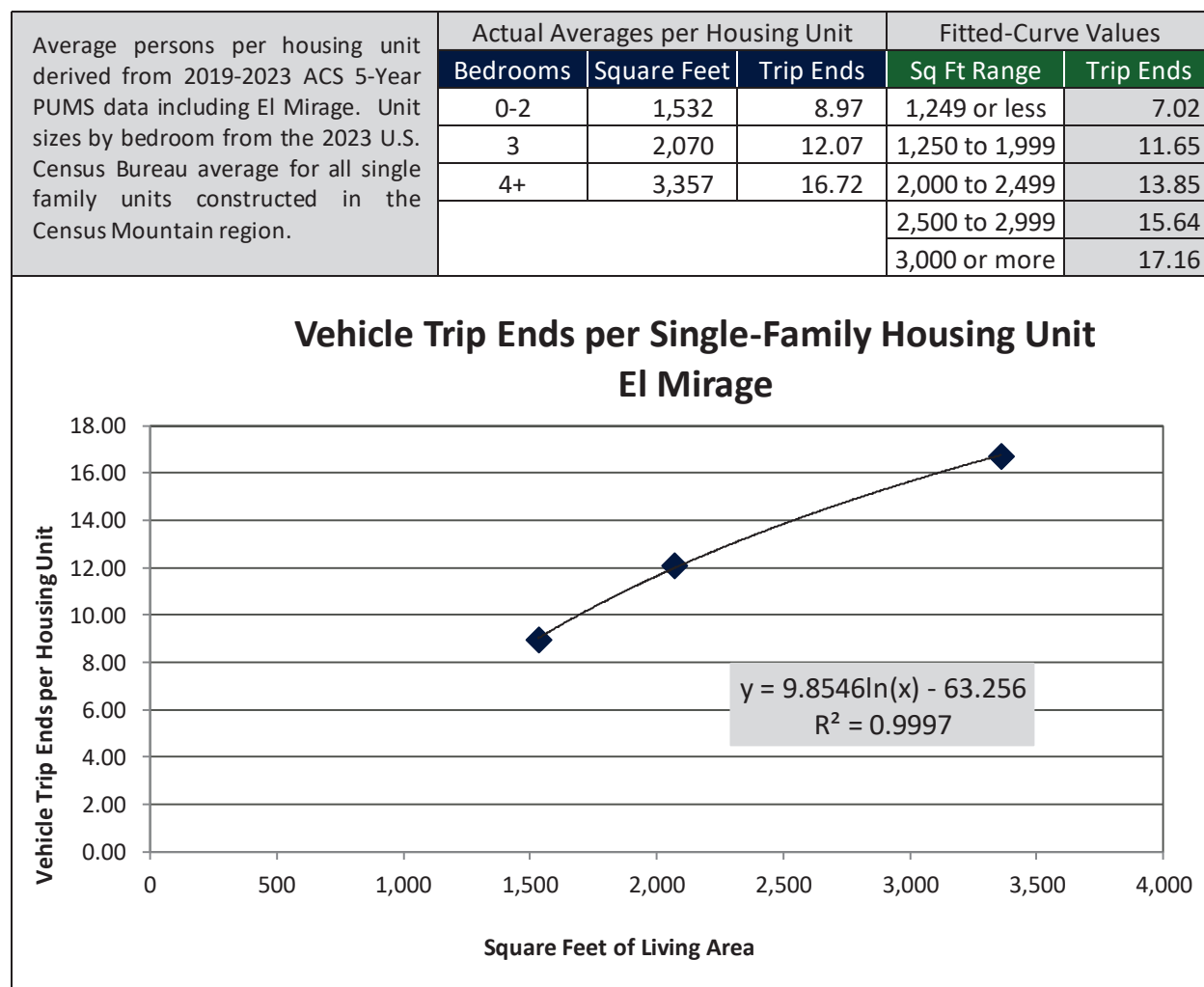
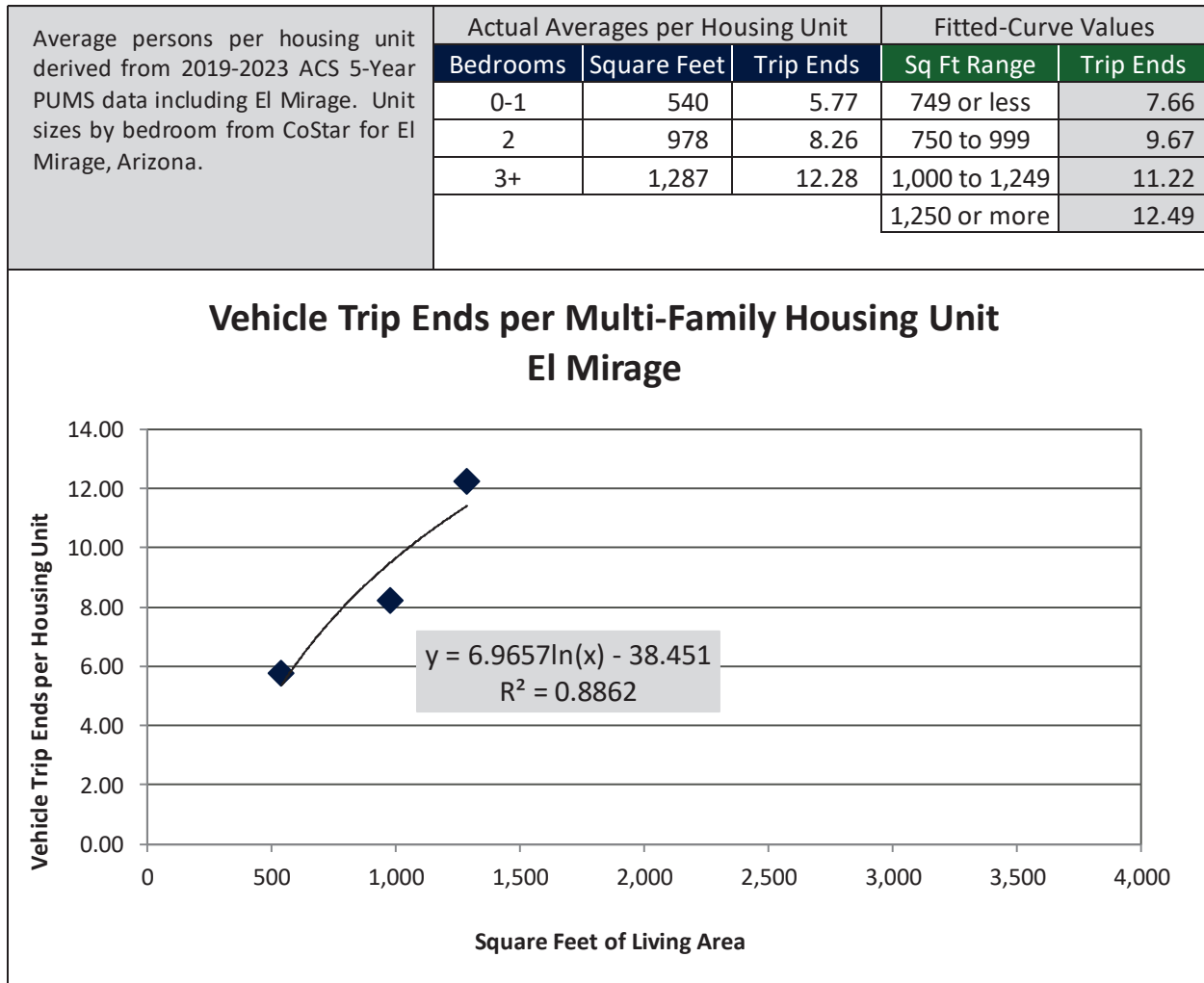


Figure L15: Multi-Family Vehicle Trip Ends by Housing Size



Nonresidential Trip Generation Rates

For nonresidential development, TischlerBise uses trip generation rates published in Trip Generation, Institute of Transportation Engineers, 11th Edition (2021). The prototype for industrial development is Warehousing (ITE 130) which generates 1.71 average weekday vehicle trip ends per 1,000 square feet of floor area. The prototype for commercial development is Shopping Center (ITE 820) which generates 37.01 average weekday vehicle trips per 1,000 square feet of floor area. For office & other services development, the proxy is General Office (ITE 710), and it generates 10.84 average weekday vehicle trip ends per 1,000 square feet of floor area. Institutional development uses Hospital (ITE 730) and generates 10.77 average weekday vehicle trip ends per 1,000 square feet of floor area.

Figure L16: Average Weekday Vehicle Trip Ends by Land Use

ITE Code	Land Use / Size	Demand Unit	Wkdy Trip Ends Per Dmd Unit ¹	Wkdy Trip Ends Per Employee ¹	Emp Per Dmd Unit	Sq Ft Per Emp
110	Light Industrial	1,000 Sq Ft	4.87	3.10	1.57	637
130	Industrial Park	1,000 Sq Ft	3.37	2.91	1.16	864
150	Warehousing	1,000 Sq Ft	1.71	5.05	0.34	2,953
254	Assisted Living	bed	2.60	4.24	0.61	na
310	Hotel	room	7.99	14.34	0.56	na
610	Hospital	1,000 Sq Ft	10.77	3.77	2.86	350
710	General Office (avg size)	1,000 Sq Ft	10.84	3.33	3.26	307
720	Medical-Dental Office	1,000 Sq Ft	36.00	8.71	4.13	242
730	Government Office	1,000 Sq Ft	22.59	7.45	3.03	330
750	Office Park	1,000 Sq Ft	11.07	3.54	3.13	320
820	Shopping Center (avg size)	1,000 Sq Ft	37.01	17.42	2.12	471

1. Trip Generation, Institute of Transportation Engineers, 11th Edition (2021).

Residential Trip Generation Rates

For residential development, a customized trip rate is calculated for single family and multi-family units in El Mirage.

TischlerBise starts with trip generation rates published in Trip Generation, Institute of Transportation Engineers, 11th Edition (2021). For single family development, the proxy is Single Family Detached Housing (ITE 210), and this type of development generates 9.43 average weekday vehicle trip ends per housing unit. For multi-family development, the proxy is Multifamily Housing Low-Rise (ITE 220), and this type of development generates 6.74 average weekday vehicle trip ends per housing unit.

These proxies are then adjusted to local trip rates by using the most recent data from the U.S. Census Bureau American Community Survey (ACS) with equations provided by the ITE to calculate trip ends per housing unit factor. A single family unit in El Mirage is estimated to generate 10.63 average weekday vehicle trips. A multi-family unit in El Mirage is estimated to generate 8.41 average weekday vehicle trips.

Figure L17: Customized Residential Trip End Rates by Housing Type

Tenure by Units in Structure	Vehicles Available ¹	Households by Structure Type ²			Vehicles per HH by
		Single-Family	Multi-Family	Total	
Owner-Occupied	16,905	7,692	66	7,758	2.18
Renter-Occupied	6,404	2,909	469	3,378	1.90
Total	23,309	10,601	535	11,136	2.09

Units in Structure	Persons in Households ³	Trip Ends ⁴	Vehicles by Type of Unit	Trip Ends ⁵	Average Trip Ends	Housing Units ⁶	Trip Ends per Housing Unit	National Average ⁷
Single-Family	34,228	95,274	22,276	145,192	120,233	11,314	10.63	9.43
Multi-Family	1,583	5,429	1,033	4,363	4,896	582	8.41	6.74
Total	35,811	100,702	23,309	149,556	125,129	11,896	10.52	

1. Vehicles available by tenure from Table B25046, American Community Survey, 2019-2023 5-Year Estimates.

2. Households by tenure and units in structure from Table B25032, American Community Survey, 2019-2023 5-Year Estimates.

3. Total population in households from Table B25033, American Community Survey, 2019-2023 5-Year Estimates.

4. Vehicle trips ends based on persons using formulas from Trip Generation (ITE 2017). For single-family housing (ITE 210), the fitted curve equation is $\text{EXP}(0.89 \cdot \text{LN}(\text{persons}) + 1.72)$. To approximate the average population of the ITE studies, persons were divided by 61 and the equation result multiplied by 61. For multi-family housing (ITE 220), the fitted curve equation is $(3.47 \cdot \text{persons}) - 64.48$.

5. Vehicle trip ends based on vehicles available using formulas from Trip Generation (ITE 2017). For single-family housing (ITE 210), the fitted curve equation is $\text{EXP}(0.99 \cdot \text{LN}(\text{vehicles}) + 1.93)$. To approximate the average number of vehicles in the ITE studies, vehicles available were divided by 87 and the equation result multiplied by 87. For multi-family housing (ITE 220), the fitted curve equation is $(3.94 \cdot \text{vehicles}) + 293.58$.

6. Housing units from Table B25024, American Community Survey, 2019-2023 5-Year Estimates.

7. [Trip Generation](#), Institute of Transportation Engineers, 10th Edition (2021).

Trip Rate Adjustments

To calculate fire, police, and transportation fees, trip generation rates require an adjustment factor to avoid double counting each trip at both the origin and destination points. Therefore, the basic trip adjustment factor is 50 percent. As discussed further in this section, the development fee methodology includes additional adjustments to make the fees proportionate to the infrastructure demand for particular types of development.

Commuter Trip Adjustment

Residential development has a larger trip adjustment factor of 68 percent to account for commuters leaving El Mirage for work. According to the 2022 National Household Travel Survey (Table 8-2) weekday work trips are typically 36 percent of production trips (i.e., all out-bound trips, which are 50 percent of all trip ends). As shown in Figure L18, the U.S. Census Bureau's OnTheMap web application indicates 99 percent of resident workers traveled outside of El Mirage for work in 2022. In combination, these factors ($0.36 \times 0.50 \times 0.99 = 0.18$) support the additional 18 percent allocation of trips to residential development.

Figure L18: Commuter Trip Adjustment

Trip Adjustment Factor for Commuters	
Employed Residents	16,702
Residents Living and Working in El Mirage	218
Residents Commuting Outside El Mirage for Work	16,484
Percent Commuting out of El Mirage	99%
Additional Production Trips ¹	18%
Residential Trip Adjustment Factor	68%

Source: U.S. Census Bureau, OnTheMap Application (version 6.25.1) and LEHD Origin-Destination Employment

1. According to the National Household Travel Survey (2022)*, published in December 2011 (see Table 8-2), home-based work trips are typically 36.00 percent of “production” trips, in other words, out-bound trips (which are 50 percent of all trip ends). Also, LED OnTheMap data from 2022 indicate that 99 percent of El Mirage's workers travel outside the city for work. In combination, these factors ($0.360 \times 0.50 \times 0.99 = 0.18$) account for 18 percent of additional production trips. The total adjustment factor for residential includes attraction trips (50 percent of trip ends) plus the journey-to-work commuting adjustment (18 percent of production trips) for a total of 68 percent.

*<http://nhts.ornl.gov/publications.shtml> ; Summary of Travel Trends - Table "Daily Travel Statistics by Weekday vs. Weekend"

Adjustment for Pass-By Trips

For commercial and institutional development, the trip adjustment factor is less than 50 percent because these types of development attract vehicles as they pass by on arterial and collector roads. For example, when someone stops at a convenience store on the way home from work, the convenience store is not the primary destination. For the average shopping center, ITE data indicate 34 percent of the vehicles that enter are passing by on their way to some other primary destination. The remaining 66 percent of attraction trips have the commercial site as their primary destination. Because attraction trips are half of all trips, the trip adjustment factor is 66 percent multiplied by 50 percent, or 33 percent of the trip ends.

Average Weekday Vehicle Trips

Shown below in Figure L19, multiplying average weekday vehicle trip ends and trip adjustment factors (discussed on the previous page) by El Mirage's existing development units provides the average weekday vehicle trips generated by existing development. As shown below, El Mirage's existing citywide development generates 102,578 vehicle trips on an average weekday.

Figure L19: Average Weekday Vehicle Trips by Land Use

Development Type	Dev Unit	ITE Code	Avg Wkday VTE	Trip Adjustment	2025 Dev Units	2025 Veh Trips
Single Family	HU	210	10.63	68%	11,766	85,050
Multi-Family	HU	220	8.41	68%	606	3,467
Industrial	KSF	150	1.71	50%	1,406	1,202
Commercial	KSF	820	37.01	33%	593	7,247
Office & Other Services	KSF	710	10.84	50%	162	876
Institutional	KSF	610	10.77	50%	879	4,736
Total						102,578

DEVELOPMENT PROJECTIONS

Provided below is a summary of development projections used in the Development Fee Report. Base year estimates for 2025 are used in the fee calculations. Development projections are used to illustrate a possible future pace of demand for service units and cash flows resulting from revenues and expenditures associated with those demands.

Figure L20: Development Projections Summary

El Mirage, Arizona	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	10-Year
	Base Year	1	2	3	4	5	6	7	8	9	10	Increase
Population	37,300	37,500	37,500	37,600	37,700	37,800	37,800	38,000	38,200	38,200	38,200	900
Housing Units												
Single Family	11,766	11,773	11,773	11,776	11,780	11,783	11,783	11,790	11,797	11,797	11,797	31
Multi-Family	606	672	672	705	738	771	771	837	903	903	903	297
Total	12,372	12,445	12,445	12,481	12,518	12,554	12,554	12,627	12,700	12,700	12,700	327
Employment												
Industrial	1,253	1,615	2,031	2,509	3,060	3,693	3,872	4,057	4,249	4,449	4,656	3,403
Commercial	983	1,166	1,376	1,618	1,896	2,216	2,306	2,399	2,497	2,597	2,702	1,719
Office & Other Services	872	872	872	872	872	872	872	872	872	872	872	0
Institutional	800	843	893	951	1,017	1,092	1,114	1,136	1,159	1,183	1,208	408
Total	3,908	4,496	5,172	5,949	6,844	7,873	8,164	8,465	8,777	9,101	9,437	5,529
Nonres. Floor Area (x1,000)												
Industrial	1,406	1,812	2,279	2,816	3,434	4,145	4,345	4,553	4,769	4,993	5,225	3,819
Commercial	593	704	831	976	1,144	1,337	1,392	1,448	1,507	1,568	1,631	1,038
Office & Other Services	162	162	162	162	162	162	162	162	162	162	162	0
Institutional	879	927	982	1,045	1,117	1,201	1,224	1,249	1,274	1,301	1,328	448
Total	3,041	3,604	4,253	4,999	5,857	6,845	7,123	7,412	7,712	8,023	8,345	5,304

Average Weekday Vehicle Trips

TischlerBise uses the projections shown below for the police, fire, and transportation development fees.

Figure L21: Average Weekday Vehicle Trips Summary

El Mirage, Arizona	Base	1	2	3	4	5	6	7	8	9	10	10-Year
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	Increase
Single Family Units	11,766	11,773	11,773	11,776	11,780	11,783	11,783	11,790	11,797	11,797	11,797	31
Multi-Family Units	606	672	672	705	738	771	771	837	903	903	903	297
Industrial KSF	1,406	1,812	2,279	2,816	3,434	4,145	4,345	4,553	4,769	4,993	5,225	3,819
Commercial KSF	593	704	831	976	1,144	1,337	1,392	1,448	1,507	1,568	1,631	1,038
Office & Other Services KSF	162	162	162	162	162	162	162	162	162	162	162	0
Institutional KSF	879	927	982	1,045	1,117	1,201	1,224	1,249	1,274	1,301	1,328	448
Single Family Trips	85,050	85,099	85,099	85,123	85,148	85,173	85,173	85,222	85,271	85,271	85,271	221
Multi-Family Trips	3,467	3,844	3,844	4,033	4,221	4,410	4,410	4,787	5,164	5,164	5,164	1,698
Residential Trips	88,516	88,943	88,943	89,156	89,369	89,582	89,582	90,009	90,435	90,435	90,435	1,918
Industrial Trips	1,202	1,549	1,948	2,408	2,936	3,544	3,715	3,893	4,078	4,269	4,467	3,265
Commercial Trips	7,247	8,594	10,143	11,926	13,976	16,334	17,000	17,691	18,407	19,149	19,919	12,672
Office & Other Services Trips	876	876	876	876	876	876	876	876	876	876	876	0
Institutional Trips	4,736	4,992	5,287	5,627	6,018	6,467	6,594	6,725	6,862	7,003	7,150	2,414
Nonresidential Trips	14,061	16,012	18,255	20,836	23,805	27,221	28,185	29,185	30,222	31,297	32,412	18,351
Total Vehicle Trips	102,578	104,955	107,198	109,992	113,175	116,803	117,768	119,194	120,657	121,732	122,847	20,269

FIRE FACILITIES

ARS § 9-463.05 (T)(7)(f) defines the eligible facilities and assets for the Fire Facilities IIP:

“Fire and police facilities, including all appurtenances, equipment and vehicles. Fire and police facilities do not include a facility or portion of a facility that is used to replace services that were once provided elsewhere in the municipality, vehicles and equipment used to provide administrative services, helicopters or airplanes or a facility that is used for training firefighters or officers from more than one station or substation.”

The Fire Facilities IIP includes components for fire facilities, fire apparatus, and the cost of preparing the Fire Facilities IIP and related development fee report. The incremental expansion methodology is used for fire facilities and fire apparatus. The plan-based methodology is used for the development fee report.

PROPORTIONATE SHARE

ARS § 9-463.05 (B)(3) states that the development fee shall not exceed a proportionate share of the cost of necessary public services needed to accommodate new development. The Fire Facilities IIP and development fees allocate fire capital costs between residential and nonresidential development based on a functional population approach. The functional population approach allocates the cost of facilities to residential and nonresidential development based on average activity of residents and workers in the City over a 24-hour period.

Residents that do not work are assigned 20 hours per day to residential development and 4 hours per day to nonresidential development (annualized averages). Residents that work in El Mirage are assigned 14 hours to residential development and 10 hours to nonresidential development. Residents that work outside El Mirage are assigned 14 hours to residential development, the remaining hours in the day are assumed to be spent outside of El Mirage working. Inflow commuters are assigned 10 hours to nonresidential development. Based on the most recent local functional population data, residential development accounts for 86 percent of the functional population, while nonresidential development accounts for 14 percent, see Figure F1. The figure is used only for the functional population calculation, population and job estimates are produced separately.

Figure F1: Proportionate Share

Demand Units in 2022				
Residential			Demand Hours/Day	Person Hours
Population	36,275			
Residents Not Working	19,573		20	391,460
Employed Residents	16,702			
Employed in El Mirage		218	14	3,052
Employed outside El Mirage		16,484	14	230,776
Residential Subtotal				625,288
Residential Share				86%
Nonresidential				
Non-working Residents	19,573		4	78,292
Jobs Located in El Mirage	2,491			
Residents Employed in El Mirage		218	10	2,180
Non-Resident Workers (inflow commuters)		2,273	10	22,730
Nonresidential Subtotal				103,202
Nonresidential Share				14%
Total				728,490

Source: Arizona Office of Economic Opportunity (population), U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics, Version 6.25.1 (employment).

SERVICE UNITS

The proportionate share of costs attributable to residential development will be allocated to population and then converted to an appropriate amount by housing size. TischlerBise recommends using vehicle trips as the demand indicator for nonresidential demand because vehicle trips are highest for retail developments, such as shopping centers, and lowest for industrial development. Office and institutional trip rates fall between the other two categories. This ranking of trip rates is consistent with the relative demand for public safety services from nonresidential development. Other possible nonresidential demand indicators, such as employment or floor area, will not accurately reflect the demand for service. For example, if employees per thousand square feet were used as the demand indicator, public safety development fees would be disproportionately high for office and institutional development because offices typically have more employees per 1,000 square feet than retail uses. If floor area were used as the demand indicator, public safety development fees would be disproportionately high for industrial development.

SERVICE AREA

El Mirage's Fire Department strives to provide a uniform response time within the City limits; therefore, there is a Citywide service area for the Fire Facilities IIP.

RATIO OF SERVICE UNITS TO DEVELOPMENT UNITS

ARS § 9-463.05(E)(4) requires:

“A table establishing the specific level or quantity of use, consumption, generation or discharge of a service unit for each category of necessary public services or facility expansions and an equivalency or conversion table establishing the ratio of a service unit to various types of land uses, including residential, commercial and industrial.”

Figure F2 displays the demand indicators per development unit for residential and nonresidential development. For residential development, the table displays the number of persons per housing unit for each development unit based on residential unit size shown in Figure L6. For nonresidential development, the table displays the number of vehicle trips per development unit based on ITE trip generation rates shown in Figure L9.

Figure F2: Ratio of Service Units to Development Units

Residential Development		
Unit Type	Development Unit	Persons per Dev. Unit ¹
Single Family		
1,249 or less	Housing Unit	1.67
1,250 to 1,999	Housing Unit	3.37
2,000 to 2,499	Housing Unit	4.18
2,500 to 2,999	Housing Unit	4.84
3,000 or more	Housing Unit	5.39
Multi-Family		
749 or less	Housing Unit	2.81
750 to 999	Housing Unit	3.57
1,000 to 1,249	Housing Unit	4.15
1,250 or more	Housing Unit	4.63

Nonresidential Development				
Development Type	Development Unit	Avg Weekday Veh Trip Ends ¹	Trip Rate Adjustment	Vehicle Trips per Dev. Unit ¹
Industrial	1,000 Sq Ft	1.71	50%	0.86
Commercial	1,000 Sq Ft	37.01	33%	12.21
Office & Other Services	1,000 Sq Ft	10.84	50%	5.42
Institutional	1,000 Sq Ft	10.77	50%	5.39

1. See Land Use Assumptions

ANALYSIS OF CAPACITY, USAGE, AND COSTS OF EXISTING PUBLIC SERVICES

ARS § 9-463.05(E)(1) requires:

“A description of the existing necessary public services in the service area and the costs to upgrade, update, improve, expand, correct or replace those necessary public services to meet existing needs and usage and stricter safety, efficiency, environmental or regulatory standards, which shall be prepared by qualified professionals licensed in this state, as applicable.”

ARS § 9-463.05(E)(2) requires:

“An analysis of the total capacity, the level of current usage and commitments for usage of capacity of the existing necessary public services, which shall be prepared by qualified professionals licensed in this state, as applicable.”

Fire Facilities – Plan Based

El Mirage will use development fees to expand its current inventory of Fire facilities. Shown below in Figure F3, El Mirage’s existing inventory includes 14,600 square feet of Fire facilities space. Functional population is used to allocate the proportionate share of demand to residential and nonresidential development. El Mirage’s existing level of service for residential development is 0.3366 square feet per person (14,600 square feet X 86 percent residential share / 37,200 persons). The existing nonresidential level of service is 0.1454 square feet per vehicle trip (14,600 square feet X 14 percent nonresidential share / 14,061 vehicle trips).

Figure F3: Existing Fire Facilities Level of Service

Description	Square Feet
Station 1	14,600
Total	14,600

Residential	
Residential Share	86%
2025 Population	37,300
Square Feet per Person	0.3366
Nonresidential	
Nonresidential Share	14%
2025 Vehicle Trips	14,061
Square Feet per Vehicle Trip	0.1454

Source: City of El Mirage

El Mirage plans to expand its Fire facilities so that the Fire Department is able to serve future development. Shown in Figure F4, El Mirage plans to construct 15,600 additional square feet of facilities over the next 10 years. To allocate the proportionate share of demand to residential and nonresidential development, this analysis uses functional population shown in Figure F1. The planned level of service for residential development will be 0.6799 square feet per person (30,200 square feet X 86 percent residential share / 38,200 persons). The planned nonresidential level of service will be 0.1304 square feet per vehicle trip (30,200 square feet X 14 percent nonresidential share / 32,412 vehicle trips). Based on the total cost of \$18,200,000 million for 15,600 square feet, the cost is \$1,167 per square foot (\$18,200,000 construction cost / 15,600 square feet). This results in a cost of \$793.21 per person (0.6799 square feet per person X \$1,167 per square foot) and \$152.19 per vehicle trip (0.1304 square feet per vehicle trip X \$1,167 per square foot).

Figure F4: Planned Level of Service

Description	Cost	Square Feet	Cost per Sq Ft
Station 1 Addition	\$2,500,000	2,100	\$1,190
New Station 2	\$15,700,000	13,500	\$1,163
	\$18,200,000	15,600	\$1,167

Cost Factors	
Cost per Square Foot	\$1,167

Level-of-Service (LOS) Standards	
Existing Square Feet	14,600
Planned Square Feet	15,600
Future Square Feet	30,200
Residential	
Residential Share	86%
2035 Population	38,200
Square Feet per Person	0.6799
Cost per Person	\$793.21
Nonresidential	
Nonresidential Share	14%
2035 Vehicle Trips	32,412
Square Feet per Vehicle Trip	0.1304
Cost per Vehicle Trip	\$152.19

Source: El Mirage Fire Department

Fire Apparatus – Incremental Expansion

El Mirage currently serves existing development with 4 fire apparatus and plans to acquire additional fire apparatus to serve future development. The replacement cost of the existing fleet is \$1,800,000. The average cost of the existing fleet is \$450,000 per unit, and the analysis uses this as a proxy for future growth-related fire apparatus costs.

Figure F5: Existing Fire Apparatus

Description	Vehicles	Unit Cost	Total Cost
Engine	2	\$750,000	\$1,500,000
Brush	1	\$200,000	\$200,000
Battalion Chief	1	\$100,000	\$100,000
Total	4	\$450,000	\$1,800,000

Source: El Mirage Fire Department Analysis Report, 2022.

To allocate the proportionate share of demand for fire apparatus to residential and nonresidential development, this analysis uses functional population outlined in Figure F1. El Mirage’s existing level of service for residential development is 0.00009 units per person (4 units X 86 percent residential share / 37,300 persons). The nonresidential level of service is 0.00004 units per vehicle trip (4 units X 14 percent nonresidential share / 14,061 vehicle trips).

Based on the total cost of El Mirage’s existing fire apparatus, the average cost for a new fire apparatus is \$450,000 per unit (\$1,800,000 total cost / 4 units). El Mirage may use development fees to expand its fire apparatus fleet. For fire apparatus, the cost is \$41.50 per person (0.00009 units per person X \$450,000 per unit) and \$17.92 per vehicle trip (0.00004 units per vehicle trip X \$450,000 per unit).

Figure F6: Existing Level of Service

Cost Factors	
Weighted Average per Vehicle	\$450,000

Level-of-Service (LOS) Standards	
Existing Units	4
Residential	
Residential Share	86%
2025 Population	37,300
Units per Person	0.00009
Cost per Person	\$41.50
Nonresidential	
Nonresidential Share	14%
2025 Vehicle Trips	14,061
Units per Vehicle Trip	0.00004
Cost per Vehicle Trip	\$17.92

Source: El Mirage Fire Department Analysis Report, 2022.

Development Fee Report – Plan Based

The 2025 cost to prepare the Fire Facilities IIP and related development fee report equals \$19,264. El Mirage plans to update its report every five years. Based on the 5-year cost, proportionate share, and 5-year projections of future development from the *Land Use Assumptions* document, the cost per service unit is \$33.13 per person and \$0.20 per vehicle trip.

Figure F7: IIP and Development Fee Report

Necessary Public Service	Cost	Proportionate Share	Service Unit	2025	2030	5-Year Change	Cost per Service Unit
Fire	\$19,264	Residential 86%	Population	37,300	37,800	500	\$33.13
		Nonresidential 14%	Vehicle Trips	14,061	27,221	13,160	\$0.20
Wastewater	\$19,264	All Development 100%	ADG	2,334,186	2,530,675	196,489	\$0.10
Parks and Recreation	\$19,264	Residential 99%	Population	37,300	37,800	500	\$38.14
		Nonresidential 1%	Jobs	3,908	7,873	3,965	\$0.05
Police	\$19,264	Residential 86%	Population	37,300	37,800	500	\$33.13
		Nonresidential 14%	Vehicle Trips	14,061	27,221	13,160	\$0.20
Street	\$19,264	All Development 100%	Vehicle Trips	102,578	116,803	14,225	\$1.35
Total	\$96,320						

PROJECTED DEMAND FOR SERVICES AND COSTS

ARS § 9-463.05(E)(5) requires:

“The total number of projected service units necessitated by and attributable to new development in the service area based on the approved land use assumptions and calculated pursuant to generally accepted engineering and planning criteria.”

ARS § 9-463.05(E)(6) requires:

“The projected demand for necessary public services or facility expansions required by new service units for a period not to exceed ten years.”

As shown in the *Land Use Assumptions* document, projected development during the next 10 years includes population growth of 900 persons and employment growth of 18,351 vehicle trips. The following pages include a detailed projection of demand for services and costs for the Fire Facilities IIP.

Fire Facilities – Plan Based

El Mirage plans to expand their Fire facilities and establish a new level of service based on their new facilities and 2035 development estimates. Based on a projected population increase of 900 persons, future residential development demands approximately 612 square feet of fire facilities (900 additional persons X 0.6799 square feet per person). With projected nonresidential growth of 18,351 vehicle trips, future nonresidential development demands approximately 2,394 additional square feet of fire facilities (18,351 additional vehicle trips X 0.1304 square feet per vehicle trip). Future development demands approximately 3,006 square feet of fire facilities at a cost of \$3,506,616 (3,006 square feet X \$1,167 per square foot). El Mirage may use development fees to construct or expand fire facilities.

Figure F8: Projected Demand for Fire Station Space

Type of Infrastructure	Level of Service	Demand Unit	Cost per Unit
Fire Facilities	0.6799 Square Feet	per Person	\$1,167
	0.1304 Square Feet	per Vehicle Trip	

Demand for Fire Facilities					
Year	Population	Vehicle Trips	Square Feet		
			Residential	Nonresidential	Total
2025	37,300	14,061	25,360	1,834	27,194
2026	37,500	16,012	25,496	2,089	27,585
2027	37,500	18,255	25,496	2,381	27,877
2028	37,600	20,836	25,564	2,718	28,282
2029	37,700	23,805	25,632	3,105	28,737
2030	37,800	27,221	25,700	3,551	29,251
2031	37,800	28,185	25,700	3,677	29,377
2032	38,000	29,185	25,836	3,807	29,643
2033	38,200	30,222	25,972	3,942	29,914
2034	38,200	31,297	25,972	4,083	30,055
2035	38,200	32,412	25,972	4,228	30,200
10-Yr Increase	900	18,351	612	2,394	3,006

Growth-Related Expenditures	\$713,890	\$2,792,726	\$3,506,616
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Fire Apparatus – Incremental Expansion

El Mirage plans to maintain its existing level of service for fire apparatus over the next 10 years. Based on a projected population increase of 900 persons, future residential development demands approximately 0.1 fire apparatus (900 persons X 0.00009 units per person). With projected nonresidential growth of 18,351 vehicle trips, future nonresidential development demands approximately 0.7 fire apparatus (18,351 additional vehicle trips X 0.00004 units per vehicle trip). Future development demands approximately 1 fire apparatus at a cost of \$366,223 (0.8 units X \$450,000 per unit). El Mirage may use development fees to expand its fire apparatus fleet.

Figure F9: Projected Demand for Fire Apparatus

Type of Infrastructure	Level of Service	Demand Unit	Cost per Unit
Fire Apparatus	0.00009 Units	per Person	\$450,000
	0.00004 Units	per Vehicle Trip	

Year	Population	Vehicle Trips	Units		
			Residential	Nonresidential	Total
2025	37,300	14,061	3.4	0.6	4.0
2026	37,500	16,012	3.5	0.6	4.1
2027	37,500	18,255	3.5	0.7	4.2
2028	37,600	20,836	3.5	0.8	4.3
2029	37,700	23,805	3.5	0.9	4.4
2030	37,800	27,221	3.5	1.1	4.6
2031	37,800	28,185	3.5	1.1	4.6
2032	38,000	29,185	3.5	1.2	4.7
2033	38,200	30,222	3.5	1.2	4.7
2034	38,200	31,297	3.5	1.2	4.8
2035	38,200	32,412	3.5	1.3	4.8
10-Yr Increase	900	18,351	0.1	0.7	0.8

Growth-Related Expenditures	\$37,351	\$328,872	\$366,223
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FIRE FACILITIES DEVELOPMENT FEES

Bond Credit/Offset

El Mirage issued debt to fund construction of Fire facilities as part of the 2017 bond series. A credit is necessary since future development will pay the development fee and may also contribute to future bond payments through tax revenues. A credit is necessary for interest payments because development fee calculations include interest costs.

The analysis splits annual bond payments based on the proportionate shares of residential and nonresidential development and then divides by population for the residential portion and vehicle trips for the nonresidential portion. For example, the 2026 bond payment is \$9.14 per person (\$398,750 bond payment X 86 percent share / 37,500 persons) and \$3.49 per vehicle trip (\$398,750 bond payment X 14 percent share / 16,012 vehicle trips). To account for the time value of money, the analysis discounts annual payments per person and vehicle trip based on the bond interest rate of 3.00 percent. The total net present value of future bond payments is \$32.94 per person and \$10.49 per vehicle trip.

Figure F10: Bond Credit

Fire Share of Series 2017 Bonds							
Fiscal Year	Annual Debt Service	Residential Share	Population	Payment per Person	Nonresidential Share	Vehicle Trips	Payment per Veh Trip
2025	\$0	\$0	37,300	\$0.00	\$0	14,061	\$0.00
2026	\$398,750	\$342,925	37,500	\$9.14	\$55,825	16,012	\$3.49
2027	\$398,750	\$342,925	37,500	\$9.14	\$55,825	18,255	\$3.06
2028	\$398,750	\$342,925	37,600	\$9.12	\$55,825	20,836	\$2.68
2029	\$398,750	\$342,925	37,700	\$9.10	\$55,825	23,805	\$2.35
2030	\$0	\$0	37,800	\$0.00	\$0	27,221	\$0.00
2031	\$0	\$0	37,800	\$0.00	\$0	28,185	\$0.00
2032	\$0	\$0	38,000	\$0.00	\$0	29,185	\$0.00
2033	\$0	\$0	38,200	\$0.00	\$0	30,222	\$0.00
2034	\$0	\$0	38,200	\$0.00	\$0	31,297	\$0.00
2035	\$0	\$0	38,200	\$0.00	\$0	32,412	\$0.00
2036	\$0	\$0	38,300	\$0.00	\$0	33,568	\$0.00
2037	\$0	\$0	38,400	\$0.00	\$0	34,767	\$0.00
2038	\$0	\$0	38,400	\$0.00	\$0	36,010	\$0.00
2039	\$0	\$0	38,400	\$0.00	\$0	37,299	\$0.00
2040	\$0	\$0	38,400	\$0.00	\$0	38,635	\$0.00
2041	\$0	\$0	38,400	\$0.00	\$0	39,160	\$0.00
2042	\$0	\$0	38,400	\$0.00	\$0	39,693	\$0.00
2043	\$0	\$0	38,400	\$0.00	\$0	40,233	\$0.00
2044	\$0	\$0	38,400	\$0.00	\$0	40,780	\$0.00
2045	\$0	\$0	38,400	\$0.00	\$0	41,336	\$0.00
Total	\$1,595,000	\$1,371,700		\$36.51	\$223,300		\$11.57

Rate	3.00%	Credit per Person	\$32.94	Credit per Vehicle Trip	\$10.49
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Fire Facilities Development Fees

Figure F11 includes infrastructure components and cost factors for fire facilities development fees. The cost per service unit is \$834.90 per person and \$159.82 per vehicle trip.

Residential development fees are calculated per housing unit, based on unit size, and vary proportionately according to the number of persons per housing unit. For a single family residential unit with 2,200 square feet, the fee of \$3,490 is calculated using a cost of \$834.90 per person multiplied by 4.18 persons per housing unit.

Nonresidential development fees are calculated per development unit and vary proportionately according to the number of vehicle trips generated. For industrial development, the fee of \$137 per development unit (thousand square feet) is calculated using a cost of \$159.82 per vehicle trip multiplied by 0.86 vehicle trips generated per development unit.

Figure F11: Fire Facilities Development Fees

Fee Component	Cost per Person	Cost per Trip
Bond Credit	(\$32.94)	(\$10.49)
Fire Facilities	\$793.21	\$152.19
Fire Apparatus	\$41.50	\$17.92
Development Fee Report	\$33.13	\$0.20
Total	\$834.90	\$159.82

Residential Fees per Development Unit			
Development Type	Development Unit	Persons per Dev. Unit ¹	Proposed Fees
Single Family			
1,249 or less	Housing Unit	1.67	\$1,394
1,250 to 1,999	Housing Unit	3.37	\$2,814
2,000 to 2,499	Housing Unit	4.18	\$3,490
2,500 to 2,999	Housing Unit	4.84	\$4,041
3,000 or more	Housing Unit	5.39	\$4,500
Multi-Family			
749 or less	Housing Unit	2.81	\$2,346
750 to 999	Housing Unit	3.57	\$2,981
1,000 to 1,249	Housing Unit	4.15	\$3,465
1,250 or more	Housing Unit	4.63	\$3,866

Nonresidential Fees per Development Unit			
Development Type	Development Unit	Vehicle Trips per Dev. Unit ¹	Proposed Fees
Industrial	1,000 Sq Ft	0.86	\$137
Commercial	1,000 Sq Ft	12.21	\$1,951
Office & Other Services	1,000 Sq Ft	5.42	\$866
Institutional	1,000 Sq Ft	5.39	\$861

1. See Land Use Assumptions

FIRE FACILITIES DEVELOPMENT FEE REVENUE

Appendix A contains the forecast of revenues required by Arizona's enabling legislation (ARS § 9-463.05(E)(7)). In accordance with state law, this report includes an IIP for fire facilities needed to accommodate future development. Projected fee revenue shown in Figure F12 is based on the development projections in the *Land Use Assumptions* document and the updated development fees for fire facilities shown in Figure F11. If development occurs at a more rapid rate than projected, the demand for infrastructure will increase and development fee revenue will increase at a corresponding rate. If development occurs at a slower rate than projected, the demand for infrastructure will decrease along with development fee revenue. Projected development fee revenue equals \$3,924,917 and projected expenditures equal \$18,585,487.

Figure F12: Fire Facilities Development Fee Revenue

Fee Component	Growth Share	Existing Share	Total
Fire Facilities	\$3,506,616	\$14,693,384	\$18,200,000
Fire Apparatus	\$366,223	\$0	\$366,223
Development Fee Report	\$19,264	\$0	\$19,264
Total	\$3,892,103	\$14,693,384	\$18,585,487

		Single Family* \$3,490 per unit	Multi-Family** \$2,981 per unit	Industrial \$137 per 1,000 sq ft	Commercial \$1,951 per 1,000 sq ft	Office \$866 per 1,000 sq ft	Institutional \$861 per 1,000 sq ft
Year		Hsg Unit	Hsg Unit	KSF	KSF	KSF	KSF
Base	2025	11,766	606	1,406	593	162	879
Year 1	2026	11,773	672	1,812	704	162	927
Year 2	2027	11,773	672	2,279	831	162	982
Year 3	2028	11,776	705	2,816	976	162	1,045
Year 4	2029	11,780	738	3,434	1,144	162	1,117
Year 5	2030	11,783	771	4,145	1,337	162	1,201
Year 6	2031	11,783	771	4,345	1,392	162	1,224
Year 7	2032	11,790	837	4,553	1,448	162	1,249
Year 8	2033	11,797	903	4,769	1,507	162	1,274
Year 9	2034	11,797	903	4,993	1,568	162	1,301
Year 10	2035	11,797	903	5,225	1,631	162	1,328
10-Year Increase		31	297	3,819	1,038	0	448
Projected Revenue		\$106,626	\$884,905	\$523,145	\$2,024,208	\$0	\$386,033

* Using the fee for a single family unit between 2,000 and 2,499 square feet

** Using the fee for a multi-family unit between 750 and 999 square feet

Projected Fee Revenue	\$3,924,917
Total Expenditures	\$18,585,487

PARKS AND RECREATIONAL FACILITIES IIP

ARS § 9-463.05 (T)(7)(g) defines the facilities and assets that can be included in the Parks and Recreational Facilities IIP:

“Neighborhood parks and recreation facilities on real property up to thirty acres in area, or parks and recreation facilities larger than thirty acres if the facilities provide a direct benefit to the development. Park and recreation facilities do not include vehicles, equipment or that portion of any facility that is used for amusement parks, aquariums, aquatic centers, auditoriums, arenas, arts and cultural facilities, bandstand and orchestra facilities, bathhouses, boathouses, clubhouses, community centers greater than three thousand square feet in floor area, environmental education centers, equestrian facilities, golf course facilities, greenhouses, lakes, museums, theme parks, water reclamation or riparian areas, wetlands, zoo facilities or similar recreation facilities, but may include swimming pools.”

The Parks and Recreational Facilities IIP includes components for park amenities, recreation facilities, pools, trails, and the cost of preparing the Parks and Recreational Facilities IIP and related Development Fee Report. The City does not anticipate purchasing additional land for parks. The incremental expansion methodology is used for park amenities. The plan-based methodology is used for community centers and the Development Fee Report.

PROPORTIONATE SHARE

ARS § 9-463.05 (B)(3) states that the development fee shall not exceed a proportionate share of the cost of necessary public services needed to accommodate new development. The Parks and Recreation Facilities IIP and development fees allocate the capital cost of necessary public services between residential and nonresidential based on functional population. The Arizona Office of Economic Opportunity estimates El Mirage’s 2022 population equal to 36,275 persons. Based on 2022 estimates from the U.S. Census Bureau’s OnTheMap web application, 2,273 inflow commuters traveled to El Mirage for work in 2022. The proportionate share is based on cumulative impact hours per year. Potential impact to parks and recreational facilities equals 8,760 hours per year per resident and 1,600 hours per year per inflow commuter. For parks and recreational facilities, residential development generates 99 percent of demand and nonresidential development generates the remaining 1 percent of demand.

Figure PR1: Proportionate Share

Development Type	Service Unit	Impact Days per Year	Total Impact Hours per Year	Proportionate Share
Residential	36,275 residents ¹	8,760 hours	317,769,000	99%
Nonresidential	2,273 inflow commuters ²	1,600 hours	3,636,800	1%
Total			321,405,800	100%

1. Arizona Office of Economic Opportunity, 2022.

2. U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics, 2022.

Residential Impact: 8,760 hours per year (24 hours per day X 365 days per year)

Nonresidential Impact: 1,600 hours per year (8 hours per day X 4 days per week X 50 weeks per year)

SERVICE UNITS

The proportionate share of costs attributable to residential development will be allocated to population and then converted to an appropriate amount by housing size. TischlerBise recommends using jobs as the demand indicator for nonresidential demand because inflow commuters represent the nonresidential portion of our proportionate share, as such the number of jobs generated by a nonresidential development will accurately determine its demand for parks facilities.

SERVICE AREA

El Mirage provides Citywide access to parks and recreational facilities; therefore, there is a Citywide service area for the Parks and Recreation Facilities IIP.

RATIO OF SERVICE UNITS TO DEVELOPMENT UNITS

ARS § 9-463.05(E)(4) requires:

“A table establishing the specific level or quantity of use, consumption, generation or discharge of a service unit for each category of necessary public services or facility expansions and an equivalency or conversion table establishing the ratio of a service unit to various types of land uses, including residential, commercial and industrial.”

Figure PR2 displays the demand indicators per development unit for residential and nonresidential development. For residential development, the table displays the number of persons per housing unit for each development unit based on residential unit size shown in Figure L6. For nonresidential development, the table displays the number of jobs per development unit based on ITE employment density factors shown in Figure L9.

Figure PR2: Ratio of Service Units to Development Units

Residential Development		
Development Type	Development Unit	Persons per Dev. Unit ¹
Single Family		
1,249 or less	Housing Unit	1.67
1,250 to 1,999	Housing Unit	3.37
2,000 to 2,499	Housing Unit	4.18
2,500 to 2,999	Housing Unit	4.84
3,000 or more	Housing Unit	5.39
Multi-Family		
749 or less	Housing Unit	2.81
750 to 999	Housing Unit	3.57
1,000 to 1,249	Housing Unit	4.15
1,250 or more	Housing Unit	4.63

Nonresidential Development		
Development Type	Development Unit	Jobs per Dev. Unit ¹
Industrial	1,000 Sq Ft	0.34
Commercial	1,000 Sq Ft	2.12
Office & Other Services	1,000 Sq Ft	3.26
Institutional	1,000 Sq Ft	2.86

1. See Land Use Assumptions

ANALYSIS OF CAPACITY, USAGE, AND COSTS OF EXISTING PUBLIC SERVICES

ARS § 9-463.05(E)(1) requires:

“A description of the existing necessary public services in the service area and the costs to upgrade, update, improve, expand, correct or replace those necessary public services to meet existing needs and usage and stricter safety, efficiency, environmental or regulatory standards, which shall be prepared by qualified professionals licensed in this state, as applicable.”

ARS § 9-463.05(E)(2) requires:

“An analysis of the total capacity, the level of current usage and commitments for usage of capacity of the existing necessary public services, which shall be prepared by qualified professionals licensed in this state, as applicable.”

Park Amenities – Incremental Expansion

El Mirage currently provides 55 park amenities and plans to construct additional park amenities to serve future development. Based on conversations with City staff, the total cost of El Mirage’s existing park amenities is \$25,288,600. The analysis uses the average cost of \$464,011 per unit as a proxy for future growth-related park amenity costs.

Figure PR3: Existing Park Amenities

Description	Units	Unit Cost	Total Cost
Baseball Field	3	\$1,000,000	\$3,000,000
Football Field	3	\$750,000	\$2,250,000
Basketball Court	7.5	\$150,000	\$1,125,000
Splash Pad	1	\$1,100,000	\$1,100,000
Pool	1	\$1,500,000	\$1,500,000
Volleyball Court	3	\$175,000	\$525,000
Playground	12	\$1,000,000	\$12,000,000
Exercise Path	5	\$27,720	\$138,600
Ampitheater	1	\$750,000	\$750,000
Specialty Garden	1	\$100,000	\$100,000
Dog Park	2	\$100,000	\$200,000
Skate Park	1	\$1,200,000	\$1,200,000
Pavilion	14	\$100,000	\$1,400,000
Total	55	\$464,011	\$25,288,600

To allocate the proportionate share of demand for park amenities to residential and nonresidential development, this analysis uses the proportionate share shown in Figure PR1. El Mirage's existing LOS for residential development is 0.0014 units per person (55 units X 99 percent residential share / 37,300 persons). For nonresidential development, the existing LOS is 0.0001 units per job (55 units X 1 percent nonresidential share / 3,908 jobs).

Based on the cost of El Mirage's existing park amenities, the average cost for park amenities is \$464,011 per unit (\$25,288,600 total cost / 55 units). El Mirage may use development fees to construct additional park amenities in existing parks or future parks. For park amenities, the cost is \$671.20 per person (0.0014 units per person X \$464,011 per unit) and \$64.71 per job (0.0001 units per job X \$464,011 per unit).

Figure PR4: Existing Level of Service

Cost Factors	
Weighted Average per Unit	\$464,011

Level-of-Service (LOS) Standards	
Existing Units	55
Residential	
Residential Share	99%
2025 Population	37,300
Units per Person	0.0014
Cost per Person	\$671.20
Nonresidential	
Nonresidential Share	1%
2025 Jobs	3,908
Units per Job	0.0001
Cost per Job	\$64.71

Source: El Mirage Parks & Recreation Department.

Recreation Facilities – Plan Based

El Mirage plans to use development fees to expand its level of service for Recreation Facilities, the City does not currently provide Recreation Facilities to its residents. The Enabling Legislation limits recreation facilities to “three thousand square feet that provide a direct benefit to development.” To comply with the Enabling Legislation, El Mirage will use 3,000 eligible square feet in the level-of-service standards.

To allocate the proportionate share of demand for recreation facilities to residential and nonresidential development, this analysis uses proportionate share shown in Figure PR1. El Mirage’s eligible level of service for residential development is 0.0777 eligible square feet per person (3,000 eligible square feet X 99 percent residential share / 38,200 persons). The nonresidential level of service is 0.0032 eligible square feet per job (3,000 eligible square feet X 1 percent nonresidential share / 9,437 jobs).

The planned Recreation Facility will have a construction cost of \$833 per square foot based on conversations with City staff. For recreation facilities, the cost is \$64.79 per person (0.0777 eligible square feet per person X \$833 per square foot) and \$2.65 per job (0.0032 eligible square feet per job X \$833 per square foot).

Figure PR5: Planned Level of Service

Description	Square Feet	Cost
Youth Center	3,000	\$2,500,000
Total	3,000	\$2,500,000

Cost Factors	
Cost per Square Foot	\$833

Level-of-Service (LOS) Standards	
Existing Square Feet	0
Planned Square Feet	3,000
Future Square Feet	3,000
Residential	
Residential Share	99%
2035 Population	38,200
Square Feet per Person	0.0777
Cost per Person	\$64.79
Nonresidential	
Nonresidential Share	1%
2035 Jobs	9,437
Square Feet per Job	0.0032
Cost per Job	\$2.65

Source: El Mirage Parks & Recreation Department.

Development Fee Report – Plan Based

The 2025 cost to prepare the Parks and Recreation IIP and related development fee report equals \$19,264. El Mirage plans to update its report every five years. Based on the 5-year cost, proportionate share, and 5-year projections of future development from the *Land Use Assumptions* document, the cost per service unit is \$38.14 per person and \$0.05 per job.

Figure PR6: IIP and Development Fee Report

Necessary Public Service	Cost	Proportionate Share		Service Unit	2025	2030	5-Year Change	Cost per Service Unit
Fire	\$19,264	Residential	86%	Population	37,300	37,800	500	\$33.13
		Nonresidential	14%	Vehicle Trips	14,061	27,221	13,160	\$0.20
Wastewater	\$19,264	All Development	100%	ADG	2,334,186	2,530,675	196,489	\$0.10
Parks and Recreation	\$19,264	Residential	99%	Population	37,300	37,800	500	\$38.14
		Nonresidential	1%	Jobs	3,908	7,873	3,965	\$0.05
Police	\$19,264	Residential	86%	Population	37,300	37,800	500	\$33.13
		Nonresidential	14%	Vehicle Trips	14,061	27,221	13,160	\$0.20
Street	\$19,264	All Development	100%	Vehicle Trips	102,578	116,803	14,225	\$1.35
Total	\$96,320							

PROJECTED DEMAND FOR SERVICES AND COSTS

ARS § 9-463.05(E)(5) requires:

“The total number of projected service units necessitated by and attributable to new development in the service area based on the approved land use assumptions and calculated pursuant to generally accepted engineering and planning criteria.”

ARS § 9-463.05(E)(6) requires:

“The projected demand for necessary public services or facility expansions required by new service units for a period not to exceed ten years.”

As shown in the *Land Use Assumptions* document, projected development during the next 10 years includes population growth of 900 persons and employment growth of 5,529 jobs. The following pages include a detailed projection of demand for services and costs for the Parks and Recreation Facilities IIP.

Park Amenities – Incremental Expansion

El Mirage plans to maintain its existing level of service for park amenities over the next 10 years. Based on a projected population increase of 900 persons, future residential development demands an additional 1.3 park amenities (900 additional persons X 0.0014 units per person). With projected employment growth of 5,529 jobs, future nonresidential development demands an additional 0.8 park amenities (5,529 additional jobs X 0.0001 units per job). Future development demands 2.1 additional park amenities at a cost of \$975,288 (2.1 units X \$464,011 per unit). El Mirage may use development fees to construct additional park amenities in existing parks or future parks.

Figure PR7: Projected Demand for Park Amenities

Type of Infrastructure	Level of Service	Demand Unit	Cost per Unit
Park Amenities	0.0014 Units	per Person	\$464,011
	0.0001 Units	per Job	

Demand for Park Amenities					
Year	Population	Jobs	Units		
			Residential	Nonresidential	Total
2025	37,300	3,908	54.0	0.5	54.5
2026	37,500	4,496	54.2	0.6	54.9
2027	37,500	5,172	54.2	0.7	55.0
2028	37,600	5,949	54.4	0.8	55.2
2029	37,700	6,844	54.5	1.0	55.5
2030	37,800	7,873	54.7	1.1	55.8
2031	37,800	8,164	54.7	1.1	55.8
2032	38,000	8,465	55.0	1.2	56.1
2033	38,200	8,777	55.3	1.2	56.5
2034	38,200	9,101	55.3	1.3	56.5
2035	38,200	9,437	55.3	1.3	56.6
10-Yr Increase	900	5,529	1.3	0.8	2.1

Growth-Related Expenditures	\$604,079	\$371,209	\$975,288
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Recreation Facilities – Plan Based

El Mirage plans to expand its eligible level of service for recreation facilities over the next 10 years. Based on a projected population increase of 900 persons, future residential development demands approximately 70 square feet of recreation facilities (900 additional persons X 0.0777 eligible square feet per person). With projected employment growth of 5,529 jobs, future nonresidential development demands approximately 18 square feet of recreation facilities (5,529 additional jobs X 0.0032 eligible square feet per job). Future development demands approximately 88 square feet of recreation facilities at a cost of \$72,959 (88 square feet X \$833 per square foot). El Mirage may use development fees to construct additional recreation facilities.

Figure PR8: Projected Demand for Community Center Space

Type of Infrastructure	Level of Service	Demand Unit	Cost per Unit
Community Centers	0.0777 Square Feet	per Person	\$833
	0.0032 Square Feet	per Job	

Demand for Fire Facilities					
Year	Population	Jobs	Square Feet		
			Residential	Nonresidential	Total
2025	37,300	3,908	2,900	12	2,912
2026	37,500	4,496	2,916	14	2,930
2027	37,500	5,172	2,916	16	2,932
2028	37,600	5,949	2,923	19	2,942
2029	37,700	6,844	2,931	22	2,953
2030	37,800	7,873	2,939	25	2,964
2031	37,800	8,164	2,939	26	2,965
2032	38,000	8,465	2,954	27	2,981
2033	38,200	8,777	2,970	28	2,998
2034	38,200	9,101	2,970	29	2,999
2035	38,200	9,437	2,970	30	3,000
10-Yr Increase	900	5,529	70	18	88

Growth-Related Expenditures	\$58,312	\$14,647	\$72,959
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PARKS AND RECREATION FACILITIES DEVELOPMENT FEES

Parks Bond Credit/Offset

El Mirage issued debt to fund construction of park facilities as part of the 2017 bond series. A credit is necessary since future development will pay the development fee and may also contribute to future bond payments through tax revenues. A credit is necessary for interest payments because development fee calculations include interest costs.

The analysis splits annual bond payments based on the proportionate shares of residential and nonresidential development and then divides by population for the residential portion and jobs for the nonresidential portion. For example, the 2026 bond payment is \$10.53 per person (\$398,750 bond payment X 99 percent share / 37,500 persons) and \$0.89 per job (\$398,750 bond payment X 1 percent share / 4,496 jobs). To account for the time value of money, the analysis discounts annual payments per person and job based on the bond interest rate of 3.00 percent. The total net present value of future bond payments is \$37.92 per person and \$2.64 per job.

Figure F13: Parks Bond Credit

Parks Share of Series 2017 Bonds							
Fiscal Year	Annual Debt Service	Residential Share	Population	Payment per Person	Nonresidential Share	Jobs	Payment per Job
2025	\$0	\$0	37,300	\$0.00	\$0	3,908	\$0.00
2026	\$398,750	\$394,763	37,500	\$10.53	\$3,988	4,496	\$0.89
2027	\$398,750	\$394,763	37,500	\$10.53	\$3,988	5,172	\$0.77
2028	\$398,750	\$394,763	37,600	\$10.50	\$3,988	5,949	\$0.67
2029	\$398,750	\$394,763	37,700	\$10.47	\$3,988	6,844	\$0.58
2030	\$0	\$0	37,800	\$0.00	\$0	7,873	\$0.00
2031	\$0	\$0	37,800	\$0.00	\$0	8,164	\$0.00
2032	\$0	\$0	38,000	\$0.00	\$0	8,465	\$0.00
2033	\$0	\$0	38,200	\$0.00	\$0	8,777	\$0.00
2034	\$0	\$0	38,200	\$0.00	\$0	9,101	\$0.00
2035	\$0	\$0	38,200	\$0.00	\$0	9,437	\$0.00
2036	\$0	\$0	38,300	\$0.00	\$0	9,785	\$0.00
2037	\$0	\$0	38,400	\$0.00	\$0	10,147	\$0.00
2038	\$0	\$0	38,400	\$0.00	\$0	10,521	\$0.00
2039	\$0	\$0	38,400	\$0.00	\$0	10,909	\$0.00
2040	\$0	\$0	38,400	\$0.00	\$0	11,312	\$0.00
2041	\$0	\$0	38,400	\$0.00	\$0	11,470	\$0.00
2042	\$0	\$0	38,400	\$0.00	\$0	11,631	\$0.00
2043	\$0	\$0	38,400	\$0.00	\$0	11,793	\$0.00
2044	\$0	\$0	38,400	\$0.00	\$0	11,958	\$0.00
2045	\$0	\$0	38,400	\$0.00	\$0	12,126	\$0.00
Total	\$1,595,000	\$1,579,050		\$42.02	\$15,950		\$2.91

Rate	3.00%	Credit per Person	\$37.92	Credit per Job	\$2.64
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Recreation Bond Credit/Offset

El Mirage issued debt to fund construction of recreation facilities as part of the 2022 bond series. A credit is necessary since future development will pay the development fee and may also contribute to future bond payments through tax revenues. A credit is necessary for interest payments because development fee calculations include interest costs.

The analysis splits annual bond payments based on the proportionate shares of residential and nonresidential development and then divides by population for the residential portion and jobs for the nonresidential portion. For example, the 2026 bond payment is \$2.42 per person (\$91,591 bond payment X 99 percent share / 37,500 persons) and \$0.20 per job (\$91,591 bond payment X 1 percent share / 4,496 jobs). To account for the time value of money, the analysis discounts annual payments per person and job based on the bond interest rate of 4.00 percent. The total net present value of future bond payments is \$27.91 per person and \$1.38 per job.

Figure F14: Recreation Bond Credit

Recreation Share of Series 2022 Bonds							
Fiscal Year	Annual Debt Service	Residential Share	Population	Payment per Person	Nonresidential Share	Jobs	Payment per Job
2025	\$0	\$0	37,300	\$0.00	\$0	3,908	\$0.00
2026	\$91,591	\$90,675	37,500	\$2.42	\$916	4,496	\$0.20
2027	\$91,591	\$90,675	37,500	\$2.42	\$916	5,172	\$0.18
2028	\$91,591	\$90,675	37,600	\$2.41	\$916	5,949	\$0.15
2029	\$91,591	\$90,675	37,700	\$2.41	\$916	6,844	\$0.13
2030	\$91,591	\$90,675	37,800	\$2.40	\$916	7,873	\$0.12
2031	\$91,591	\$90,675	37,800	\$2.40	\$916	8,164	\$0.11
2032	\$91,591	\$90,675	38,000	\$2.39	\$916	8,465	\$0.11
2033	\$91,591	\$90,675	38,200	\$2.37	\$916	8,777	\$0.10
2034	\$91,591	\$90,675	38,200	\$2.37	\$916	9,101	\$0.10
2035	\$91,591	\$90,675	38,200	\$2.37	\$916	9,437	\$0.10
2036	\$91,591	\$90,675	38,300	\$2.37	\$916	9,785	\$0.09
2037	\$91,591	\$90,675	38,400	\$2.36	\$916	10,147	\$0.09
2038	\$91,591	\$90,675	38,400	\$2.36	\$916	10,521	\$0.09
2039	\$91,591	\$90,675	38,400	\$2.36	\$916	10,909	\$0.08
2040	\$91,591	\$90,675	38,400	\$2.36	\$916	11,312	\$0.08
2041	\$91,591	\$90,675	38,400	\$2.36	\$916	11,470	\$0.08
2042	\$91,591	\$90,675	38,400	\$2.36	\$916	11,631	\$0.08
2043	\$0	\$0	38,400	\$0.00	\$0	11,793	\$0.00
2044	\$0	\$0	38,400	\$0.00	\$0	11,958	\$0.00
2045	\$0	\$0	38,400	\$0.00	\$0	12,126	\$0.00
Total	\$1,557,047	\$1,541,477		\$40.49	\$15,570		\$1.90

Rate	4.00%	Credit per Person	\$27.91	Credit per Job	\$1.38
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Parks and Recreational Facilities Development Fees

Figure PR9 includes infrastructure components and cost factors for parks and recreational facilities development fees. The cost per service unit is \$708.30 per person and \$63.39 per job.

Residential development fees are calculated per housing unit, based on unit size, and vary proportionately according to the number of persons per housing unit. For a single family residential unit with 2,200 square feet, the fee of \$2,961 is calculated using a cost of \$708.30 per person multiplied by 4.18 persons per housing unit.

Nonresidential development fees are calculated per development unit and vary proportionately according to the number of jobs. For industrial development, the fee of \$21 per development unit (thousand square feet) is calculated using a cost of \$63.39 per job multiplied by 0.34 jobs per development unit.

Figure PR9: Parks and Recreation Facilities Development Fees

Fee Component	Cost per Person	Cost per Job
Recreation Centers	\$64.79	\$2.65
Parks Bond Credit	(\$37.92)	(\$2.64)
Recreation Bond Credit	(\$27.91)	(\$1.38)
Park Amenities	\$671.20	\$64.71
Development Fee Report	\$38.14	\$0.05
Total	\$708.30	\$63.39

Residential Fees per Development Unit			
Development Type	Development Unit	Persons per Dev. Unit ¹	Proposed Fees
Single Family			
1,249 or less	Housing Unit	1.67	\$1,183
1,250 to 1,999	Housing Unit	3.37	\$2,387
2,000 to 2,499	Housing Unit	4.18	\$2,961
2,500 to 2,999	Housing Unit	4.84	\$3,428
3,000 or more	Housing Unit	5.39	\$3,818
Multi-Family			
749 or less	Housing Unit	2.81	\$1,990
750 to 999	Housing Unit	3.57	\$2,529
1,000 to 1,249	Housing Unit	4.15	\$2,939
1,250 or more	Housing Unit	4.63	\$3,279

Nonresidential Fees per Development Unit			
Development Type	Development Unit	Jobs per Dev. Unit ¹	Proposed Fees
Industrial	1,000 Sq Ft	0.34	\$21
Commercial	1,000 Sq Ft	2.12	\$135
Office & Other Services	1,000 Sq Ft	3.26	\$206
Institutional	1,000 Sq Ft	2.86	\$181

1. See Land Use Assumptions

PARKS AND RECREATIONAL FACILITIES DEVELOPMENT FEE REVENUE

Appendix A contains the forecast of revenues required by Arizona's Enabling Legislation (ARS § 9-463.05(E)(7)). In accordance with state law, this report includes an IIP for parks and recreational facilities needed to accommodate new development. Projected fee revenue shown in Figure PR10 is based on the development projections in the *Land Use Assumptions* document and the updated development fees for parks and recreation facilities shown in Figure PR9. If development occurs at a more rapid rate than projected, the demand for infrastructure will increase and development fee revenue will increase at a corresponding rate. If development occurs at a slower rate than projected, the demand for infrastructure will decrease along with development fee revenue. Projected development fee revenue equals \$932,516 and projected expenditures equal \$3,494,552.

Figure PR10: Parks and Recreational Facilities Development Fee Revenue

Fee Component	Growth Share	Existing Share	Total
Recreation Centers	\$72,959	\$2,427,041	\$2,500,000
Park Amenities	\$975,288	\$0	\$975,288
Development Fee Report	\$19,264	\$0	\$19,264
Total	\$1,067,510	\$2,427,041	\$3,494,552

		Single Family* \$2,961 per unit	Multi-Family** \$2,529 per unit	Industrial \$21 per 1,000 sq ft	Commercial \$135 per 1,000 sq ft	Office \$206 per 1,000 sq ft	Institutional \$181 per 1,000 sq ft
Year		Hsg Unit	Hsg Unit	KSF	KSF	KSF	KSF
Base	2025	11,766	606	1,406	593	162	879
Year 1	2026	11,773	672	1,812	704	162	927
Year 2	2027	11,773	672	2,279	831	162	982
Year 3	2028	11,776	705	2,816	976	162	1,045
Year 4	2029	11,780	738	3,434	1,144	162	1,117
Year 5	2030	11,783	771	4,145	1,337	162	1,201
Year 6	2031	11,783	771	4,345	1,392	162	1,224
Year 7	2032	11,790	837	4,553	1,448	162	1,249
Year 8	2033	11,797	903	4,769	1,507	162	1,274
Year 9	2034	11,797	903	4,993	1,568	162	1,301
Year 10	2035	11,797	903	5,225	1,631	162	1,328
10-Year Increase		31	297	3,819	1,038	0	448
Projected Revenue		\$64,096	\$559,054	\$83,718	\$142,719	\$0	\$82,929

* Using the fee for a single family unit between 2,000 and 2,499 square feet

** Using the fee for a multi-family unit between 750 and 999 square feet

Projected Fee Revenue	\$932,516
Total Expenditures	\$3,494,552

POLICE FACILITIES IIP

ARS § 9-463.05 (T)(7)(f) defines the eligible facilities and assets for the Police Facilities IIP:

“Fire and police facilities, including all appurtenances, equipment and vehicles. Fire and police facilities do not include a facility or portion of a facility that is used to replace services that were once provided elsewhere in the municipality, vehicles and equipment used to provide administrative services, helicopters or airplanes or a facility that is used for training firefighters or officers from more than one station or substation.”

The Police Facilities IIP includes components for police facilities, police vehicles, and the cost of preparing the Police Facilities IIP and related Development Fee Report. The incremental expansion methodology, based on the current level of service, is used for police facilities and police vehicles. The plan-based methodology is used for police facilities and the Development Fee Report.

PROPORTIONATE SHARE

ARS § 9-463.05 (B)(3) states that the development fee shall not exceed a proportionate share of the cost of necessary public services needed to accommodate new development. The Fire Facilities IIP and development fees allocate fire capital costs between residential and nonresidential development based on a functional population approach. The functional population approach allocates the cost of facilities to residential and nonresidential development based on average activity of residents and workers in the City over a 24-hour period.

Residents that do not work are assigned 20 hours per day to residential development and 4 hours per day to nonresidential development (annualized averages). Residents that work in El Mirage are assigned 14 hours to residential development and 10 hours to nonresidential development. Residents that work outside El Mirage are assigned 14 hours to residential development, the remaining hours in the day are assumed to be spent outside of El Mirage working. Inflow commuters are assigned 10 hours to nonresidential development. Based on the most recent local functional population data, residential development accounts for 86 percent of the functional population, while nonresidential development accounts for 14 percent, see Figure P1. The figure is used only for the functional population calculation, population and job estimates are produced separately.

Figure P1: Proportionate Share

Demand Units in 2022				
Residential			Demand Hours/Day	Person Hours
Population	36,275			
Residents Not Working	19,573		20	391,460
Employed Residents	16,702			
Employed in El Mirage		218	14	3,052
Employed outside El Mirage		16,484	14	230,776
Residential Subtotal				625,288
Residential Share				86%
Nonresidential				
Non-working Residents	19,573		4	78,292
Jobs Located in El Mirage	2,491			
Residents Employed in El Mirage		218	10	2,180
Non-Resident Workers (inflow commuters)		2,273	10	22,730
Nonresidential Subtotal				103,202
Nonresidential Share				14%
Total				728,490

Source: Arizona Office of Economic Opportunity (population), U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics, Version 6.25.1 (employment).

SERVICE UNITS

The proportionate share of costs attributable to residential development will be allocated to population and then converted to an appropriate amount by housing size. TischlerBise recommends using vehicle trips as the demand indicator for nonresidential demand because vehicle trips are highest for retail developments, such as shopping centers, and lowest for industrial development. Office and institutional trip rates fall between the other two categories. This ranking of trip rates is consistent with the relative demand for public safety services from nonresidential development. Other possible nonresidential demand indicators, such as employment or floor area, will not accurately reflect the demand for service. For example, if employees per thousand square feet were used as the demand indicator, public safety development fees would be disproportionately high for office and institutional development because offices typically have more employees per 1,000 square feet than retail uses. If floor area were used as the demand indicator, public safety development fees would be disproportionately high for industrial development.

SERVICE AREA

El Mirage's Police Department strives to provide a uniform response time within the City limits; therefore, there is a Citywide service area for the Police Facilities IIP.

RATIO OF SERVICE UNITS TO DEVELOPMENT UNITS

ARS § 9-463.05(E)(4) requires:

“A table establishing the specific level or quantity of use, consumption, generation or discharge of a service unit for each category of necessary public services or facility expansions and an equivalency or conversion table establishing the ratio of a service unit to various types of land uses, including residential, commercial and industrial.”

Figure P2 displays the demand indicators per development unit for residential and nonresidential development. For residential development, the table displays the number of persons per housing unit for each development unit based on residential unit size shown in Figure L6. For nonresidential development, the table displays the number of vehicle trips per development unit based on ITE trip generation rates shown in Figure L9.

Figure P2: Ratio of Service Units to Development Units

Residential Development		
Unit Type	Development Unit	Persons per Dev. Unit ¹
Single Family		
1,249 or less	Housing Unit	1.67
1,250 to 1,999	Housing Unit	3.37
2,000 to 2,499	Housing Unit	4.18
2,500 to 2,999	Housing Unit	4.84
3,000 or more	Housing Unit	5.39
Multi-Family		
749 or less	Housing Unit	2.81
750 to 999	Housing Unit	3.57
1,000 to 1,249	Housing Unit	4.15
1,250 or more	Housing Unit	4.63

Nonresidential Development				
Development Type	Development Unit	Avg Weekday Veh Trip Ends ¹	Trip Rate Adjustment	Vehicle Trips per Dev. Unit ¹
Industrial	1,000 Sq Ft	1.71	50%	0.86
Commercial	1,000 Sq Ft	37.01	33%	12.21
Office & Other Services	1,000 Sq Ft	10.84	50%	5.42
Institutional	1,000 Sq Ft	10.77	50%	5.39

1. See Land Use Assumptions

ANALYSIS OF CAPACITY, USAGE, AND COSTS OF EXISTING PUBLIC SERVICES

ARS § 9-463.05(E)(1) requires:

“A description of the existing necessary public services in the service area and the costs to upgrade, update, improve, expand, correct or replace those necessary public services to meet existing needs and usage and stricter safety, efficiency, environmental or regulatory standards, which shall be prepared by qualified professionals licensed in this state, as applicable.”

ARS § 9-463.05(E)(2) requires:

“An analysis of the total capacity, the level of current usage and commitments for usage of capacity of the existing necessary public services, which shall be prepared by qualified professionals licensed in this state, as applicable.”

Police Facilities – Incremental Expansion

El Mirage currently provides 20,000 square feet of police facilities to existing development. El Mirage plans to construct additional police facilities to serve future development. El Mirage may use development fees to construct these projects or to construct other growth-related police facilities.

Figure P3: Existing Police Facilities

Description	Square Feet
Main Station	20,000
Total	20,000

To allocate the proportionate share of demand for police facilities to residential and nonresidential development, this analysis uses functional population outlined in Figure P1. El Mirage’s level of service for residential development is 0.4611 square feet per person (20,000 square feet X 86 percent residential share / 37,300 persons). The nonresidential level of service is 0.1991 square feet per vehicle trip (20,000 square feet X 14 percent nonresidential share / 14,061 vehicle trips).

Based on conversations with City staff the analysis uses \$850 per square foot as a proxy for growth-related police facility costs. For police facilities, the cost is \$391.96 per person (0.4611 square feet per person X \$850 per square foot) and \$169.26 per vehicle trip (0.1991 square feet per vehicle trip X \$850 per square foot).

Figure P4: Existing Level of Service

Cost Allocation Factors	
Cost per Square Foot	\$850

Level-of-Service (LOS) Standards	
Existing Square Feet	20,000
Residential	
Residential Share	86%
2025 Population	37,300
Square Feet per Person	0.4611
Cost per Person	\$391.96
Nonresidential	
Nonresidential Share	14%
2025 Vehicle Trips	14,061
Square Feet per Vehicle Trip	0.1991
Cost per Trip	\$169.26

Source: City of El Mirage.

Police Vehicles – Incremental Expansion

El Mirage has 37 police vehicles with a total cost of \$3,290,000, and El Mirage plans to acquire additional police vehicles to serve future development. The average cost of the existing fleet is \$88,919 per unit (\$3,290,000 total cost / 37 units), and the analysis uses this cost as a proxy for future growth-related police vehicle costs.

Figure P5: Existing Police Vehicles

Description	Units	Unit Cost	Total Cost
Patrol Vehicle	35	\$92,000	\$3,220,000
Patrol Motorcycle	2	\$35,000	\$70,000
Total	37	\$88,919	\$3,290,000

To allocate the proportionate share of demand for police vehicles to residential and nonresidential development, this analysis uses functional population outlined in Figure P1. El Mirage's existing level of service for residential development is 0.0009 units per person (37 units X 86 percent residential share / 37,300 persons). The nonresidential level of service is 0.0004 units per vehicle trip (37 units X 14 percent nonresidential share / 14,061 vehicle trips).

Based on the cost of El Mirage's existing police vehicles, the average cost is \$88,919 per unit (\$3,290,000 total cost / 37 units). For police vehicles, the cost is \$75.86 per person (0.0009 units per person X \$88,919 per unit) and \$32.76 per vehicle trip (0.0004 units per vehicle trip X \$88,919 per unit).

Figure P6: Existing Level of Service

Cost Factors	
Weighted Average per Vehicle	\$88,919

Level-of-Service (LOS) Standards	
Existing Units	37
Residential	
Residential Share	86%
2025 Population	37,300
Vehicles per Person	0.0009
Cost per Person	\$75.86
Nonresidential	
Nonresidential Share	14%
2025 Vehicle Trips	14,061
Units per Vehicle Trip	0.0004
Cost per Vehicle Trip	\$32.76

Source: El Mirage Police Operations & Data Analysis Report, 2023.

Development Fee Report – Plan Based

The 2025 cost to prepare the Police Facilities IIP and related development fee report equals \$19,264. El Mirage plans to update its report every five years. Based on the 5-year cost, proportionate share, and 5-year projections of future development from the *Land Use Assumptions* document, the cost per service unit is \$33.13 per person and \$0.20 per vehicle trip.

Figure P7: IIP and Development Fee Report

Necessary Public Service	Cost	Proportionate Share	Service Unit	2025	2030	5-Year Change	Cost per Service Unit
Fire	\$19,264	Residential 86%	Population	37,300	37,800	500	\$33.13
		Nonresidential 14%	Vehicle Trips	14,061	27,221	13,160	\$0.20
Wastewater	\$19,264	All Development 100%	ADG	2,334,186	2,530,675	196,489	\$0.10
Parks and Recreation	\$19,264	Residential 99%	Population	37,300	37,800	500	\$38.14
		Nonresidential 1%	Jobs	3,908	7,873	3,965	\$0.05
Police	\$19,264	Residential 86%	Population	37,300	37,800	500	\$33.13
		Nonresidential 14%	Vehicle Trips	14,061	27,221	13,160	\$0.20
Street	\$19,264	All Development 100%	Vehicle Trips	102,578	116,803	14,225	\$1.35
Total	\$96,320						

PROJECTED DEMAND FOR SERVICES AND COSTS

ARS § 9-463.05(E)(5) requires:

“The total number of projected service units necessitated by and attributable to new development in the service area based on the approved land use assumptions and calculated pursuant to generally accepted engineering and planning criteria.”

ARS § 9-463.05(E)(6) requires:

“The projected demand for necessary public services or facility expansions required by new service units for a period not to exceed ten years.”

As shown in the *Land Use Assumptions* document, projected development during the next 10 years includes population growth of 900 persons and nonresidential growth of 18,351 vehicle trips. The following pages include a detailed projection of demand for services and costs for the Police Facilities IIP.

Police Facilities – Incremental Expansion

El Mirage plans to maintain the existing level of service for police facilities over the next 10 years. Based on a projected population increase of 900 persons, future residential development demands approximately 415 square feet of police facilities (900 additional persons X 0.4611 square feet per person). With projected nonresidential vehicle trip growth of 18,351 vehicle trips, future nonresidential development demands approximately 3,654 square feet of police facilities (18,351 additional vehicle trips X 0.1991 square feet per vehicle trip). Future development demands approximately 4,069 square feet of police facilities at a cost of \$3,458,775 (4,069 square feet X \$850 per square foot).

Figure P8: Projected Demand for Police Station Space

Type of Infrastructure	Level of Service	Demand Unit	Cost per Sq Ft
Police Facilities	0.4611 Square Feet	per Person	\$850
	0.1991 Square Feet	per Vehicle Trip	

Demand for Police Facilities					
Year	Population	Vehicle Trips	Square Feet		
			Residential	Nonresidential	Total
2025	37,300	14,061	17,200	2,800	20,000
2026	37,500	16,012	17,292	3,188	20,481
2027	37,500	18,255	17,292	3,635	20,927
2028	37,600	20,836	17,338	4,149	21,487
2029	37,700	23,805	17,384	4,740	22,125
2030	37,800	27,221	17,431	5,420	22,851
2031	37,800	28,185	17,431	5,612	23,043
2032	38,000	29,185	17,523	5,812	23,334
2033	38,200	30,222	17,615	6,018	23,633
2034	38,200	31,297	17,615	6,232	23,847
2035	38,200	32,412	17,615	6,454	24,069
10-Yr Increase	900	18,351	415	3,654	4,069

Growth-Related Expenditures	\$352,761	\$3,106,014	\$3,458,775
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Police Vehicles – Incremental Expansion

El Mirage plans to maintain its existing level of service for police vehicles over the next 10 years. Based on a projected population increase of 900 persons, future residential development demands an additional 0.8 units (900 additional persons X 0.0009 units per person). With projected nonresidential vehicle trip growth of 18,351 vehicle trips, future nonresidential development demands an additional 6.8 units (18,351 additional vehicle trips X 0.0004 units per vehicle trip). Future development demands approximately 7.5 police vehicles at a cost of \$669,375 (7.5 units X \$88,919 per unit).

Figure P9: Projected Demand for Police Vehicles

Type of Infrastructure		Level of Service	Demand Unit	Cost per Unit	
Police Vehicles		0.0009 Units	per Person	\$88,919	
		0.0004 Units	per Vehicle Trip		
Demand for Police Vehicles					
Year	Population	Vehicle Trips	Units		
			Residential	Nonresidential	Total
2025	37,300	14,061	31.8	5.2	37.0
2026	37,500	16,012	32.0	5.9	37.9
2027	37,500	18,255	32.0	6.7	38.7
2028	37,600	20,836	32.1	7.7	39.8
2029	37,700	23,805	32.2	8.8	40.9
2030	37,800	27,221	32.2	10.0	42.3
2031	37,800	28,185	32.2	10.4	42.6
2032	38,000	29,185	32.4	10.8	43.2
2033	38,200	30,222	32.6	11.1	43.7
2034	38,200	31,297	32.6	11.5	44.1
2035	38,200	32,412	32.6	11.9	44.5
10-Yr Increase	900	18,351	0.8	6.8	7.5
Growth-Related Expenditures			\$68,270	\$601,105	\$669,375

POLICE FACILITIES DEVELOPMENT FEES

Police Bond Credit/Offset

El Mirage issued debt to fund construction of police facilities as part of the 2022 bond series. A credit is necessary since future development will pay the development fee and may also contribute to future bond payments through tax revenues. A credit is necessary for interest payments because development fee calculations include interest costs.

The analysis splits annual bond payments based on the proportionate shares of residential and nonresidential development and then divides by population for the residential portion and vehicle trips for the nonresidential portion. For example, the 2026 bond payment is \$5.04 per person (\$219,818 bond payment X 86 percent share / 37,500 persons) and \$1.92 per vehicle trip (\$219,818 bond payment X 14 percent share / 16,012 vehicle trips). To account for the time value of money, the analysis discounts annual payments per person and vehicle trip based on the bond interest rate of 4.00 percent. The total net present value of future bond payments is \$58.19 per person and \$13.36 per vehicle trip.

Figure P10: Police Bond Credit

Police Share of Series 2022 Bonds							
Fiscal Year	Annual Debt Service	Residential Share	Population	Payment per Person	Nonresidential Share	Vehicle Trips	Payment per Veh Trip
2025	\$0	\$0	37,300	\$0.00	\$0	14,061	\$0.00
2026	\$219,818	\$189,044	37,500	\$5.04	\$30,775	16,012	\$1.92
2027	\$219,818	\$189,044	37,500	\$5.04	\$30,775	18,255	\$1.69
2028	\$219,818	\$189,044	37,600	\$5.03	\$30,775	20,836	\$1.48
2029	\$219,818	\$189,044	37,700	\$5.01	\$30,775	23,805	\$1.29
2030	\$219,818	\$189,044	37,800	\$5.00	\$30,775	27,221	\$1.13
2031	\$219,818	\$189,044	37,800	\$5.00	\$30,775	28,185	\$1.09
2032	\$219,818	\$189,044	38,000	\$4.97	\$30,775	29,185	\$1.05
2033	\$219,818	\$189,044	38,200	\$4.95	\$30,775	30,222	\$1.02
2034	\$219,818	\$189,044	38,200	\$4.95	\$30,775	31,297	\$0.98
2035	\$219,818	\$189,044	38,200	\$4.95	\$30,775	32,412	\$0.95
2036	\$219,818	\$189,044	38,300	\$4.94	\$30,775	33,568	\$0.92
2037	\$219,818	\$189,044	38,400	\$4.92	\$30,775	34,767	\$0.89
2038	\$219,818	\$189,044	38,400	\$4.92	\$30,775	36,010	\$0.85
2039	\$219,818	\$189,044	38,400	\$4.92	\$30,775	37,299	\$0.83
2040	\$219,818	\$189,044	38,400	\$4.92	\$30,775	38,635	\$0.80
2041	\$219,818	\$189,044	38,400	\$4.92	\$30,775	39,160	\$0.79
2042	\$219,818	\$189,044	38,400	\$4.92	\$30,775	39,693	\$0.78
2043	\$0	\$0	38,400	\$0.00	\$0	40,233	\$0.00
2044	\$0	\$0	38,400	\$0.00	\$0	40,780	\$0.00
2045	\$0	\$0	38,400	\$0.00	\$0	41,336	\$0.00
Total	\$3,736,913	\$3,213,745		\$84.42	\$523,168		\$18.44

Rate	4.00%	Credit per Person	\$58.19	Credit per Vehicle Trip	\$13.36
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Police Facilities Development Fees

Figure P11 includes infrastructure components and cost factors for police facilities development fees. The cost per service unit is \$442.76 per person and \$188.86 per vehicle trip.

Residential development fees are calculated per housing unit, based on unit size, and vary proportionately according to the number of persons per housing unit. For a single family residential unit with 2,200 square feet, the fee of \$1,851 is calculated using a cost of \$442.76 per person multiplied by 4.18 persons per housing unit.

Nonresidential development fees are calculated per development unit and vary proportionately according to the number of vehicle trips. For industrial development, the fee of \$162 per development unit (thousand square feet) is calculated using a cost of \$188.86 per vehicle trip multiplied by 1.67 vehicle trips per development unit.

Figure P11: Police Facilities Development Fees

Fee Component	Cost per Person	Cost per Trip
Bond Credit	(\$58.19)	(\$13.36)
Police Vehicles	\$75.86	\$32.76
Police Equipment	\$0.00	\$0.00
Development Fee Report	\$33.13	\$0.20
Total	\$442.76	\$188.86

Residential Fees per Development Unit			
Development Type	Development Unit	Persons per Dev. Unit ¹	Proposed Fees
Single Family			
1,249 or less	Housing Unit	1.67	\$739
1,250 to 1,999	Housing Unit	3.37	\$1,492
2,000 to 2,499	Housing Unit	4.18	\$1,851
2,500 to 2,999	Housing Unit	4.84	\$2,143
3,000 or more	Housing Unit	5.39	\$2,386
Multi-Family			
749 or less	Housing Unit	2.81	\$1,244
750 to 999	Housing Unit	3.57	\$1,581
1,000 to 1,249	Housing Unit	4.15	\$1,837
1,250 or more	Housing Unit	4.63	\$2,050

Nonresidential Fees per Development Unit			
Development Type	Development Unit	Vehicle Trips per Dev. Unit ¹	Proposed Fees
Industrial	1,000 Sq Ft	0.86	\$162
Commercial	1,000 Sq Ft	12.21	\$2,306
Office & Other Services	1,000 Sq Ft	5.42	\$1,024
Institutional	1,000 Sq Ft	5.39	\$1,018

1. See Land Use Assumptions

POLICE FACILITIES DEVELOPMENT FEE REVENUE

Appendix A contains revenue forecasts required by Arizona's Enabling Legislation (ARS § 9-463.05(E)(7)). Projected fee revenue shown in Figure P12 is based on the development projections in the *Land Use Assumptions* document and the updated police facilities development fees. If development occurs faster than projected, the demand for infrastructure will increase along with development fee revenue. If development occurs slower than projected, the demand for infrastructure will decrease and development fee revenue will decrease at a similar rate. Projected development fee revenue equals \$4,439,198 and projected expenditures equal \$4,147,414.

Figure P12: Police Facilities Development Fee Revenue

Fee Component	Growth Share	Existing Share	Total
Police Facilities	\$3,458,775	\$0	\$3,458,775
Police Vehicles	\$669,375	\$0	\$669,375
Development Fee Report	\$19,264	\$0	\$19,264
Total	\$4,147,414	\$0	\$4,147,414

		Single Family* \$1,851 per unit	Multi-Family** \$1,581 per unit	Industrial \$162 per 1,000 sq ft	Commercial \$2,306 per 1,000 sq ft	Office \$1,024 per 1,000 sq ft	Institutional \$1,018 per 1,000 sq ft
Year		Hsg Unit	Hsg Unit	KSF	KSF	KSF	KSF
Base	2025	11,766	606	1,406	593	162	879
Year 1	2026	11,773	672	1,812	704	162	927
Year 2	2027	11,773	672	2,279	831	162	982
Year 3	2028	11,776	705	2,816	976	162	1,045
Year 4	2029	11,780	738	3,434	1,144	162	1,117
Year 5	2030	11,783	771	4,145	1,337	162	1,201
Year 6	2031	11,783	771	4,345	1,392	162	1,224
Year 7	2032	11,790	837	4,553	1,448	162	1,249
Year 8	2033	11,797	903	4,769	1,507	162	1,274
Year 9	2034	11,797	903	4,993	1,568	162	1,301
Year 10	2035	11,797	903	5,225	1,631	162	1,328
10-Year Increase		31	297	3,819	1,038	0	448
Projected Revenue		\$61,649	\$668,273	\$663,900	\$2,556,823	\$0	\$488,554

* Using the fee for a single family unit between 2,000 and 2,499 square feet

** Using the fee for a multi-family unit between 750 and 999 square feet

Projected Fee Revenue	\$4,439,198
Total Expenditures	\$4,147,414

STREET FACILITIES IIP

ARS § 9-463.05 (T)(7)(e) defines the eligible facilities and assets for the Street Facilities IIP:

“Street facilities located in the service area, including arterial or collector streets or roads that have been designated on an officially adopted plan of the municipality, traffic signals and rights-of-way and improvements thereon.”

The Street Facilities IIP includes components for arterial improvements, intersection improvements, and the cost of preparing the Street Facilities IIP and related Development Fee Report. The cost recovery methodology is used for arterial improvements and intersection improvements, and the plan-based methodology is used for the Development Fee Report.

PROPORTIONATE SHARE

ARS § 9-463.05 (B)(3) states that the development fee shall not exceed a proportionate share of the cost of necessary public services needed to accommodate new development. The Street Facilities IIP and development fees will allocate the cost of necessary public services between residential and nonresidential based on trip generation rates and trip adjustment factors.

SERVICE AREA

El Mirage provides a transportation network within the city limits; therefore, there is a citywide service area for the Street Facilities IIP.

RATIO OF SERVICE UNITS TO DEVELOPMENT UNITS

ARS § 9-463.05(E)(4) requires:

“A table establishing the specific level or quantity of use, consumption, generation or discharge of a service unit for each category of necessary public services or facility expansions and an equivalency or conversion table establishing the ratio of a service unit to various types of land uses, including residential, commercial and industrial.”

El Mirage will use vehicle trips as the demand units for street facilities fees. Components used to determine vehicle trips include average weekday vehicle trip generation rates and adjustments for commuting patterns and pass-by trips.

Residential Trip Generation Rates

As an alternative to simply using national average trip generation rates for residential development, published by the Institute of Transportation Engineers (ITE), TischlerBise calculates custom trip rates using local demographic data. Key inputs needed for the analysis, including average number of persons and vehicles available per housing unit, are available from American Community Survey (ACS) data.

Vehicle Trip Ends by Unit Type and Bedroom Range

TischlerBise recommends a fee schedule where larger units pay higher development fees than smaller units. Benefits of the proposed methodology include: 1) proportionate assessment of infrastructure demand using local demographic data, and 2) progressive fee structure (i.e., smaller units pay less, and larger units pay more). TischlerBise creates custom tabulations of demographic data by bedroom range by housing type from individual survey responses provided by the U.S. Census Bureau in files known as Public Use Microdata Samples (PUMS). PUMS files are only available for areas of at least 100,000 persons, with El Mirage in Public Use Microdata Area (AZ PUMA 00130). Shown in Figure S1, cells with yellow shading indicate the survey results, which yield the unadjusted number of persons and vehicles available per single family housing unit. Unadjusted vehicles per housing unit are adjusted to El Mirage control totals of 2.10 vehicles per single family housing unit. Shown in Figure S1, cells with yellow shading indicate the survey results, which yield the unadjusted number of persons and vehicles available per single family housing unit. Unadjusted vehicles per housing unit are adjusted to El Mirage control totals of 1.93 vehicles per multi-family household, shown in Figure S2.

Figure S1: Single Family Vehicle Trip Ends by Bedroom Range

Bedroom Range	Persons ¹	Vehicles Available ¹	Housing Units ¹	Housing Mix	Unadjusted PPHU	Adjusted PPHU ²	Unadjusted VPHU	Adjusted VPHU ²
0-2	2,826	2,348	1,705	61%	1.66	2.45	1.38	1.80
3	1,819	1,422	785	28%	2.32	3.42	1.81	2.37
4+	1,101	720	308	11%	3.57	5.27	2.34	3.06
Total	5,746	4,490	2,798	100%	2.05	3.03	1.60	2.10

National Averages According to ITE

ITE Code	AWVTE per Person	AWVTE per Vehicle	AWVTE per HU	Housing Mix
210 SFD	2.65	6.36	9.43	87%
220 Apt	1.86	5.10	6.74	13%
Wtd Avg	2.55	6.20	9.09	100%

Recommended AWWTE per Household

Bedroom Range	AWVTE per HU Based on Persons ³	AWVTE per HU Based on Vehicles ⁴	AWVTE per Housing Unit ⁵	1. American Community Survey, Public Use Microdata Sample for AZ PUMA 00130 (2019-2023 5-Year unweighted data). 2. Adjusted multipliers are scaled to make the average PUMS values match control totals for El Mirage, based on American Community Survey 2019-2023 5-Year Estimates. 3. Adjusted persons per housing unit multiplied by national weighted average trip rate per person. 4. Adjusted vehicles available per housing unit multiplied by national weighted average trip rate per vehicle. 5. Average trip rates based on persons and vehicles per housing unit.
0-2	6.49	11.45	8.97	
3	9.06	15.07	12.07	
4+	13.97	19.46	16.72	
Average	8.03	13.36	10.70	

Figure S2: Multi-Family Vehicle Trip Ends by Bedroom Range

Bedroom Range	Persons ¹	Vehicles Available ¹	Housing Units ¹	Housing Mix	Unadjusted PPHU	Adjusted PPHU ²	Unadjusted VPHU	Adjusted VPHU ²
0-1	258	162	208	47%	1.24	2.12	0.78	1.49
2	350	225	200	45%	1.75	2.98	1.13	2.15
3+	105	64	39	9%	2.69	4.59	1.64	3.14
Total	713	451	447	100%	1.60	2.72	1.01	1.93

National Averages According to ITE

ITE Code	AWVTE per Person	AWVTE per Vehicle	AWVTE per HU	Housing Mix
210 SFD	2.65	6.36	9.43	87%
220 Apt	1.86	5.10	6.74	13%
Wtd Avg	2.55	6.20	9.09	100%

Recommended AWVTE per Household

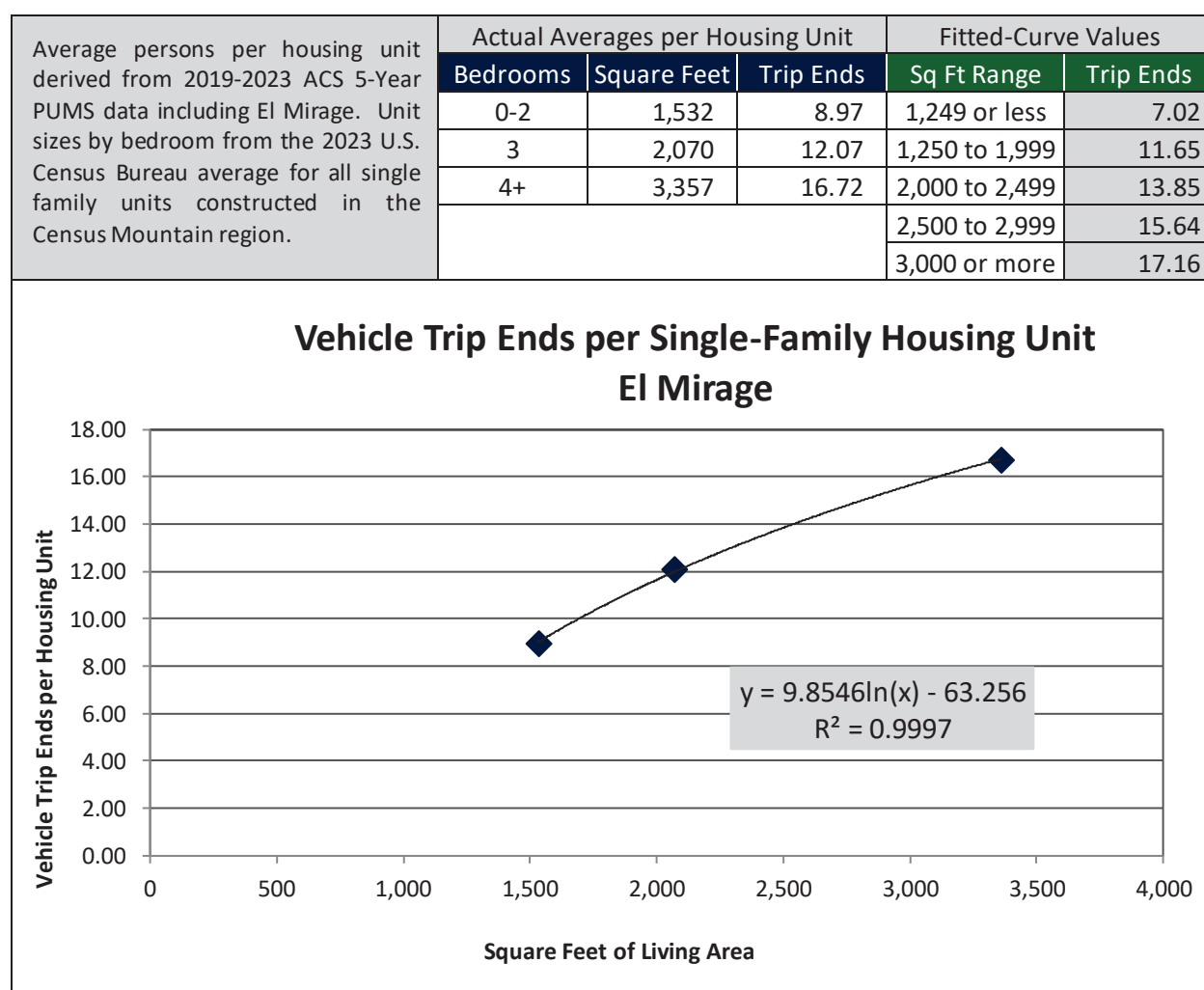
Bedroom Range	AWVTE per HU Based on Persons ³	AWVTE per HU Based on Vehicles ⁴	AWVTE per Housing Unit ⁵	
0-1	3.94	7.60	5.77	1. American Community Survey, Public Use Microdata Sample for AZ PUMA 00130 (2019-2023 5-Year unweighted data). 2. Adjusted multipliers are scaled to make the average PUMS values match control totals for El Mirage, based on American Community Survey 2019-2023 5-Year Estimates. 3. Adjusted persons per housing unit multiplied by national weighted average trip rate per person. 4. Adjusted vehicles available per housing unit multiplied by national weighted average trip rate per vehicle. 5. Average trip rates based on persons and vehicles per housing unit.
2	5.54	10.97	8.26	
3+	8.54	16.01	12.28	
Average	5.06	9.84	7.45	

Vehicle Trip Ends by Unit Type and Housing Size

To derive average weekday vehicle trip ends by dwelling size for single family units, TischlerBise uses 2023 U.S. Census Bureau data for housing units constructed in the Census Mountain region. Based on 2023 estimates, living area ranges from 1,532 square feet for single family housing units with zero to two bedrooms up to 3,357 square feet for single family housing units with four or more bedrooms.

Citywide average floor area and weekday vehicle trip ends for single family units, by bedroom range, are plotted in Figure S3 with a logarithmic trend line. TischlerBise uses the trend line formula to derive estimated trip ends, by housing unit size, for the size ranges shown below. TischlerBise recommends a minimum fee based on a unit size of 1,249 square feet and a maximum fee for units 3,000 square feet or larger for single family development.

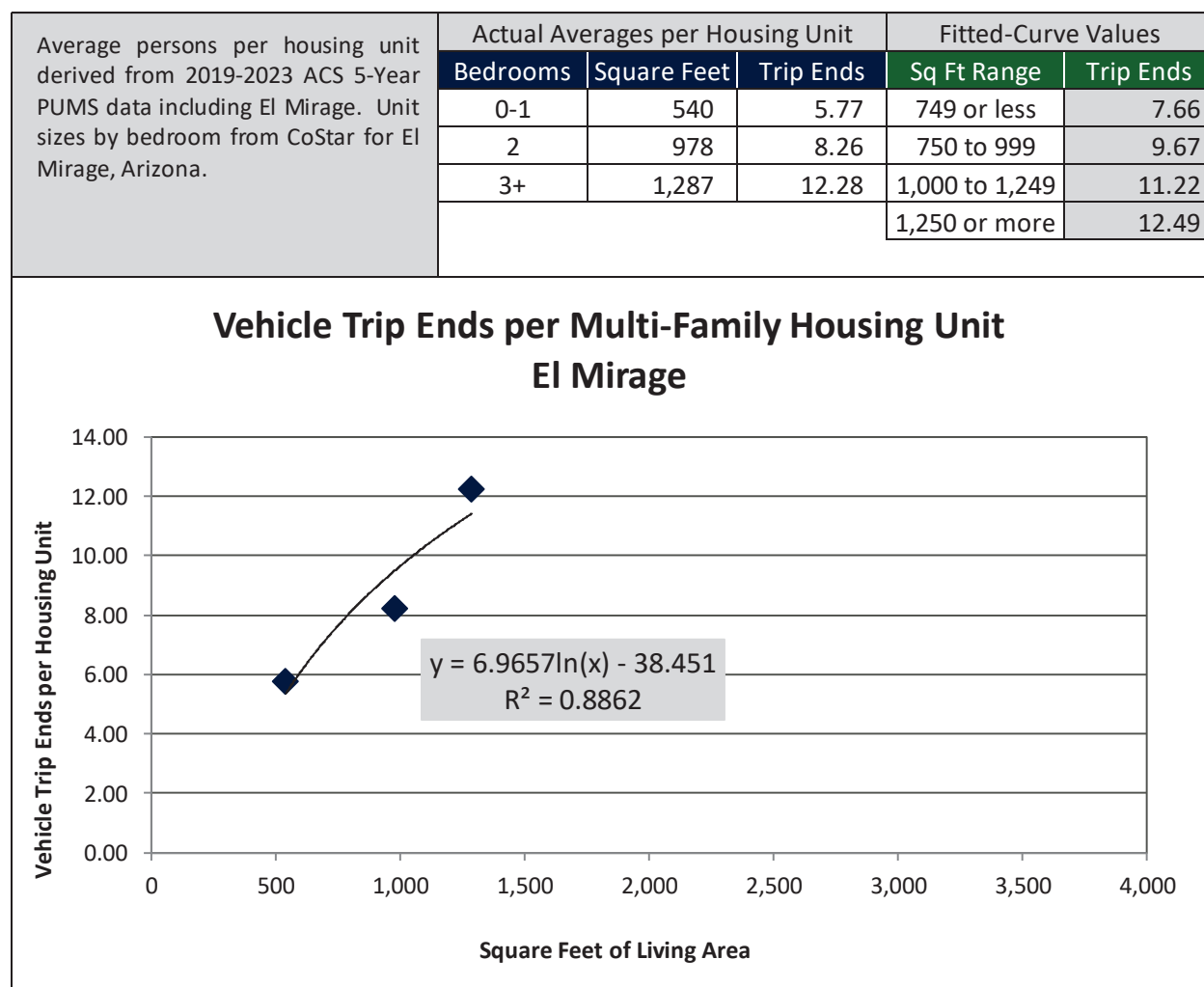
Figure S3: Single Family Vehicle Trip Ends by Housing Size



To derive average weekday vehicle trip ends by dwelling size for multi-family units, TischlerBise uses data from CoStar for housing units constructed in El Mirage. Based on current estimates, living area ranges from 540 square feet for multi-family housing units with zero to one bedroom up to 1,287 square feet for multi-family housing units with three or more bedrooms.

Citywide average floor area and weekday vehicle trip ends for multi-family units, by bedroom range, are plotted in Figure S4 with a logarithmic trend line. TischlerBise uses the trend line formula to derive estimated trip ends, by housing unit size, for the size ranges shown below. TischlerBise recommends a minimum fee based on a unit size of 749 square feet and a maximum fee for units 1,250 square feet or larger for multi-family development.

Figure S4: Multi-Family Vehicle Trip Ends by Housing Size



Residential Trip Generation Rates

For residential development, a customized trip rate is calculated for single family and multi-family units in El Mirage.

TischlerBise starts with trip generation rates published in Trip Generation, Institute of Transportation Engineers, 11th Edition (2021). For single family development, the proxy is Single Family Detached Housing (ITE 210), and this type of development generates 9.43 average weekday vehicle trip ends per housing unit. For multi-family development, the proxy is Multifamily Housing Low-Rise (ITE 220), and this type of development generates 6.74 average weekday vehicle trip ends per housing unit.

These proxies are then adjusted to local trip rates by using the most recent data from the U.S. Census Bureau American Community Survey (ACS) with equations provided by the ITE to calculate trip ends per housing unit factor. A single family unit in El Mirage is estimated to generate 10.63 average weekday vehicle trips. A multi-family unit in El Mirage is estimated to generate 8.41 average weekday vehicle trips.

Figure S5: Customized Residential Trip End Rates by Housing Type

		Households by Structure Type ²			Vehicles per HH by
Tenure by Units in Structure	Vehicles Available ¹	Single-Family	Multi-Family	Total	
Owner-Occupied	16,905	7,692	66	7,758	2.18
Renter-Occupied	6,404	2,909	469	3,378	1.90
Total	23,309	10,601	535	11,136	2.09

Units in Structure	Persons in Households ³	Trip Ends ⁴	Vehicles by Type of Unit	Trip Ends ⁵	Average Trip Ends	Housing Units ⁶	Trip Ends per Housing Unit	National Average ⁷
Single-Family	34,228	95,274	22,276	145,192	120,233	11,314	10.63	9.43
Multi-Family	1,583	5,429	1,033	4,363	4,896	582	8.41	6.74
Total	35,811	100,702	23,309	149,556	125,129	11,896	10.52	

1. Vehicles available by tenure from Table B25046, American Community Survey, 2019-2023 5-Year Estimates.

2. Households by tenure and units in structure from Table B25032, American Community Survey, 2019-2023 5-Year Estimates.

3. Total population in households from Table B25033, American Community Survey, 2019-2023 5-Year Estimates.

4. Vehicle trips ends based on persons using formulas from Trip Generation (ITE 2017). For single-family housing (ITE 210), the fitted curve equation is $EXP(0.89 * LN(persons) + 1.72)$. To approximate the average population of the ITE studies, persons were divided by 61 and the equation result multiplied by 61. For multi-family housing (ITE 220), the fitted curve equation is $(3.47 * persons) - 64.48$.

5. Vehicle trip ends based on vehicles available using formulas from Trip Generation (ITE 2017). For single-family housing (ITE 210), the fitted curve equation is $EXP(0.99 * LN(vehicles) + 1.93)$. To approximate the average number of vehicles in the ITE studies, vehicles available were divided by 87 and the equation result multiplied by 87. For multi-family housing (ITE 220), the fitted curve equation is $(3.94 * vehicles) + 293.58$.

6. Housing units from Table B25024, American Community Survey, 2019-2023 5-Year Estimates.

7. Trip Generation, Institute of Transportation Engineers, 10th Edition (2021).

Nonresidential Trip Generation Rates

For nonresidential development, TischlerBise uses trip generation rates published in Trip Generation, Institute of Transportation Engineers, 11th Edition (2021). The prototype for industrial development is Warehousing (ITE 150) which generates 1.71 average weekday vehicle trip ends per 1,000 square feet of floor area. The prototype for office development is General Office (ITE 710) which generates 10.84 average weekday vehicle trip ends per 1,000 square feet of floor area. The prototype for commercial development is Shopping Center (ITE 820) which generates 37.01 average weekday vehicle trip ends per 1,000 square feet of floor area. The prototype for institutional development is Hospital (ITE 610) which generates 10.77 average weekday vehicle trip ends per 1,000 square feet of floor area.

Figure S6: Average Weekday Vehicle Trip Ends by Land Use

ITE Code	Land Use / Size	Demand Unit	Wkdy Trip Ends Per Dmd Unit ¹	Wkdy Trip Ends Per Employee ¹	Emp Per Dmd Unit	Sq Ft Per Emp
110	Light Industrial	1,000 Sq Ft	4.87	3.10	1.57	637
130	Industrial Park	1,000 Sq Ft	3.37	2.91	1.16	864
150	Warehousing	1,000 Sq Ft	1.71	5.05	0.34	2,953
254	Assisted Living	bed	2.60	4.24	0.61	na
310	Hotel	room	7.99	14.34	0.56	na
610	Hospital	1,000 Sq Ft	10.77	3.77	2.86	350
710	General Office (avg size)	1,000 Sq Ft	10.84	3.33	3.26	307
720	Medical-Dental Office	1,000 Sq Ft	36.00	8.71	4.13	242
730	Government Office	1,000 Sq Ft	22.59	7.45	3.03	330
750	Office Park	1,000 Sq Ft	11.07	3.54	3.13	320
820	Shopping Center (avg size)	1,000 Sq Ft	37.01	17.42	2.12	471

1. Trip Generation, Institute of Transportation Engineers, 11th Edition (2021).

Trip Rate Adjustments

To calculate street facilities fees, trip generation rates require an adjustment factor to avoid double counting each trip at both the origin and destination points. Therefore, the basic trip adjustment factor is 50 percent. As discussed further in this section, the development fee methodology includes additional adjustments to make the fees proportionate to the infrastructure demand for particular types of development.

Commuter Trip Adjustment

Residential development has a larger trip adjustment factor of 68 percent to account for commuters leaving El Mirage for work. According to the 2022 National Household Travel Survey (see Table 8-2) weekday work trips are typically 36 percent of production trips (i.e., all out-bound trips, which are 50 percent of all trip ends). As shown in Figure S7, the U.S. Census Bureau's OnTheMap web application indicates 99 percent of resident workers traveled outside of El Mirage for work in 2022. In combination, these factors ($0.36 \times 0.50 \times 0.99 = 0.18$) support the additional 18 percent allocation of trips to residential development.

Figure S7: Commuter Trip Adjustment

Trip Adjustment Factor for Commuters	
Employed Residents	16,702
Residents Living and Working in El Mirage	218
Residents Commuting Outside El Mirage for Work	16,484
Percent Commuting out of El Mirage	99%
Additional Production Trips ¹	18%
Residential Trip Adjustment Factor	68%

Source: U.S. Census Bureau, OnTheMap Application (version 6.25.1) and LEHD Origin-Destination Employment

1. According to the National Household Travel Survey (2022)*, published in December 2011 (see Table 8-2), home-based work trips are typically 36.00 percent of "production" trips, in other words, out-bound trips (which are 50 percent of all trip ends). Also, LED OnTheMap data from 2022 indicate that 99 percent of El Mirage's workers travel outside the city for work. In combination, these factors ($0.360 \times 0.50 \times 0.99 = 0.18$) account for 18 percent of additional production trips. The total adjustment factor for residential includes attraction trips (50 percent of trip ends) plus the journey-to-work commuting adjustment (18 percent of production trips) for a total of 68 percent.

*<http://nhts.ornl.gov/publications.shtml> ; Summary of Travel Trends - Table "Daily Travel Statistics by Weekday vs. Weekend"

Adjustment for Pass-By Trips

For commercial development, the trip adjustment factor is less than 50 percent because this type of development attracts vehicles as they pass by on arterial and collector roads. For example, when someone stops at a convenience store on the way home from work, the convenience store is not the primary destination. For the average shopping center, ITE data indicate 34 percent of the vehicles that enter are passing by on their way to some other primary destination. The remaining 66 percent of attraction trips have the commercial site as their primary destination. Because attraction trips are half of all trips, the trip adjustment factor is 66 percent multiplied by 50 percent, or approximately 33 percent of the trip ends.

Average Weekday Vehicle Trips

Shown below in Figure S8, multiplying average weekday vehicle trip ends and trip adjustment factors by El Mirage's existing development units provides the average weekday vehicle trips generated by existing development. As shown below, El Mirage's existing development generates 102,578 vehicle trips on an average weekday.

Figure S8: Average Weekday Vehicle Trips by Land Use

Development Type	Dev Unit	ITE Code	Avg Wkday VTE	Trip Adjustment	2025 Dev Units	2025 Veh Trips
Single Family	HU	210	10.63	68%	11,766	85,050
Multi-Family	HU	220	8.41	68%	606	3,467
Industrial	KSF	150	1.71	50%	1,406	1,202
Commercial	KSF	820	37.01	33%	593	7,247
Office & Other Services	KSF	710	10.84	50%	162	876
Institutional	KSF	610	10.77	50%	879	4,736
Total						102,578

ANALYSIS OF CAPACITY, USAGE, AND COSTS OF EXISTING PUBLIC SERVICES

ARS § 9-463.05(E)(1) requires:

“A description of the existing necessary public services in the service area and the costs to upgrade, update, improve, expand, correct or replace those necessary public services to meet existing needs and usage and stricter safety, efficiency, environmental or regulatory standards, which shall be prepared by qualified professionals licensed in this state, as applicable.”

ARS § 9-463.05(E)(2) requires:

“An analysis of the total capacity, the level of current usage and commitments for usage of capacity of the existing necessary public services, which shall be prepared by qualified professionals licensed in this state, as applicable.”

The City of El Mirage has recently constructed street facilities in order to expand the level of service to meet 2035 demand. Figure S9 shows these projects, their new capacities in lane miles, and their associated costs.

Figure S9: Street Expansion Projects

Description	Cost	Lane Miles
El Mirage & Thunderbird	\$8,681,574	23.0
Dysart & Olive	\$11,368,357	5.0
Northern Pkwy	\$3,500,000	3.5
Total	\$23,549,931	31.5

Arterial Improvements – Cost Recovery

El Mirage has constructed additional arterial improvements that will serve both future and current development. The City of El Mirage provided construction cost estimates representative of future growth-related arterial improvements.

The total cost of these projects was \$23,549,931. Some funds were contributed by previous developers for these projects, so these costs must be removed to determine the eligible cost that can be used in determining the level of service. The eligible cost of these projects is \$19,804,886 (\$23,549,931 total cost - \$3,745,045 developer payment). El Mirage plans for these street projects to provide capacity through 2035 by having added 31.5 lane miles of capacity. This results in a cost per lane mile of \$628,727 (\$19,804,886 eligible cost / 31.5 lane miles). The total cost of the streets are allocated to all development within El Mirage in 2035.

The planned level of service is determined by dividing the constructed lane miles by the total amount of projected vehicle trips in 2035 (see Figure L21), this results in a LOS of 0.2564 lane miles per thousand vehicle trips (31.5 lane miles / 122,847 vehicle trips / 1,000). Costs per vehicle trip are then determined by multiplying our level of service by our eligible cost per lane mile. This results in a cost of \$161.22 per vehicle trip (0.2564 lane miles per thousand vehicle trips X \$628,727 per lane mile / 1,000).

Figure S10: Transportation Cost Factors

Cost Factors	
Total Cost	\$23,549,931
Microsoft Net Payment	(\$3,500,000)
TI Cold Net Payment	(\$245,045)
Eligible Cost	\$19,804,886
Lane Miles	31.5
Eligible Cost per Lane Mile	\$628,727

Level-of-Service (LOS) Standards	
2035 Vehicle Trips	122,847
Lane Miles per Thousand Vehicle Trips	0.2564
Cost per Vehicle Trip	\$161.22

Development Fee Report – Plan Based

The 2025 cost to prepare the Street Facilities IIP and related development fee report equals \$19,264. El Mirage plans to update its report every five years. Based on the 5-year cost and 5-year projections of future development from the *Land Use Assumptions* document, the cost per service unit is \$1.35 vehicle trip.

Figure S11: IIP and Development Fee Report

Necessary Public Service	Cost	Proportionate Share		Service Unit	2025	2030	5-Year Change	Cost per Service Unit
Fire	\$19,264	Residential	86%	Population	37,300	37,800	500	\$33.13
		Nonresidential	14%	Vehicle Trips	14,061	27,221	13,160	\$0.20
Wastewater	\$19,264	All Development	100%	ADG	2,334,186	2,530,675	196,489	\$0.10
Parks and Recreation	\$19,264	Residential	99%	Population	37,300	37,800	500	\$38.14
		Nonresidential	1%	Jobs	3,908	7,873	3,965	\$0.05
Police	\$19,264	Residential	86%	Population	37,300	37,800	500	\$33.13
		Nonresidential	14%	Vehicle Trips	14,061	27,221	13,160	\$0.20
Street	\$19,264	All Development	100%	Vehicle Trips	102,578	116,803	14,225	\$1.35
Total	\$96,320							

PROJECTED DEMAND FOR SERVICES AND COSTS

ARS § 9-463.05(E)(5) requires:

“The total number of projected service units necessitated by and attributable to new development in the service area based on the approved land use assumptions and calculated pursuant to generally accepted engineering and planning criteria.”

ARS § 9-463.05(E)(6) requires:

“The projected demand for necessary public services or facility expansions required by new service units for a period not to exceed ten years.”

As shown in the *Land Use Assumptions* document, 10-year projected growth includes 327 new housing units and 5,304,000 square feet of nonresidential floor area. Based on the trip generation factors discussed in this section, projected development generates an additional 20,269 vehicle trips over the next 10 years. Shown below in Figure S12, El Mirage will have met the demand of new development in 2035 through their construction of the 31.5 lane miles, new development generated the demand for 5.2 of these lane miles (growth related cost is \$3,267,728) over the next 10 years.

Figure S12: Projected Travel Demand

Type of Infrastructure	Level of Service	Demand Unit	Cost per Unit
Streets	0.2564 Lane Miles	per Thousand Vehicle Trips	\$628,727

Demand for Streets					
Year	Residential Vehicle Trips	Nonresidential Vehicle Trips	Lane Miles		
			Residential	Nonresidential	Total
2025	88,516	14,061	22.7	3.6	26.3
2026	88,943	16,012	22.8	4.1	26.9
2027	88,943	18,255	22.8	4.7	27.5
2028	89,156	20,836	22.9	5.3	28.2
2029	89,369	23,805	22.9	6.1	29.0
2030	89,582	27,221	23.0	7.0	30.0
2031	89,582	28,185	23.0	7.2	30.2
2032	90,009	29,185	23.1	7.5	30.6
2033	90,435	30,222	23.2	7.7	30.9
2034	90,435	31,297	23.2	8.0	31.2
2035	90,435	32,412	23.2	8.3	31.5
10-Yr Increase	1,918	18,351	0.5	4.7	5.2

Growth-Related Expenditures	\$309,285	\$2,958,443	\$3,267,728
Existing Development Expenditures			\$16,537,157
Total Expenditures			\$19,804,886

STREET FACILITIES DEVELOPMENT FEES

Streets Bond Credit/Offset

El Mirage issued debt to fund construction of police facilities as part of the 2022 bond series. A credit is necessary since future development will pay the development fee and may also contribute to future bond payments through tax revenues. A credit is necessary for interest payments because development fee calculations include interest costs.

The analysis divides annual bond payments by vehicle trips. For example, the 2026 bond payment is \$2.23 per vehicle trip (\$234,473 bond payment / 104,955 vehicle trips). To account for the time value of money, the analysis discounts annual payments per vehicle trip based on the bond interest rate of 4.00 percent. The total net present value of future bond payments is \$23.14 per vehicle trip.

Figure S13: Bond Credit

Streets Share of Series 2022 Bonds			
Fiscal Year	Annual Debt Service	Vehicle Trips	Payment per Veh Trip
2025	\$0	102,578	\$0.00
2026	\$234,473	104,955	\$2.23
2027	\$234,473	107,198	\$2.19
2028	\$234,473	109,992	\$2.13
2029	\$234,473	113,175	\$2.07
2030	\$234,473	116,803	\$2.01
2031	\$234,473	117,768	\$1.99
2032	\$234,473	119,194	\$1.97
2033	\$234,473	120,657	\$1.94
2034	\$234,473	121,732	\$1.93
2035	\$234,473	122,847	\$1.91
2036	\$234,473	124,216	\$1.89
2037	\$234,473	125,628	\$1.87
2038	\$234,473	126,871	\$1.85
2039	\$234,473	128,160	\$1.83
2040	\$234,473	129,496	\$1.81
2041	\$234,473	130,021	\$1.80
2042	\$234,473	130,554	\$1.80
2043	\$0	131,094	\$0.00
2044	\$0	131,642	\$0.00
2045	\$0	132,197	\$0.00
Total	\$3,986,040		\$33.21

Rate	4.00%	Credit per Vehicle Trip	\$23.14
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Street Facilities Development Fees

Figure S14 includes infrastructure components and cost factors for street facilities development fees. The cost per service unit is \$139.43 per vehicle trip.

Residential development fees are calculated per housing unit, based on unit size and unit type, and vary proportionately according to the amount of vehicle trips per housing unit. For a single family residential unit with 2,200 square feet, the fee of \$1,313 is calculated using a cost of \$139.43 per vehicle trip multiplied by 9.42 vehicle trips per housing unit.

Nonresidential development fees are calculated per development unit and vary proportionately according to the amount of vehicle trips. For industrial development, the fee of \$120 per development unit (thousand square feet) is calculated using a cost of \$139.43 per vehicle trip multiplied by 0.86 vehicle trips per development unit.

Figure S14: Street Facilities Development Fees

Fee Component	Cost per Trip
Bond Credit	(\$23.14)
Streets	\$161.22
Development Fee Report	\$1.35
Total	\$139.43

Residential Fees per Unit			
Development Type	Development Unit	Avg Wkdy Vehicle Trips ¹	Proposed Fees
Single Family			
1,249 or less	Housing Unit	4.77	\$666
1,250 to 1,999	Housing Unit	7.92	\$1,105
2,000 to 2,499	Housing Unit	9.42	\$1,313
2,500 to 2,999	Housing Unit	10.64	\$1,483
3,000 or more	Housing Unit	11.67	\$1,627
Multi-Family			
749 or less	Housing Unit	5.21	\$726
750 to 999	Housing Unit	6.58	\$917
1,000 to 1,249	Housing Unit	7.63	\$1,064
1,250 or more	Housing Unit	8.49	\$1,184

Nonresidential Fees per 1,000 Square Feet			
Development Type	Development Unit	Avg Wkdy Vehicle Trips ¹	Proposed Fees
Industrial	1,000 Sq Ft	0.86	\$120
Commercial	1,000 Sq Ft	12.21	\$1,702
Office & Other Services	1,000 Sq Ft	5.42	\$756
Institutional	1,000 Sq Ft	5.39	\$752

1. See Land Use Assumptions

STREET FACILITIES DEVELOPMENT FEE REVENUE

Appendix A contains revenue forecasts required by Arizona's Enabling Legislation (ARS § 9-463.05(E)(7)). Projected fee revenue shown in Figure S15 is based on the development projections in the *Land Use Assumptions* document and the updated street facilities development fees. If development occurs faster than projected, the demand for infrastructure will increase along with development fee revenue. If development occurs slower than projected, the demand for infrastructure will decrease and development fee revenue will decrease at a similar rate. Projected development fee revenue equals \$2,873,580 and projected expenditures equal \$19,824,150.

Figure S15: Street Facilities Development Fee Revenue

Fee Component	Growth Share	Existing Share	Total
Streets	\$3,267,728	\$16,537,157	\$19,804,886
Development Fee Report	\$19,264	\$0	\$19,264
Total	\$3,286,992	\$16,537,157	\$19,824,150

		Single Family* \$1,313 per unit	Multi-Family** \$917 per unit	Industrial \$120 per 1,000 sq ft	Commercial \$1,702 per 1,000 sq ft	Office \$756 per 1,000 sq ft	Institutional \$752 per 1,000 sq ft
Year		Hsg Unit	Hsg Unit	KSF	KSF	KSF	KSF
Base	2025	11,766	606	1,406	593	162	879
Year 1	2026	11,773	672	1,812	704	162	927
Year 2	2027	11,773	672	2,279	831	162	982
Year 3	2028	11,776	705	2,816	976	162	1,045
Year 4	2029	11,780	738	3,434	1,144	162	1,117
Year 5	2030	11,783	771	4,145	1,337	162	1,201
Year 6	2031	11,783	771	4,345	1,392	162	1,224
Year 7	2032	11,790	837	4,553	1,448	162	1,249
Year 8	2033	11,797	903	4,769	1,507	162	1,274
Year 9	2034	11,797	903	4,993	1,568	162	1,301
Year 10	2035	11,797	903	5,225	1,631	162	1,328
10-Year Increase		31	297	3,819	1,038	0	448
Projected Revenue		\$40,115	\$272,210	\$458,229	\$1,765,864	\$0	\$337,162

* Using the fee for a single family unit between 2,000 and 2,499 square feet

** Using the fee for a multi-family unit between 750 and 999 square feet

Projected Fee Revenue	\$2,873,580
Total Expenditures	\$19,824,150

WASTEWATER FACILITIES IIP

ARS § 9-463.05 (T)(7)(b) defines the eligible facilities and assets for the Wastewater Facilities IIP:

“Wastewater facilities, including collection, interception, transportation, treatment and disposal of wastewater, and any appurtenances for those facilities.”

The Wastewater Facilities IIP includes components for wastewater treatment, managed system recharge, collection, and the cost of preparing the Wastewater Facilities IIP and related Development Fee Report. The cost recovery methodology is used for wastewater treatment and the plan-based methodology is used for managed system recharge, collection, and the Development Fee Report.

PROPORTIONATE SHARE

ARS § 9-463.05 (B)(3) states that the development fee shall not exceed a proportionate share of the cost of necessary public services needed to accommodate new development. The Wastewater Facilities IIP and development fees will allocate the cost of necessary public services between both residential and nonresidential development using average day flow factors.

SERVICE AREA

El Mirage provides a wastewater network within the city limits; therefore, there is a citywide service area for the Wastewater Facilities IIP.

RATIO OF SERVICE UNITS TO DEVELOPMENT UNITS

ARS § 9-463.05(E)(4) requires:

“A table establishing the specific level or quantity of use, consumption, generation or discharge of a service unit for each category of necessary public services or facility expansions and an equivalency or conversion table establishing the ratio of a service unit to various types of land uses, including residential, commercial and industrial.”

According to City of El Mirage Design Standards, average day flow is 80 gallons per capita. El Mirage will assess wastewater development fees per meter, by meter size, for new development. The analysis uses average day flow from a single family unit of 179 gallons per day (1,876,507 residential ADG / 10,475 residential accounts) as the flow factor for a 0.75-inch meter. For larger meters, average day flow is calculated by multiplying average day flow from the base meter by the capacity ratio for the corresponding meter size. The capacity ratios are calculated based on data published in *AWWA Manual of Water Supply Practices M-1, 7th Edition*.

Figure WW1: Wastewater Ratio of Service Unit to Development Unit

Gallons per Development Unit			
Meter Size	Development Unit	Capacity Ratio ¹	Average Day Gallons (ADG)
0.75-inch	Meter	1.00	179
1.00-inch	Meter	1.67	299
1.50-inch	Meter	3.33	596
2.00-inch	Meter	5.33	954
3.00-inch	Meter	10.67	1,910
4.00-inch	Meter	16.67	2,984
6.00-inch	Meter	33.33	5,966
8.00-inch	Meter	53.33	9,546

1. AWWA Manual of Water Supply Practices M-1, 7th Edition

ANALYSIS OF CAPACITY, USAGE, AND COSTS OF EXISTING PUBLIC SERVICES

ARS § 9-463.05(E)(2) requires:

“An analysis of the total capacity, the level of current usage and commitments for usage of capacity of the existing necessary public services, which shall be prepared by qualified professionals licensed in this state, as applicable.”

Existing Flow

Based on conversations with City staff, average day flow from El Mirage’s wastewater customers is 2,605,296 gallons in 2024.

Figure WW2: Existing Flow

Customer Type	Annual Gallons	Average Day Gallons
Residential	684,925,055	1,876,507
Nonresidential	266,007,985	728,789
Total	950,933,040	2,605,296

Equalization Basin – Plan Based

El Mirage plans to construct collection system improvements to serve future development during the next 10 years. Dividing the total cost of \$5,000,000 by the capacity increase of 800,000 gallons yields a cost of \$6.25 per gallon. El Mirage will assess this component of the fee to future development.

Figure WW3: Cost Factors

Wastewater Treatment	
Equalization Basin	\$5,000,000
Total Cost	\$5,000,000
Total Capacity (ADG)	800,000
Cost per Gallon	\$6.25

Development Fee Report – Plan-Based

The 2025 cost to prepare the Wastewater Facilities IIP and related development fee report equals \$19,264. El Mirage plans to update its report every five years. Based on the 5-year cost and 5-year projections of future development from the *Land Use Assumptions* document, the cost per service unit is \$0.10 per gallon.

Figure WW4: IIP and Development Fee Report

Necessary Public Service	Cost	Proportionate Share		Service Unit	2025	2030	5-Year Change	Cost per Service Unit
Fire	\$19,264	Residential	86%	Population	37,300	37,800	500	\$33.13
		Nonresidential	14%	Vehicle Trips	14,061	27,221	13,160	\$0.20
Wastewater	\$19,264	All Development	100%	ADG	2,334,186	2,530,675	196,489	\$0.10
Parks and Recreation	\$19,264	Residential	99%	Population	37,300	37,800	500	\$38.14
		Nonresidential	1%	Jobs	3,908	7,873	3,965	\$0.05
Police	\$19,264	Residential	86%	Population	37,300	37,800	500	\$33.13
		Nonresidential	14%	Vehicle Trips	14,061	27,221	13,160	\$0.20
Street	\$19,264	All Development	100%	Vehicle Trips	102,578	116,803	14,225	\$1.35
Total	\$96,320							

PROJECTED DEMAND FOR SERVICES AND COSTS

ARS § 9-463.05(E)(1) requires:

“A description of the existing necessary public services in the service area and the costs to upgrade, update, improve, expand, correct or replace those necessary public services to meet existing needs and usage and stricter safety, efficiency, environmental or regulatory standards, which shall be prepared by qualified professionals licensed in this state, as applicable.”

ARS § 9-463.05(E)(5) requires:

“The total number of projected service units necessitated by and attributable to new development in the service area based on the approved land use assumptions and calculated pursuant to generally accepted engineering and planning criteria.”

ARS § 9-463.05(E)(6) requires:

“The projected demand for necessary public services or facility expansions required by new service units for a period not to exceed ten years.”

Projected Flow

Shown below, Figure WW6 includes projected average day flow over the next 10 years. To project future wastewater flow, the analysis uses average daily gallons (ADG) per person data from the City and converts this into ADG per development unit for both residential and nonresidential development. Figure WW5 shows the ADG per development unit for residential and nonresidential development.

Figure WW5: Average Daily Gallons per Development Unit

Gallons per Capita per Day
59.1

Residential			
Development Type	Development Unit	PPHU ¹	Gallons per Unit per Day
Single Family	Housing Unit	3.03	179
Multi-Family	Housing Unit	2.72	161

Nonresidential				
Development Type	Development Unit	EDU Factor ²	Adjustment Factor ²	Gallons per Unit per Day
Commercial	1,000 Square Feet	0.59	2.61	40
Industrial	1,000 Square Feet	0.65	2.61	45
Institutional	1,000 Square Feet	0.67	2.61	46
Office	1,000 Square Feet	0.32	2.61	22

1. See Land Use Assumptions.

2. City of Phoenix Equivalent Demand Unit Study, 2024.

Average day flow equals 2,334,186 gallons at current and is projected to increase to 2,620,164 gallons by 2025. The difference between these figures, 285,979 gallons, represents the additional average day flow generated by future development during the next 10 years.

Figure WW6: Projected Flow

Demand for Wastewater Treatment					
Year	Housing Units	1,000 Square Feet	Average Daily Gallons		
			Residential	Nonresidential	Total
2025	12,372	3,041	2,203,531	130,654	2,334,186
2026	12,445	3,604	2,215,347	155,398	2,370,744
2027	12,445	4,253	2,215,347	183,862	2,399,208
2028	12,481	4,999	2,221,254	216,606	2,437,860
2029	12,518	5,857	2,227,162	254,273	2,481,435
2030	12,554	6,845	2,233,069	297,605	2,530,675
2031	12,554	7,123	2,233,069	309,840	2,542,909
2032	12,627	7,412	2,244,884	322,527	2,567,411
2033	12,700	7,712	2,256,700	335,681	2,592,381
2034	12,700	8,023	2,256,700	349,321	2,606,021
2035	12,700	8,345	2,256,700	363,465	2,620,164
10-Yr Increase	327	5,304	53,168	232,811	285,979

WASTEWATER FACILITIES DEVELOPMENT FEES

Wastewater Facilities Development Fees

Figure WW7 includes infrastructure components and cost factors for wastewater facilities development fees in El Mirage. The cost per service unit is \$6.35 per gallon.

Development fees are calculated per meter, based on meter size. The base 0.75-inch meter is equivalent to a single-family unit (3.03 persons per household X 59.1 gallons per person = 179 average day gallons), and a capacity ratio is used to convert the base meter fee proportionately for larger meters. The capacity ratios are calculated based on data published in *AWWA Manual of Water Supply Practices M-1, 7th Edition*. For example, the 0.75-inch fee of \$1,137 is calculated using a cost per service unit of \$6.35 per gallon, multiplied by 179 average day gallons, multiplied by a capacity ratio of 1.00. The 1.00-inch fee of \$1,898 is calculated using a cost per service unit of \$6.35 per gallon, multiplied by 179 average day gallons, multiplied by a capacity ratio of 1.67.

Figure WW7: Wastewater Facilities Development Fees

Fee Component	Cost per Gallon
Equalization Basin	\$6.25
Development Fee Report	\$0.10
Total	\$6.35

Demand Indicator	
Single Family Gallons per Day ¹	179

Fees per Meter		
Meter Size	Capacity Ratio ²	Proposed Fees
0.75-inch	1.00	\$1,137
1.00-inch	1.67	\$1,898
1.50-inch	3.33	\$3,785
2.00-inch	5.33	\$6,058
3.00-inch	10.67	\$12,128
4.00-inch	16.67	\$18,948
6.00-inch	33.33	\$37,885
8.00-inch	53.33	\$60,618

1. See Figure WW5

2. AWWA Manual of Water Supply Practices M-1, 7th Edition

WASTEWATER FACILITIES DEVELOPMENT FEE REVENUE

Appendix A contains revenue forecasts required by Arizona’s Enabling Legislation (ARS § 9-463.05(E)(7)). Projected fee revenue shown in Figure WW8 is based on average day flow projections and the proposed wastewater facilities development fees. If development occurs faster than projected, the demand for infrastructure will increase along with development fee revenue. If development occurs slower than projected, the demand for infrastructure will decrease and development fee revenue will decrease at a similar rate. Projected development fee revenue equals \$1,815,966 and projected expenditures equal \$5,019,264. Development fee revenue may differ from the projections shown below based on the actual meter size and type of new development meters.

Figure WW8: Wastewater Facilities Development Fees Revenue

Fee Component		Cost
Equalization Basin		\$5,000,000
Development Fee Report		\$19,264
Total		\$5,019,264

Year		Fee \$6.35 per gallon
		Gallons
Base	2025	2,334,186
Year 1	2026	2,370,744
Year 2	2027	2,399,208
Year 3	2028	2,437,860
Year 4	2029	2,481,435
Year 5	2030	2,530,675
Year 6	2031	2,542,909
Year 7	2032	2,567,411
Year 8	2033	2,592,381
Year 9	2034	2,606,021
Year 10	2035	2,620,164
10-Year Increase		285,979
Projected Revenue		\$1,815,966

Projected Fee Revenue	\$1,815,966
Total Expenditures	\$5,019,264

APPENDIX A: FORECAST OF REVENUES OTHER THAN FEES

ARS § 9-463.05(E)(7) requires:

“A forecast of revenues generated by new service units other than development fees, which shall include estimated state-shared revenue, highway users revenue, federal revenue, ad valorem property taxes, construction contracting or similar excise taxes and the capital recovery portion of utility fees attributable to development based on the approved land use assumptions, and a plan to include these contributions in determining the extent of the burden imposed by the development as required in subsection B, paragraph 12 of this section.”

ARS § 9-463.05(B)(12) states,

“The municipality shall forecast the contribution to be made in the future in cash or by taxes, fees, assessments or other sources of revenue derived from the property owner towards the capital costs of the necessary public service covered by the development fee and shall include these contributions in determining the extent of the burden imposed by the development. Beginning August 1, 2014, for purposes of calculating the required offset to development fees pursuant to this subsection, if a municipality imposes a construction contracting or similar excise tax rate in excess of the percentage amount of the transaction privilege tax rate imposed on the majority of other transaction privilege tax classifications, the entire excess portion of the construction contracting or similar excise tax shall be treated as a contribution to the capital costs of necessary public services provided to development for which development fees are assessed, unless the excess portion was already taken into account for such purpose pursuant to this subsection.”

REVENUE PROJECTIONS

El Mirage does not have a higher-than-normal construction excise tax rate; therefore, the required offset described above is not applicable. Shown in Figure A1 is the required forecast of non-development fee revenue from identified sources that can be attributed to future development over a period of five years. These funds are available for capital investments; however, the City of El Mirage directs these revenues to non-development fee eligible capital needs including maintenance, repair, and replacement.

Figure A1: Revenue Projections

Source	Forecast Years				
	FY25-26	FY26-27	FY27-28	FY28-29	FY29-30
Taxes	\$20,326,000	\$20,783,335	\$21,250,960	\$21,729,107	\$22,218,012
Licenses and Permits	\$1,145,000	\$1,170,763	\$1,197,105	\$1,224,040	\$1,251,580
Intergovernmental	\$14,599,000	\$14,927,478	\$15,263,346	\$15,606,771	\$15,957,923
Grants	\$75,000	\$76,688	\$78,413	\$80,177	\$81,981
Charges for Services	\$3,800,000	\$3,885,500	\$3,972,924	\$4,062,315	\$4,153,717
Fines and Forfeitures	\$20,000	\$20,450	\$20,910	\$21,381	\$21,862
Miscellaneous	\$3,715,000	\$3,798,588	\$3,884,056	\$3,971,447	\$4,060,805
Subtotal, General Fund	\$43,680,000	\$44,662,800	\$45,667,713	\$46,695,237	\$47,745,879

Source: City of El Mirage Finance Department.

APPENDIX B: PROFESSIONAL SERVICES

As stated in Arizona’s development fee enabling legislation, “a municipality may assess development fees to offset costs to the municipality associated with providing necessary public services to a development, including the costs of infrastructure, improvements, real property, engineering and architectural services, financing and professional services required for the preparation or revision of a development fee pursuant to this section, including the relevant portion of the infrastructure improvements plan” (see ARS § 9-463.05.A). Because development fees must be updated at least every five years, the cost of professional services is allocated to the projected increase in service units, over five years (see Figure B1). Qualified professionals must develop the IIP, using generally accepted engineering and planning practices. A qualified professional is defined as “a professional engineer, surveyor, financial analyst or planner providing services within the scope of the person's license, education or experience”.

Figure B1: Cost of Professional Services

Necessary Public Service	Cost	Proportionate Share		Service Unit	2025	2030	5-Year Change	Cost per Service Unit
Fire	\$19,264	Residential	86%	Population	37,300	37,800	500	\$33.13
		Nonresidential	14%	Vehicle Trips	14,061	27,221	13,160	\$0.20
Wastewater	\$19,264	All Development	100%	ADG	2,334,186	2,530,675	196,489	\$0.10
Parks and Recreation	\$19,264	Residential	99%	Population	37,300	37,800	500	\$38.14
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Police	\$19,264	Residential	86%	Population	37,300	37,800	500	\$33.13
		Nonresidential	14%	Vehicle Trips	14,061	27,221	13,160	\$0.20
Street	\$19,264	All Development	100%	Vehicle Trips	102,578	116,803	14,225	\$1.35
Total	\$96,320							

APPENDIX C: LAND USE DEFINITIONS

RESIDENTIAL DEVELOPMENT

The residential development categories shown below are based on data from the U.S. Census Bureau, American Community Survey. Development fees will be assessed to all new residential units. One-time development fees are determined by site capacity (i.e., number of residential units).

Single Family: includes fully detached, semi-detached (semi-attached, side-by-side), row house, townhouse, and mobile home units. In the case of attached units, each must be separated from the adjacent unit by a ground-to-roof wall in order to be classified as a single-family structure. Also, these units must not share heating/air-conditioning systems or utilities.

Multi-Family: includes residential buildings containing units built one on top of another and those built side-by-side which do not have a ground-to-roof wall and/or have common facilities (i.e., attic, basement, heating plant, plumbing, etc.) and any living quarters occupied as a housing unit that does not fit the other categories (e.g., houseboats, RVs, campers, vans, etc.).

NONRESIDENTIAL DEVELOPMENT

The proposed general nonresidential development categories (defined below) can be used for all new construction. Nonresidential development categories represent general groups of land uses that share similar average weekday vehicle trip generation rates and employment densities (i.e., jobs per thousand square feet of floor area).

Commercial: Establishments primarily selling merchandise, eating/drinking places, entertainment, and lodging uses. By way of example, commercial includes shopping centers, supermarkets, pharmacies, restaurants, bars, nightclubs, automobile dealerships, and movie theaters.

Industrial: Establishments primarily engaged in the processing or production of goods, along with warehousing, transportation, communications, and utilities. By way of example, industrial includes manufacturing plants, warehouses, trucking companies, utility substations, power generation facilities, data centers, and telecommunications buildings.

Office and Other Services: Establishments providing management, administrative, professional, or business services; personal and health care services. By way of example, office and other services includes offices, health care, and business services.

Institutional: Public and quasi-public buildings providing educational, social assistance, or religious services. By way of example, institutional includes schools, universities, churches, hospitals, and public buildings.