DRAFT

Land Use Assumptions, Infrastructure Improvements Plan and Development Fee Report

Prepared for:
City of Maricopa, Arizona

July 29, 2019

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EXECUTIVE SUMMARY

The City of Maricopa hired TischlerBise to document land use assumptions, prepare an Infrastructure Improvements Plan (hereinafter referred to as the "IIP"), and update development fees pursuant to Arizona Revised Statutes ("ARS") § 9-436.05 (hereinafter 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 IIPs for each type of infrastructure are located in each infrastructure type's corresponding section, and the Land Use Assumptions can be found in Appendix A. The proposed development fees are displayed in the Development Fee Report chapter.

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 the City's Infrastructure Improvements Plan and associated update to its development fees includes the following necessary public services:

- Parks and Recreational Facilities
- Library Facilities
- Police Facilities
- Fire Facilities
- Street Facilities

This plan also includes all necessary elements required to be in full compliance with SB 1525. It should be noted that this Infrastructure Improvements Plan and Development Fee study does not include storm water, drainage or flood control facilities.

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, drainage, flood control, library, streets, fire and police, and neighborhood parks and recreation. Additionally, a necessary public service includes any facility, not included in the aforementioned categories (e.g., general government facilities), 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:

- 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.
- 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.
- 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.
- 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.
- 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.
- The projected demand for necessary public services or facility expansions required by new service units for a period not to exceed 10 years.
- A forecast of revenues generated by new service units other than development fees, which shall include estimated state-shared revenue, highway user 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 and is licensed to do business in Arizona. 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 900 development fee studies over the past 40 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 standards, sometimes referred to as LOS. 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 improvements.

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.

DEVELOPMENT FEE REPORT

METHODOLOGY

Development fees for the necessary public services made necessary by new development must be based on the same level-of-service 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 method has advantages and disadvantages in a particular situation and can be used simultaneously for different cost components. Additionally, development fees for public services can also include the cost of professional services for preparing IIP's and the related Development Fee report.

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 methods for calculating development fees and how those methods 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 method documents current level-of-service 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 method 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).

A summary is provided in Figure 1 showing the methodology for each of the facility and fee study types, as well as the service area and cost allocation method used to develop the IIP and calculate the development fees.

Figure 1: Recommended Calculation Methodologies

Category	Cost Recovery (past)	Incremental Expansion (present)	Plan-Based (future)	Service Areas	Cost Allocation
Parks & Recreation	N/A	Amenities, Trails	Fee Study	Citywide	Population, Jobs
Libraries	N/A	Library Facilities	Fee Study	Citywide	Population, Jobs
Police	N/A	Police Facilities, Vehicles and Equipment	Fee Study	Citywide	Population, Vehicle Trips
Fire	N/A	Station Space and Apparatus	Administration Building, Fee Study	North/South Maricopa	Population, Vehicle Trips
Streets	N/A	Arterial Street Improvements	Fee Study	Citywide	Vehicle Miles of Travel

Rounding

A note on rounding: Calculations throughout this report are based on an analysis conducted using Excel software. Most results are discussed in the report using three, four, and five-digit 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).

SERVICE AREAS

ARS 9-63.05 defines "service area" as follows:

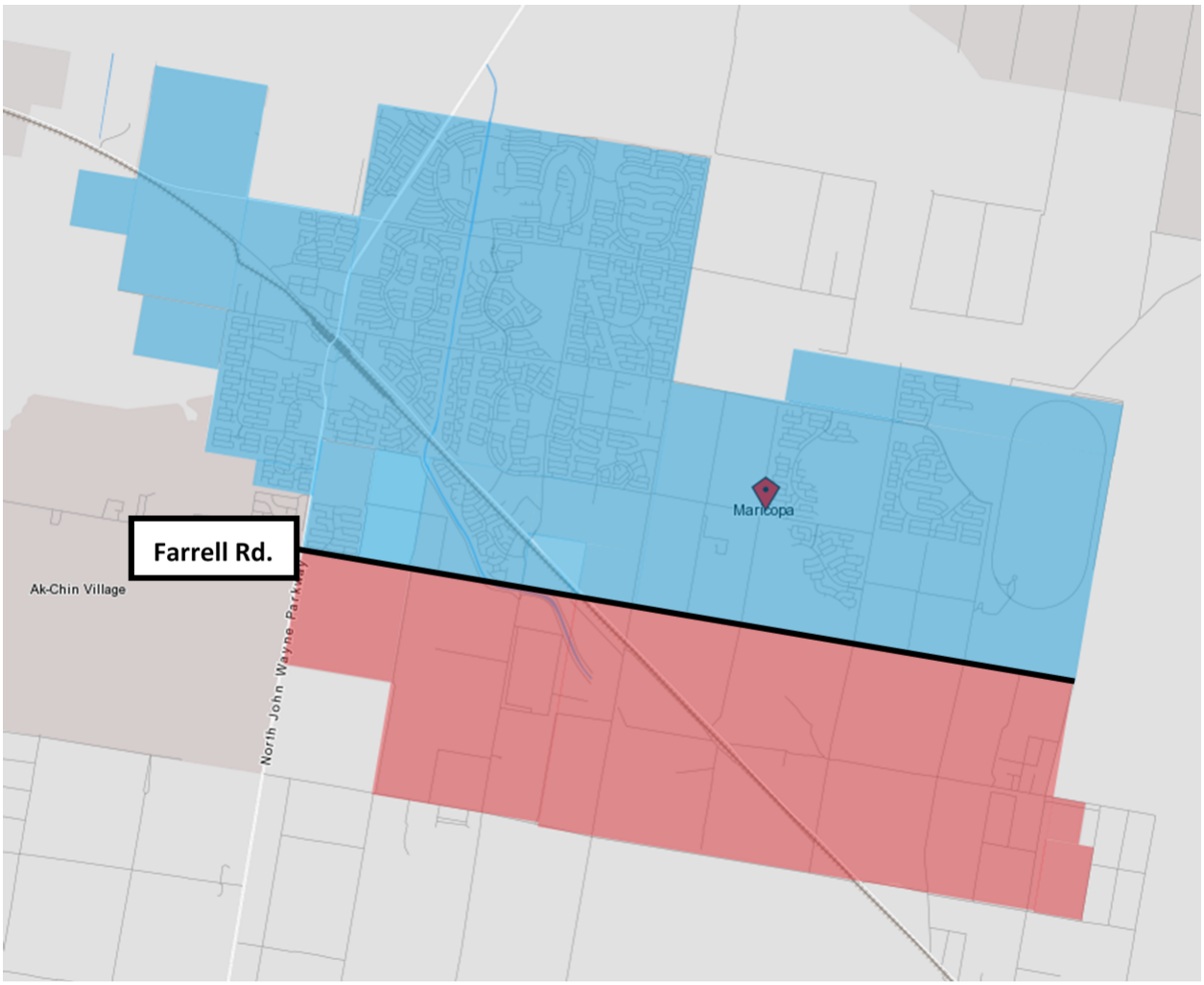
> *Any specified area within the boundaries of a municipality in which development will be served by necessary public services or facility expansions and within which a substantial nexus exists between the necessary public services or facility expansions and the development being served as prescribed in the infrastructure improvements plan.*

All of the City's Parks and Recreation, Libraries, Police, and Streets infrastructure is designed to serve the entire City of Maricopa as a whole, and the City strives to provide a uniform level-of-service Citywide. Therefore, the service areas for these fee categories is Citywide, but excludes the Rancho El Dorado South subdivision, which is subject to its own settlement agreement.

For Fire Facilities development fees, TischlerBise proposes two service areas. While the central and northern areas of Maricopa have enough fire stations to accommodate existing development, significant development is expected to occur in the southern portion of the City where there is currently only one fire station.

Figure 2 shows the two proposed Fire service areas: North Maricopa (the portion of the City which lies north of Farrell Road, shaded blue), and South Maricopa (the portion of the City which lies south of Farrell Road, shaded red). The costs of new apparatus and the planned Administrative Building and Development Report will be allocated to both service areas, while the costs of building a new fire station will be allocated to the southern service area only. Note that boundaries of the service areas as shown in the map in Figure 2 are an approximation based on current City limits. As annexation occurs and the boundaries of Maricopa's incorporated area change, so too will the service areas for Fire facilities.

Figure 2: Fire Development Fee Service Areas



CURRENT DEVELOPMENT FEES

Maricopa's current development fees are shown below in Figure 3. Fees are assessed based on development type – Residential or Nonresidential. Residential fees are further subdivided into single-family and multi-family units, while Nonresidential fees are subdivided into Industrial, Commercial, Institutional, and Office & Other Services land use types.

Figure 3: Current Development Fees

Residential Development Fees (per Housing Unit)						
Housing Type	***Parks & Recreation***	***Libraries***	***Police***	***Fire***	***Streets***	***Total Fee***
Single Family Unit	$1,116	$0	$277	$541	$3,580	**$5,514**
Multi-family Unit	$791	$0	$196	$383	$2,501	**$3,871**

Nonresidential Development Fees (per 1,000 Square Feet)						
Development Type	***Parks & Recreation***	***Libraries***	***Police***	***Fire***	***Streets***	***Total Fee***
Industrial	$83	$0	$78	$319	$621	**$1,101**
Commercial	$180	$0	$618	$698	$4,447	**$5,943**
Institutional	$88	$0	$223	$343	$1,777	**$2,431**
Office & Other Services	$299	$0	$242	$1,160	$1,925	**$3,626**

PROPOSED DEVELOPMENT FEES

The proposed fees are based on a policy-level concept that development fees should fund 100 percent of growth-related infrastructure, therefore the fees shown below represent the maximum allowable fees. Maricopa 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 Maricopa's level-of-service standards. All costs in the Development Fee Report are in current dollars with no assumed inflation rate over time. If cost estimates change significantly over time, development fees should be recalibrated.

Proposed development fees for North Maricopa are shown in Figure 4, and the fees for South Maricopa are shown in Figure 5 (with all fee components being the same across service areas except for Fire). The tables show the proposed fees, the current fees, the total dollar change for each housing and development type. Development fees for Residential development are assessed per dwelling unit, based on the type of unit. Nonresidential development fees are assessed per 1,000 square feet of floor area based on the type of development (except for hotel and motel developments, which are assessed per room).

Figure 4: Proposed Development Fees for North Maricopa

Residential Development Fees (per Housing Unit)								
Type	*Parks & Recreation*	*Libraries*	*Police*	*Fire*	*Streets*	*Total Fee*	*Current Fee*	Increase / (Decrease)
Single Family Unit	$1,207	$131	$496	$674	$2,965	**$5,473**	$5,514	($41)
Multi-family Unit	$814	$88	$334	$454	$2,299	**$3,989**	$3,871	$118

Nonresidential Development Fees (per 1,000 Square Feet, unless otherwise noted)								
Type	*Parks & Recreation*	*Libraries*	*Police*	*Fire*	*Streets*	*Total Fee*	*Current Fee*	Increase / (Decrease)
Light Industrial	$89	$9	$242	$316	$761	**$1,417**	$1,101	$316
Industrial Park	$63	$6	$164	$214	$517	**$964**	$1,101	($137)
Manufacturing	$87	$9	$191	$250	$603	**$1,140**	$1,101	$39
Warehousing	$18	$2	$84	$110	$267	**$481**	$1,101	($620)
Assisted Living	$54	$5	$134	$176	$424	**$793**	$3,626	($2,833)
Hotel (per room)	$32	$3	$408	$532	$868	**$1,843**	n/a	n/a
Motel (per room)	$7	$0	$163	$213	$348	**$731**	n/a	n/a
School	$51	$5	$628	$821	$1,976	**$3,481**	$2,431	$1,050
Community College	$76	$8	$652	$852	$2,049	**$3,637**	$2,431	$1,206
Church	$36	$4	$124	$162	$392	**$718**	$2,431	($1,713)
Day Care	$122	$13	$1,534	$2,003	$4,820	**$8,492**	$2,431	$6,061
Hospital	$156	$16	$345	$451	$1,085	**$2,053**	$2,431	($378)
General Office	$163	$17	$475	$620	$1,494	**$2,769**	$3,626	($857)
Research & Dev Center	$188	$20	$549	$717	$1,727	**$3,201**	$3,626	($425)
Business Park	$169	$18	$607	$793	$1,908	**$3,495**	$3,262	$233
Commercial / Retail	$129	$14	$1,216	$1,588	$3,920	**$6,867**	$5,943	$924

Figure 5: Proposed Development Fees for South Maricopa

Residential Development Fees (per Housing Unit)								
Type	*Parks & Recreation*	*Libraries*	*Police*	*Fire*	*Streets*	*Total Fee*	*Current Fee*	Increase / (Decrease)
Single Family Unit	$1,207	$131	$496	$1,444	$2,965	**$6,243**	$5,514	$729
Multi-family Unit	$814	$88	$334	$973	$2,299	**$4,508**	$3,871	$637

Nonresidential Development Fees (per 1,000 Square Feet, unless otherwise noted)								
Type	*Parks & Recreation*	*Libraries*	*Police*	*Fire*	*Streets*	*Total Fee*	*Current Fee*	Increase / (Decrease)
Light Industrial	$89	$9	$242	$693	$761	**$1,794**	$1,101	$693
Industrial Park	$63	$6	$164	$471	$517	**$1,221**	$1,101	$120
Manufacturing	$87	$9	$191	$549	$603	**$1,439**	$1,101	$338
Warehousing	$18	$2	$84	$243	$267	**$614**	$1,101	($487)
Assisted Living	$54	$5	$134	$386	$424	**$1,003**	$3,626	($2,623)
Hotel (per room)	$32	$3	$408	$1,169	$868	**$2,480**	n/a	n/a
Motel (per room)	$7	$0	$163	$468	$348	**$986**	n/a	n/a
School	$51	$5	$628	$1,801	$1,976	**$4,461**	$2,431	$2,030
Community College	$76	$8	$652	$1,869	$2,049	**$4,654**	$2,431	$2,223
Church	$36	$4	$124	$357	$392	**$913**	$2,431	($1,518)
Day Care	$122	$13	$1,534	$4,395	$4,820	**$10,884**	$2,431	$8,453
Hospital	$156	$16	$345	$989	$1,085	**$2,591**	$2,431	$160
General Office	$163	$17	$475	$1,362	$1,494	**$3,511**	$3,626	($115)
Research & Dev Center	$188	$20	$549	$1,574	$1,727	**$4,058**	$3,626	$432
Business Park	$169	$18	$607	$1,739	$1,908	**$4,441**	$3,262	$1,179
Commercial / Retail	$129	$14	$1,216	$3,484	$3,920	**$8,763**	$5,943	$2,820

PARKS AND RECREATIONAL FACILITIES INFRASTRUCTURE IMPROVEMENT PLAN

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 recreational facilities on real property up to thirty acres in area, or parks and recreational facilities larger than thirty acres if the facilities provide a direct benefit to the development. Park and recreational 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 recreational facilities, but may include swimming pools."*

The Parks and Recreational Facilities IIP includes components for park amenities, recreational facilities, and the cost of professional services for preparing the Parks and Recreational Facilities IIP and related Development Fee Report. An incremental expansion methodology is used for park amenities and a plan-based methodology is used for the Development Fee Report.

Service Area

The City of Maricopa plans to provide a uniform level-of-service and equal access to Parks and Recreational Facilities within the City limits. Therefore, the recommended service area for the Parks and Recreational Facilities IIP is Citywide but excludes the Rancho El Dorado South subdivision, which is subject to its own settlement agreement.

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. TischlerBise recommends daytime population as a reasonable indicator of the potential demand for Parks and Recreational Facilities from residential and nonresidential development. According to the U.S. Census Bureau web application OnTheMap, there were 1,747 inflow commuters in 2015, which is the number of persons who work in Maricopa but live outside the City. OnTheMap is a web-based mapping and reporting application that shows where workers are employed and where they live. It describes geographic patterns of jobs by their employment locations and residential locations as well as the connections between the two locations. OnTheMap was developed through a unique partnership between the U.S. Census Bureau and its Local Employment Dynamics (LED) partner states. OnTheMap data is used, as shown in Figure PR1, to derive Functional Population shares for Maricopa. The estimated population in 2015 (see Land Use Assumptions) is 49,478 residents. The study uses 2015 data because this the most recent year available for OnTheMap's inflow/outflow data. Therefore, it is compared to the population estimate for the corresponding year.

As shown in Figure PR1, the proportionate share is based on cumulative impact hours per year. Maricopa residents were allocated 24 hours per day at 365 days per year, for a total of 8,760 impact hours per resident. Inflow commuters were allocated 8 hours per day, 4 days per week, and 50 weeks per year, for

a total of 1,600 impact hours per nonresident. Multiplying the respective impact hours by the number of residents and inflow commuters (shown below in 1,000's of hours) yields the total annual impact hours for both residential and nonresidential categories. Residential's proportionate share of the total impact hours is 99%, while the nonresidential share is 1%.

Figure PR1: Daytime Population in 2015

		Cumulative Impact Hours per Year (in 1,000s)			Cost Allocation	
Maricopa Residents (2015)	Inflow Commuters	Residential Hours	Nonresidential Hours	Total Hours	Residential	Nonresidential
49,478	1,747	433,427	2,795	436,223	**99%**	**1%**

Residential Hours per Year	8,760	365 days per year x 24 hours per day
Nonresidential Hours per Year	1,600	4 days per week x 50 weeks per year x 8 hours per day

Source: 2015 Maricopa residents as estimated by TischlerBise - see Land Use Assumptions. Inflow commuters from U.S. Census Bureau's OnTheMap web application, 2015.

RATIO OF SERVICE UNITS TO DEVELOPMENT UNIT

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 for residential and nonresidential land uses, respectively. For residential development, the table displays the persons per housing unit for single-family and multi-family units. These factors were derived from the U.S. Census Bureau's 2016 ACS 5-year population and housing estimates and the Bureau's 2016 Public Use Microdata Sample (see Land Use Assumptions). For nonresidential development, sixteen nonresidential land use categories are shown with the corresponding number of employees per 1,000 square feet (or per room for Hotels and Motels), which comes from the Institute of Transportation Engineers' *Trip Generation*, 10th Edition (2017).

Figure PR2: Parks and Recreational Facilities Ratios of Service Unit to Development Unit

Residential Service Units

Housing Type	Persons per Housing Unit
Single-Family	2.67
Multi-Family	1.80

Source: Land Use Assumptions.

Nonresidential Service Units

Development Type	Demand Unit	Jobs per Demand Unit
Light Industrial	1,000 Sq. Ft.	1.63
Industrial Park	1,000 Sq. Ft.	1.16
Manufacturing	1,000 Sq. Ft.	1.59
Warehousing	1,000 Sq. Ft.	0.34
Assisted Living	1,000 Sq. Ft.	0.99
Hotel	Room	0.58
Motel	Room	0.13
School	1,000 Sq. Ft.	0.93
Community College	1,000 Sq. Ft.	1.39
Church*	1,000 Sq. Ft.	0.67
Day Care	1,000 Sq. Ft.	2.23
Hospital	1,000 Sq. Ft.	2.83
General Office (avg size)	1,000 Sq. Ft.	2.97
Research & Dev Center	1,000 Sq. Ft.	3.42
Business Park	1,000 Sq. Ft.	3.08
Shopping Center (avg size)	1,000 Sq. Ft.	2.34

Source: Trip Generation , Institute of Transportation Engineers, 10th Edition, 2017.

** Church figures are based on the Synagogue land use, as ITE does not gather employee data for churches.*

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 Land

Because the City of Maricopa does not anticipate any substantial neighborhood or community park land purchases over the next 10 years (or, developers will be asked to dedicate a reasonable portion of land to the City for development as park land), **the cost of additional park land acquisition is not recommended for inclusion in the Development Fee Report** and is excluded from the City's development fee calculations.

Park Amenities and Improvements

The inventory summary of Maricopa's park amenities is displayed in Figure PR3. Maricopa parks have 2,287 amenities, which have a combined total replacement cost of approximately $23.9 million. Dividing the total replacement cost by the total number of amenities yields an average cost per improvement of $10,466. The current residential level-of-service is 0.0425 amenities per resident, which was obtained by multiplying the 2,287 amenities by the residential proportionate share (99%) and dividing by the current population (53,294). Similarly, the nonresidential level-of-service of 0.0052 units per job was determined by multiplying 2,287 amenities by the nonresidential proportional share (1%) and dividing by the current number of jobs (4,406). Finally, the average cost per person and job for park amenities is calculated by multiplying the average cost per amenity ($10,466) by the residential and nonresidential levels of service, producing a cost per person of $444.64 and cost per job of $54032 per job. Note that while the LOS Standards shown are rounded to the fourth decimal place, the analysis does not round these figures. Therefore, the cost analysis calculations may not produce the same result if the reader replicates the calculations using the factors shown.

Figure PR3: Park Amenities Inventory and Level-of-Service and Cost Analysis

Amenity	*# of Units**	*Cost per Unit**	*Replacement Cost*
Restroom	5	$360,000	$1,800,000
Playground	3	$250,000	$750,000
Ramada	9	$50,000	$450,000
Ballfield	6	$325,000	$1,950,000
Basketball	4	$85,000	$340,000
Soccer/Football	11	$525,000	$5,775,000
Volleyball	2	$30,000	$60,000
Tennis	4	$50,000	$200,000
Horseshoes	2	$8,000	$16,000
Parking Spaces	2,171	$5,000	$10,855,000
Bike Rack	12	$900	$10,800
Frisbee Golf	18	$5,000	$90,000
Skate Court	30	$19,000	$570,000
Concession Stand	2	$75,000	$150,000
Scoreboards	8	$115,000	$920,000
TOTAL	**2,287**	**$10,466**	**$23,936,800**

Level-of-Service (LOS) Standards

Residential Proportionate Share	99%
Nonresidential Proportionate Share	1%
Residents in 2018	53,294
Jobs in 2018	4,406
LOS: Amenities per Resident	**0.0425**
LOS: Amenities per Job	**0.0052**

Cost Analysis

Average Cost per Amenity	$10,466
LOS: Amenities per Resident	0.0425
LOS: Amenities per Job	0.0052
Cost per Person	**$444.64**
Cost per Job	**$54.32**

**City of Maricopa*

Trails

As shown in figure PR4, the City of Maricopa maintains 5,364 linear feet of trails and plans to add additional trails as growth occurs. The cost per linear foot to build new trails is approximately $60, which means the total replacement cost of the City's existing trail network is $321,840. The current residential level-of-service is 0.0996 linear feet per resident, which was obtained by multiplying the 5,364 linear feet

of trails by the residential proportionate share (99%) and dividing by the current population (53,294). Similarly, the nonresidential level-of-service of 0.0122 linear feet per job was determined by multiplying the existing trail network (5,364 linear feet) by the nonresidential proportional share (1%) and dividing by the current number of jobs (4,406). Finally, the average cost per person and job for trails is found by multiplying the average cost per linear foot ($60) by the residential and nonresidential levels of service, producing a cost per person of $5.98 and cost per job of $0.73. Note that while the LOS Standards shown are rounded to the fourth decimal place, the analysis does not round these figures. Therefore, the cost analysis calculations may not produce the same result if the reader replicates the calculations using the factors shown.

Figure PR4: Recreational Trail Inventory Summary and Level-of-Service and Cost Analysis

Linear Feet of Trails	Cost per Linear Foot	Total Cost
5,364	$60	$321,840

Level-of-Service (LOS) Standards

Residential Proportionate Share	99%
Nonresidential Proportionate Share	1%
Residents in 2018	53,294
Jobs in 2018	4,406
LOS: Linear Feet per Resident	0.0996
LOS: Linear Feet per Job	0.0122

Cost Analysis

Cost per Linear Foot	$60
LOS: Linear Feet per Resident	0.0996
LOS: Linear Feet per Job	0.0122
Cost per Person	**$5.98**
Cost per Job	**$0.73**

Development Fee Report

The cost to prepare the Parks and Recreational Facilities Development Fees and IIP totals $18,926. Maricopa plans to update its report every five years. Based on this cost, proportionate share, and five-year projections of new development from the Land Use Assumptions document, the cost per person is $1.66 and the cost per job is $0.12, as shown in Figure PR5.

Figure PR5: Development Fee Report Cost Allocation

Fee Component	*Cost*	*Demand Indicator*	*Proportionate Share*	*Cost Allocation*				Cost per Demand Unit
				Units	*2018*	*2023*	*Increase*	
Parks & Recreation	$18,926	Residential	99%	Population	53,294	64,518	11,224	**$1.66**
		Nonresidential	1%	Jobs	4,406	5,946	1,540	**$0.12**

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."*

As shown in Figure PR6, the Land Use Assumptions projects an additional 24,917 persons and 3,618 jobs over the next 10 years.

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."*

These projected service units are multiplied by the current level-of-service for the IIP components shown in Figure PR6. New development will demand an additional 1,059 park amenities and 2,527 linear feet of trails over the next 10 years. These additional facilities will cost the City approximately $11.2 million.

Figure PR6: Projected Demand for Parks and Recreational Facilities

Parks and Recreational Facilities Level-of-Service Standards			
Level-of-Service		*Demand Unit*	*Unit Cost*
0.0425	Amenities	per Person	$10,466
0.0052		per Job	
0.0996	Linear Feet of Trails	per Person	$60
0.0122		per Job	

Need for Parks and Recreational Facilities Amenities						
Year		*Population*	*Jobs*	*Amenities*	*Linear Feet of Trails*	
Base	2018	53,294	4,406	2,264	5,364	
Year 1	2019	55,497	4,679	2,358	5,587	
Year 2	2020	57,617	4,968	2,448	5,802	
Year 3	2021	59,814	5,275	2,541	6,024	
Year 4	2022	62,089	5,600	2,638	6,255	
Year 5	2023	64,518	5,946	2,741	6,501	
Year 6	2024	67,031	6,314	2,848	6,756	
Year 7	2025	69,631	6,704	2,958	7,020	
Year 8	2026	72,394	7,118	3,076	7,300	
Year 9	2027	75,253	7,558	3,197	7,590	
Year 10	2028	78,212	8,025	3,323	7,891	
Ten-Year Increase		**24,917**	**3,618**	**1,059**	**2,527**	**Total**
Growth-Related Expenditure				**$11,083,494**	**$151,620**	**$11,235,114**

PARKS AND RECREATIONAL FACILITIES IIP

ARS § 9-463.05(E)(3) requires:

> *"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."*

Potential Parks and Recreational Facilities that Maricopa may use development fees for in order to accommodate new development over the next 10 years are shown in Figure PR7.

Figure PR7: Necessary Parks & Recreational Improvements and Expansions

Parks and Recreational Facilities Infrastructure Improvements Plan		
Improvement	**Timeframe**	**Estimated Cost**
Pickle Ball Courts	2019-2023	$425,000
Multi-Use Trails (Various)	2019-2028	$160,000
Park Improvements (Various)	2019-2028	$11,500,000
Total		**$12,085,000**

PARKS AND RECREATIONAL FACILITIES DEVELOPMENT FEES

Revenue Credit/Offset

A revenue credit/offset is not necessary for the Parks and Recreational Facilities development fees because 10-year growth costs approximate the amount of revenue that is projected to be generated by development fees according to the Land Use Assumptions, as shown in Figure PR9.

Proposed Parks and Recreational Facilities Development Fees

The cost factors for Parks and Recreational Facilities, which include park amenities, recreational facilities, trails, and the professional services cost for the IIP and Development Fee Report, are summarized at the top of Figure PR8. The total cost per person is $452.28 and the total cost per job is $55.17. The proposed Parks and Recreational Facilities development fees are calculated by multiplying these cost factors by the residential and nonresidential service unit ratios from Figure PR2. The proposed fee amounts are shown in the column with green shading, the current development fees are shaded in light blue, and the net change is shown in the far-right column.

Figure PR8: Proposed Parks and Recreational Facilities Development Fees

Fee Component	Cost per Person	Cost per Job
Park Amenities	$444.64	$54.32
Trails	$5.98	$0.73
Development Fee Report	$1.66	$0.12
TOTAL	**$452.28**	**$55.17**

Residential Development

Housing Type	Persons per Housing Unit	Proposed Fee	Current Fees	Increase / (Decrease)
Single-Family	2.67	**$1,207**	$1,116	$91
Multi-Family	1.80	**$814**	$791	$23

Nonresidential Development

Development Type	Demand Unit	Jobs per Demand Unit	Proposed Fee	Current Fees	Increase / (Decrease)
Light Industrial	1,000 Sq. Ft.	1.63	**$89**	$83	$6
Industrial Park	1,000 Sq. Ft.	1.16	**$63**	$83	($20)
Manufacturing	1,000 Sq. Ft.	1.59	**$87**	$83	$4
Warehousing	1,000 Sq. Ft.	0.34	**$18**	$83	($65)
Assisted Living	1,000 Sq. Ft.	0.99	**$54**	$88	($34)
Hotel	Room	0.58	**$32**	n/a	n/a
Motel	Room	0.13	**$7**	n/a	n/a
School	1,000 Sq. Ft.	0.93	**$51**	$88	($37)
Community College	1,000 Sq. Ft.	1.39	**$76**	$88	($12)
Church	1,000 Sq. Ft.	0.67	**$36**	$88	($52)
Day Care	1,000 Sq. Ft.	2.23	**$122**	$88	$34
Hospital	1,000 Sq. Ft.	2.83	**$156**	$88	$68
General Office	1,000 Sq. Ft.	2.97	**$163**	$299	($136)
Research & Dev Center	1,000 Sq. Ft.	3.42	**$188**	$299	($111)
Business Park	1,000 Sq. Ft.	3.08	**$169**	$299	($130)
Commercial / Retail	1,000 Sq. Ft.	2.34	**$129**	$180	($51)

FORECAST OF REVENUES

Appendix B contains the forecast of revenues required by Arizona's Enabling Legislation.

Parks and Recreational Facilities Development Fee Revenue

The top of Figure PR9 summarizes the growth-related cost of infrastructure in Maricopa over the next 10 years (approximately $14.8 million for Parks and Recreational Facilities). Maricopa should receive

approximately $14.9 million in Parks and Recreational Facilities development fee revenue over the next 10 years if actual development matches the Land Use Assumptions (excluding the approximately 66 single-family units annually from Rancho El Dorado South). Note that while the proposed fee schedule includes 16 nonresidential categories, the Land Use Assumptions combine nonresidential growth into 5 categories (Distribution & Warehousing, Industrial, Commercial, Institutional, and Office & Other) for simplicity.

Figure PR9: Projected Parks and Recreational Facilities Development Fee Revenue

	Growth Cost
Park Amenities	$11,083,494
Trails	$151,620
Development Fee Report	$18,926
Total Expenditures	**$11,254,040**

		Single-Family	Multi-Family	Distr. & Warehousing	Industrial	Commercial	Institutional	Office & Other
		$1,207 per Unit	$814 per Unit	$18 per KSF	$89 per KSF	$129 per KSF	$51 per KSF	$163 per KSF
Year		*Housing Units*	*Housing Units*	*KSF*	*KSF*	*KSF*	*KSF*	*KSF*
Base	2018	19,843	174	201	217	1,057	249	163
1	2019	20,602	174	214	228	1,101	361	174
2	2020	21,369	214	229	239	1,147	481	186
3	2021	22,165	254	244	251	1,197	607	198
4	2022	22,990	294	260	263	1,250	741	211
5	2023	23,846	374	278	277	1,306	884	225
6	2024	24,733	454	296	291	1,365	1,036	239
7	2025	25,653	534	315	306	1,428	1,196	255
8	2026	26,607	654	336	322	1,495	1,367	271
9	2027	27,597	774	358	339	1,566	1,548	289
10	2028	28,624	894	381	357	1,641	1,741	307
10-year Increase		**8,781**	**720**	**181**	**139**	**584**	**1,492**	**144**
Projected Revenue		**$10,598,667**	**$586,080**	**$3,254**	**$12,407**	**$75,398**	**$76,071**	**$23,467**

Total Projected Revenue	**$11,375,345**
Surplus / (Deficit)	**$121,305**

LIBRARY FACILITIES INFRASTRUCTURE IMPROVEMENT PLAN

ARS § 9-463.05 (T)(7)(d) defines the Library Facilities and assets that can be included in the Library Facilities IIP:

> *"Library facilities of up to ten thousand square feet that provide a direct benefit to development, not including equipment, vehicles or appurtenances."*

The Library Facilities IIP includes components for Library Facilities, and the cost of professional services for preparing the IIP and the related Development Fee Report. An incremental expansion methodology is used for Library Facilities, and a plan-based methodology is used for the Development Fee Report.

Service Area

The City of Maricopa plans to provide a uniform level-of-service standard and equal access to Library Facilities within the City limits. Therefore, a citywide service area is recommended for the Library Facilities IIP but excludes the Rancho El Dorado South subdivision, which is subject to its own settlement agreement.

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. TischlerBise recommends daytime population as a reasonable indicator of the potential demand for Library Facilities from residential and nonresidential development. According to the U.S. Census Bureau web application OnTheMap, there were 1,747 inflow commuters in 2015, which is the number of persons who work in Maricopa but live outside the City. OnTheMap is a web-based mapping and reporting application that shows where workers are employed and where they live. It describes geographic patterns of jobs by their employment locations and residential locations as well as the connections between the two locations. OnTheMap was developed through a unique partnership between the U.S. Census Bureau and its Local Employment Dynamics (LED) partner states. OnTheMap data is used, as shown in Figure PR1, to derive Functional Population shares for Maricopa. The estimated population in 2015 (see Land Use Assumptions) is 49,478 residents. The study uses 2015 data because this the most recent year available for OnTheMap's inflow/outflow data. Therefore, it is compared to the population estimate for the corresponding year.

As shown in Figure PR1, the proportionate share is based on cumulative impact hours per year. Maricopa residents were allocated 24 hours per day at 365 days per year, for a total of 8,760 impact hours per resident. Inflow commuters were allocated 8 hours per day, 4 days per week, and 50 weeks per year, for a total of 1,600 impact hours per nonresident. Multiplying the respective impact hours by the number of residents and inflow commuters (shown below in 1,000's of hours) yields the total annual impact hours for both residential and nonresidential categories. Residential's proportionate share of the total impact hours is 99%, while the nonresidential share is 1%.

Figure L1: Daytime Population in 2015

		Cumulative Impact Hours per Year (in 1,000s)			Cost Allocation	
Maricopa Residents (2015)	Inflow Commuters	Residential Hours	Nonresidential Hours	Total Hours	Residential	Nonresidential
49,478	1,747	433,427	2,795	436,223	**99%**	**1%**

Residential Hours per Year	8,760	365 days per year x 24 hours per day
Nonresidential Hours per Year	1,600	4 days per week x 50 weeks per year x 8 hours per day

Source: 2015 Maricopa residents as estimated by TischlerBise - see Land Use Assumptions. Inflow commuters from U.S. Census Bureau's OnTheMap web application, 2015.

RATIO OF SERVICE UNIT TO DEVELOPMENT UNIT

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 L2 displays the demand indicators for residential and nonresidential land uses, respectively. For residential development, the table displays the persons per housing unit for single-family and multi-family units. These factors were derived from the U.S. Census Bureau's 2016 ACS 5-year population and housing estimates and the Bureau's 2016 Public Use Microdata Sample (see Land Use Assumptions). For nonresidential development, sixteen nonresidential land use categories are shown with the corresponding number of employees per 1,000 square feet (or per room for Hotels and Motels), which comes from the Institute of Transportation Engineers' *Trip Generation*, 10th Edition (2017).

Figure L2: Library Facilities Ratio of Service Unit to Development Unit

Residential Service Units

Housing Type	Persons per Housing Unit
Single-Family	2.67
Multi-Family	1.80

Source: Land Use Assumptions.

Nonresidential Service Units

Development Type	Demand Unit	Jobs per Demand Unit
Light Industrial	1,000 Sq. Ft.	1.63
Industrial Park	1,000 Sq. Ft.	1.16
Manufacturing	1,000 Sq. Ft.	1.59
Warehousing	1,000 Sq. Ft.	0.34
Assisted Living	1,000 Sq. Ft.	0.99
Hotel	Room	0.58
Motel	Room	0.13
School	1,000 Sq. Ft.	0.93
Community College	1,000 Sq. Ft.	1.39
Church*	1,000 Sq. Ft.	0.67
Day Care	1,000 Sq. Ft.	2.23
Hospital	1,000 Sq. Ft.	2.83
General Office (avg size)	1,000 Sq. Ft.	2.97
Research & Dev Center	1,000 Sq. Ft.	3.42
Business Park	1,000 Sq. Ft.	3.08
Shopping Center (avg size)	1,000 Sq. Ft.	2.34

Source: Trip Generation, Institute of Transportation Engineers, 10th Edition, 2017.

** Church figures are based on the Synagogue land use, as ITE does not gather employee data for churches.*

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."*

Library Facilities

As shown in Figure L3, Maricopa has one library consisting of 8,000 square feet. The level-of-service standards of 0.1486 square feet per person and 0.0182 square feet per job were found by multiplying the total square footage by the residential and nonresidential proportionate shares (99% and 1%) and dividing by the total number of residents and jobs in 2018 (53,294 residents and 4,406 jobs).

The estimated replacement cost for the library is $327 per square foot, which means the total replacement cost of library is approximately $2.6 million. Multiplying the level-of-service standards by the replacement cost per square foot yields a cost per person of $48.60 and a cost per job of $5.94. Note that while the LOS Standards shown are rounded to the fourth decimal place, the analysis does not round these figures. Therefore, the cost analysis calculations may not produce the same result if the reader replicates the calculations using the factors shown.

Figure L3: Library Facilities Summary and Level-of-Service and Cost Analysis

Library	*Square Feet*	*Cost per Sq. Ft.*	*Total Cost*
Main Library	8,000	$327	$2,616,000

Level-of-Service (LOS) Standards

Residential Proportionate Share	99%
Nonresidential Proportionate Share	1%
Residents in 2018	53,294
Jobs in 2018	4,406
LOS: Square Feet per Resident	0.1486
LOS: Square per Job	0.0182

Cost Analysis

Cost per Square Foot	$327
LOS: Square Feet per Resident	0.1486
LOS: Square Feet per Job	0.0182
Cost per Person	**$48.60**
Cost per Job	**$5.94**

Development Fee Report

The cost to prepare the Library Facilities IIP and related Development Fee Report totals $9,463. Maricopa plans to update its report every five years. Based on this cost, proportionate share, and 5-year projections

of new development from the Land Use Assumptions document, the cost per person is $0.83 and the cost per job is $0.06.

Figure L4: Development Fee Report Cost Allocation

Fee Component	Cost	Demand Indicator	Proportionate Share	Cost Allocation				Cost per Demand Unit
				Units	2018	2023	Increase	
Libraries	$9,463	Residential	99%	Population	53,294	64,518	11,224	$0.83
		Nonresidential	1%	Jobs	4,406	5,946	1,540	$0.06

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."*

As shown in Figure L5, the Land Use Assumptions projects an additional 24,917 persons and 3,618 jobs over the next 10 years.

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."*

These projected service units are multiplied by the current levels-of-service for the IIP components shown in Figure L5. New development will demand an additional 3,769 square feet of library facilities. Multiplying the projected demand for library square footage by the replacement cost per square foot of $327 produces a total estimated cost of $1.2 million.

Figure L5: Projected Demand for Library Facilities

Library Level-of-Service Standards			
Level-of-Service		*Demand Unit*	*Unit Cost*
0.1486	Square Feet	per Person	$327
0.0182		per Job	

Growth-Related Need for Libraries						
Year		*Population*	*Jobs*	*Residential Sq. Ft.*	*Nonres. Sq. Ft.*	*Total*
Current	2018	53,294	4,406	7,920	80	**8,000**
Base	2019	55,497	4,679	8,247	85	**8,332**
Year 1	2020	57,617	4,968	8,562	90	**8,653**
Year 2	2021	59,814	5,275	8,889	96	**8,985**
Year 3	2022	62,089	5,600	9,227	102	**9,329**
Year 4	2023	64,518	5,946	9,588	108	**9,696**
Year 5	2024	67,031	6,314	9,961	115	**10,076**
Year 6	2025	69,631	6,704	10,348	122	**10,470**
Year 7	2026	72,394	7,118	10,758	129	**10,888**
Year 8	2027	75,253	7,558	11,183	137	**11,321**
Year 9	2028	78,212	8,025	11,623	146	**11,769**
Ten-Year Increase		**24,917**	**3,618**	**3,703**	**66**	**3,769**
Growth-Related Expenditure				**$1,210,881**	**$21,582**	**$1,232,463**

LIBRARY FACILITIES IIP

ARS § 9-463.05(E)(3) requires:

> *"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."*

Potential Library Facilities that Maricopa may use development fees for in order to accommodate new development over the next 10 years are shown in Figure L6.

Figure L6: Necessary Library Improvements and Expansions

Library Facilities Infrastructure Improvements Plan		
Improvement	**Timeframe**	**Estimated Cost**
Library Addition/Branch	2019-2028	$1,500,000
Total		**$1,500,000**

LIBRARY DEVELOPMENT FEES

Revenue Credit/Offset

A revenue credit/offset is not necessary for the Library development fees because 10-year growth costs exceed the amount of revenue that is projected to be generated by development fees according to the Land Use Assumptions, as shown in Figure L8.

Proposed Library Development Fees

Infrastructure standards and cost factors for Library Facilities, including the professional services cost for the IIP and Development Fee Report, are summarized at the top of Figure L7. The proposed development fees for Libraries Facilities are calculated by multiplying these cost factors by the residential and nonresidential service unit ratios from Figure L2. The proposed fee amounts are shown in the column with green shading, the current development fees are shaded in light blue, and the net change is shown in the far-right column. Because development fees for libraries are not currently assessed, the proposed fee amounts represent a net increase across all development types.

Figure L7: Proposed Library Facilities Development Fees

Fee Component	Cost per Person	Cost per Job
Library Facilities	$48.60	$5.94
Development Fee Report	$0.83	$0.06
TOTAL	**$49.43**	**$6.00**

Residential Development

Housing Type	Persons per Housing Unit	Proposed Fee	Current Fee	Increase / (Decrease)
Single-Family	2.67	**$131**	$0	$131
Multi-Family	1.80	**$88**	$0	$88

Nonresidential Development

Development Type	Demand Unit	Jobs per Demand Unit	Proposed Fee	Current Fee	Increase / (Decrease)
Light Industrial	1,000 Sq. Ft.	1.63	**$9**	$0	$9
Industrial Park	1,000 Sq. Ft.	1.16	**$6**	$0	$6
Manufacturing	1,000 Sq. Ft.	1.59	**$9**	$0	$9
Warehousing	1,000 Sq. Ft.	0.34	**$2**	$0	$2
Assisted Living	1,000 Sq. Ft.	0.99	**$5**	$0	$5
Hotel	Room	0.58	**$3**	$0	$3
Motel	Room	0.13	**$0**	$0	$0
School	1,000 Sq. Ft.	0.93	**$5**	$0	$5
Community College	1,000 Sq. Ft.	1.39	**$8**	$0	$8
Church	1,000 Sq. Ft.	0.67	**$4**	$0	$4
Day Care	1,000 Sq. Ft.	2.23	**$13**	$0	$13
Hospital	1,000 Sq. Ft.	2.83	**$16**	$0	$16
General Office	1,000 Sq. Ft.	2.97	**$17**	$0	$17
Research & Dev Center	1,000 Sq. Ft.	3.42	**$20**	$0	$20
Business Park	1,000 Sq. Ft.	3.08	**$18**	$0	$18
Commercial / Retail	1,000 Sq. Ft.	2.34	**$14**	$0	$14

FORECAST OF REVENUES

Appendix B contains the forecast of revenues required by Arizona's Enabling Legislation.

Library Development Fee Revenue

The top of Figure L8 summarizes the growth-related cost of infrastructure in Maricopa over the next 10 years ($1.24 million for Library Facilities). Maricopa should receive approximately $1.23 million in Library development fee revenue over the next 10 years, if actual development matches the Land Use Assumptions (excluding the approximately 66 single-family units annually from Rancho El Dorado South). Note that while the proposed fee schedule includes 16 nonresidential categories, the Land Use Assumptions combine nonresidential growth into 5 categories (Distribution & Warehousing, Industrial, Commercial, Institutional, and Office & Other) for simplicity.

	Growth Cost
Library Facilities	$1,232,463
Development Fee Report	$9,463
Total Expenditures	**$1,241,926**

		Single-Family	*Multi-Family*	*Distr. & Warehousing*	*Industrial*	*Commercial*	*Institutional*	*Office & Other*
		$131 per Unit	$88 per Unit	$2 per KSF	$9 per KSF	$14 per KSF	$5 per KSF	$17 per KSF
Year		*Housing Units*	*Housing Units*	*KSF*	*KSF*	*KSF*	*KSF*	*KSF*
Base	2018	19,843	174	201	217	1,057	249	163
1	2019	20,602	174	214	228	1,101	361	174
2	2020	21,369	214	229	239	1,147	481	186
3	2021	22,165	254	244	251	1,197	607	198
4	2022	22,990	294	260	263	1,250	741	211
5	2023	23,846	374	278	277	1,306	884	225
6	2024	24,733	454	296	291	1,365	1,036	239
7	2025	25,653	534	315	306	1,428	1,196	255
8	2026	26,607	654	336	322	1,495	1,367	271
9	2027	27,597	774	358	339	1,566	1,548	289
10	2028	28,624	894	381	357	1,641	1,741	307
10-year Increase		**8,781**	**720**	**181**	**139**	**584**	**1,492**	**144**
Projected Revenue		**$1,150,311**	**$63,360**	**$362**	**$1,255**	**$8,183**	**$7,458**	**$2,447**

Total Projected Revenue	**$1,233,375**
Surplus / (Deficit)	**($8,551)**

Figure L8: Projected Library Facilities Development Fee Revenue

POLICE FACILITIES INFRASTRUCTURE IMPROVEMENT PLAN

ARS § 9-463.05 (T)(7)(f) defines the facilities and assets that can be included in 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 and Development Fees includes components for police stations, police vehicles and equipment, and the cost of professional services for preparing the Police Facilities IIP and related Development Fee Report. An incremental expansion methodology is used for police facilities and vehicles & equipment, and a plan-based methodology is used for the Development Fee Report.

Service Area

The City of Maricopa's Police Department strives to provide a uniform response time Citywide. Therefore, a Citywide service area is recommended for the Police Facilities IIP but excludes the Rancho El Dorado South subdivision, which is subject to its own settlement agreement.

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. TischlerBise recommends functional population to allocate the cost of Police Facilities to residential and nonresidential development. Functional population is similar to what the U.S. Census Bureau calls "daytime population," by accounting for people living and working in a jurisdiction, but also considers commuting patterns and time spent at home and at nonresidential locations. OnTheMap is a web-based mapping and reporting application that shows where workers are employed and where they live. It describes geographic patterns of jobs by their employment locations and residential locations as well as the connections between the two locations. OnTheMap was developed through a unique partnership between the U.S. Census Bureau and its Local Employment Dynamics (LED) partner states. OnTheMap data is used, as shown in Figure P1, to derive Functional Population shares for Maricopa.

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 Maricopa are assigned 14 hours to residential development and 10 hours to nonresidential development. Residents that work outside Maricopa are assigned 14 hours to residential development. Inflow commuters are assigned 10 hours to nonresidential development. Based on 2015 functional population data for Maricopa, the cost allocation for residential development is 86 percent while nonresidential development accounts for 14 percent of the demand for municipal facilities.

Figure P1: Police Proportionate Share

Demand Units in 2015				Demand Hours/Day	Person Hours	Proportionate Share
Residential						
Estimated Residents	49,478					
Residents Not Working		28,271		20	565,420	
Resident Workers		21,207				
7% Worked in City			1,549	14	21,686	
93% Worked Outside City			19,658	14	275,212	
			Residential Subtotal		**862,318**	**86%**
Nonresidential						
Non-working Residents		28,271		4	113,084	
Jobs Located in City		3,296				
47% Residents Working in City			1,549	10	15,490	
53% Non-Resident Workers (inflow commuters)			1,747	10	17,470	
			Nonresidential Subtotal		**146,044**	**14%**
				TOTAL	**1,008,362**	**100%**

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/retail, industrial, and office/other services."*

Figure P2 displays the ratio of service units to various types of land uses for residential and nonresidential development. The residential development table displays the persons per housing unit for single-family (or single unit) and multi-family units.

TischlerBise recommends using nonresidential vehicle trips as the best demand indicator for Police Facilities. Trip generation rates are used for nonresidential development because vehicle trips are highest for commercial/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 police services from nonresidential development, since it is driven by the presence of people. 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, Police Facilities development fees would be too high for office and institutional development because offices typically have more employees per 1,000 square feet than retail uses.

Trip generation rates per average weekday are from the reference book Trip Generation published by the Institute of Transportation Engineers (ITE 10th Edition 2017). A vehicle trip end represents a vehicle either entering or exiting a development (as if a traffic counter were placed across a driveway). To calculate development 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%.

For commercial and institutional land uses, the trip adjustment factor is less than 50% because retail development and some services 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, the ITE data indicates that 34% of the vehicles that enter are passing by on their way to some other primary destination. In other words, 34% of trips to the average shopping center are already being counted because the shopping center is not their final destination, and therefore these trips must be discounted. The remaining 66% 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% multiplied by 50%, or approximately 33% of the vehicle trips. These factors are shown to derive inbound vehicle trips for each type of nonresidential land use.

The ratio of service unit to development unit for each type of nonresidential development is calculated by multiplying the ITE trip generation rate by the trip rate adjustment factor to avoid double-counting trips, as discussed above. By way of example, the service unit to development unit ratio for an Office development is found by multiplying the ITE trip generation rate of 9.74 trips (per 1,000 square feet) by the trip rate adjustment factor of 50%, yielding an adjusted trip rate of 4.87 trips per 1,000 square feet. Therefore, it is reasonable to assume a 50,000 square foot office development would generate 243.5 primary destination trips per average weekday.

Figure P2: Police Facilities Ratio of Service Unit to Development Unit

Residential Service Units

Housing Type	Persons per Housing Unit*
Single-Family	2.67
Multi-Family	1.80

Nonresidential Service Units

Development Type	Demand Unit	Trip Ends per Demand Unit**	Trip Rate Adjustment**	Adj. Trips per Demand Unit
Light Industrial	1,000 Sq. Ft.	4.96	50%	2.48
Industrial Park	1,000 Sq. Ft.	3.37	50%	1.69
Manufacturing	1,000 Sq. Ft.	3.93	50%	1.97
Warehousing	1,000 Sq. Ft.	1.74	50%	0.87
Assisted Living	1,000 Sq. Ft.	4.19	33%	1.38
Hotel	Room	8.36	50%	4.18
Motel	Room	3.35	50%	1.68
School	1,000 Sq. Ft.	19.52	33%	6.44
Community College	1,000 Sq. Ft.	20.25	33%	6.68
Church#	1,000 Sq. Ft.	3.87	33%	1.28
Day Care	1,000 Sq. Ft.	47.62	33%	15.71
Hospital	1,000 Sq. Ft.	10.72	33%	3.54
General Office	1,000 Sq. Ft.	9.74	50%	4.87
Research & Dev Center	1,000 Sq. Ft.	11.26	50%	5.63
Business Park	1,000 Sq. Ft.	12.44	50%	6.22
Commercial / Retail	1,000 Sq. Ft.	37.75	33%	12.46

**Derived from U.S. Census Bureau American Community Survey 1-Year Estimates, 2016.*

***ITE Trip Generation Rates, 10th Edition (2017).*

 # Church figures based on the Synagogue category. ITE does not gather employee data for the Church category.

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

The Police Department operates out of two facilities, consisting of the Police Headquarters, and a Communications, Evidence, and EOC facility. The facilities have a combined total of 19,300 square feet of floor area. As growth occurs, the City plans on adding additional Police facility space to accommodate new growth. The incremental expansion methodology is used to calculate the facility portion of the fee, with new development maintaining the current infrastructure standards.

As shown in Figure P3, the level-of-service for residential development is 0.3114 square feet per person, and the nonresidential level-of-service is 0.1643 square feet per vehicle trip end. This is determined by multiplying the total Police facility square footage by the proportionate share factors (86% for residential and 14% for nonresidential), and then dividing the respective totals by the current service units (53,294 persons and 16,443 nonresidential vehicle trips). The weighted average replacement cost per square foot for the City's existing Police facilities is $384 per square foot. To determine the residential and nonresidential cost factors, the level-of-service standards (0.3114 square feet per person and 0.1643 square feet per nonresidential vehicle trip) are multiplied by the replacement cost per square foot ($437). This produces a cost per person of $136.10 and a cost per nonresidential vehicle trip of $71.81. Note that while the LOS Standards shown are rounded to the fourth decimal place, the analysis does not round these figures. Therefore, the cost analysis calculations may not produce the same result if the reader replicates the calculations using the factors shown.

Figure P3: Police Facilities and Level-of-Service and Cost Analysis

Police Facilities	*Square Feet**	*Cost per Sq. Ft.**	*Total Cost*
Police Headquarters	11,300	$269	$3,039,700
Communications, Property & Evidence,	8,000	$675	$5,400,000
Total	**19,300**	**$437**	**$8,439,700**

Level-of-Service (LOS) Standards

Population in 2018	53,294
Nonresidential Vehicle Trips in 2018	16,443
Residential Share	86%
Nonresidential Share	14%
LOS: Square Feet per Person	**0.3114**
LOS: Square Feet per Vehicle Trip	**0.1643**

Cost Analysis

Cost per Square Foot	$437
LOS: Square Feet per Person	0.3114
LOS: Square Feet per Vehicle Trip	0.1643
Cost per Person	**$136.10**
Cost per Vehicle Trip	**$71.81**

**City of Maricopa*

Police Vehicles and Equipment

The inventory summary of Maricopa's police vehicles and equipment is displayed in Figure P4. The Maricopa Police Department owns 59 vehicles units of vehicles and equipment, which have a total replacement cost of $2.992 million. Dividing the total cost by the total number of units yields an average cost per unit of $50,712. The current residential level-of-service of 0.00095 units per resident was obtained by multiplying the 59 units by the residential proportionate share (86%) and dividing by the current population (53,294). Similarly, the nonresidential level-of-service of 0.00050 units per vehicle trip was found by multiplying the 59 units by the nonresidential proportionate share (14%) and dividing by the current number nonresidential vehicle trips (16,443). Finally, the average costs per service unit is obtained by multiplying the residential and nonresidential levels of service (0.00095 units per resident and 0.00050 units per vehicle trip) by the average cost per unit ($50,712). This produces a cost per person of $48.28 and a cost per nonresidential vehicle trip of $25.48. Note that while the LOS Standards shown are rounded to the fifth decimal place, the analysis does not round these figures. Therefore, the cost analysis calculations may not produce the same result if the reader replicates the calculations using the factors shown (due to the rounding of figures shown, not in the analysis).

Figure P4: Police Vehicles and Equipment Inventory and Level-of-Service and Cost Analysis

Item	Quantity	Unit Cost	Total Cost
Fully marked police car	35	$55,000	$1,925,000
Motorcycle	2	$31,000	$62,000
Unmarked Sedans	20	$31,500	$630,000
Command Trailer	1	$300,000	$300,000
Armored Vehicle	1	$75,000	$75,000
Total	**59**	**$50,712**	**$2,992,000**

Level of Service (LOS) Standards

Population in 2018	53,294
Nonresidential Vehicle Trips in 2018	16,443
Residential Share	86%
Nonresidential Share	14%
LOS: Vehicles & Equipment per Person	**0.00095**
LOS: Vehicles & Equipment per Vehicle Trip	**0.00050**

Cost Analysis

Average Cost per Unit	$50,712
LOS: Vehicles & Equipment per Person	0.00095
LOS: Vehicles & Equipment per Vehicle Trip	0.00050
Cost per Person	**$48.28**
Cost per Vehicle Trip	**$25.48**

**City of Maricopa*

Development Fee Report

The cost to prepare the Police Facilities IIP and related Development Fee Report totals $18,926. Maricopa plans to update its report every five years. Based on this cost, proportionate share, and five-year projections of new residential and nonresidential development from the Land Use Assumptions document, the cost per person is $1.45 and the cost per nonresidential trip is $0.34.

Figure P5: Development Fee Report Cost Allocation

Fee Component	*Cost*	*Demand Indicator*	*Proportionate Share*	*Cost Allocation*				Cost per Demand Unit
				Units	*2018*	*2023*	*Increase*	
Police	$18,926	Residential	86%	Population	53,294	64,518	11,224	**$1.45**
		Nonresidential	14%	Vehicle Trips	16,443	24,207	7,764	**$0.34**

PROJECTED SERVICE UNITS AND PROJECTED DEMAND FOR SERVICES

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."*

The Land Use Assumptions projects an additional 24,917 persons and 18,241 nonresidential vehicle trips over the next 10 years, as shown in Figure P6.

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 Figure P6, this new development will demand 10,758 square feet of police facilities and 33 additional units of vehicles and equipment over the next 10 years. Using the average replacements costs for police facilities ($437 per square foot) and vehicles and equipment ($50,712 per unit), new development is projected to generate demand for approximately $4.7 million for additional police facilities and $1.67 million for additional vehicles and equipment.

Figure P6: Projected Demand for Police Facilities

Level-of-Service			Demand Unit	Unit Cost
Residential	0.3114	Square Feet	per Person	$437
Nonresidential	0.1643		per Vehicle Trip	
Residential	0.00095	Veh. & Equip. Units	per Person	$50,712
Nonresidential	0.00050		per Vehicle Trip	

Year		Population	Nonres. Vehicle Trips	Facilities (Sq. Ft.)	Vehicles & Equipment	
Base	2018	53,294	16,443	19,300	59	
Year 1	2019	55,497	17,815	20,212	62	
Year 2	2020	57,617	19,272	21,111	65	
Year 3	2021	59,814	20,820	22,050	67	
Year 4	2022	62,089	22,462	23,028	70	
Year 5	2023	64,518	24,207	24,071	74	
Year 6	2024	67,031	26,059	25,158	77	
Year 7	2025	69,631	28,025	26,291	80	
Year 8	2026	72,394	30,113	27,495	84	
Year 9	2027	75,253	32,330	28,750	88	
Year 10	2028	78,212	34,684	30,058	92	
Ten-Year Increase		**24,917**	**18,241**	**10,758**	**33**	**TOTAL**
Growth-Related Expenditures				**$4,701,246**	**$1,673,496**	**$6,374,742**

POLICE FACILITIES IIP

ARS § 9-463.05(E)(3) requires:

> *"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."*

Potential Police Facilities that Maricopa may use development fees for in order to accommodate new development over the next 10 years are shown in Figure P7. Additional vehicles and equipment will be procured as necessitated by growth.

Figure P7: Necessary Police Improvements and Expansions (10-Yr Total)

Police Facilities Infrastructure Improvements Plan		
Improvement	**Timeframe**	**Estimated Cost**
Vehicles/Equipment (Various)	2019-2028	$1,700,000
Additional Space/Substation	2019-2028	$500,000
Total		**$2,200,000**

POLICE FACILITIES DEVELOPMENT FEES

Revenue Credit/Offset

A revenue credit/offset is not necessary for the Police development fees because 10-year growth costs exceed the amount of revenue that is projected to be generated by development fees according to the Land Use Assumptions, as shown in Figure P9.

Proposed Police Facilities Development Fees

The proposed Police Facilities development fees are shown in Figure P8. Cost factors for Police Facilities building space, vehicles and equipment, and professional services are summarized at the top of the figure. The residential development fees are calculated by multiplying the $185.83 cost per person by the service unit ratios (persons per housing unit) for each housing type. Nonresidential development fees are calculated by multiplying the $97.63 cost per vehicle trip by the average weekday vehicle trips per 1,000 square feet ratios and the trip adjustment factors for each development type. Proposed development fees for Police Facilities are shown in green, current development fees are shown in light blue, and final column shows the proposed net change in Police Facilities development fees.

Figure P8: Proposed Police Facilities Development Fees

Fee Component	Cost per Person	Cost per Vehicle Trip
Facilities	$136.10	$71.81
Vehicles & Equipment	$48.28	$25.48
Development Fee Report	$1.45	$0.34
TOTAL	**$185.83**	**$97.63**

Residential Development

Housing Type	Persons per Housing Unit	Proposed Fee	Current Fee	Increase / (Decrease)
Single-Family	2.67	**$496**	$277	$219
Multi-Family	1.80	**$334**	$196	$138

Nonresidential Development

Development Type	Demand Unit	Trip Ends per Demand Unit	Trip Rate Adjustment	Proposed Fee	Current Fee	Increase / (Decrease)
Light Industrial	1,000 Sq. Ft.	4.96	50%	**$242**	$78	$164
Industrial Park	1,000 Sq. Ft.	3.37	50%	**$164**	$78	$86
Manufacturing	1,000 Sq. Ft.	3.93	50%	**$191**	$78	$113
Warehousing	1,000 Sq. Ft.	1.74	50%	**$84**	$78	$6
Assisted Living	1,000 Sq. Ft.	4.19	33%	**$134**	$223	($89)
Hotel	Room	8.36	50%	**$408**	n/a	n/a
Motel	Room	3.35	50%	**$163**	n/a	n/a
School	1,000 Sq. Ft.	19.52	33%	**$628**	$223	$405
Community College	1,000 Sq. Ft.	20.25	33%	**$652**	$223	$429
Church	1,000 Sq. Ft.	3.87	33%	**$124**	$223	($99)
Day Care	1,000 Sq. Ft.	47.62	33%	**$1,534**	$223	$1,311
Hospital	1,000 Sq. Ft.	10.72	33%	**$345**	$223	$122
General Office	1,000 Sq. Ft.	9.74	50%	**$475**	$242	$233
Research & Dev Center	1,000 Sq. Ft.	11.26	50%	**$549**	$242	$307
Business Park	1,000 Sq. Ft.	12.44	50%	**$607**	$242	$365
Commercial / Retail	1,000 Sq. Ft.	37.75	33%	**$1,216**	$618	$598

FORECAST OF REVENUES

Appendix B contains the forecast of revenues required by Arizona's Enabling Legislation.

Development Fee Revenues for Police Facilities and Vehicles & Equipment

Revenue projections shown below assume implementation of the proposed Police Facilities development fees and that development over the next 10 years is consistent with the Land Use Assumptions (excluding the approximately 66 single-family units annually from Rancho El Dorado South). To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the development fee revenue. As shown in Figure P9, the 10-year growth costs of building space, vehicles and

equipment total approximately $6.4 million, and approximately $6.3 million will be collected from development fees. Note that while the proposed fee schedule includes 16 nonresidential categories, the Land Use Assumptions combine nonresidential growth into 5 categories (Distribution & Warehousing, Industrial, Commercial, Institutional, and Office & Other) for simplicity.

Figure P9: Projected Police Development Fee Revenue

Fee Component	Growth Share
Facilities	$4,701,246
Vehicles & Equipment	$1,673,496
Development Fee Report	$18,926
Total Expenditures	**$6,393,668**

		Single-Family	*Multi-Family*	*Distr. & Warehousing*	*Industrial*	*Commercial*	*Institutional*	*Office & Other*
		$496 per Unit	$334 per Unit	$84 per KSF	$242 per KSF	$1,216 per KSF	$628 per KSF	$475 per KSF
Year		Housing Units	Housing Units	KSF	KSF	*KSF*	*KSF*	*KSF*
Base	2018	19,843	174	201	217	1,057	249	163
1	2019	20,602	174	214	228	1,101	361	174
2	2020	21,369	214	229	239	1,147	481	186
3	2021	22,165	254	244	251	1,197	607	198
4	2022	22,990	294	260	263	1,250	741	211
5	2023	23,846	374	278	277	1,306	884	225
6	2024	24,733	454	296	291	1,365	1,036	239
7	2025	25,653	534	315	306	1,428	1,196	255
8	2026	26,607	654	336	322	1,495	1,367	271
9	2027	27,597	774	358	339	1,566	1,548	289
10	2028	28,624	894	381	357	1,641	1,741	307
10-year Increase		8,781	720	181	139	584	1,492	144
Projected Revenue		**$4,355,376**	**$240,480**	**$15,204**	**$33,737**	**$710,727**	**$936,722**	**$68,385**

Projected Revenue	**$6,360,631**
Surplus / (Deficit)	**($33,037)**

FIRE FACILITIES INFRASTRUCTURE IMPROVEMENT PLAN

ARS § 9-463.05 (T)(7)(f) defines the facilities and assets that can be included in 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."*

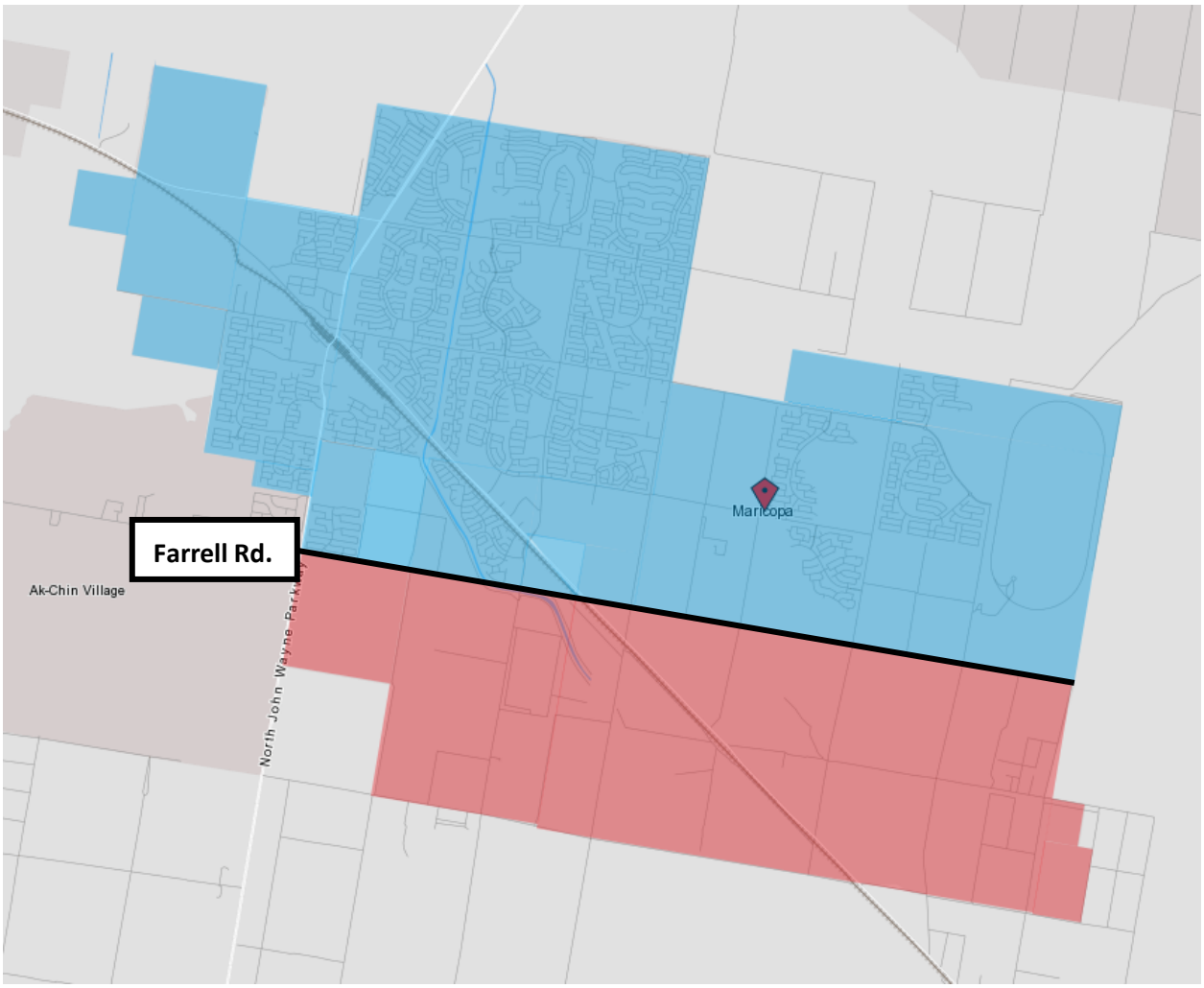
The Fire Facilities IIP and Development Fees includes components for fire station space, administrative space, apparatus, and the cost of professional services for preparing the Fire Facilities IIP and related Development Fee Report. A plan-based methodology is used to allocate the costs of a new fire Administrative Building which will be built to serve existing and new development, as well as for the cost of the Fire Facilities IIP and Development Fee Report. An incremental expansion methodology is used for fire station space and fire apparatus.

Service Area

Discussions with City staff indicate that capacity provided by existing fire stations in the central and northern areas of Maricopa is sufficient to accommodate existing and future development. However, most of the expected development in the City is projected to occur in the southern portion of the City where there is currently only one fire station.

For these reasons, TischlerBise proposes two service areas for Fire Facilities, shown in Figure F1: the portion of Maricopa which lies north of Farrell Road, shaded blue, and the area south of Farrell Road, shaded red. The North Service Area excludes the Rancho El Dorado South subdivision, which is subject to its own settlement agreement. The costs of new apparatus, the planned administration building and the Fire Facilities IIP and Development Fee Report will be allocated to both service areas, while the costs of building a new fire station will be allocated to the southern service area only. Note that boundaries of the service areas as shown in the map in Figure F1 are an approximation based on current City limits. As annexation occurs and the boundaries of Maricopa's incorporated area change, so too will the service areas for Fire Facilities.

Figure F1: Proposed Service Areas for Fire Facilities



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. TischlerBise recommends functional population to allocate the cost of Fire Facilities to residential and nonresidential development. Functional population is similar to what the U.S. Census Bureau calls "daytime population," by accounting for people living and working in a jurisdiction, but also considers commuting patterns and time spent at home and at nonresidential locations. OnTheMap is a web-based mapping and reporting application that shows where workers are employed and where they live. It describes geographic patterns of jobs by their employment locations and residential locations as well as the connections between the two locations. OnTheMap was developed through a unique partnership between the U.S. Census Bureau and its Local Employment Dynamics (LED) partner states. OnTheMap data is used, as shown in Figure F2, to derive Functional Population shares for Maricopa.

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 Maricopa are assigned 14

hours to residential development and 10 hours to nonresidential development. Residents that work outside Maricopa are assigned 14 hours to residential development. Inflow commuters are assigned 10 hours to nonresidential development. Based on 2015 functional population data for Maricopa, the cost allocation for residential development is 86 percent while nonresidential development accounts for 14 percent of the demand for municipal facilities.

Figure F2: Fire Proportionate Share

Demand Units in 2015			Demand Hours/Day	Person Hours	Proportionate Share
Residential					
Estimated Residents	49,478				
Residents Not Working	28,271		20	565,420	
Resident Workers	21,207				
7% Worked in City		1,549	14	21,686	
93% Worked Outside City		19,658	14	275,212	
		Residential Subtotal		**862,318**	**86%**
Nonresidential					
Non-working Residents	28,271		4	113,084	
Jobs Located in City	3,296				
47% Residents Working in City		1,549	10	15,490	
53% Non-Resident Workers (inflow commuters)		1,747	10	17,470	
		Nonresidential Subtotal		**146,044**	**14%**
			TOTAL	**1,008,362**	**100%**

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/retail, industrial, and office/other services."*

Figure F3 displays the ratio of service units to various types of land uses for residential and nonresidential development. The residential development table displays the persons per housing unit for single-family (or single unit) and multi-family units.

TischlerBise recommends using nonresidential vehicle trips as the best demand indicator for fire facilities and apparatus. Trip generation rates are used for nonresidential development because vehicle trips are highest for commercial/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 fire service 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, Fire Facilities development fees would be too 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, Fire Facilities development fees would be too high for industrial development.

Trip generation rates per average weekday are from the reference book Trip Generation published by the Institute of Transportation Engineers (ITE, 10th Edition, 2017). A vehicle trip end represents a vehicle either entering or exiting a development (as if a traffic counter were placed across a driveway). To calculate development 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%.

For commercial and institutional land uses, the trip adjustment factor is less than 50% because retail development and some services 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, the ITE data indicates that 34% of the vehicles that enter are passing by on their way to some other primary destination. In other words, 34% of trips to the average shopping center are already being counted because the shopping center is not their final destination, and therefore these trips must be discounted. The remaining 66% 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% multiplied by 50%, or approximately 33% of the vehicle trips. These factors are shown to derive inbound vehicle trips for each type of nonresidential land use.

The ratio of service unit to development unit for each type of nonresidential development is calculated by multiplying the ITE trip generation rate by the trip rate adjustment factor to avoid double-counting trips, as discussed above. By way of example, the service unit to development unit ratio for an Office development is found by multiplying the ITE trip generation rate of 9.74 trips (per 1,000 square feet) by the trip rate adjustment factor of 50%, yielding an adjusted trip rate of 4.87 trips per 1,000 square feet. Therefore, it is reasonable to assume a 50,000 square foot office development would generate 243.5 primary destination trips per average weekday.

Figure F3: Fire Facilities Ratio of Service Unit to Development Unit

Residential Service Units

Housing Type	Persons per Housing Unit*
Single-Family	2.67
Multi-Family	1.80

Nonresidential Service Units

Development Type	Demand Unit	Trip Ends per Demand Unit**	Trip Rate Adjustment**	Adj. Trips per Demand Unit
Light Industrial	1,000 Sq. Ft.	4.96	50%	2.48
Industrial Park	1,000 Sq. Ft.	3.37	50%	1.69
Manufacturing	1,000 Sq. Ft.	3.93	50%	1.97
Warehousing	1,000 Sq. Ft.	1.74	50%	0.87
Assisted Living	1,000 Sq. Ft.	4.19	33%	1.38
Hotel	Room	8.36	50%	4.18
Motel	Room	3.35	50%	1.68
School	1,000 Sq. Ft.	19.52	33%	6.44
Community College	1,000 Sq. Ft.	20.25	33%	6.68
Church#	1,000 Sq. Ft.	3.87	33%	1.28
Day Care	1,000 Sq. Ft.	47.62	33%	15.71
Hospital	1,000 Sq. Ft.	10.72	33%	3.54
General Office	1,000 Sq. Ft.	9.74	50%	4.87
Research & Dev Center	1,000 Sq. Ft.	11.26	50%	5.63
Business Park	1,000 Sq. Ft.	12.44	50%	6.22
Commercial / Retail	1,000 Sq. Ft.	37.75	33%	12.46

**Derived from U.S. Census Bureau American Community Survey 1-Year Estimates, 2016.*

***ITE Trip Generation Rates, 10th Edition (2017).*

 # Church figures based on the Synagogue category. ITE does not gather employee data for the Church category.

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 Stations

The City's Fire Department owns and operates 4 fire stations and a fleet facility. A new fire station is planned for construction in the southern Maricopa service area to accommodate new growth. The first component of the Fire Facilities Development Fee is based on an inventory of existing citywide facilities and replacement costs. The use of existing standards means there are no existing infrastructure deficiencies. New development is only paying its proportionate share for growth-related infrastructure. The floor area has been provided by the City of Maricopa staff.

The City's four fire stations occupy 43,595 square feet. As shown in Figure F4, the level-of-service for residential development is 0.703 square feet per person, and the nonresidential level-of-service is 0.371 square feet per nonresidential vehicle trip. This is determined by multiplying the total square footage by the proportionate share factors (86% for residential and 14% for nonresidential), and then dividing the respective totals by the current service units (53,294 persons for residential and 16,443 vehicle trips for nonresidential). Then, the levels of service are multiplied by the average replacement cost per square foot ($410) to determine the costs per service unit of $288.43 per person and $152.19 per nonresidential vehicle trip. The average replacement cost per square foot was determined by City of Maricopa staff, based on recent construction plans. Note that while the LOS Standards shown are rounded to the fourth decimal place, the analysis does not round these figures. Therefore, the cost analysis calculations may not produce the same result if the reader replicates the calculations using the factors shown (due to the rounding of figures shown, not in the analysis).

Figure F4: Fire Stations Level-of-Service and Cost Analysis

	Square Feet	Cost per Sq. Ft.*	Total Cost
Station 571	10,995	$410	$4,507,950
Station 572	5,848	$410	$2,397,680
Station 574	7,828	$410	$3,209,480
Station 575	8,116	$410	$3,327,560
Fire Fleet Area	10,808	$410	$4,431,280
TOTAL	**43,595**	**$410**	**$17,873,950**

Level-of-Service (LOS) Standards

Population in 2018	53,294
Nonresidential Vehicle Trips in 2018	16,443
Residential Share	86%
Nonresidential Share	14%
LOS: Square Feet per Person	**0.703**
LOS: Square Feet per Nonres. Vehicle Trip	**0.371**

Cost Analysis

Cost per Square Foot	$410.00
LOS: Square Feet per Person	0.703
LOS: Square Feet per Vehicle Trip	0.371
Cost per Person	**$288.43**
Cost per Nonres. Vehicle Trip	**$152.19**

**City of Maricopa*

Planned Administration Building

The City plans to construct a new Fire Administration building to replace the existing facility, which is housed in a temporary building. A plan-based approach is used for this component of the development fee.

As shown in Figure F5, the new Fire Administration facility is planned at 12,000 square feet, with a cost of $7 million to construct. The State of Arizona will contribute funds to cover approximately 70% of the total cost of the facility, or $4.90 million. The City of Maricopa will be responsible for covering the remaining $2.10 million in construction costs. To calculate the cost per person and nonresidential vehicle trip, the net cost of the new fire station ($2.10 million) is multiplied by the residential and nonresidential proportionate shares (86% and 14%, respectively) to determine the residential ($1.806 million) and nonresidential ($294,000) proportionate shares of the planned facility. It is estimated this facility will be adequate through 2035. Since this planned facility represents an elevation to the current level-of-service for Fire administrative facilities, TischlerBise has spread the City's share of the cost equally over the entire projected 2035 residential and nonresidential demand base, which ensures everyone is treated equally.

This results in cost per service units of $20.01 and a cost per nonresidential vehicle trip of $5.27. Based on the net increase in service units to 2035, the growth share is estimated at $947,000.

Figure F5: Planned Fire Administration Building Cost Component

	Square Feet	Total Cost	ADOT Contribution*	Net Cost to City*
Fire Administration Building	12,000	$7,000,000	$4,900,000	**$2,100,000**

Cost Analysis

Residential Share	86%
Nonresidential Share	14%
Population in 2035	90,243
Nonres. Vehicle Trips in 2035	55,776
Cost per Person	**$20.01**
Cost per Nonres. Vehicle Trip	**$5.27**

Growth Share

Population Increase to 2035	36,949
10-Year Nonres. Vehicle Trip Increase	39,334
New Growth Share	**$947,000**

**City of Maricopa*

Fire Apparatus

The incremental expansion methodology is used to maintain the current level-of-service for fire apparatus as new growth occurs. The inventory summary of Maricopa's fire apparatus is displayed in Figure F6. The Maricopa Fire Department owns 30 apparatus, which have a total replacement cost of $14.317 million. Dividing the total cost by the total number of apparatus yields an average cost per unit of $477,233. The current residential level-of-service of 0.00048 apparatus per resident is found by multiplying the 30 apparatus by the residential proportionate share (86%) and dividing by the current population (53,294). Similarly, the nonresidential level-of-service of 0.00026 apparatus per nonresidential vehicle trip is found by multiplying the 30 apparatus by the nonresidential proportionate share (14%) and dividing by the current number nonresidential vehicle trips (16,443).

Finally, the average costs per service unit is obtained by multiplying the residential and nonresidential levels of service (0.00048 apparatus per resident and 0.00026 apparatus per vehicle trip) by the average cost per unit of apparatus ($477,233). This produces a cost per person of $231.03 and a cost per nonresidential vehicle trip of $121.90. Note that while the LOS Standards shown are rounded to the fifth decimal place, the analysis does not round these figures. Therefore, the cost analysis calculations may not produce the same result if the reader replicates the calculations using the factors shown (due to the rounding of figures shown, not in the analysis).

Figure F6: Fire Apparatus Inventory and Level-of-Service Standards and Cost Analysis

Apparatus Description	Quantity	Unit Cost	Total Cost
Ladder Truck	1	$1,400,000	$1,400,000
Pumper	3	$1,700,000	$5,100,000
Ladder Tender	1	$1,000,000	$1,000,000
Reserve Ladder	1	$1,400,000	$1,400,000
Reserve Pumper	2	$1,700,000	$3,400,000
Water Tender	1	$400,000	$400,000
Type 3 Brush Truck	1	$450,000	$450,000
Type 6 Brush Truck	1	$215,000	$215,000
Battalion Vehicle	1	$95,000	$95,000
Reserve BC	1	$95,000	$95,000
Chief Vehicle	3	$28,000	$84,000
Operations Chief Vehicle	1	$51,000	$51,000
Support Service Vehicle	1	$35,000	$35,000
Support 571	1	$115,000	$115,000
Fleet Services Vehicle	1	$130,000	$130,000
Station Car	3	$28,000	$84,000
EMS Vehicle	1	$43,000	$43,000
PUB ED Trailer	1	$70,000	$70,000
SCBA Trailer	1	$100,000	$100,000
Miscellaneous Trailers	3	$5,333	$16,000
6 x 6 Polaris UTV	1	$34,000	$34,000
TOTAL	**30**	**$477,233**	**$14,317,000**

Level-of-Service (LOS) Standards

Population in 2018	53,294
Nonresidential Vehicle Trips in 2018	16,443
Residential Share	86%
Nonresidential Share	14%
LOS: Apparatus per Person	**0.00048**
LOS: Apparatus per Nonres. Vehicle Trip	**0.00026**

Cost Analysis

Cost per Unit	$477,233
LOS: Vehicles & Equipment per Person	0.00048
LOS: Vehicles & Equipment per Vehicle Trip	0.00026
Cost per Person	**$231.03**
Cost per Nonres. Vehicle Trip	**$121.90**

**City of Maricopa*

Development Fee Report

The cost to prepare the Fire Facilities IIP and related Development Fee Report totals $18,926. Maricopa plans to update its report every five years. Based on this cost, proportionate share, and five-year projections of new residential and nonresidential development from the Land Use Assumptions document, the cost per person is $1.45 and the cost per nonresidential trip is $0.34.

Figure F7: Development Fee Report Cost Allocation

Fee Component	Cost	Demand Indicator	Proportionate Share	Cost Allocation				Cost per Demand Unit
				Units	2018	2023	Increase	
Fire	$18,926	Residential	86%	Population	53,294	64,518	11,224	**$1.45**
		Nonresidential	14%	Vehicle Trips	16,443	24,207	7,764	**$0.34**

PROJECTED SERVICE UNITS AND PROJECTED DEMAND FOR SERVICES

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."*

Based on information contained in the Land Use Assumptions, TischlerBise projects an additional 19,433 persons and 14,773 nonresidential vehicle trips in the South Service Area over the next 10 years, as shown in Figure F8.

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 Figure F8, this new development will demand 19,161 square feet of additional station-related space over the next 10 years. Using the average replacements costs for station space ($410 per square foot), the new growth will demand approximately $7.8 million on additional station-related space.

Figure F8: Projected Demand for Fire Facilities

Level-of-Service			Demand Unit	Unit Cost
Residential	0.70349	Station	per Person	$410
Nonresidential	0.37118		per Vehicle Trip	

Year		Population	Nonres. Vehicle Trips	Residential Space	Nonresidential Space	Total Space
Base	2018	53,294	16,443	37,492	6,103	43,595
Year 1	2019	54,942	17,637	38,651	6,547	45,198
Year 2	2020	56,464	18,887	39,722	7,011	46,733
Year 3	2021	58,020	20,403	40,816	7,573	48,389
Year 4	2022	59,605	21,339	41,932	7,921	49,852
Year 5	2023	61,292	22,754	43,118	8,446	51,564
Year 6	2024	63,009	24,235	44,326	8,995	53,321
Year 7	2025	65,453	26,063	46,046	9,674	55,720
Year 8	2026	67,327	27,704	47,363	10,283	57,647
Year 9	2027	70,738	29,743	49,764	11,040	60,804
Year 10	2028	72,737	31,215	51,169	11,587	62,756
10-Year Increase		**19,443**	**14,773**	**13,678**	**5,483**	**19,161**
Growth-Related Expenditures				**$5,607,857**	**$2,248,153**	**$7,856,010**

The Land Use Assumptions projects an additional 24,917 persons and 18,241 nonresidential vehicle trips citywide over the next 10 years, as shown in Figure P9. As shown in Figure F9, new development is projected to demand 16.8 additional units of apparatus over the next 10 years. Using the average replacements costs for fire apparatus ($477,233), the City of Maricopa will need to spend $8.0 million on additional apparatus.

Figure F9: Projected Demand for Fire Apparatus

Level-of-Service			Demand Unit	Unit Cost
Residential	0.00048	Apparatus	per Person	$477,233
Nonresidential	0.00026		per Vehicle Trip	

Year		Population	Nonres. Vehicle Trips	Residential Apparatus	Nonresidential Apparatus	Total Apparatus
Base	2018	53,294	16,443	25.8	4.2	30.0
Year 1	2019	55,497	17,815	26.9	4.6	31.5
Year 2	2020	57,617	19,272	27.9	4.9	32.8
Year 3	2021	59,814	20,820	29.0	5.3	34.3
Year 4	2022	62,089	22,462	30.1	5.7	35.8
Year 5	2023	64,518	24,207	31.2	6.2	37.4
Year 6	2024	67,031	26,059	32.4	6.7	39.1
Year 7	2025	69,631	28,025	33.7	7.2	40.9
Year 8	2026	72,394	30,113	35.0	7.7	42.7
Year 9	2027	75,253	32,330	36.4	8.3	44.7
Year 10	2028	78,212	34,684	37.9	8.9	46.8
10-Year Increase		**24,917**	**18,241**	**12.1**	**4.7**	**16.8**
Growth-Related Expenditures				**$5,774,519**	**$2,242,995**	**$8,017,514**

FIRE FACILITIES IIP

ARS § 9-463.05(E)(3) requires:

> *"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."*

Potential Fire Facilities that Maricopa may use development fees for in order to accommodate new development over the next 10 years are shown in Figure F10.

Figure F10: Necessary Fire Improvements and Expansions (10-Yr Total)

Fire Facilities Infrastructure Improvements Plan		
Improvement	**Timeframe**	**Estimated Cost**
Radios	2019-2023	$180,000
Type 6 Brush Truck	2019-2028	$430,000
Various Apparatus	2019-2028	$2,000,000
Fire Station #5	2019-2028	$5,000,000
Fire Administration Building	2019-2028	$2,100,000
Total		**$9,710,000**

FIRE FACILITIES DEVELOPMENT FEES

Revenue Credit/Offset

A revenue credit/offset is not necessary for the Fire development fees because 10-year growth costs exceed the amount of revenue that is projected to be generated by development fees according to the Land Use Assumptions, as shown later in Figure F10.

Proposed Fire Facilities Development Fees

The proposed Fire Facilities development fees are shown in Figures F11 and 12. For the North Service Area, the cost factors include the administration facility, apparatus, and professional services, which are summarized at the top of Figure F11. The residential development fees are calculated by multiplying the $252.49 cost per person by the service unit ratios (persons per housing unit) for each housing type. Nonresidential development fees are calculated by multiplying the $127.51 cost per vehicle trip by the average weekday vehicle trips per 1,000 square feet ratios and the trip adjustment factors for each development type. Proposed development fees for Fire Facilities are shown in green, current development fees are shown in light blue, and final column shows the proposed net change in Fire development fees.

Figure F11: Proposed Fire Facilities Development Fees – North Maricopa Service Area

Fee Component	Cost per Person	Cost per Vehicle Trip
Facilities	$0.00	$0.00
Administrative Space	$20.01	$5.27
Apparatus	$231.03	$121.90
Development Fee Report	$1.45	$0.34
TOTAL	**$252.49**	**$127.51**

Residential Development

Housing Type	Persons per Housing Unit	Proposed Fee	Current Fee	Increase / (Decrease)
Single-Family	2.67	**$674**	$541	$133
Multi-Family	1.80	**$454**	$383	$71

Nonresidential Development

Development Type	Demand Unit	Trip Ends per Demand Unit	Trip Rate Adjustment	Proposed Fee	Current Fee	Increase / (Decrease)
Light Industrial	1,000 Sq. Ft.	4.96	50%	**$316**	$319	($3)
Industrial Park	1,000 Sq. Ft.	3.37	50%	**$214**	$319	($105)
Manufacturing	1,000 Sq. Ft.	3.93	50%	**$250**	$319	($69)
Warehousing	1,000 Sq. Ft.	1.74	50%	**$110**	$319	($209)
Assisted Living	1,000 Sq. Ft.	4.19	33%	**$176**	$343	($167)
Hotel	Room	8.36	50%	**$532**	n/a	n/a
Motel	Room	3.35	50%	**$213**	n/a	n/a
School	1,000 Sq. Ft.	19.52	33%	**$821**	$343	$478
Community College	1,000 Sq. Ft.	20.25	33%	**$852**	$343	$509
Church	1,000 Sq. Ft.	3.87	33%	**$162**	$343	($181)
Day Care	1,000 Sq. Ft.	47.62	33%	**$2,003**	$343	$1,660
Hospital	1,000 Sq. Ft.	10.72	33%	**$451**	$343	$108
General Office	1,000 Sq. Ft.	9.74	50%	**$620**	$1,160	($540)
Research & Dev Center	1,000 Sq. Ft.	11.26	50%	**$717**	$1,160	($443)
Business Park	1,000 Sq. Ft.	12.44	50%	**$793**	$1,160	($367)
Commercial	1,000 Sq. Ft.	37.75	33%	**$1,588**	$698	$890

For the South Service Area, the cost factors include fire stations, administration facility, apparatus, and professional services, which are summarized at the top of Figure F12. The residential development fees are calculated by multiplying the $540.92 cost per person by the service unit ratios (persons per housing unit) for each housing type. Nonresidential development fees are calculated by multiplying the $279.70 cost per vehicle trip by the average weekday vehicle trips per 1,000 square feet ratios and the trip adjustment factors for each development type. Proposed development fees for Fire are shown in green, current development fees are shown in light blue, and final column shows the proposed net change in Fire development fees.

Figure F12: Proposed Fire Facilities Development Fees – South Maricopa Service Area

Fee Component	Cost per Person	Cost per Vehicle Trip
Station Space	$288.43	$152.19
Administrative Space	$20.01	$5.27
Apparatus	$231.03	$121.90
Development Fee Report	$1.45	$0.34
TOTAL	**$540.92**	**$279.70**

Residential Development

Housing Type	Persons per Housing Unit	Proposed Fee	Current Fee	Increase / (Decrease)
Single-Family	2.67	**$1,444**	$541	$903
Multi-Family	1.80	**$973**	$383	$590

Nonresidential Development

Development Type	Demand Unit	Trip Ends per Demand	Trip Rate Adjustment	Proposed Fee	Current Fee	Increase / (Decrease)
Light Industrial	1,000 Sq. Ft.	4.96	50%	**$693**	$319	$374
Industrial Park	1,000 Sq. Ft.	3.37	50%	**$471**	$319	$152
Manufacturing	1,000 Sq. Ft.	3.93	50%	**$549**	$319	$230
Warehousing	1,000 Sq. Ft.	1.74	50%	**$243**	$319	($76)
Assisted Living	1,000 Sq. Ft.	4.19	33%	**$386**	$343	$43
Hotel	Room	8.36	50%	**$1,169**	n/a	n/a
Motel	Room	3.35	50%	**$468**	n/a	n/a
School	1,000 Sq. Ft.	19.52	33%	**$1,801**	$343	$1,458
Community College	1,000 Sq. Ft.	20.25	33%	**$1,869**	$343	$1,526
Church	1,000 Sq. Ft.	3.87	33%	**$357**	$343	$14
Day Care	1,000 Sq. Ft.	47.62	33%	**$4,395**	$343	$4,052
Hospital	1,000 Sq. Ft.	10.72	33%	**$989**	$343	$646
General Office	1,000 Sq. Ft.	9.74	50%	**$1,362**	$1,160	$202
Research & Dev Center	1,000 Sq. Ft.	11.26	50%	**$1,574**	$1,160	$414
Business Park	1,000 Sq. Ft.	12.44	50%	**$1,739**	$1,160	$579
Commercial	1,000 Sq. Ft.	37.75	33%	**$3,484**	$698	$2,786

FORECAST OF REVENUES

Appendix B contains the forecast of revenues required by Arizona's Enabling Legislation.

Development Fee Revenues for Fire Facilities and Apparatus

Revenue projections for the North Maricopa Service Area shown below assume implementation of the proposed Fire Facilities development fees and that development over the next 10 years is consistent with the Land Use Assumptions (excluding the approximately 66 single-family units annually from Rancho El Dorado South which are in the North Service Area). To the extent the rate of development either

accelerates or slows down, there will be a corresponding change in the development fee revenue. As shown in Figure F13, the 10-year growth costs of Fire Facilities and apparatus for the North Maricopa Service Area total approximately $1.79 million, and approximately $1.71 million will be collected from development fees. Note that while the proposed fee schedule includes 16 nonresidential categories, the Land Use Assumptions combine nonresidential growth into 5 categories (Distribution & Warehousing, Industrial, Commercial, Institutional, and Office & Other) for simplicity.

Figure F13: Projected Fire Facilities Development Fee Revenue – North Maricopa Service Area

Infrastructure Costs for Fire

Fee Component	Growth Share
Facilities	$0
Administration Building	$189,400
Apparatus	$1,603,503
Development Fee Report	$3,785
Total Expenditures	**$1,796,688**

		Single-Family	*Multi-Family*	*Distr. & Warehousing*	*Industrial*	*Commercial*	*Institutional*	*Office & Other*
		$674 per Unit	$454 per Unit	$250 per KSF	$316 per KSF	$1,588 per KSF	$821 per KSF	$620 per KSF
Year		**Housing Units**	**Housing Units**	***KSF***	***KSF***	***KSF***	***KSF***	***KSF***
Base	2018	19,843	174	201	217	1,057	249	163
1	2019	20,190	174	201	217	1,057	256	165
2	2020	20,206	174	203	222	1,068	264	165
3	2021	20,222	179	203	222	1,081	273	167
4	2022	20,238	183	203	223	1,094	286	167
5	2023	20,255	189	203	223	1,096	302	170
6	2024	20,521	197	204	226	1,111	322	170
7	2025	20,549	227	204	227	1,114	345	173
8	2026	20,844	305	204	230	1,117	386	177
9	2027	20,884	282	204	238	1,151	435	183
10	2028	21,613	317	204	246	1,172	545	191
10-year Increase		**1,770**	**143**	**4**	**28**	**115**	**296**	**28**
Projected Revenue		**$1,193,088**	**$64,922**	**$1,000**	**$8,848**	**$182,620**	**$243,016**	**$17,360**

Projected Revenue	**$1,710,854**
Surplus / (Deficit)	**($85,834)**

Revenue projections for the South Maricopa Service Area shown below assume implementation of the proposed Fire development fees and that development over the next 10 years is consistent with the Land Use Assumptions. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the development fee revenue. As shown in Figure F14, the 10-year growth costs of fire facilities and apparatus total approximately $18.3 million, and approximately $18.1 million is projected to be collected from development fees. Note that while the proposed fee schedule includes 16 nonresidential categories, the Land Use Assumptions combine nonresidential growth into 5 categories (Distribution & Warehousing, Industrial, Commercial, Institutional, and Office & Other) for simplicity.

Figure F14: Projected Fire Facilities Development Fee Revenue – South Maricopa Service Area

Infrastructure Costs for Fire

Fee Component	Growth Share
Fire Stations	$7,856,010
Administration Building	$757,600
Apparatus	$6,414,011
Development Fee Report	$15,141
Total Expenditures	**$15,042,762**

		Single-Family	*Multi-Family*	*Distr. & Warehousin*	*Industrial*	*Commercial*	*Institutional*	*Office & Other*
		$1,444 per Unit	$973 per Unit	$549 per KSF	$693 per KSF	$3,484 per KSF	$1,801 per KSF	$1,362 per KSF
Year		**Housing Units**	**Housing Units**	***KSF***	***KSF***	***KSF***	***KSF***	***KSF***
Base	2018	19,843	174	201	217	1,057	249	163
1	2019	20,255	174	214	228	1,101	354	172
2	2020	21,006	214	226	234	1,136	466	184
3	2021	21,786	249	242	246	1,173	583	194
4	2022	22,595	285	258	258	1,212	704	207
5	2023	23,434	359	275	271	1,266	831	218
6	2024	24,055	431	293	282	1,310	963	232
7	2025	24,947	481	312	297	1,371	1,101	244
8	2026	25,606	523	333	309	1,435	1,230	258
9	2027	26,556	666	355	318	1,472	1,363	268
10	2028	26,854	751	378	329	1,526	1,445	280
10-year Increase		**7,011**	**577**	**177**	**111**	**470**	**1,196**	**116**
Projected Revenue		**$10,123,653**	**$561,421**	**$97,173**	**$76,923**	**$1,637,480**	**$2,153,996**	**$157,992**

Projected Revenue	**$14,808,638**
Surplus / (Deficit)	**($234,124)**

STREET FACILITIES INFRASTRUCTURE IMPROVEMENT PLAN

ARS § 9-463.05 (T)(7)(e) defines the facilities and assets that can be included in 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 street improvements and the cost of professional services for preparing the Street Facilities IIP and related Development Fee Report. An incremental expansion methodology is used for arterial street improvements, and a plan-based methodology is used for the Development Fee Report.

Service Area

The City of Maricopa strives to provide a uniform level-of-service for street facilities throughout the City. Because the arterial street network serves the entire population and workforce relatively evenly, a Citywide service area is recommended for the Street Facilities IIP, but excludes the Rancho El Dorado South subdivision, which is subject to its own settlement agreement.

METHODOLOGY

Street Facilities development fees use an incremental expansion methodology and allocate capital costs to residential and nonresidential development based on vehicle miles of travel using average weekday vehicle trips and average trip lengths. This methodology allows Maricopa to maintain the current level-of-service standard as growth occurs. Development fee revenue collected using this methodology may not be used to replace or rehabilitate existing improvements.

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 provide necessary public services to the development. Trip length, trip generation rates and trip adjustment factors are used to determine the proportionate impact of residential and the various nonresidential land uses on the City's arterial street network.

RATIO OF SERVICE UNITS TO LAND USE

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."*

Service Units

The appropriate service unit for the Street Facilities development fees is vehicle miles of travel (VMT). VMT creates the link between supply (roadway capacity) and demand (traffic generated by new development). Components used to determine VMT, which include trip generation rates, adjustments for commuting patterns and pass-by trips, and trip length weighting factors, are discussed further in this section.

Figure S1: Summary of Service Units

Development Type	ITE Code	Weekday VTE*	Dev Unit	Trip Adj*	Adj Trip Rate	Local Trip Length**	VMT per Service Unit
Single-Family	210	9.44	HU	64%	6.04	1.91	11.52
Multi-Family	220	7.32	HU	64%	4.68	1.91	8.94
Light Industrial	110	4.96	KSF	50%	2.48	1.19	2.96
Industrial Park	130	3.37	KSF	50%	1.69	1.19	2.01
Manufacturing	140	3.93	KSF	50%	1.97	1.19	2.34
Warehousing	150	1.74	KSF	50%	0.87	1.19	1.04
Assisted Living	254	4.19	KSF	33%	1.38	1.19	1.65
Hotel	310	8.36	room	33%	2.76	1.22	3.37
Motel	320	3.35	room	33%	1.11	1.22	1.35
School	520	19.52	KSF	33%	6.44	1.19	7.68
Community College	540	20.25	KSF	33%	6.68	1.19	7.97
Church	560	3.87	KSF	33%	1.28	1.19	1.52
Day Care	565	47.62	KSF	33%	15.71	1.19	18.73
Hospital	610	10.72	KSF	33%	3.54	1.19	4.22
General Office	710	9.74	KSF	50%	4.87	1.19	5.81
Research & Dev Center	760	11.26	KSF	50%	5.63	1.19	6.71
Business Park	770	12.44	KSF	50%	6.22	1.19	7.41
Commercial / Retail	820	37.75	KSF	33%	12.46	1.22	15.24

*Trip Generation, Institute of Transportation Engineers, 10th Edition (2017).

*TischlerBise calculation

Trip Generation Rates

For nonresidential development, the trip generation rates are from the 10th edition of the reference book Trip Generation published by the Institute of Transportation Engineers (2017). A vehicle trip end represents a vehicle either entering or exiting a development (as if a traffic counter were placed across a driveway). As an alternative to using the national average trip generation rate for residential development, the Institute of Transportation Engineers (ITE) publishes regression curve formulas that may be used to derive custom trip generation rates using local demographic data. This is explained in more detail in Appendix A: Land Use Assumptions.

Adjustments for Commuting Patterns and Pass-By Trips

To calculate Street Facilities Development 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%. As discussed further below, the development fee methodology includes

additional adjustments to make the fees proportionate to the infrastructure demand for particular types of development.

Residential development has a larger trip adjustment factor of 64% to account for commuters leaving Maricopa for work. According to the 2009 National Household Travel Survey, weekday work trips are typically 31% of production trips (i.e., all out-bound trips, which are 50% of all trips). As shown in Figure S2, the Census Bureau's web application OnTheMap indicates that 93% of resident workers traveled outside the City for work in 2015. In combination, these factors (0.31 X 0.50 X 0.93 = .14) support the additional 14% allocation of trips to residential development.

Figure S2: Inflow/Outflow Analysis

Trip Adjustment Factors for Commuters[1]	
Employed Residents	21,207
Residents Working in Maricopa	1,549
Residents Commuting Out of Maricopa	19,658
Percent Commuting out of Maricopa	**93%**
All Outbound Trips	50%
% Weekday Work Trips[2]	31%
Additional Production Trips	14%
Residential Trip Adjustment Factor	**64%**

1. U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics, 2015.
2. National Household Travel Survey, 2009.

For commercial and institutional land uses, the trip adjustment factor is less than 50% because retail, institutions, and other services 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, the ITE data indicates that 34% of the vehicles that enter are passing by on their way to some other primary destination. The remaining 66% 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% multiplied by 50%, or approximately 33% of the trips. These factors are shown to derive inbound vehicle trips for each type of nonresidential land use.

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."*

The City of Maricopa provided an inventory of road segments, including segment lengths, lane quantities, and annual average daily traffic (AADT) counts (see Figure S7). Although this list is not a complete

inventory, the sample size is large enough to be representative of the City's travel characteristics. Multiplying each segment's length by the number of lanes yields the number of lane miles per segment. The City's arterial road network consists of 94.2 lane miles. By multiplying the traffic counts and segment lengths, the daily vehicle miles of travel (VMT) is obtained. The sum of each arterial road segment's VMT is 249,886, meaning that based on the sample of road segments, Maricopa's arterial street network handles an average of approximately a quarter of a million VMT each weekday.

Figure S3 also documents the capacity of Maricopa's arterial road network. Generally, the City's arterial streets operate at a Level-of-Service D, and the average number of lanes for arterials is roughly 4 lanes. The Maricopa Association of Governments' Regional Transportation Model (2017) suggests that a mile segment of a 4-lane arterial street with a Level-of-Service D should maintain a daily volume of 41,300 vehicles, or 10,325 vehicles per lane mile over a 24-hour period. This means that the total daily lane mile capacity of the City's arterial road network of 94.2 lane miles is approximately 972,615.

As noted above, current daily volume on Maricopa's arterial network is 249,886 VMT. The resulting VMC to VMT ratio is 3.89 (972,615 VMC / 249,886 VMT). The baseline VMC/VMT ratio for any incremental expansion method is 1.0 (i.e., VMC=VMT), therefore the current ratio of 3.89 exceeds current LOS ensuring that new capacity built with development fee funds will be at or below current LOS.

Figure S3: Arterial Road Network Capacity and Usage

Average Trip Length Factors	
Total Vehicle Lane Miles	94.2
Capacity per Lane Mile (LOS D)*	10,325
Total Capacity (Vehicle Miles)	972,615
Existing Vehicle Miles of Travel	249,886
VMC/VMT Ratio	**3.89**

** Source: MAG Regional Transportation Model.*

Cost per VMT

Figure S4 contains the estimated cost per lane mile for future transportation projects in Maricopa. Based on a sampling of potential projects, the weighted average cost per lane mile of $1,547,458 (See Appendix C for details).

A cost per vehicle mile of capacity (VMC) is calculated based on the average cost per lane mile of $1,547,458 and the average lane capacity of 10,325 average daily vehicle trips (per 1 lane mile). This results in a $149.87 cost per VMC. The incremental expansion methodology assumes the ratio of VMC to VMT is 1, therefore the cost per VMT is also $149.87.

Figure S4: Potential Street Facilities Improvement Projects and Costs

Cost per Lane Mile*	$1,547,458
Vehicle Miles of Capacity per Lane Mile	10,325
Cost per VMC	**$149.87**

**Based on a sample of known future road projects. See Appendix C*

In addition to arterial construction, the Street Facilities development fee also contains a component for traffic signals. According to information provided by the City, the estimated cost per traffic signal is $300,000.

Vehicle Trips

Figure S6 shows the calculation of vehicle trips generated by existing development. When the average weekday VTE and Trip Adjustment percentages (shown in Figure S1) are multiplied by the development unit quantities for Maricopa from the Land Use Assumption in Appendix A (housing units and nonresidential KSF), the total number of vehicle trips generated by existing development is determined. As shown in Figure S5, this totals 136,866 adjusted vehicle trips.

Figure S5: Vehicle Trips

Development Type	ITE Code	Weekday VTE	Dev Unit	Trip Adj	2018 Dev Units	2018 Vehicle Trips
Single-Family	210	9.44	HU	64%	19,843	119,883
Multi-Family	220	7.32	HU	64%	174	815
Warehousing & Distr. (KSF)	110	1.74	KSF	50%	174	175
Industrial (KSF)	130	3.93	KSF	50%	201	427
Commercial (KSF)	820	37.75	KSF	33%	1,057	13,165
Institutional (KSF)	520	19.52	KSF	33%	249	1,605
Office & Other (KSF)	710	9.74	KSF	50%	163	795
				Total Adjusted Vehicle Trips		**136,866**

Average Trip Length

For the incremental expansion methodology, it is necessary to determine the average trip length on the City's arterial network. To do this, national trip generation rates and average trip lengths from the *2017 National Household Travel Survey* are used to determine *expected* VMT on the City's transportation network.

Figure S6 shows average trip lengths from the *National Household Travel Survey (2017).*[1]

[1] U.S. Department of Transportation, Federal Highway Administration, 2017 National Household Travel Survey. URL: http://nhts.ornl.gov

Figure S6: National Average Trip Lengths

Land Use	National Average Trip Lenght (miles)
Residential	12.32
Industrial	7.70
Commercial/Retail	7.90
Institutional	7.70
Office and Other	7.70

** U.S. Department of Transportation, Federal Highway Administration, 2017 National Household Transportation Survey, adjusted for land use*

The national average trip length needs to be adjusted to reflect actual local demand on the City's arterial network. To do this, TischlerBise utilized information prepared by Wilson & Company as part of the City's *Area Transportation Plan*. Road segments with actual traffic counts were used to determine the ratio of actual versus potential, or expected, demand (VMT) on the City's transportation network, based on theoretical capacity. As shown in Figure S7, on segments of the City's road network where traffic volume data exists, there is 249,886 vehicle miles of travel. Based on the theoretical capacity of the sample network, there is expected/potential vehicle miles of travel of 1,018,174.

Figure S7: Expected VMT in the City of Maricopa

Facility Name	From	To	Length (miles)	# of Lanes	Lane Miles	Daily Volume	Actual Vehicle Miles of Travel	Theoretical Capacity	Potential Vehicle Miles of Travel
Hogenes Blvd	Honeycutt Rd	Bowlin Rd	0.75	2	1.5	10	8	20,800	15,600
Porter	Smith-Enke Rd	Honeycutt Rd	1.02	2	2.0	8,510	8,680	20,800	21,216
Porter	Honeycutt Rd	Bowlin Rd	1.02	4	4.1	8,799	8,975	41,500	42,330
Porter	Bowlin Rd	Maricopa-Casa Grande Hwy	0.57	4	2.3	2,914	1,661	41,500	23,655
Porter	Maricopa-Casa Grande Hwy	Farrell Rd	0.24	4	1.0	6,910	1,658	45,600	10,944
Murphy Rd	Honeycutt Rd	Bowlin Rd	0.41	2	0.8	2,603	1,067	22,800	9,348
Murphy Rd	Bowlin Rd	Farrell Rd	1	2	2.0	2,280	2,280	22,800	22,800
Murphy Rd	Farrell Rd	Steen Rd	1.03	2	2.1	3,073	3,165	22,800	23,484
Murphy Rd	Steen Rd	Peters & Nall Rd	1.03	2	2.1	2,462	2,536	22,800	23,484
Murphy Rd	Peters & Nall Rd	Maricopa-Casa Grande Hwy	0.54	2	1.1	2,433	1,314	22,800	12,312
Maricopa-Casa Grande Hwy	SR 347	Porter Rd	0.86	2	1.7	6,140	5,280	20,800	17,888
Maricopa-Casa Grande Hwy	SR 347	Porter Rd	0.81	3	2.4	7,926	6,420	31,100	25,191
Maricopa-Casa Grande Hwy	SR 347	Porter Rd	0.82	4	3.3	10,925	8,959	41,500	34,030
Maricopa-Casa Grande Hwy	Porter Rd	Farrell Rd	0.76	2	1.5	9,672	7,351	22,800	17,328
Maricopa-Casa Grande Hwy	Farrell Rd	White & Parker Rd	0.48	2	1.0	6,120	2,938	22,800	10,944
Maricopa-Casa Grande Hwy	White & Parker Rd	Hartman Rd	2.42	2	4.8	6,422	15,541	22,800	55,176
Maricopa-Casa Grande Hwy	Hartman Rd	Murphy Rd	1.46	2	2.9	7,691	11,229	22,800	33,288
Maricopa-Casa Grande Hwy	Murphy Rd	Anderson Rd	0.98	2	2.0	9,199	9,015	22,800	22,344
Maricopa-Casa Grande Hwy	Anderson Rd	Russell Rd	1.2	2	2.4	8,140	9,768	22,800	27,360
Maricopa-Casa Grande Hwy	Russell Rd	Val Vista Rd	1.76	2	3.5	7,514	13,225	22,800	40,128
Smith-Enke	SR 347	Province Pkwy	1.01	4	4.0	23,119	23,350	41,500	41,915
Smith-Enke	Province Pkwy	Porter Rd	0.78	4	3.1	11,418	8,906	41,500	32,370
Smith-Enke	Porter Rd	White & Parker Rd	0.13	2	0.3	6,514	847	20,800	2,704
Smith-Enke	Porter Rd	White & Parker Rd	0.27	3	0.8	6,937	1,873	31,100	8,397
Smith-Enke	Porter Rd	White & Parker Rd	0.6	4	2.4	6,937	4,162	41,500	24,900
McDavid	Green Rd	Hogenes Blvd	0.26	2	0.5	643	167	20,800	5,408
McDavid	Hogenes Blvd	Edwards Ave	0.43	2	0.9	309	133	20,800	8,944
Edwards	McDavid Rd	SR 347	0.32	2	0.6	18,781	6,010	20,800	6,656
Honeycutt Rd	SR 347	4th Street	0.25	2	0.5	12,377	3,094	20,800	5,200
Honeycutt Rd	4th Street	Porter Rd	1.8	4	7.2	17,853	32,135	41,500	74,700
Honeycutt Rd	Porter Rd	White & Parker Rd	1	3	3.0	8,630	8,630	31,100	31,100
Honeycutt Rd	White & Parker Rd	Santa Cruz Wash	1	2	2.0	11,540	11,540	20,800	20,800
Honeycutt Rd	Santa Cruz Wash	Hartman Rd	1.01	3	3.0	11,540	11,655	34,200	34,542
Honeycutt Rd	Hartman Rd	Murphy Rd	0.07	2	0.1	10,593	742	22,800	1,596
Honeycutt Rd	Hartman Rd	Murphy Rd	1.17	4	4.7	10,593	12,394	45,600	53,352
Bowlin Rd	Hogenes Blvd	SR 347	0.27	2	0.5	10	3	20,800	5,616
Bowlin Rd	Hogenes Blvd	SR 347	1.67	4	6.7	10	17	41,500	69,305
Bowlin Rd	SR 347	Smith Rd	0.3	2	0.6	539	162	20,800	6,240
Bowlin Rd	Alan Stephens Pkwy	Porter Rd	0.61	2	1.2	816	498	20,800	12,688
Bowlin Rd	Porter Rd	White & Parker Rd	0.97	4	3.9	961	932	41,500	40,255
Bowlin Rd	Porter Rd	White & Parker Rd	0.3	2	0.6	2,564	769	22,800	6,840
Bowlin Rd	Santa Cruz Wash	Hartman Rd	0.38	3	1.1	906	344	34,200	12,996
Bowlin Rd	Santa Cruz Wash	Hartman Rd	0.5	4	2.0	906	453	45,600	22,800
			Total		**94.2**	**292,869**	**249,886**	**1,261,600**	**1,018,174**

Source: Table D-1, Major Roadway Capacity Analysis: Existing Roads, Wilson & Company, January 2019.

Because expected VMT reflects anticipated travel demand from on the entire roadway system, it is therefore higher than actual VMT on the arterial system in the City, based on the sample data obtained. To calibrate demand on the arterial system, expected travel demand is compared to actual VMT obtained from the City of Maricopa. The ratio between actual and expected VMT calculated above provides a local adjustment factor that can be applied to national average trip lengths by type of land use. The local adjustment factor of 24.5 percent is shown in Figure S8.

Figure S8: Local Trip Length Adjustment Factor

Actual / Expected

Actual Local VMT on Arterials*	249,886
Expected Local VMT^	1,018,174
Actual to Expected VMT	**0.245**

**Wilson & Company*

^ TischlerBise analysis

As shown in Figure S9, the national average trips lengths are adjusted to reflect local conditions.

Figure S9: Local Average Trip Lengths by Land Use

Development Type	National Avg Trip Length (miles)	Local Adj. Factor	Local Trip Length
Residential	12.32	0.245	3.02
Warehousing & Distr.	7.70	0.245	1.89
Industrial	7.70	0.245	1.89
Commercial/Retail	7.90	0.245	1.94
Institutional	7.70	0.245	1.89
Office and Other	7.70	0.245	1.89

Sources: National trip length from 2017 NHTS and TischlerBise; local adjustment from Figure S8.

Using the above factors, VMT per service unit is calculated, shown below in Figure S10.

Figure S10: VMT per Service Unit on Arterial Network

Development Type	ITE Code	Weekday VTE*	Dev Unit	Trip Adj*	Adj Trip Rate	Local Trip Length**	VMT per Service Unit
Single-Family	210	9.44	HU	64%	6.04	3.02	18.27
Multi-Family	220	7.32	HU	64%	4.68	3.02	14.17
Light Industrial	110	4.96	KSF	50%	2.48	1.89	4.69
Industrial Park	130	3.37	KSF	50%	1.69	1.89	3.18
Manufacturing	140	3.93	KSF	50%	1.97	1.89	3.71
Warehousing	150	1.74	KSF	50%	0.87	1.89	1.64
Assisted Living	254	4.19	KSF	33%	1.38	1.89	2.61
Hotel	310	8.36	room	33%	2.76	1.94	5.35
Motel	320	3.35	room	33%	1.11	1.94	2.14
School	520	19.52	KSF	33%	6.44	1.89	12.17
Community College	540	20.25	KSF	33%	6.68	1.89	12.63
Church	560	3.87	KSF	33%	1.28	1.89	2.41
Day Care	565	47.62	KSF	33%	15.71	1.89	29.70
Hospital	610	10.72	KSF	33%	3.54	1.89	6.69
General Office	710	9.74	KSF	50%	4.87	1.89	9.20
Research & Dev Center	760	11.26	KSF	50%	5.63	1.89	10.64
Business Park	770	12.44	KSF	50%	6.22	1.89	11.75
Commercial / Retail	820	37.75	KSF	33%	12.46	1.94	24.15

*Trip Generation, Institute of Transportation Engineers, 10th Edition (2017).
*TischlerBise calculation

SERVICE UNITS, DEMAND, AND COST FOR 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."*

TischlerBise created an aggregate travel model to convert development units within Maricopa to vehicle trips and vehicle miles of travel. This includes the factors discussed above, as well as average trip length, and is shown in Figure S11.

Travel Demand Model

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."*

Projected development in Maricopa over the next 10 years, and the corresponding need for additional lane miles and traffic signals is shown in Figure S11. Trip generation rates and trip adjustment factors

convert project development into average weekday vehicle trips. As shown in Figure S11, new development in Maricopa will generate 74,845 trips.

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."*

The travel demand model inputs above (Figure S10) are used to derive level-of-service in Vehicle Miles of Travel and future arterial and traffic signal needs. A Vehicle Mile of Travel (VMT) is a measurement unit equal to one vehicle traveling one mile. As shown in Figure S11, based on the increase in vehicle miles of travel (206,227), the City of Maricopa would need to construct an additional 19.97 lane miles of arterial streets to accommodate projected development over the next 10 years. Additionally, the City currently has 16 traffic signals. When this is compared to existing VMT, there are 0.4 signals per 10,000 VMT. New development generates the for 8.3 additional traffic signals.

Figure S11: Projected Travel Demand Model

		2018	2019	2020	2021	2022	2023	2028	10-Year
		Base	1	2	3	4	5	10	Increase
Development	Single Units	19,843	20,668	21,435	22,231	23,056	23,912	28,690	**8,847**
	2+ Units	174	174	214	254	294	374	894	**720**
	Warehousing & Distr. KSF	201	214	229	244	260	278	381	**181**
	Industrial KSF	217	228	239	251	263	277	357	**139**
	Commercial KSF	1,057	1,101	1,147	1,197	1,250	1,306	1,641	**584**
	Institutional KSF	249	361	481	607	741	884	1,741	**1,492**
	Office & Other KSF	163	174	186	198	211	225	307	**144**
Average Weekday Vehicle Trips	Single Unit Res Trips	119,883	124,868	129,502	134,311	139,295	144,467	173,334	**53,450**
	2+ Units ResTrips	815	815	1,003	1,190	1,377	1,752	4,188	**3,373**
	Warehousing & Distr. Trips	175	186	199	212	226	242	332	**157**
	Industrial Trips	427	448	470	493	518	544	701	**274**
	Commercial Trips	13,165	13,713	14,295	14,912	15,568	16,264	20,446	**7,281**
	Institutional Trips	1,605	2,328	3,096	3,911	4,776	5,695	11,214	**9,608**
	Office & Other Trips	795	848	904	963	1,027	1,094	1,496	**701**
	Total Vehicle Trips	**136,866**	**143,206**	**149,467**	**155,992**	**162,787**	**170,057**	**211,711**	**74,845**
VMT	**Vehicle Miles of Travel**	**396,149**	**413,809**	**431,136**	**449,162**	**467,899**	**487,960**	**602,376**	**206,227**

NEED	Additional Lane Miles		1.7	1.7	1.7	1.8	1.9	2.4	**19.97**
	Growth-Related Cost		$2,646,796	$2,596,894	$2,701,747	$2,808,172	$3,006,663	$3,732,131	**$30,908,290**

NEED	Additional Traffic Signals	**16.0**	16.7	17.4	18.1	18.9	19.7	24.3	**8.3**
	Signals per 10,000 VMT	**0.4**	0.7	0.7	0.7	0.8	0.8	1.0	
	Growth-Related Cost		$213,981	$209,947	$218,423	$227,027	$243,074	$301,725	**$2,498,788**

ARS § 9-463.05(E)(3) requires:

> *"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."*

Multiplying the increase in number of lane miles (19.9) by the cost per lane mile from Figure S4 ($1.547 million) results in a 10-year cost of approximately $30.98 million for arterial lane miles. An additional $2.49 million is projected for traffic signals.

Potential road improvement projects the City may use the Street Facilities development fees for in order to accommodate new development over the next 10 years are shown in Figure S12.

Figure S12: Potential Street Facility Improvements and Expansions (10-Yr Total)

Porter Road - From…	
Farrel Road to Hiller Road Alignment	$15,249,000
Honeycutt Road - From…	
White and Parker Road to Anderson Road	$12,792,600
Farrell Road - From…	
White and Parker to Hartman Road	$4,008,900
Anderson Road - From…	
Steen Rd south for 1/2 mile south**	$1,044,660
Peters and Nall Road to Steen Road	$1,985,360
Steen Road to Farrell Road	$1,947,180
Farrell Road to Bowlin Road	$1,966,270
Bowlin Road to Honeycutt Road	$954,500
Peters and Nall Road - From…	
Murphy Road to Anderson Road	$1,909,000
MCGH To Murphy Road	$1,145,400
Hartman Road to MCGH	$916,320
Fuqua Road to Hartman Road	$1,909,000
White and Parker To Fuqua Road	$1,909,000
Smith Road to White and Parker	$3,818,000
Anderson Road to the City Limit	$763,600
Hiller Road Alignment	
Construct as Potential Truck Bypass	$3,767,400
Bridges	
Porter Rd at Santa Rosa Wash	$4,600,000
Farrell Rd at Santa Cruz Wash	$766,667
Hartman Rd at Santa Cruz Wash	$1,150,000
MCGH at Santa Rosa Wash	$3,066,667
Shea Way - From…	
Porter Rd approx. .25 miles	$805,000

Bowlin Road - From…	
White and Parker Rd to Anthony Blvd	$8,582,220
SR-347 to Karsten	$1,207,500
SR-347 & MLK Blvd	$776,250
Murphy Road - From…	
Peters and Nall To Steen Road	$1,985,360
Steen Road To Farrell Road	$2,920,770
Farrell Road to Bowlin Road	$2,949,405
Bowlin Road to Honeycutt Road	$954,500
Hartman Road - From…	
Peters and Nall to MCGH	$477,250
MCGH to Labrea Road	$439,070
Labrea Road to Steen Road	$859,050
Steen Road to Farrell Road	$1,966,270
Farrell Road To Sorrento Blvd	$1,718,100
Sorrento Blvd to Bowlin Road	$1,909,000
Bowlin Road To Honeycutt Road	$1,909,000
East West Corridor	
Parallel Rd: Construct as 4-lane Principal Arterial from White/Parker Rd to Farrell Rd	$1,242,000
Construct Parallel Rd as 4-lane Minor Arterial from Farrell Rd to Hartman Rd	$3,622,500
Farrell Rd: Widen to 6-lane Principal Arterial from SR-347 to White/Parker Rd	$9,128,700
Farrell Rd Realignment - Santa Rosa Wash	$4,600,000
Traffic Signal - Porter and Farrell Road	$345,000
Farrell Rd - SR-347 to Porter Rd	$2,846,250
Steen Rd - Construct Railroad Crossing	$1,725,000
Bowlin Rd - Green Road to White and Parker Rd	$14,179,500
White and Parker Road - From…	
MCGH to Smith Enke	$8,333,820
Steen Road to MCGH	$2,925,048
Roundabouts	
6 in various locations	$19,872,000

Source: City of Maricopa

Potential traffic signal projects the City may use the Street Facilities development fees for in order to accommodate new development over the next 10 years are shown in Figure S13.

Figure S13: Potential Traffic Signal Improvements (10-Yr Total)

APEX Race Track Entrance at SR-238	$300,000	Porter Rd and Steen Rd	$287,500
Chase Dr	$300,000	White and Parker and Farrell Rd	$343,000
Smith Enke and White and Parker Rd	$300,000	White and Parker and Peters and Nall Rd	$711,600
Homestead Dr and Porter Rd	$300,000	Steen Rd and SR-347	$411,600
Gunsmoke Rd and Honeycutt Rd	$300,000	Edison Rd and SR-238	$411,600
Honeycutt Rd and White and Parker Rd	$300,000	Hartman Rd and Bowlin Rd	$345,000
N High Lonesome Dr and Honeycutt Rd	$300,000	Hartman Rd and Farrell Rd	$345,000
N Ranch Mirage Blvd and Honeycutt Rd	$300,000	Hartman Rd and Steen Rd	$345,000
Hartman Rd and Honeycutt Rd	$300,000	Hartman Rd and MCGH	$345,000
W. Santi Rd and White and Parker Rd	$300,000	Hartman Rd and Peters and Nall Rd	$345,000
Bowlin Rd and White and Parker Rd	$300,000	Murphy Rd and Bowlin Rd	$345,000
N High Lonesome Dr and Bowlin Rd	$300,000	Murphy Rd and Farrell Rd	$345,000
Sorento and Bowlin Rd	$300,000	Murphy Rd and Steen Rd	$345,000
Porter Rd and Smith Enke	$287,500	Anderson Rd and Steen Rd	$287,500
Porter Rd and Somerset Dr	$345,000	Anderson Rd and Peters and Nall Rd	$345,000
Porter Rd and Farrell Rd	$345,000	MCGH halfway between Porter and White/Parker Rd	$300,000

Source: City of Maricopa

Development Fee Report

The cost to prepare the Street Facilities IIP and Development Fee Report totals $28,389. Maricopa plans to update its report every five years. Based on this cost, proportionate share, and five-year projections of new residential and nonresidential development from the Land Use Assumptions document, the cost is $0.30 per average weekday VMT.

Figure S14: Development Fee Report Cost Allocation

Fee Component	*Cost*	*Demand Indicator*	*Proportionate Share*	*Cost Allocation*				Cost per Demand Unit Increase
				Units	*2018*	*2023*	*Increase*	
Streets	$28,389	All Development	100%	Avg Wkdy VMT	396,149	487,960	91,812	**$0.30**

STREET FACILITIES DEVELOPMENT FEES

Revenue Credit/Offset

A revenue credit/offset is not necessary for the Street Facilities development fees because 10-year growth costs exceed the amount of revenue that is projected to be generated by development fees according to the Land Use Assumptions, as shown in Figure S16.

Proposed Street Facilities Development Fees

The proposed development fees for Street Facilities are shown in Figure S15. Cost factors for street improvements and the development fee study are summarized at the top of the figure. Residential development fees are expressed per housing unit. Nonresidential development fees are expressed per 1,000 square feet (KSF) of floor area (or, for hotel and motel development, per room). The Street Facilities development fees are calculated by multiplying the $162.29 cost per VMT/VMC by the VMT per

development unit for each land use type. The current development fees are shown in light blue shading, and the final column shows the proposed increase or decrease in the Streets Facilities development fees.

Figure S15: Proposed Street Facilities Development Fees

Arterial Cost per VMT/VMC	$149.87
Signal Cost per VMT	$12.12
Development Fee Study	$0.30
Net Cost per VMT	**$162.29**

Residential Development

Development Type	Demand Unit	VMT per Demand Unit	Net Cost per VMT	Proposed Fees	Current Fees	Increase / (Decrease)
Single-Family	Housing Unit	18.27	$162.29	**$2,965**	$3,580	$615
Multi-Family	Housing Unit	14.17	$162.29	**$2,299**	$2,501	$202

Nonresidential Development

Development Type	Demand Unit	VMT per Demand Unit	Net Cost per VMT	Proposed Fees	Current Fees	Increase / (Decrease)
Light Industrial	1,000 Sq. Ft.	4.69	$162.29	**$761**	$621	$140
Industrial Park	1,000 Sq. Ft.	3.18	$162.29	**$517**	$621	($104)
Manufacturing	1,000 Sq. Ft.	3.71	$162.29	**$603**	$621	($18)
Warehousing	1,000 Sq. Ft.	1.64	$162.29	**$267**	$621	($354)
Assisted Living	1,000 Sq. Ft.	2.61	$162.29	**$424**	$1,777	($1,353)
Hotel	room	5.35	$162.29	**$868**	n/a	N/A
Motel	room	2.14	$162.29	**$348**	n/a	N/A
School	1,000 Sq. Ft.	12.17	$162.29	**$1,976**	$1,777	$199
Community College	1,000 Sq. Ft.	12.63	$162.29	**$2,049**	$1,777	$272
Church	1,000 Sq. Ft.	2.41	$162.29	**$392**	$1,777	($1,385)
Day Care	1,000 Sq. Ft.	29.70	$162.29	**$4,820**	$1,777	$3,043
Hospital	1,000 Sq. Ft.	6.69	$162.29	**$1,085**	$1,777	($692)
General Office	1,000 Sq. Ft.	9.20	$162.29	**$1,494**	$1,925	($431)
Research & Dev Center	1,000 Sq. Ft.	10.64	$162.29	**$1,727**	$1,925	($198)
Business Park	1,000 Sq. Ft.	11.75	$162.29	**$1,908**	$1,925	($17)
Commercial / Retail	1,000 Sq. Ft.	24.15	$162.29	**$3,920**	$4,447	($527)

Projected Street Facilities Development Fee Revenue

Revenue projections shown below assume implementation of the proposed Street Facilities development fees and that development over the next 10 years is consistent with the Land Use Assumptions (excluding the approximately 66 single-family units annually from Rancho El Dorado South). To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the development fee revenue. As shown in Figure S16, the 10-year growth costs of Streets Facilities total approximately $33.4 million, and approximately $33.2 million will be collected from development fees. Note that while the proposed fee schedule includes 16 nonresidential categories, the Land Use Assumptions combine nonresidential growth into 5 categories (Distribution & Warehousing, Industrial, Commercial, Institutional, and Office & Other) for simplicity.

Figure S16: Projected Street Facilities Development Fee Revenue

Infrastructure Costs for Streets

Component	Growth Share
Arterial Street Improvements	$30,908,290
Traffic Signals	$2,498,788
Development Fee Report	$28,389
Total Expenditures	**$33,435,467**

Ten-Year Streets Development Fee Revenues

		Single-Family	Multi-Family	Distr. & Warehousing	Industrial	Commercial	Institutional	Office & Other
		$2,965 per Unit	$2,299 per Unit	$267 per KSF	$517 per KSF	$3,920 per KSF	$1,976 per KSF	$1,494 per KSF
Year		Units	Units	KSF	KSF	KSF	KSF	KSF
Base	2018	19,843	174	201	217	1,057	249	163
Year 1	2019	20,602	174	214	228	1,101	361	174
Year 2	2020	21,369	214	229	239	1,147	481	186
Year 3	2021	22,165	254	244	251	1,197	607	198
Year 4	2022	22,990	294	260	263	1,250	741	211
Year 5	2023	23,846	374	278	277	1,306	884	225
Year 6	2024	24,733	454	296	291	1,365	1,036	239
Year 7	2025	25,653	534	315	306	1,428	1,196	255
Year 8	2026	26,607	654	336	322	1,495	1,367	271
Year 9	2027	27,597	774	358	339	1,566	1,548	289
Year 10	2028	28,624	894	381	357	1,641	1,741	307
10-Yr Increase		8,781	720	181	139	584	1,492	144
Projected Revenue		###########	**$1,655,000**	**$48,000**	**$72,000**	**$2,291,000**	**$2,947,000**	**$215,000**
						Total Projected Revenue		**$33,261,000**
						Surplus / (Deficit)		($174,467)

APPENDIX A: LAND USE ASSUMPTIONS

EXECUTIVE SUMMARY

For municipalities in Arizona, the state enabling legislation requires supporting documentation on land use assumptions, a plan for infrastructure improvements, and development fee calculations. This document contains the land use assumptions for the City of Maricopa 2018 development fee update. Development fees must be updated every five years, making short-range projections the critical time frame. The Infrastructure Improvements Plan (IIP) is limited to 10 years for non-utility fees, thus a very long-range "build-out" analysis may not be used to derive development fees.

Arizona Revised Statuses (ARS) § 9-463.05 (T)(6) requires the preparation of a Land Use Assumptions document which shows:

> *"Projections of changes in land uses, densities, intensities and population for a specified service area over a period of at least 10 years and pursuant to the general plan of the municipality."*

TischlerBise prepared current demographic estimates and future development projections for both residential and nonresidential development that will be used in the Infrastructure Improvement Plan (IIP) and calculation of the development fees. Although long-range projections are necessary for planning infrastructure systems, a shorter time frame of five to 10 years is critical for the impact fees analysis. TischlerBise used compound growth rates to produce conservative projections that increase over time.

SERVICE AREAS

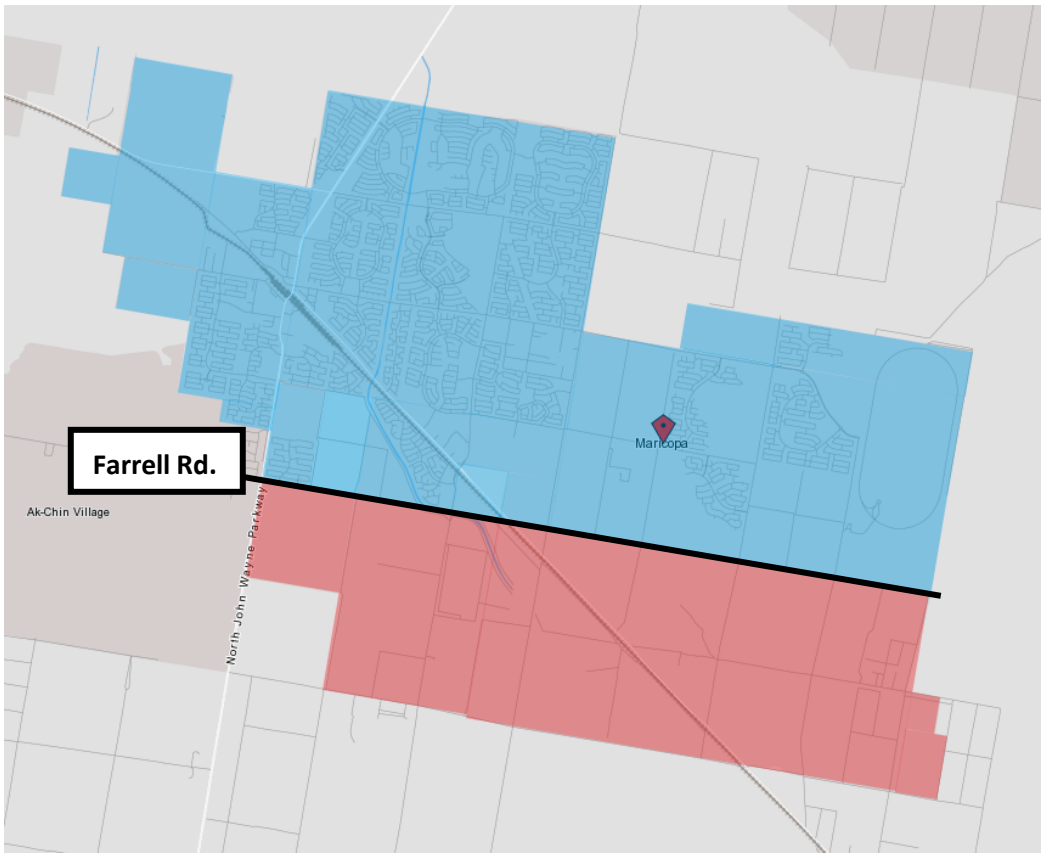
ARS § 9-463.05(T)(9) defines "service area" as follows:

> *"Any specified area within the boundaries of a municipality in which development will be served by necessary public services or facility expansions and within which a substantial nexus exists between the necessary public services or facility expansions and the development being served as prescribed in the infrastructure improvements plan."*

All of the City's capital and infrastructure is designed to benefit and serve the City has a whole, as opposed to specifically defined areas. Therefore, the service area will be citywide for all development fee components, with the exception of Fire. In addition, all developments fee service areas exclude the Rancho El Dorado South subdivision, which is subject to its own settlement agreement.

TischlerBise proposes two service areas for Fire Facilities, shown in Figure A1: the portion of Maricopa which lies north of Farrell Road, shaded blue, and the area south of Farrell Road, shaded red. The North Service Area excludes the Rancho El Dorado South subdivision, which is subject to its own settlement agreement. The costs of new apparatus, the planned administration building, and Development Report will be allocated to both service areas, while the costs of building a new fire station will be allocated to the southern service area only. Note that boundaries of the service areas as shown in the map in Figure F1 are an approximation based on current City limits.

Figure A1: Proposed Development Fee Service Areas for Fire



RESIDENTIAL DEVELOPMENT

Current estimates and future projections of residential development are detailed in this section, including population and housing units by type (single-family versus multi-family units). Current and future estimates of housing units and population were derived using data from the U.S. Census Bureau, housing unit permit data from the City of Maricopa, and the Maricopa Association of Governments' (MAG) *Socio-economic Projections* (June 2016).

Persons per Housing Unit

In 2010 the U.S. Census Bureau transitioned from the traditional long-form questionnaire to the American Community Survey, which is less detailed and has smaller sample sizes. As a result, Census data now has more limitations than before. For example, data on detached housing units are now combined with attached single units (commonly known as townhouses). For development fees in Maricopa, "single-unit" residential includes detached units and townhouses that share a common sidewall but are constructed on an individual parcel of land. The second residential category includes all structures with two or more units on an individual parcel of land.

According to the Census Bureau, a housing unit is a housing unit that is occupied by year-round residents. Development fees often use per capita standards and persons per housing unit, or persons per household, to derive proportionate-share fee amounts. When persons per housing unit are used in the fee

calculations, infrastructure standards are derived using year-round population. When persons per household are used in the fee calculations, the impact fee methodology assumes all 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 in the City of Maricopa be imposed according to a number of year-round residents per housing unit. TischlerBise used the Census Bureau's American Community Survey (ACS) results shown at the top of Figure A2 to derive the relative number of persons per housing unit (PPHU). For single-family units, the PPHU ratio is 2.67. Because there are so few multi-family units within the City's limits, the PPHU ratio for multi-family units was derived using the Census Bureau's Public Use Microdata Sample (PUMS) data for 2012-2016. The sample area contains approximately 100,000 residents and includes the City of Maricopa and the neighboring communities of Casa Grande and Eloy. The PPHU ratio for multi-family units is 1.80. These ratios are used in both the development fee calculations and to estimate future population growth.

Figure A2: Persons per Unit by Type of Housing

Type	Persons	Housing Units	Persons per Housing Unit
Single Unit*	45,306	16,939	**2.67**
2+ Units**	311	173	**1.80**
Subtotal	45,617	17,112	2.67
Group Quarters	0		
TOTAL	45,617	17,112	2.67

** U.S. Census Bureau's American Community Survey, 2016 5-Year Estimates, Tables B25024, B25032, B25033, and B26001. Includes attached, detached, and mobile homes.*

*** U.S. Census Bureau's Public Use Microdata Sample (PUMS), 2016 5-year counts, for PUMA 807. Includes City of Maricopa and surrounding areas.*

Current Residential Estimates

To estimate the current number of housing units and residents, TischlerBise started with the 2010 Census data for occupied housing units and added the annual housing unit permit data provided by the City of Maricopa. The 2010 Census counted 17,066 single-family units and 174 multi-family units. As shown in Figure A3, the City is expected to add 3,602 housing units between 2010 and 2019, all single-family. The rate at which housing units are being built has increased significantly in recent years.

Figure A3: Current Housing Unit Estimates

Year	Single-Family Housing Units	Multi-Family Housing Units	Total Housing Units	Annual Increase
2010	17,066	174	**17,240**	-
2011	17,350	174	**17,524**	284
2012	17,460	174	**17,634**	110
2013	17,688	174	**17,862**	228
2014	18,119	174	**18,293**	431
2015	18,419	174	**18,593**	300
2016	18,684	174	**18,858**	265
2017	19,030	174	**19,204**	346
2018	19,843	174	**20,017**	813
2019	20,668	174	**20,842**	825
		Total Increase		**3,602**

Source: 2010 housing units from U.S. Census Bureau's 2010 Census, 2011 - 2019 housing units based on permit data from the City of Maricopa.

Residential Projections

Single-family housing unit estimates for 2019 through 2028 were calculated using an exponential growth formula. An exponential growth approach provides more conservative short-range projections, with annual increases growing larger over time. The growth rate was derived from the Maricopa Association of Governments' (MAG) publication *Socioeconomic Projections: Population and Employment* (2016), which project an average annual residential growth rate of 3.71% over the next ten years. While the City currently has very little multi-family housing, significant new multi-family unit development is expected in the coming years. TischlerBise conservatively estimated the annual number of multi-family units being added would start at 40 units per year and grow to 120 units per year by the end of the 10-year period. Maricopa is projected to add 8,847 single-family units and 720 multi-family units between 2018 and 2028, as shown in Figure A4.

The City's population projections, also shown in Figure A4, were derived by multiplying the housing unit projections by the PPHU ratios for single and multi-family units from Figure A2. The 2016 PPHU ratios of 2.67 persons per single-family unit and 1.80 persons per multi-family unit were assumed to remain constant throughout the projection period. Maricopa is projected to add 24,917 residents between 2018 and 2028.

Figure A4: Residential Growth Projections

	2017	2018	2019	2020	2021	2022	2023	2028	10-Year Change
		Base	1	2	3	4	5	10	
Population									
Single-Family Population	50,810	52,981	55,184	57,231	59,357	61,560	63,845	76,602	23,621
Multi-Family Population	299	313	313	385	457	529	673	1,609	1,296
Total Population	**51,109**	**53,294**	**55,497**	**57,617**	**59,814**	**62,089**	**64,518**	**78,212**	**24,917**
Housing Units									
Single-Family Units	19,030	19,843	20,668	21,435	22,231	23,056	23,912	28,690	8,847
Multi-Family Units	174	174	174	214	254	294	374	894	720
Total Housing Units	**19,204**	**20,017**	**20,842**	**21,649**	**22,485**	**23,350**	**24,286**	**29,584**	**9,567**

NONRESIDENTIAL DEVELOPMENT

In addition to data on residential development, the infrastructure improvements plan and development fees require data on nonresidential development in Maricopa. Current estimates and future projections of nonresidential development are detailed in this section, including jobs and floor area by type. TischlerBise uses the terms "jobs" to refer to employment by place of work.

Jobs by Type of Nonresidential Development

To estimate the current number of jobs, TischlerBise used Maricopa Association of Governments' (MAG) 2017 Employment Cluster Summary for the City of Maricopa. Jobs were aggregated into one of five categories: warehousing/distribution, industrial, commercial, institutional, and office/other. These estimates are shown in Figure A5 below. According to MAG's estimates, in 2017 Maricopa had approximately 4,150 jobs, with the largest job categories being institutional and commercial.

Figure A5: 2017 Jobs Estimate

Maricopa Job Summary	Jobs	Job Mix
Warehousing / Distribution	**240**	5.8%
Industrial	**260**	6.3%
Commercial	**1,570**	37.8%
Institutional	**1,590**	38.3%
Office / Other	**490**	11.8%
Total	**4,150**	**100.0%**

Source: MAG Employment Cluster Summary, 2017.

Future job growth is based on the employment projections by regional analysis zone (RAZ) MAG's publication *Socioeconomic Projections: Population and Employment* (2016). Using the 2015 and 2030 data points, TischlerBise derived the interim year data (2018) by employing an exponential growth formula. An exponential growth approach provides more conservative short-range projections, with annual increases growing larger over time. Based on MAG's 2015 and 2030 projections, total jobs in the City will grow at an average rate of 6.18% per year. Future job projections were not broken down into categories, so all jobs were assumed to grow at the same rate. Maricopa's 10-year job projections through 2028 are shown in Figure A6. The City is expected to add a total of 3,618 jobs by 2028, most of which will come from the institutional and commercial sectors.

Figure A6: Nonresidential Growth Projections

		2018	2019	2020	2021	2022	2023	2028	10-Year
		Base	1	2	3	4	5	10	Change
Jobs									
Warehousing / Distr. Jobs	240	255	271	287	305	324	344	464	209
Industrial Jobs	260	276	293	311	330	351	373	503	227
Commercial Jobs	1,570	1,667	1,770	1,879	1,995	2,119	2,250	3,036	1,369
Institutional Jobs	1,590	1,688	1,793	1,903	2,021	2,146	2,278	3,074	1,386
Office & Other Jobs	490	520	552	587	623	661	702	947	427
Total Jobs	**4,150**	**4,406**	**4,679**	**4,968**	**5,275**	**5,600**	**5,946**	**8,025**	**3,618**

Nonresidential Floor Area by Type of Development

Figure A7 indicates 2018 job and floor area estimates for the City of Maricopa. Floor area totals were obtained from CoStar and aggregated into the five land use categories.

Figure A7: 2018 Jobs and Floor Area Estimates

Floor Area Category	Square Feet*
Distribution / Warehousing	200,663
Industrial	217,385
Commercial	1,056,807
Institutional	249,205
Office / Other	163,273
Total Nonresidential Floor Area	**1,887,333**

** CoStar nonresidential floor area data, 2018, aggregated into five categories.*

The job projections contained in Figure A6 are converted in to projections of nonresidential square footage shown below in Figure A8, using employment density factors from Figure A9 (shaded in light grey). Just as with jobs, the vast majority of the projected growth in nonresidential floor area will come from the institutional and commercial sectors.

Figure A8: Nonresidential Floor Area Projections

		2018	2019	2020	2021	2022	2023	2028	10-Year
		Base	1	2	3	4	5	10	Change
Nonresidential Floor Area (KSF)									
Warehousing / Distr. KSF		201	214	229	244	260	278	381	181
Industrial KSF		217	228	239	251	263	277	357	139
Commercial KSF		1,057	1,101	1,147	1,197	1,250	1,306	1,641	584
Institutional KSF		249	361	481	607	741	884	1,741	1,492
Office / Other KSF		163	174	186	198	211	225	307	144
Total Floor Area	-	**1,887**	**2,078**	**2,281**	**2,497**	**2,726**	**2,969**	**4,428**	**2,540**

Trip Generation Rates

Some development fee categories allocate infrastructure costs based on vehicle trips, rather than jobs. Vehicle trips produced by development are derived using ITE's trip generation rates. Figure A9 shows ITE's trip generation rates for development categories used in the development fee calculations, measured in trip ends per 1,000 square feet, as well as the ratio of employees per 1,000 square feet (note: hotel and motel categories use rooms instead of 1,000 square feet as the demand units).

Figure A9: ITE Employee and Trip Generation Ratios

ITE Code	Land Use / Size	Demand Unit	Wkdy Trip Ends Per Dmd Unit	Wkdy Trip Ends Per Employee	Employees Per Demand Unit	Sq Ft Per Emp
110	Light Industrial	1,000 Sq Ft	4.96	3.05	1.63	615
130	Industrial Park	1,000 Sq Ft	3.37	2.91	1.16	864
140	Manufacturing	1,000 Sq Ft	3.93	2.47	1.59	628
150	Warehousing	1,000 Sq Ft	1.74	5.05	0.34	2,902
254	Assisted Living	1,000 Sq Ft	4.19	4.24	0.99	1,012
310	Hotel	Room	8.36	14.34	0.58	N/A
320	Motel	Room	3.35	25.17	0.13	N/A
520	Elementary School	1,000 Sq Ft	19.52	21.00	0.93	1,076
540	Community College	1,000 Sq Ft	20.25	14.61	1.39	721
560	Church*	1,000 Sq Ft	3.87	5.80	0.67	1,499
565	Day Care	1,000 Sq Ft	47.62	21.38	2.23	449
610	Hospital	1,000 Sq Ft	10.72	3.79	2.83	354
710	General Office (avg size)	1,000 Sq Ft	9.74	3.28	2.97	337
760	Research & Dev Center	1,000 Sq Ft	11.26	3.29	3.42	292
770	Business Park	1,000 Sq Ft	12.44	4.04	3.08	325
820	Shopping Center (avg size)	1,000 Sq Ft	37.75	16.11	2.34	427

Source: Trip Generation , Institute of Transportation Engineers, 10th Edition (2017).

SUMMARY OF GROWTH INDICATORS

Development projections for both service areas are summarized in Figure A10. These projections will be used to estimate development fee revenue and to indicate the anticipated need for growth-related infrastructure. However, development fee methodologies are designed to reduce sensitivity to accurate development projections in the determination of the proportionate-share fee amounts. If actual development is slower than projected, development fees revenues will decline, but so will the need for growth-related infrastructure. In contrast, if development is faster than anticipated, the City will receive an increase in development fee revenue but will also need to accelerate capital improvements to keep pace with development.

Figure A10: Land Use Assumptions Summary

	2017	2018	2019	2020	2021	2022	2023	2028	10-Year Change
		Base	1	2	3	4	5	10	
Population									
Single-Family Population	50,810	52,981	55,184	57,231	59,357	61,560	63,845	76,602	23,621
Multi-Family Population	299	313	313	385	457	529	673	1,609	1,296
Total Population	**51,109**	**53,294**	**55,497**	**57,617**	**59,814**	**62,089**	**64,518**	**78,212**	**24,917**
Housing Units									
Single-Family Units	19,030	19,843	20,668	21,435	22,231	23,056	23,912	28,690	8,847
Multi-Family Units	174	174	174	214	254	294	374	894	720
Total Housing Units	**19,204**	**20,017**	**20,842**	**21,649**	**22,485**	**23,350**	**24,286**	**29,584**	**9,567**
Jobs									
Warehousing / Distr. Jobs	240	255	271	287	305	324	344	464	209
Industrial Jobs	260	276	293	311	330	351	373	503	227
Commercial Jobs	1,570	1,667	1,770	1,879	1,995	2,119	2,250	3,036	1,369
Institutional Jobs	1,590	1,688	1,793	1,903	2,021	2,146	2,278	3,074	1,386
Office & Other Jobs	490	520	552	587	623	661	702	947	427
Total Jobs	**4,150**	**4,406**	**4,679**	**4,968**	**5,275**	**5,600**	**5,946**	**8,025**	**3,618**
Nonresidential Floor Area (KSF)									
Warehousing / Distr. KSF		201	214	229	244	260	278	381	181
Industrial KSF		217	228	239	251	263	277	357	139
Commercial KSF		1,057	1,101	1,147	1,197	1,250	1,306	1,641	584
Institutional KSF		249	361	481	607	741	884	1,741	1,492
Office / Other KSF		163	174	186	198	211	225	307	144
Total Floor Area	**-**	**1,887**	**2,078**	**2,281**	**2,497**	**2,726**	**2,969**	**4,428**	**2,540**

APPENDIX B: FORECAST OF REVENUE

Arizona's Enabling Legislation requires municipalities to forecast the revenue contribution to be made in the future towards capital costs and shall include these contributions in determining the extent of burden imposed by development. TischlerBise sometimes recommends a small percentage reduction in development fees to satisfy the "required offset," which is a phrase taken directly from the enabling legislation (quoted below).

> *9-463.05.E.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 as required in subsection B, paragraph 12 of this section."*
>
> *9-463.05.B.12. "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."*

The General Fund unreserved fund balance was estimated at $35.2 million at June 30, 2018. Unlike FY18 when the City made provisions to spend down approximately $8.6 million from the FY16 fund balance to cover anticipated cost of the SR347 Grade Separation Capital Project and $2.6 million for the Maricopa Unified School District, the City only projects to spend down $4.7 million of its unreserved fund balance in FY19, which will fund non-growth related capital improvement projects of $2.9 million and $1 million to fund the operations of the Copper Sky Recreation Complex.

The Highway User Revenue Fund (HURF) revenue source is commonly referred to as the gasoline tax despite the fact that there are a number of additional fees included in this state shared revenue distribution. The City saw a substantial increase in HURF revenue distributions beginning in FY2012 due to the 2010 population census. Consistent with the General Fund state shared revenues, the forecast anticipates a slight increase in HURF revenues from the FY2019 projected actual revenues due to the modest anticipated statewide economic recovery. Presently, the spends between approximately 35% of HURF revenue on capital expenditures, and these expenditures are not for capacity enhancing projects, rather it is used for maintenance projects and equipment.

Maricopa does not have a higher than normal construction excise tax rate, so the required offset described above is not applicable. The required forecast of non-development fee revenue that might be used for growth-related capital costs is shown in Figure B1.

Figure B1: Projection of City Revenue

	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24
City Sales Tax	$11,793,000	$12,205,755	$12,632,956	$13,075,109	$13,532,738
Property Tax	$13,730,060	$14,416,563	$15,137,391	$15,894,261	$16,688,974
State Shared Income Tax	$6,354,097	$6,576,490	$6,806,667	$7,044,900	$7,291,472
Franchise Fees	$1,149,600	$1,184,088	$1,219,611	$1,256,199	$1,293,885
Vehicle License Tax	$3,054,100	$3,160,994	$3,271,629	$3,386,136	$3,504,651
State Shared Sales Tax	$5,044,957	$5,221,530	$5,404,284	$5,593,434	$5,789,204
General Government Revenue	$10,900	$11,282	$11,677	$12,086	$12,509
Licenses & Permits	$3,259,280	$3,309,025	$3,359,531	$3,410,809	$3,462,872
Fees, Fines & Charges	$3,237,257	$3,286,788	$3,337,076	$3,388,133	$3,439,972
Investment Earnings	$333,400	$343,402	$353,704	$364,315	$375,244
Other Miscellaneous	$403,709	$300,000	$300,000	$300,000	$300,000
Total General Fund	**$48,370,360**	**$50,015,917**	**$51,834,526**	**$53,725,382**	**$55,691,521**

APPENDIX C: ARTERIAL STREET COST DATA

Street	From / To	Description	Length	New Lanes	Lane Miles Added	2018 Cost	Cost per Lane Mile
Porter Rd at Santa Rosa Wash		Bridge	0.1	4	0.4	$4,600,000	$11,500,000
Farrell Rd at Santa Cruz Wash		Bridge	0.1	4	0.4	$766,667	$1,916,668
Hartman Rd at Santa Cruz Wash		Bridge	0.1	4	0.4	$1,150,000	$2,875,000
MCGH at Santa Rosa Wash		Bridge	0.1	4	0.4	$3,066,667	$7,666,668
Various Roundabouts (4)		Roundabout	0.4	4	1.6	$13,248,000	$8,280,000
White and Parker Road	Maricopa Casa Grande Highway to Smith Enke Road	Widen to 2 lanes with center turn lane	3.3	3	9.9	$8,333,820	$841,800
White and Parker Road	Steen Road to Maricopa Casa Grande Highway	Widen to 4 lane arterial	0.7	4	2.8	$7,134,140	$2,547,907
		Improve existing at-grade RR crossing					
		All weather crossing of Santa Rosa Wash					
Honeycutt Road	White and Parker Road to Hartman Road	Widen to 4 lane arterial	2	4	8	$8,535,300	$1,066,913
		1/2 span all weather crossing of Santa Cruz wash					
Bowlin Road	White and Parker Road to Anthony Boulevard	Construct 4 lane arterial	1.2	4	4.8	$7,151,850	$1,489,969
		All weather crossing of Santa Cruz Wash					
Porter Road	Farell Road to Iron Point Road	Widen to 4 lane arterial	0.5	4	2	$6,303,150	$3,151,575
		All weather crossing of Santa Rosa Wash					
Farell Road	SR 347 to Porter Road	Construct 4 lane arterial	2.1	4	8.4	$9,785,580	$1,164,950
Edison Road Extension	Northern terminus to SR 238	Widen to 4 lane arterial	0.25	4	1	$841,800	$841,800
Bowlin Road	Hartman Road to Murphy Road	Construct 4 lane arterial	1	4	4	$4,209,000	$1,052,250
Farell Road	White and Parker Road to Hartman Road	Construct 4 lane arterial	2.1	4	8.4	$13,041,000	$1,552,500
		All weather crossing of Santa Cruz Wash					
Bowlin Road	MLK Jr. Boulevard to Karsten Drive	Widen to 4 lane arterial	0.5	4	2	$1,683,600	$841,800
Hartman Road	Bowlin Road to Honeycutt Road	Widen to 4 lane arterial	1	4	4	$3,367,200	$841,800
Hartman Road	Maricopa Casa Grande Highway to Bowlin Road	Widen to 4 lane arterial	2.8	4	11.2	$14,640,052	$1,307,148
		All weather crossing of Santa Cruz Wash					
			18.25	**67**	**69.7**	**$107,857,826**	**$1,547,458**
						Vehicle Miles of Capacity per Lane Mile	10,325
						Cost per VMC	**$149.87**

Source: Wilson and Company/City of Maricopa