Land Use Assumptions, Infrastructure Improvements Plan, and Development Impact Fee Report

Prepared for:

City of Tucson, Arizona

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Exhibit 1 to Ordinance No. 11759

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EXECUTIVE SUMMARY

The City of Tucson hired TischlerBise to document land use assumptions, prepare an Infrastructure Improvements Plan (hereinafter referred to as the "IIP"), and update development impact fees pursuant to Arizona Revised Statutes ("ARS") § 9-436.05 (hereinafter referred to as the "Enabling Legislation"). Municipalities in Arizona may assess development impact fees to offset infrastructure costs to a municipality for necessary public services. The development impact fees must be based on an IIP 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 impact fees are displayed in the Development Impact Fee Report chapter.

Development impact 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 impact fees may be used for infrastructure improvements or debt service for growth related infrastructure. In contrast to general taxes, development impact fees may not be used for operations, maintenance, replacement, or correcting existing deficiencies.

Land Use Assumptions include current demographic estimates and future development projections for both residential and nonresidential development that are used in the IIP and to calculate development impact fees. Demographic data for January 1, 2018, are used to calculate levels of service provided to existing development in the City of Tucson. Development projections are used solely for the purpose of having an understanding of the possible future pace of service demands, development impact fee revenues, and capital expenditures. If development activity accelerates or decelerates from the assumed projections, the demand for facilities and infrastructure as well as development impact fee revenue will follow commensurately.

This update of the City's IIP and associated update to its development impact fees includes the following necessary public services:

- Parks and Recreational Facilities
- Police Facilities
- Fire Facilities
- Streets Facilities

This plan also includes all necessary elements required to be in full compliance with Arizona Revised Statutes ("ARS") § 9-436.05 (SB 1525). It should be noted that this IIP and Development Impact Fee study does not include storm water, drainage, or flood control facilities.

ARIZONA DEVELOPMENT FEE ENABLING LEGISLATION

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

Necessary Public Services

Under the requirements of the Enabling Legislation, development impact 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 impact fees were pledged to repay debt service obligations related to the construction of the facility.
2. After August 1, 2014, any development impact 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 impact 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 impact fees, which shall include estimated state-shared revenue, highway users revenue, federal revenue, ad valorem property taxes, construction contracting or similar excise taxes and the capital recovery portion of utility fees attributable to development based on the approved Land Use Assumptions and a plan to include these contributions in determining the extent of the burden imposed by the development.

Qualified Professionals

The IIP must be developed by qualified professionals using generally accepted engineering and planning practices. A qualified professional is defined as "a professional engineer, surveyor, financial analyst or planner providing services within the scope of the person's license, education, or experience." TischlerBise is a fiscal, economic, and planning consulting firm specializing in the cost of growth services and is licensed to do business in Arizona. Our services include development impact 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 Impact Fee Calculation

In contrast to project-level improvements, development impact 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 level of service. In keeping with the park example, a common level of service 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 Offsets and Development Impact Fee Credits

Regardless of the methodology, a consideration of offsets and credits is integral to the development of a legally defensible development fee. There are two types of offsets and credits that should be addressed in development fee studies and ordinances. The first is a revenue 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 offset is integrated into the fee calculation, thus reducing the fee amount. The second is a development impact fee credit 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.

DEVELOPMENT IMPACT FEE REPORT

METHODOLOGY

Development impact 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 impact 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 impact fees for public services can also include the cost of professional services for preparing IIP's and the related Development Impact Fee Report.

Reduced to its simplest terms, the process of calculating development impact 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 impact 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 impact 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 impact fees.

Figure 1: Recommended Calculation Methodologies

Category	Incremental Expansion (present)	Plan-Based (future)	Service Areas	Cost Allocation
Parks & Recreation	Park Amenities, Recreation Centers, Park Land	Fee Study	Service Areas	Population, Jobs
Police	Police Stations, Vehicles and Equipment	Fee Study	Citywide	Population, Vehicle Trips
Fire	Fire Stations, Apparatus	Fee Study	Citywide	Population, Vehicle Trips
Streets	Arterial Street Improvements	Fee Study	Citywide; Service Areas	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 two, three, and four-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:

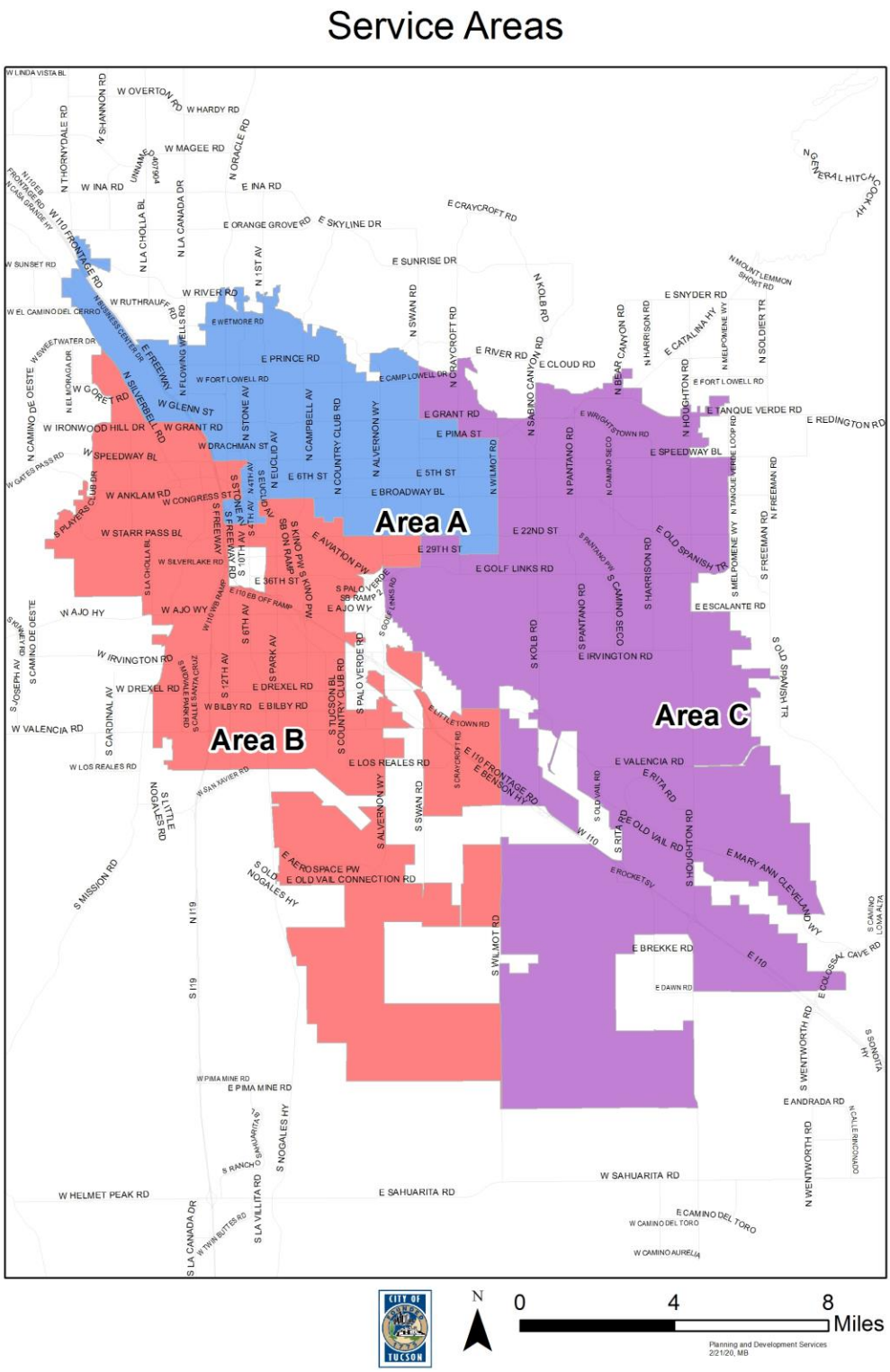
> *Any specified area within the boundaries of a municipality in which development will be served by necessary public services or facility expansions and within which a substantial nexus exists between the necessary public services or facility expansions and the development being served as prescribed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

The City of Tucson provides a uniform level of service for its Parks and Recreation, Police, Fire, and Streets Facilities. Facilities benefit residential and nonresidential development across the entire City. For Police and Fire, depending on the number and type of calls, police and fire units can be dispatched from any station with facilities operating as an integrated network. Therefore, Police and Fire development impact fees are implemented on a Citywide basis.

For Parks and Recreation and Streets, capacity projects for which development impact fees will be collected, are anticipated to be built within the subarea of the City where the fees are collected. Three service areas have been developed based on growth patterns and location of infrastructure.

- For Parks and Recreation, it is recommended that fees be spent in the area collected.
- For Streets, a portion of the fee is based on Citywide capacity needs (i.e., for RTA projects and other citywide capacity needs) and is recommended to be collected and spent Citywide for RTA-identified projects and other citywide transportation improvement projects. The remainder of the fee is for other non-RTA/non-citywide capacity street improvement projects and is recommended to be spent within the Services Area in which it was collected (Service Area A, B, or C).

Figure 2: Streets and Parks and Recreational Facilities Service Area Map



CURRENT DEVELOPMENT IMPACT FEES

Tucson's current development impact fees are shown below in Figure 3. Development impact fees are assessed based on land use type per the categories shown below. Two sets of current development impact fees are shown: (1) rates in effect as of August 2019, identified as the "Phase-in Fee Rates" and (2) "Full Adopted Fee Rates," reflecting the maximum amount calculated in the previous development impact fee study.[1]

Figure 3: Current City of Tucson Development Impact Fees

Land Use	*Parks & Recreation**		*Police*		*Fire*		*Streets*		*Total Fee*	
	Phase-In Fee Rates	Full Adopted Fee Rates	Phase-In Fee Rates	Full Adopted Fee Rates	Phase-In Fee Rates	Full Adopted Fee Rates	Phase-In Fee Rates	Full Adopted Fee Rates	Phase-In Fee Rates	Full Adopted Fee Rates
Single Family	$1,935	$3,953	$379	$379	$303	$303	$4,838	$5,691	$7,455	$10,326
Condo/Townhomes	$1,591	$2,683	$257	$257	$206	$206	$3,978	$4,059	$6,032	$7,205
Multi-Family^	$1,032	$2,400	$230	$230	$183	$183	$2,580	$3,457	$4,025	$6,270
Industrial	$51	$51	$321	$321	$157	$157	$806	$806	$1,335	$1,335
Commercial	$51	$51	$321	$321	$157	$157	$4,282	$6,507	$4,811	$7,036
Office & Other	$51	$51	$321	$321	$157	$157	$3,797	$3,797	$4,326	$4,326

** Current Development Impact Fees vary by service area; fee shown is the maximum amount.*
^ "Multi-family/Apartments" residential land use category from existing City of Tucson development fee schedule.
Source: Tucson, Arizona, Code of Ordinances Article III, Sec. 23A-91 ("Fee Schedule Tables").

As noted above, current City of Tucson Parks and Recreation development fees vary by service area. The fees shown above, and used in comparisons in this report, are the **maximum service area** amount assessed. Parks and Recreation fees by service area are shown below for information purposes.

Figure 4: Current City of Tucson Parks and Recreation Development Impact Fees by Service Area

Land Use	*Parks & Recreation*									
	Central		West		East		Southeast		Southlands	
	Phase-In Fee Rates	Full Adopted Fee Rates	Phase-In Fee Rates	Full Adopted Fee Rates	Phase-In Fee Rates	Full Adopted Fee Rates	Phase-In Fee Rates	Full Adopted Fee Rates	Phase-In Fee Rates	Full Adopted Fee Rates
Single Family	$1,935	$2,945	$1,935	$3,953	$1,826	$1,826	$1,935	$2,775	$218	$218
Condo/Townhomes	$1,591	$1,998	$1,591	$2,683	$1,239	$1,239	$1,591	$1,883	$148	$148
Multi-Family^	$1,032	$1,788	$1,032	$2,400	$1,032	$1,108	$1,032	$1,685	$132	$132
Industrial	$38	$38	$51	$51	$23	$23	$36	$36	$3	$3
Commercial	$38	$38	$51	$51	$23	$23	$36	$36	$3	$3
Office & Other	$38	$38	$51	$51	$23	$23	$36	$36	$3	$3

^ "Multi-family/Apartments" residential land use category from existing City of Tucson development fee schedule
Source: Tucson, Arizona, Code of Ordinances Article III, Sec. 23A-91 ("Fee Schedule Tables").

[1] Tucson, Arizona, Code of Ordinances Article III, Sec. 23A-91 ("Fee Schedule Tables").

PROPOSED DEVELOPMENT IMPACT FEES

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

Proposed development impact fees are shown below in Figure 5. Two sets of comparisons to the City of Tucson's current development impact fees are provided: (1) rates in effect as of August 2019, identified as the "Phase-in Fee Rates" and (2) "Full Adopted Fee Rates," reflecting the maximum amount calculated in the previous development fee study. The net change is shown between the proposed fee and both sets of current fees, in two adjacent columns. Development impact fees for Residential development are assessed per dwelling unit, based on the size of unit.[2] Nonresidential development impact fees are assessed per 1,000 square feet of floor area or per room for lodging land uses.

[2] The City anticipates pursuing a policy of not assessing fees for residential additions.

Figure 5: Proposed versus Current Development Impact Fees

Proposed Tucson Residential Development Impact Fees (per Housing Unit)

Size of Housing Unit (Sq. Ft.)	Demand Unit	Parks & Recreation	Police	Fire	Streets	Proposed Fee	Phase-In Fee Rates*	Increase / (Decrease)	Full Adopted Fee Rates**	Increase / (Decrease)
750 or Less	Housing Unit	$924	$216	$146	$1,412	**$2,698**	$4,025	($1,327)	$6,270	($3,572)
751 to 1,250	Housing Unit	$1,488	$348	$235	$2,189	**$4,260**	$4,025	$235	$6,270	($2,010)
1,251 to 1,750	Housing Unit	$1,987	$464	$314	$2,887	**$5,652**	$6,032	($380)	$7,205	($1,553)
1,751 to 2,250	Housing Unit	$2,357	$551	$372	$3,397	**$6,677**	$6,032	$645	$7,205	($528)
2,251 to 2,750	Housing Unit	$2,644	$618	$418	$3,798	**$7,478**	$7,455	$23	$10,326	($2,848)
2,751 to 3,250	Housing Unit	$2,884	$674	$456	$4,132	**$8,146**	$7,455	$691	$10,326	($2,180)
3,251 to 3,750	Housing Unit	$3,088	$722	$488	$4,415	**$8,713**	$7,455	$1,258	$10,326	($1,613)
3,751 or More	Housing Unit	$3,263	$763	$516	$4,661	**$9,203**	$7,455	$1,748	$10,326	($1,123)

The current phase-in fee schedule and 2014 adopted fee schedule have three residential categories: Single-family, condo/townhomes, and multi-family/apartments.
The proposed Residential Fee Schedule is solely based on gross floor area of livable space (not including patios, garages, and other non-living areas).
** For comparison, current phase-in fee schedule (in effect since 2014) by unit: Apartment $4,025; Townhome $6,032; Single Family $7,455.*
*** For comparison, 2014 adopted fee schedule (never been in effect) by unit: Apartment $6,270, Townhome $7,205, Single Family $10,326.*

Proposed Tucson Nonresidential Development Impact Fees (per Demand Unit)

Type	ITE Code	Demand Unit	Parks & Recreation	Police	Fire	Streets	Proposed Fee	Phase-In Fee Rates**	Increase / (Decrease)	Full Adopted Fee Rates**	Increase / (Decrease)
Industrial: Light Industrial	110	1,000 Sq. Ft.	$144	$108	$73	$1,129	**$1,454**	$1,335	$119	$1,335	$119
Industrial: Manufacturing	140	1,000 Sq. Ft.	$141	$85	$58	$895	**$1,179**	$1,335	($156)	$1,335	($156)
Industrial: Warehousing	150	1,000 Sq. Ft.	$30	$38	$25	$395	**$488**	$1,335	($847)	$1,335	($847)
Commercial/Retail: General	820	1,000 Sq. Ft.	$208	$544	$367	$5,822	**$6,941**	$4,811	$2,130	$7,036	($95)
Commercial/Retail: Free Standing Discount Store	815	1,000 Sq. Ft.	$191	$766	$517	$8,192	**$9,666**	$4,811	$4,855	$7,036	$2,630
General Office	710	1,000 Sq. Ft.	$264	$213	$143	$2,218	**$2,838**	$4,326	($1,488)	$4,326	($1,488)
Institutional: Schools	520	1,000 Sq. Ft.	$82	$281	$190	$2,934	**$3,487**	$4,326	($839)	$4,326	($839)
Institutional: Religious Facilities	560	1,000 Sq. Ft.	$123	$100	$67	$1,044	**$1,334**	$4,326	($2,992)	$4,326	($2,992)
Institutional: Medical (Nursing Hm./Asstd Living)	620	1,000 Sq. Ft.	$202	$95	$64	$997	**$1,358**	$4,326	($2,968)	$4,326	($2,968)
Institutional: Medical (Clinic, Hospital)	630	1,000 Sq. Ft.	$366	$550	$371	$5,736	**$7,023**	$4,326	$2,697	$4,326	$2,697
Hotel	310	Room	$51	$182	$123	$1,953	**$2,309**	n/a	n/a	n/a	n/a

*** Current Tucson Development Impact Fee schedule for Parks and Recreation varies by service area; fee shown is the maximum amount.*
Current fee schedule does not have Institutional category; comparison is to Office.
Source for current Tucson Development Impact Fee schedule: Tucson, Arizona, Code of Ordinances Article III, Sec. 23A-91 ("Fee Schedule Tables").

PARKS AND RECREATION FACILITIES INFRASTRUCTURE IMPROVEMENT PLAN

ARS § 9-463.05 (T)(7)(g) defines the facilities and assets that can be included in the Parks and Recreation 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 Recreation Facilities IIP includes components for park amenities, recreational facilities, park land, and the cost of professional services for preparing the Parks and Recreation Facilities IIP and related Development Impact Fee Report. An incremental expansion methodology is used for amenities, recreational facilities, and park land, and a plan-based methodology is used for the Development Impact Fee Report.

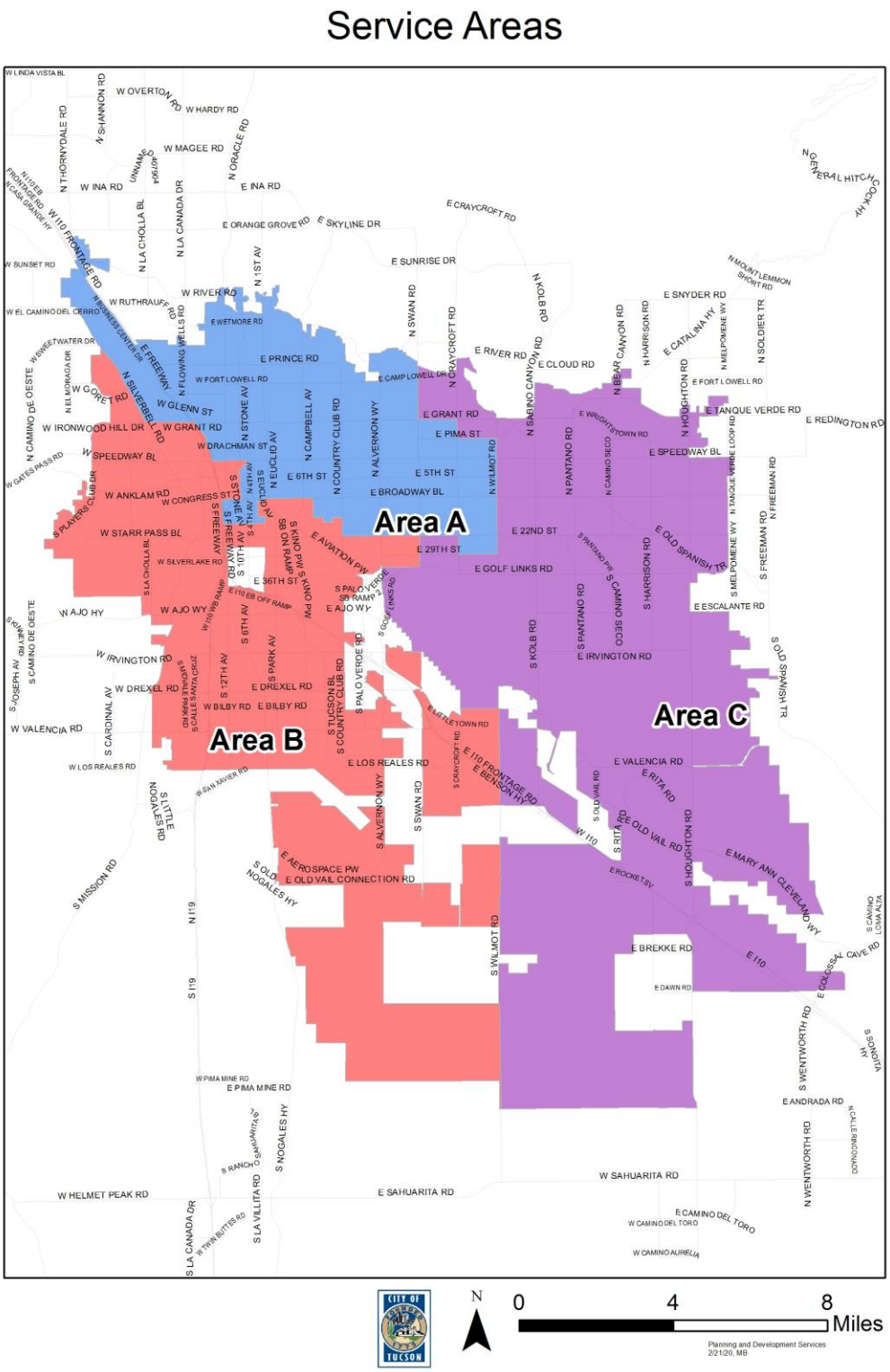
It is noted that the parks and recreation facilities included in this study reflect a subset of the City's parks and recreation facilities due to limitations of the Arizona Enabling Legislation. For further information on the complete City of Tucson Parks and Recreation system, please see *City of Tucson Parks and Recreation System Master Plan, Final Report, 10.05.16.*[3]

Service Area

The City of Tucson plans to provide a uniform level of service and equal access to parks and recreational facilities within the City limits therefore the development fee is calculated on a citywide basis but will be expended in the service area in which the development impact fees are collected. Three service areas have been developed based on growth patterns and location of infrastructure.

[3] Available at www.tucsonaz.gov/files/parks/masterplan/Tucson_Parks_and_Recreation_System_Master_Plan_10_5_16.PDF

Figure PR1: Parks and Recreational Facilities Service Area Map



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 107,223 inflow commuters in 2015, which is the number of persons who work in Tucson 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 PR2, to derive Functional Population shares for Tucson. The estimated total City population in 2015 is 524,072 and is based on housing unit estimates and persons per housing unit (PPHU) ratios derived from the U.S. Census Bureau. The study uses 2015 data for proportionate share analysis because this the most recent year available for inflow/outflow data. Therefore, it is compared to the population estimate for the corresponding year.

As shown in Figure PR2, the proportionate share is based on cumulative impact hours per year. Tucson 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 development's proportionate share of the total impact hours is 96%, while the nonresidential share is 4%.

Figure PR2: Cost Allocation for Parks

		Cumulative Impact Hours per Year (in 1,000s)			Cost Allocation	
Tucson Residents	Inflow Commuters	Residential Hours	Nonresidential Hours	Total Hours	Residential	Nonresidential
524,072	107,223	4,590,868	171,557	4,762,425	**96%**	**4%**

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: Tucson Residents based on TishlerBise housing unit estimates and persons per housing unit (PPHU) ratios derived from the U.S. Census Bureau. 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 PR3 displays the demand indicators for residential and nonresidential land uses. For residential development, the table displays the persons per housing unit by unit size. For nonresidential development, the table displays the number of employees per thousand square feet for seven different types of nonresidential development.

Figure PR3: Parks and Recreational Facilities Ratio of Service Unit to Development Unit

Residential Service Unit Ratios

Size of Housing Unit (Sq. Ft.)	Demand Unit	Persons per Demand Unit
750 or Less	Housing Unit	1.00
751 to 1,250	Housing Unit	1.61
1,251 to 1,750	Housing Unit	2.15
1,751 to 2,250	Housing Unit	2.55
2,251 to 2,750	Housing Unit	2.86
2,751 to 3,250	Housing Unit	3.12
3,251 to 3,750	Housing Unit	3.34
3,751 or More	Housing Unit	3.53

Nonresidential Service Unit Ratios

Type	Demand Unit	Jobs per Demand Unit
Industrial: Light Industrial	1,000 Sq. Ft.	1.63
Industrial: Manufacturing	1,000 Sq. Ft.	1.59
Industrial: Warehousing	1,000 Sq. Ft.	0.34
Commercial/Retail: General	1,000 Sq. Ft.	2.34
Commercial/Retail: Free Standing Discount Store	1,000 Sq. Ft.	2.16
General Office	1,000 Sq. Ft.	2.97
Institutional: Schools	1,000 Sq. Ft.	0.93
Institutional: Religious Facilities	1,000 Sq. Ft.	1.39
Institutional: Medical (Nursing Hm./Asstd Living)	1,000 Sq. Ft.	2.28
Institutional: Medical (Clinic, Hospital)	1,000 Sq. Ft.	4.13
Hotel	Room	0.58

Source: See Land Use Assumptions.

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

ARS § 9-463.05(E)(1) requires:

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

ARS § 9-463.05(E)(2) requires:

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

Park Land – Incremental Expansion

As noted, ARS limits the types of parks and recreation facilities for which development impact fees can be collected. City parks that were included in the inventory include those in the Community Park, Metro Park, Neighborhood Park, and Regional Park classifications, with a limit of up to 30 acres of each park. This is in accordance with ARS § 9-463.05 (T)(7)(g). All other park types were excluded due to the limitations of the State Statute.

Tucson will use development impact fees to expand its inventory of park land. Shown below is a summary of existing park land in Tucson, allowable for development impact fees. The new definition of necessary public services for parks and recreational facilities includes parks or facilities on real property up to 30 acres in area. For parks and facilities larger than 30 acres, the allowable acreage per park is adjusted downward to 30 acres.

Figure PR4: Existing Park Land

Park Land	Category	Total Acres*	Allowable Acres*
Subtotal	Neighborhood	292.2	292.0
Subtotal	Community	368.1	321.4
Subtotal	Metro	1,154.9	390.0
Subtotal	Regional	1,317.3	120.0
Total		**3,132.4**	**1,123.4**

** According to the Arizona enabling legislation, parks included in development impact fees are limited by type and size (up to 30 acres) (ARS § 9-436.05 (T)(7)(g)).*

Existing Park Land Level of Service

To allocate the proportionate share of demand for park land to residential and nonresidential development, this analysis uses the population estimate shown in Figure PR2. Tucson's existing level of service for residential development is approximately 0.00203 acres per person (1,123.4 acres X 96 percent residential share / 530,015 persons). For nonresidential development, the existing level of service is approximately 0.00020 acres per job (1,123.4 acres X 4 percent nonresidential share / 230,007 jobs).

Figure PR5: Park Land Level of Service

Park Land	Category	Total Acres*	Allowable Acres*
Subtotal	Neighborhood	292.2	292.0
Subtotal	Community	368.1	321.4
Subtotal	Metro	1,154.9	390.0
Subtotal	Regional	1,317.3	120.0
Total		**3,132.4**	**1,123.4**

** According to the Arizona enabling legislation, parks included in development impact fees are limited by type and size (up to 30 acres) (ARS § 9-436.05 (T)(7)(g)).*

Level of Service (LOS) Standards

Residential Proportionate Share	96%
Nonresidential Proportionate Share	4%
Residents in 2019	530,015
Jobs in 2019	230,007
LOS: Acres per Resident	**0.00203**
LOS: Acres per Job	**0.00020**

Cost Analysis

Land Cost per Acre[1]	$35,000
LOS: Acres per Resident	0.00203
LOS: Acres per Job	0.00020
Cost per Person	**$71.05**
Cost per Job	**$7.00**

1. City of Tucson Parks and Recreation Department

Park Amenities and Improvements – Incremental Expansion

The inventory summary of Tucson's park amenities is displayed in Figure PR6. Tucson parks have 19,353 amenities, which have a total replacement cost of approximately $447 million. Dividing the total replacement cost by the total number of amenities yields an average cost per improvement of $23,110.

Figure PR6: Park Amenities Inventory and Replacement Costs

Amenity	Quantity	Unit Cost	Total Cost
Aquatics - Child Pool	15	$250,000	$3,750,000
Aquatics - Pool	24	$2,250,000	$54,000,000
Aquatics - Splashpad	5	$250,000	$1,250,000
Ballfield	125	-	
Lit	90	$1,000,000	$90,000,000
Not lit	35	$800,000	$28,000,000
Basketball Court	70	$129,000	$9,030,000
Batting Cage	14	$25,000	$350,000
Bench	790	$1,500	$1,185,000
Bike Rack	171	$500	$85,500
Bocce Ball	5	$5,000	$25,000
Concession Stand	24	$350,000	$8,400,000
Disk Golf Holes	63	$4,500	$283,500
Dog Park	7	$600,000	$4,200,000
Drinking Fountain	493	$8,000	$3,944,000
Fitness Structure	117	$4,300	$503,100
Flagpole	52	$2,500	$130,000
Grill	428	$600	$256,800
Horseshoes	31	$2,500	$77,500
Inline Hockey	2	$250,000	$500,000
MP Field, Large	34	$392,000	$13,328,000
MP Field, Small	30	$294,000	$8,820,000
Multiuse Court	8	$135,000	$1,080,000
Parking Spaces	14,864	$5,000	$74,320,000
Picnic Table	1,013	$2,000	$2,026,000
Play Structure	223	$207,000	$46,161,000
Racquetball	12	$75,000	$900,000
Ramada - Small	213	$48,000	$10,224,000
Ramada - Fabric Shade	140	$48,000	$6,720,000
Ramada - Large Group	6	$106,000	$636,000
RC Model Airfield	6	$328,000	$1,968,000
Restroom	79	$289,000	$22,831,000
Scoreboard	20	$35,000	$700,000
Scoring Table	21	$3,000	$63,000
Shuffleboard	5	$33,000	$165,000
Skate Park	5	$1,200,000	$6,000,000
Soccer Field	33	-	
Lit	25	$1,000,000	$25,000,000
Not lit	8	$800,000	$6,400,000
Swingset	87	$12,000	$1,044,000
Tennis Court	88	$140,000	$12,320,000
Volleyball Court	30	-	
Lit	11	$30,000	$330,000
Not lit	19	$13,000	$247,000
Grand Total	**19,353**	**$23,110**	**$447,253,400**

Source: City of Tucson Parks and Recreation Department

The current residential level of service is 0.03505 amenities per resident, which was obtained by multiplying 19,353 amenities by the residential proportionate share (96%) and dividing this amount by the current population (530,015). Similarly, the nonresidential level of service is 0.00337 units per job (19,353 x 4% / 230,007). Multiplying the average cost per amenity ($23,110) by the residential and nonresidential levels of service results in a cost per person of $810.02 and $77.88 per job.

Figure PR7: Park Amenities Level of Service Standards

Amenity	*# of Units*	*Cost per Unit*	*Replacement Cost*
TOTAL	**19,353**	**$23,110**	**$447,253,400**

Level of Service (LOS) Standards

Residential Proportionate Share	96%
Nonresidential Proportionate Share	4%
Residents in 2019	530,015
Jobs in 2019	230,007
LOS: Amenities per Resident	**0.03505**
LOS: Amenities per Job	**0.00337**

Cost Analysis

Average Cost per Amenity	$23,110
LOS: Amenities per Resident	0.03505
LOS: Amenities per Job	0.00337
Cost per Person	**$810.02**
Cost per Job	**$77.88**

Recreational Facilities – Incremental Expansion

As shown in Figure PR8, the City of Tucson has eight recreational facilities, which include things like community centers and other recreational buildings. The facilities total 529,987 square feet and have an average estimated cost per square foot of $350. However, ARS § 9-463.05 limits the inclusion of community centers to a maximum of 3,000 square feet in floor area. Therefore, the total allowable floor area is capped at 64,800 square feet. This results in a level of service of 0.11737 square feet per person and 0.01127 square feet per job. Multiplying the levels of service by the residential and nonresidential proportionate shares and the cost per square foot ($350) results in recreational facility costs per service unit of $41.08 per person and $3.94 per job.

Figure PR8: Recreational Facilities Inventory Summary and Level of Service Standards

Recreational Facility	*Square Feet*	*Allowable Sq. Ft.**
Adaptive Recreation Center	82,600	3,000
Archer Center	27,076	3,000
Armory Center	27,000	3,000
Cherry Avenue Center	5,315	3,000
Clements Center	26,000	3,000
Clements Fitness Center	11,702	3,000
Donna Liggins Center	37,140	3,000
El Pueblo Adult Ed. Center	12,466	3,000
El Pueblo Center	44,096	3,000
El Pueblo Senior Center	9,195	3,000
El Rio Adult Ed. Center	11,702	3,000
El Rio Center	36,604	3,000
Freedom Center	11,000	3,000
Marty Birdman Center	3,400	3,000
Ormsby Center	1,800	1,800
Oury Center	3,838	3,000
Quincie Douglas Center	16,764	3,000
Randolph Center	60,499	3,000
Santa Rosa Center	9,600	3,000
Therapeutic Center	7,440	3,000
Udall Center	75,683	3,000
Udall Senior Center	9,067	3,000
TOTAL	**529,987**	**64,800**

**Arizona's enabling legislation restricts community center floor area to 3,000 square feet.*

Level-of-Service (LOS) Standards

Residential Proportionate Share	96%
Nonresidential Proportionate Share	4%
Residents in 2019	530,015
Jobs in 2019	230,007
LOS: Square Feet per Resident	**0.11737**
LOS: Square Feet per Job	**0.01127**

Cost Analysis

Cost per Square Foot	$350
LOS: Square Feet per Resident	0.11737
LOS: Square Feet per Job	0.01127
Cost per Person	**$41.08**
Cost per Job	**$3.94**

Development Impact Fee Report – Plan-Based

The cost to prepare the Parks and Recreational Development Impact Fees and IIP totals $34,615. Tucson 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 $2.46 and the cost per job is $0.12.

Figure PR9: Development Impact Fee Report Cost Allocation

Necessary Public Service	Cost	Assessed Against	Proportionate Share	Cost Allocation				Cost per Demand Unit
				Demand Units	2018	2023	Change	
Parks & Recreation	$34,615	Residential	96%	Population	530,015	543,484	13,469	**$2.46**
		Nonresidential	4%	Jobs	230,007	241,384	11,377	**$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 PR10, the Land Use Assumptions projects an additional 27,295 persons and 23,329 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 PR10. New development will demand an additional 1,035 park amenities, 60.1 park land acres, and 3,467 square feet of recreational facilities.

The park improvements, park land, and recreational facility square feet totals demanded by new development multiplied by the respective costs suggests the City will need to spend a total of $27.2 million on new park amenities, land, and recreation center space to accommodate projected demand, as shown in the bottom of Figure PR10.

Figure PR10: Projected Demand for Parks and Recreational Facilities

Park Level of Service Standards				
Level of Service			**Demand Unit**	**Unit Cost**
Residential	0.03505	Amenities	per Person	$23,110
Nonresidential	0.00337		per Job	
Residential	0.0020300	Land (Acres)	per Person	$35,000
Nonresidential	0.0002000		per Job	
Residential	0.11737	Rec Centers (sq. ft.)	per Person	$350
Nonresidential	0.01127		per Job	

Need for Park Amenities & Recreation Facilities							
Year		**Population**	**Jobs**	**Park Amenities**	**Park Land**	**Rec Center Sq. Ft.***	
Base	2019	530,015	230,007	19,352	1,122	64,800	
Year 1	2020	532,681	232,238	19,453	1,128	65,138	
Year 2	2021	535,360	234,491	19,555	1,134	65,478	
Year 3	2022	538,053	236,766	19,657	1,140	65,820	
Year 4	2023	540,760	239,063	19,759	1,146	66,163	
Year 5	2024	543,484	241,384	19,863	1,152	66,509	
Year 6	2025	546,219	243,727	19,966	1,158	66,857	
Year 7	2026	548,969	246,094	20,071	1,164	67,206	
Year 8	2027	551,736	248,484	20,176	1,170	67,558	
Year 9	2028	554,516	250,898	20,281	1,176	67,911	
Year 10	2029	557,310	253,336	20,387	1,182	68,267	
Ten-Year Increase		**27,295**	**23,329**	**1,035**	**60.1**	**3,467**	**Total**
Growth-Related Expenditures				**$23,919,148**	**$2,103,500**	**$1,213,450**	**$27,236,098**

** Arizona's enabling legislation restricts allowable recreation center square footage to 3,000 square feet per facility. Actual 2018 recreation center floor area totals 529,987 square feet.*

Based on levels of service and projected growth by service area, the following provides detail on the demand for infrastructure by service area.

Figure PR11: Projected Demand for Parks and Recreational Facilities by Service Area

Need for Park Amenities & Recreation Facilities		Citywide (Net Increase)			Area A			Area B			Area C		
Year		*Amenities*	*Land*	*Rec Ctr (SF)*	29% *Amenities*	*Land*	*Rec Ctr (SF)*	34% *Amenities*	*Land*	*Rec Ctr (SF)*	37% *Amenities*	*Land*	*Rec Ctr (SF)*
Base	2019												
Year 1	2020	101	5.9	338.0	29	1.7	98	34	2.0	115	37	2.2	125
Year 2	2021	101	5.9	339.8	29	1.7	99	35	2.0	116	38	2.2	126
Year 3	2022	102	5.9	341.7	30	1.7	99	35	2.0	116	38	2.2	126
Year 4	2023	103	6.0	343.6	30	1.7	100	35	2.0	117	38	2.2	127
Year 5	2024	103	6.0	345.8	30	1.7	100	35	2.0	118	38	2.2	128
Year 6	2025	104	6.0	347.5	30	1.7	101	35	2.0	118	38	2.2	129
Year 7	2026	104	6.1	349.4	30	1.8	101	35	2.1	119	39	2.2	129
Year 8	2027	105	6.1	351.6	30	1.8	102	36	2.1	120	39	2.3	130
Year 9	2028	106	6.1	353.5	31	1.8	103	36	2.1	120	39	2.3	131
Year 10	2029	106	6.2	355.4	31	1.8	103	36	2.1	121	39	2.3	132
Ten-Year Increase		1,035	60.1	3,467.0	300	17.4	1,005.0	352	20.4	1,179.0	383	22.2	1,283.0
Growth-Related Expenditures		$23,919,148	$2,103,500	$1,213,450	$6,933,086	$610,015	$351,750	$8,134,821	$715,190	$412,650	$8,851,240	$778,295	$449,050
					Subtotals by Service Area==>		$7,894,851			$9,262,661			$10,078,585

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 where development impact fees may be used to accommodate needs due to new development, as projected in the previous section, are shown in Figure PR12. Parks and recreational facility improvements may include but are not limited to the projects listed below in PR12. In addition to the projects identified in the Parks and Recreation Facilities IIP below (as shown in Figure PR12), the City plans to identify projects that will serve growth as part of its annual budget process and annual capital improvement planning process.

Figure PR12: Necessary Parks & Recreational Improvements and Expansions

AREA A	AREA B	AREA C
City-wide Parks Strategic Master Plan	**City-wide Parks Strategic Master Plan**	**City-wide Parks Strategic Master Plan**
Development Impact Fee Study Update	**Development Impact Fee Study Update**	**Development Impact Fee Study Update**
Park Land Acquisition *To be prioritized in areas with greatest residential growth*	**Park Land Acquisition** *To be prioritized in areas with greatest residential growth*	**Park Land Acquisition** *To be prioritized in areas with greatest residential growth*
Parks Amenities ***May be added at Parks listed below, or other City Parks as needed due to growth*** • *Amphi Neighborhood Park* • *Arcadia Greenway* • *Christopher Columbus Park* • *Francisco Elias Esquer Park* • *Ironhorse Park* • *Jacinto Park* • *Juhan Park* • *McCormick Park* • *Reid Park* • *Rio Vista Natural Resource Park*	**Parks Amenities** *May be added at Parks listed below, or other City Parks as needed due to growth* • *Airport Wash Greenway* • *Barrio Nopal Park* • *De Anza Park* • *El Paso Greenway Trail (The Bridges)* • *El Pueblo Park* • *Grijalva Park* • *Intermountain Academy* • *John F. Kennedy Park* • *Juaquin Murrieta Park* • *San Juan Park* • *The Bridges Central Park* • *The Bridges Recreational and Trail Component* • *Vista Del Pueblo*	**Parks Amenities** *May be added at Parks listed below, or other City Parks as needed due to growth* • *Ft. Lowell Park* • *Groves Park I and II* • *Morris K Udall Park* • *Purple Heart Park* • *Robert Price Park*
Recreation Center Facilities *To be prioritized in areas with greatest residential growth*	**Recreation Center Facilities** *To be prioritized in areas with greatest residential growth*	**Recreation Center Facilities** *To be prioritized in areas with greatest residential growth*

PARKS AND RECREATIONAL FACILITIES DEVELOPMENT IMPACT FEES

Revenue Offset

A revenue offset is not necessary for the Parks and Recreation development impact fees because 10-year growth costs exceed the amount of revenue that is projected to be generated by development impact fees (as shown in Figure PR13) and fee calculations exclude dedicated funding sources.

Proposed Parks and Recreational Facilities Development Impact Fees

Infrastructure standards and cost factors for Parks and Recreational Facilities, including park amenities, park land, recreational facilities, and the professional services cost for the IIP and Development Impact Fee Report are summarized at the top of Figure PR13. Updated development impact fees for Parks and Recreational Facilities are shown in the column with green shading.

Two sets of comparisons to the City of Tucson's current development impact fees are provided: (1) rates in effect as of August 2019, identified as the "Phase-in Fee Rates" and (2) "Full Adopted Fee Rates," reflecting the maximum amount calculated in the previous development fee study.[4] The net change is shown between the proposed fee and both sets of current fees, in two adjacent columns.

[4] Tucson, Arizona, Code of Ordinances Article III, Sec. 23A-91 ("Fee Schedule Tables").

Figure PR13: Proposed Parks and Recreational Facilities Development Impact Fees

Fee Component	Cost per Person	Cost per Job
Park Amenities	$810.02	$77.88
Park Land	$71.05	$7.00
Recreation Facilities	$41.08	$3.94
Development Fee Report	$2.46	$0.12
TOTAL	**$924.61**	**$88.94**

Residential Development (per Housing Unit)							
Size of Housing Unit (Sq. Ft.)	Demand Unit	Persons per Demand Unit	Proposed Fee	Phase-In Fee Rates*	Increase / (Decrease)	Full Adopted Fee Rates*	Increase / (Decrease)
750 or Less	Housing Unit	1.00	**$924**	$1,032	($108)	$2,400	($1,476)
751 to 1,250	Housing Unit	1.61	**$1,488**	$1,032	$456	$2,400	($912)
1,251 to 1,750	Housing Unit	2.15	**$1,987**	$1,591	$396	$2,683	($696)
1,751 to 2,250	Housing Unit	2.55	**$2,357**	$1,591	$766	$2,683	($326)
2,251 to 2,750	Housing Unit	2.86	**$2,644**	$1,935	$709	$3,953	($1,309)
2,751 to 3,250	Housing Unit	3.12	**$2,884**	$1,935	$949	$3,953	($1,069)
3,251 to 3,750	Housing Unit	3.34	**$3,088**	$1,935	$1,153	$3,953	($865)
3,751 or More	Housing Unit	3.53	**$3,263**	$1,935	$1,328	$3,953	($690)

** Current Tucson Development Impact Fee schedule has three residential categories: Single-family, condo/townhomes, and multi-family/apartments. The comparison assumes multi-family/apartment units are 1,000 sq. ft. or less, condo/townhome units are 1,001-1,500 sq. ft., and single family units are greater than 1,500 sq. ft. Note: residential type is determined by the gross floor area of livable space (not including patios, garages, and other non-living areas).*

Nonresidential Development (per Demand Unit)							
Type	Demand Unit	Jobs per Demand Unit	Proposed Fee	Phase-In Fee Rates**	Increase / (Decrease)	Full Adopted Fee Rates**	Increase / (Decrease)
Industrial: Light Industrial	1,000 Sq. Ft.	1.63	**$144**	$51	$93	$51	$93
Industrial: Manufacturing	1,000 Sq. Ft.	1.59	**$141**	$51	$90	$51	$90
Industrial: Warehousing	1,000 Sq. Ft.	0.34	**$30**	$51	($21)	$51	($21)
Commercial/Retail: General	1,000 Sq. Ft.	2.34	**$208**	$51	$157	$51	$157
Commercial/Retail: Free Standing Discount Store	1,000 Sq. Ft.	2.16	**$191**	$51	$140	$51	$140
General Office	1,000 Sq. Ft.	2.97	**$264**	$51	$213	$51	$213
Institutional: Schools	1,000 Sq. Ft.	0.93	**$82**	$51	$31	$51	$31
Institutional: Religious Facilities	1,000 Sq. Ft.	1.39	**$123**	$51	$72	$51	$72
Institutional: Medical (Nursing Hm./Asstd Living)	1,000 Sq. Ft.	2.28	**$202**	$51	$151	$51	$151
Institutional: Medical (Clinic, Hospital)	1,000 Sq. Ft.	4.13	**$366**	$51	$315	$51	$315
Hotel	Room	0.58	**$51**	$51	$0	$51	$0

*** Current Tucson Development Impact Fee schedule for Parks and Recreation varies by service area; fee shown is the maximum amount.*
Current fee schedule does not have Institutional category; comparison is to Office.
Source for current Tucson Development Impact Fee schedule: Tucson, Arizona, Code of Ordinances Article III, Sec. 23A-91 ("Fee Schedule Tables").

FORECAST OF REVENUES

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

Parks and Recreational Facilities Development Impact Fee Revenue

The top of Figure PR14 summarizes the growth-related cost of infrastructure in Tucson over the next 10 years (approximately $27.3 million for Parks and Recreational Facilities). Anticipated development fee revenue is projected at $27.1 million from Parks and Recreational Facilities development impact fees over the next 10 years if actual development matches the projections as indicated in the Land Use Assumptions (at the average development fee rates shown). This yields a net deficit due to the base population including group quarters population. Projected revenue by Service Area is shown at the bottom of Figure PR14.

Figure PR14: Projected Parks and Recreational Facilities Development Impact Fee Revenue

Fee Component	Growth Cost
Park Amenities	$23,919,148
Park Land	$2,103,500
Recreation Facilities	$1,213,450
Development Fee Report	$34,615
Total Expenditures	**$27,270,713**

		Single Family	Multi-Family	Industrial	Commercial	Institutional	Office & Other
		$2,191 per Unit*	$1,442 per Unit*	$105 per KSF**	$200 per KSF**	$193 per KSF**	$264 per KSF
Year		*Housing Units*	*Housing Units*	*KSF*	*KSF*	*KSF*	*KSF*
Base	2019	165,637	72,824	17,653	22,539	91,669	19,514
1	2020	166,366	73,348	17,760	22,677	92,231	19,633
2	2021	167,098	73,876	17,867	22,908	93,230	19,830
3	2022	167,833	74,408	17,975	23,142	94,239	20,029
4	2023	168,571	74,944	18,084	23,378	95,259	20,231
5	2024	169,313	75,484	18,193	23,616	96,290	20,434
6	2025	170,058	76,027	18,303	23,857	97,332	20,639
7	2026	170,806	76,574	18,414	24,100	98,385	20,847
8	2027	171,558	77,125	18,525	24,345	99,449	21,056
9	2028	172,313	77,680	18,637	24,593	100,524	21,267
10	2029	173,071	78,239	18,750	24,844	101,611	21,481
10-year Increase		**7,434**	**5,415**	**1,097**	**2,305**	**9,942**	**1,967**
Projected Revenue		**$16,288,087**	**$7,808,954**	**$115,156**	**$459,791**	**$1,921,349**	**$519,402**

** Average-sized unit*
*** Average of respective nonresidential categories*

Total Projected Revenue	**$27,112,739**
Surplus / (Deficit)	**($157,973)**

10-YEAR REVENUE ALLOCATION		
Area A	29.0%	$7,862,694
Area B	34.0%	$9,218,331
Area C	37.0%	$10,031,714
TOTAL	**100.0%**	**$27,112,739**

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 Impact 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 Impact Fee Report. An incremental expansion methodology is used for police facilities and vehicles and equipment, and a plan-based methodology is used for the Development Impact Fee Report.

Service Area

The City of Tucson's Police Department strives to provide a uniform response time Citywide. The existing Police facilities act as an integrated system which supports the entire City. Depending on the number and type of calls, police units can be dispatched from any station. Therefore, a Citywide service area is recommended for the Police Facilities IIP.

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 Tucson.

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 Tucson are assigned 14 hours to residential development and 10 hours to nonresidential development. Residents that work outside Tucson are assigned 14 hours to residential development. Inflow commuters are assigned 10 hours to nonresidential development. Based on 2015 functional population data for Tucson, the cost allocation for residential development is 72 percent while nonresidential development accounts for 28 percent of the demand for police facilities.

Figure P1: Police Proportionate Share

Demand Units in 2015				Demand Hours/Day	Person Hours	Proportionate Share
Residential						
Estimated Residents	524,072					
Residents Not Working		328,069		20	6,561,375	
Resident Workers		196,003				
59% Worked in City			114,890	14	1,608,460	
41% Worked Outside City			81,113	14	1,135,582	
			Residential Subtotal		**9,305,417**	**72%**
Nonresidential						
Non-working Residents		328,069		4	1,312,275	
Jobs Located in City		222,113				
52% Residents Working in City			114,890	10	1,148,900	
48% Non-Resident Workers (inflow commuters)			107,223	10	1,072,230	
			Nonresidential Subtotal		**3,533,405**	**28%**
				TOTAL	**12,838,822**	**100%**

Source: Estimated Residents based on TischlerBise housing unit estimates and persons per housing unit (PPHU) ratios derived from the U.S. Census Bureau (see Land Use Assumptions). Employment data from the U.S. Census Bureau's OneTheMap web application, 2016.

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 residential units by size of unit.

Nonresidential development impact fees are calculated using vehicle trips as the service unit. TischlerBise recommends using nonresidential vehicle trips as the best demand indicator for police facilities and vehicles. Vehicle trip generation rates (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 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, police development impact 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, police development impact 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 impact 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 development, 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 a commercial development is found by multiplying the ITE trip generation rate of 37.75 trips (per 1,000 square feet) by the trip rate adjustment factor of 33%, yielding an adjusted trip rate of 12.46 trips per 1,000 square feet. Therefore, it is reasonable to assume a 100,000 square foot commercial development would generate 1,246 primary destination trips per average weekday.

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

Residential Service Unit Ratios

Size of Housing Unit (Sq. Ft.)	Demand Unit	Persons per Demand Unit
750 or Less	Housing Unit	1.00
751 to 1,250	Housing Unit	1.61
1,251 to 1,750	Housing Unit	2.15
1,751 to 2,250	Housing Unit	2.55
2,251 to 2,750	Housing Unit	2.86
2,751 to 3,250	Housing Unit	3.12
3,251 to 3,750	Housing Unit	3.34
3,751 or More	Housing Unit	3.53

Nonresidential Service Unit Ratios

Type	Demand Unit	Trip Ends per Demand Unit	Trip Rate Adjustment	Adj. Trips per Demand Unit
Industrial: Light Industrial	1,000 sq. ft.	4.96	50%	2.48
Industrial: Manufacturing	1,000 sq. ft.	3.93	50%	1.97
Industrial: Warehousing	1,000 sq. ft.	1.74	50%	0.87
Commercial/Retail: Shopping Center	1,000 sq. ft.	37.75	33%	12.46
Commercial/Retail: Free Standing Discount Store	1,000 sq. ft.	53.12	33%	17.53
General Office	1,000 sq. ft.	9.74	50%	4.87
Institutional: Schools	1,000 sq. ft.	19.52	33%	6.44
Institutional: Religious Facilities	1,000 sq. ft.	6.95	33%	2.29
Institutional: Medical (Nursing Hm./Asstd Living)	1,000 sq. ft.	6.64	33%	2.19
Institutional: Medical (Clinic, Hospital)	1,000 sq. ft.	38.16	33%	12.59
Hotel	Room	8.36	50%	4.18

Source: See Land Use Assumptions.

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

ARS § 9-463.05(E)(1) requires:

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

ARS § 9-463.05(E)(2) requires:

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

Police Facilities – Incremental Expansion

The Police Department owns and operates 5 police stations, a police headquarters, a crime lab, and an impound facility, totaling 625,686 square feet of floor area. 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 0.8500 square feet per person, which is calculated by multiplying the total floor area (625,686 sq. ft.) by the residential proportionate share (72%) and then dividing by the 2019 total City population (530,015). Similarly, the nonresidential level of service is 0.1724 square feet per vehicle trip and is found by multiplying the total floor area (625,686 sq. ft.) by the nonresidential proportionate share (28%) and then dividing by the average weekday nonresidential vehicle trips in 2019 (1,016,002 vehicle trips).

Figure P3 also shows the estimated replacement cost per square foot for each facility. Based on the cost per square foot assumptions, the average cost per square foot for police facilities is $185. The costs per person and per vehicle trip are determined by multiplying the residential and nonresidential levels of service (0.8500 square feet per person and 0.1724 square feet per vehicle trip, respectively) by the cost per square foot ($185). This produces a cost per person of $157.24 and a cost per vehicle trip of $31.90. Note that while the Level of Service 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 P3: Police Facilities and Level of Service Standards

Police Facilities	Square Feet	Cost per Sq. Ft.	Total Cost
ODM Station	45,555	$369	$16,809,795
ODE Station	28,556	$131	$3,740,836
ODW Station	128,628	$152	$19,551,456
ODS Station	13,491	$199	$2,684,709
EPIC Station	69,962	$239	$16,720,918
Police HQ	149,603	$200	$29,920,600
Crime Lab	187,866	$137	$25,737,642
Impound	2,025	$184	$372,600
Total	**625,686**	**$185**	**$115,538,556**

Level of Service (LOS) Standards

Population in 2019	530,015
Nonresidential Vehicle Trips in 2019	1,016,002
Residential Share	72%
Nonresidential Share	28%
LOS: Square Feet per Person	**0.8500**
LOS: Square Feet per Vehicle Trip	**0.1724**

Cost Analysis

Cost per Square Foot	$185
LOS: Square Feet per Person	0.8500
LOS: Square Feet per Vehicle Trip	0.1724
Cost per Person	**$157.24**
Cost per Vehicle Trip	**$31.90**

Police Vehicles and Equipment – Incremental Expansion

The inventory summary of Tucson's police vehicles and equipment is displayed in Figure P4. The Tucson Police Department owns 886 units of vehicles and equipment, which have a total replacement cost of $42.6 million. Dividing the total cost by the total number of units yields an average cost per unit of $48,090. The current residential level of service is 0.00120 units per resident, which is calculated by multiplying the 886 units by the residential proportionate share (72%) and dividing this amount by the current total population (530,015). Similarly, the nonresidential level of service is 0.00024 units per vehicle trip is calculated by multiplying the 886 units by the nonresidential proportionate share (28%) and dividing this amount by the average weekday nonresidential vehicle trips in 2019 (1,016,002 vehicle trips).

The costs per person and per vehicle trip are determined by multiplying the residential and nonresidential levels of service (0.00120 units per person and 0.00024 units per vehicle trip, respectively) by the cost per unit ($48,090). Note that while the Level of Service 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 Standards

Item	Quantity	Unit Cost	Total Cost
Marked patrol vehicles	416	$62,815	$26,131,040
Motorcycles	34	$28,000	$952,000
UTVs	2	$24,500	$49,000
Trailers	32	$5,600	$179,200
Unmarked cars	250	$22,148	$5,537,000
Unmarked trucks	22	$39,299	$864,567
Unmarked SUVs	23	$42,589	$979,558
Marked non-patrol ASB	3	$30,000	$90,000
Marked non-patrol PTU	10	$102,763	$1,027,630
Marked non-patrol DUI	8	$62,815	$502,520
Marked non-patrol SRD	24	$62,815	$1,507,560
Marked non-patrol SRO	10	$62,815	$628,150
Marked non-patrol SDU	14	$64,757	$906,604
Marked mini command post	2	$100,000	$200,000
Marked vans	11	$70,273	$773,003
Marked box trucks	8	$80,000	$640,000
Marked command post	2	$450,000	$900,000
Armored SWAT SUV	1	$120,000	$120,000
Marked trucks	14	$44,299	$620,186
Total	**886**	**$48,090**	**$42,608,018**

Level of Service (LOS) Standards

Population in 2019	530,015
Nonresidential Vehicle Trips in 2019	1,016,002
Residential Share	72%
Nonresidential Share	28%
LOS: Vehicles & Equip. per Person	**0.00120**
LOS: Vehicles & Equip. per Vehicle Trip	**0.00024**

Cost Analysis

Cost per Unit	$48,090
LOS: Vehicles & Equip. per Person	0.00120
LOS: Vehicles & Equip. per Vehicle Trip	0.00024
Cost per Person	**$57.88**
Cost per Vehicle Trip	**$11.74**

Development Impact Fee Report – Plan-Based

The cost to prepare the Police Facilities IIP and related Development Impact Fee Report totals $20,769. Tucson 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 $1.11 and the cost per nonresidential trip is $0.10.

Figure P5: Development Impact Fee Report Cost Allocation

Necessary Public Service	Cost	Assessed Against	Proportionate Share	Cost Allocation				Cost per Demand Unit
				Demand Units	2018	2023	Change	
Police	$20,769	Residential	72%	Population	530,015	543,484	13,469	**$1.11**
		Nonresidential	28%	Vehicle Trips	1,016,002	1,069,801	53,799	**$0.10**

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 27,295 persons and 110,415 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 approximately 42,239 square feet of police facility space and 60 additional units of vehicles and equipment.

The 10-year total of the projected demand for new police facilities and vehicles/equipment is multiplied by the cost to determine the total cost to accommodate the projected demand over the next 10 years. The projected demand for additional police facility floor area and vehicles and equipment will cost approximately $10.7 million in total.

Figure P6: Projected Demand for Police Facilities

Growth-Related Need for Facilities

Level of Service			Demand Unit	Unit Cost
Residential	0.8500	Square Feet	per Person	$185
Nonresidential	0.1724		per Vehicle Trip	

Residential	0.00120	Veh. & Equip.	per Person	$48,090
Nonresidential	0.00024	Units	per Vehicle Trip	

Year		Population	Nonres. Vehicle Trips	Facility Square Feet	Vehicles and Equipment	
Base	2019	530,015	1,016,002	625,686	886	
Year 1	2020	532,681	1,026,544	629,770	892	
Year 2	2021	535,360	1,037,193	633,883	898	
Year 3	2022	538,053	1,047,952	638,027	903	
Year 4	2023	540,760	1,058,821	642,202	909	
Year 5	2024	543,484	1,069,801	646,411	915	
Year 6	2025	546,219	1,080,895	650,649	921	
Year 7	2026	548,969	1,092,102	654,918	927	
Year 8	2027	551,736	1,103,424	659,222	933	
Year 9	2028	554,516	1,114,862	663,557	940	
Year 10	2029	557,310	1,126,417	667,925	946	
10-Year Increase		**27,295**	**110,415**	**42,239**	**60**	**TOTAL**
Growth-Related Expenditures				**$7,814,215**	**$2,885,400**	**$10,699,615**

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 where development impact fees may be used to accommodate needs due to new development, as projected in the previous section, are shown in Figure P7. Police facility improvements may include but are not limited to the projects listed below in P7. Additional vehicles and equipment will be procured as necessitated by growth. In addition to the projects identified in the Police Facilities IIP (as shown in figure P7), the City plans to identify projects that will serve growth as part of its annual budget process and annual capital improvement planning process.

Figure P7: Necessary Police Improvements and Expansions

CITYWIDE
Facilities ***May be the location listed below, or others as needed due to growth*** • *SE Annex to Substation Built Out*
Vehicles and Equipment ***May be to serve location listed below, or others as needed due to growth*** • *SE Substation*

POLICE FACILITIES DEVELOPMENT IMPACT FEES

Revenue Offset

A revenue offset is not necessary for the Police Facilities development impact fees because 10-year growth costs exceed the amount of revenue that is projected to be generated by development impact fees according to the Land Use Assumptions, as shown in Figure P9. In addition, dedicated revenues and other funding sources are separate from the portion of the IIP funded from development impact fees.

Proposed Police Facilities Development Impact Fees

The proposed Police development impact fees are shown in Figure P8. Cost factors for police facilities, vehicles and equipment, and professional services are summarized at the top of the figure. The residential development impact fees are calculated by multiplying the $216.23 cost per person by the service unit ratios (persons per housing unit) for each housing type. Nonresidential development impact fees are calculated by multiplying the $43.74 per vehicle trip by the average weekday vehicle trips per 1,000 square feet ratios and the trip adjustment factors for each development type.

Two sets of comparisons to the City of Tucson's current development impact fees are provided: (1) rates in effect as of August 2019, identified as the "Phase-in Fee Rates" and (2) "Full Adopted Fee Rates," reflecting the maximum amount calculated in the previous development fee study.[5] For the Police Development Impact Fee, these two amounts are the same. The net change is shown between the proposed fee and both sets of current fees, in two adjacent columns.

[5] Tucson, Arizona, Code of Ordinances Article III, Sec. 23A-91 ("Fee Schedule Tables").

Figure P8: Proposed Police Facilities Development Impact Fees

Fee Component	Cost per Person	Cost per Vehicle Trip
Facilities	$157.24	$31.90
Vehicles & Equipment	$57.88	$11.74
Development Fee Report	$1.11	$0.10
Total	**$216.23**	**$43.74**

Residential Development (per Housing Unit)							
Size of Housing Unit (Sq. Ft.)	Demand Unit	Persons per Demand Unit	Proposed Fee	Phase-In Fee Rates*	Increase / (Decrease)	Full Adopted Fee Rates*	Increase / (Decrease)
750 or Less	Housing Unit	1.00	$216	$230	($14)	$230	($14)
751 to 1,250	Housing Unit	1.61	$348	$230	$118	$230	$118
1,251 to 1,750	Housing Unit	2.15	$464	$257	$207	$257	$207
1,751 to 2,250	Housing Unit	2.55	$551	$257	$294	$257	$294
2,251 to 2,750	Housing Unit	2.86	$618	$379	$239	$379	$239
2,751 to 3,250	Housing Unit	3.12	$674	$379	$295	$379	$295
3,251 to 3,750	Housing Unit	3.34	$722	$379	$343	$379	$343
3,751 or More	Housing Unit	3.53	$763	$379	$384	$379	$384

** Current Tucson Development Impact Fee schedule has three residential categories: Single-family, condo/townhomes, and multi-family/apartments. The comparison assumes multi-family/apartment units are 1,000 sq. ft. or less, condo/townhome units are 1,001-1,500 sq. ft., and single family units are greater than 1,500 sq. ft.*
Note: residential type is determined by the gross floor area of livable space (not including patios, garages, and other non-living areas).

Nonresidential Development (per Demand Unit)								
Type	Demand Unit	Trip Ends per Demand Unit	Trip Rate Adjustment	Proposed Fee	Phase-In Fee Rates**	Increase / (Decrease)	Full Adopted Fee Rates**	Increase / (Decrease)
Industrial: Light Industrial	1,000 Sq. Ft.	4.96	50%	$108	$321	($213)	$321	($213)
Industrial: Manufacturing	1,000 Sq. Ft.	3.93	50%	$85	$321	($236)	$321	($236)
Industrial: Warehousing	1,000 Sq. Ft.	1.74	50%	$38	$321	($283)	$321	($283)
Commercial/Retail: General	1,000 Sq. Ft.	37.75	33%	$544	$321	$223	$321	$223
Commercial/Retail: Free Standing Discount Store	1,000 Sq. Ft.	53.12	33%	$766	$321	$445	$321	$445
General Office	1,000 Sq. Ft.	9.74	50%	$213	$321	($108)	$321	($108)
Institutional: Schools	1,000 Sq. Ft.	19.52	33%	$281	$321	($40)	$321	($40)
Institutional: Religious Facilities	1,000 Sq. Ft.	6.95	33%	$100	$321	($221)	$321	($221)
Institutional: Medical (Nursing Hm./Asstd Living)	1,000 Sq. Ft.	6.64	33%	$95	$321	($226)	$321	($226)
Institutional: Medical (Clinic, Hospital)	1,000 Sq. Ft.	38.16	33%	$550	$321	$229	$321	$229
Hotel	Room	8.36	50%	$182	n/a	n/a	n/a	n/a

*** Current fee schedule does not have Institutional category; comparison is to Office.*
Source for current Tucson Development Impact Fee schedule: Tucson, Arizona, Code of Ordinances Article III, Sec. 23A-91 ("Fee Schedule Tables").

FORECAST OF REVENUES

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

Development Impact Fee Revenues for Police Facilities and Vehicles & Equipment

Revenue projections shown below assume implementation of the proposed Police development impact 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 P9, the 10-year growth costs of police facilities, vehicles and equipment total approximately $10.7 million, and approximately $10.4 million is projected to be collected from development impact fees if actual development matches the projections as indicated in the Land Use Assumptions and at the average development fee rates shown.

Figure P9: Projected Police Development Impact Fee Revenue

Fee Component	Growth Share
Facilities	$7,814,215
Vehicles & Equipment	$2,885,400
Development Fee Report	$20,769
Total Expenditures	**$10,720,384**

		Single-Family	Multi-Family	Industrial	Commercial	Institutional	Office & Other
		$512 per Unit*	$337 per Unit*	$77 per KSF**	$655 per KSF**	$257 per KSF**	$213 per KSF
Year		Housing Units	Housing Units	KSF	KSF	KSF	KSF
Base	2019	165,637	72,824	17,653	22,677	92,231	19,633
1	2020	166,366	73,348	17,760	22,908	93,230	19,830
2	2021	167,098	73,876	17,867	23,142	94,239	20,029
3	2022	167,833	74,408	17,975	23,378	95,259	20,231
4	2023	168,571	74,944	18,084	23,616	96,290	20,434
5	2024	169,313	75,484	18,193	23,857	97,332	20,639
6	2025	170,058	76,027	18,303	24,100	98,385	20,847
7	2026	170,806	76,574	18,414	24,345	99,449	21,056
8	2027	171,558	77,125	18,525	24,593	100,524	21,267
9	2028	172,313	77,680	18,637	24,844	101,611	21,481
10	2029	173,071	78,239	18,750	25,097	102,709	21,697
10-year Increase		**7,434**	**5,415**	**1,097**	**2,420**	**10,479**	**2,064**
Projected Revenue		**$3,806,253**	**$1,824,855**	**$84,469**	**$1,584,921**	**$2,687,750**	**$439,676**

** Average-sized unit*
*** Average of respective nonresidential categories*

Projected Revenue	**$10,427,924**
Surplus / (Deficit)	**($292,460)**

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 Impact Fees includes components for fire facilities and the cost of professional services for preparing the Fire Facilities IIP and related Development Impact Fee Report. An incremental expansion methodology is used for fire facilities and apparatus, and a plan-based methodology is used for the Development Impact Fee Report.

Service Area

The City of Tucson's Fire Department strives to provide a uniform response time Citywide, and its fire stations operate as an integrated network. Depending on the number and type of calls, apparatus can be dispatched Citywide from any of the stations. Therefore, a Citywide service area is recommended for the Fire Facilities IIP.

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 F1, to derive Functional Population shares for Tucson.

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 Tucson are assigned 14 hours to residential development and 10 hours to nonresidential development. Residents that work outside Tucson are assigned 14 hours to residential development. Inflow commuters are assigned 10 hours to nonresidential development. Based on 2015 functional population data for Tucson, the cost allocation for residential development is 72 percent while nonresidential development accounts for 28 percent of the demand for fire facilities.

Figure F1: Fire Proportionate Share

Demand Units in 2015				Demand Hours/Day	Person Hours	Proportionate Share
Residential						
Estimated Residents	524,072					
Residents Not Working		328,069		20	6,561,375	
Resident Workers		196,003				
59% Worked in City			114,890	14	1,608,460	
41% Worked Outside City			81,113	14	1,135,582	
			Residential Subtotal		**9,305,417**	**72%**
Nonresidential						
Non-working Residents		328,069		4	1,312,275	
Jobs Located in City		222,113				
52% Residents Working in City			114,890	10	1,148,900	
48% Non-Resident Workers (inflow commuters)			107,223	10	1,072,230	
			Nonresidential Subtotal		**3,533,405**	**28%**
				TOTAL	**12,838,822**	**100%**

Source: Estimated Residents based on TischlerBise housing unit estimates and persons per housing unit (PPHU) ratios derived from the U.S. Census Bureau (see Land Use Assumptions). Employment data from the U.S. Census Bureau's OneTheMap web application, 2016.

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 F2 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 residential units by size of unit.

For nonresidential development impact fees, TischlerBise recommends using nonresidential vehicle trips as the best demand indicator for fire facilities and equipment. Trip generation rates are used for nonresidential development because vehicle trips are highest for commercial developments, such as shopping centers, and lowest for industrial/warehouse development. Office and institutional trip rates fall between the other two categories. This ranking of trip rates is consistent with the relative demand for public safety 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 development impact 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 development impact 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 impact 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 development, 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 by their primary destinations and 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 a Commercial development is found by multiplying the ITE trip generation rate of 37.75 trips (per 1,000 square feet) by the trip rate adjustment factor of 33%, yielding an adjusted trip rate of 12.46 trips per 1,000 square feet. Therefore, it is reasonable to assume a 100,000 square foot commercial development would generate 1,246 primary destination trips per average weekday (12.46 x 100,000/1,000).

Figure F2: Fire Facilities Ratio of Service Unit to Development Unit

Residential Service Unit Ratios

Size of Housing Unit (Sq. Ft.)	Demand Unit	Persons per Demand Unit
750 or Less	Housing Unit	1.00
751 to 1,250	Housing Unit	1.61
1,251 to 1,750	Housing Unit	2.15
1,751 to 2,250	Housing Unit	2.55
2,251 to 2,750	Housing Unit	2.86
2,751 to 3,250	Housing Unit	3.12
3,251 to 3,750	Housing Unit	3.34
3,751 or More	Housing Unit	3.53

Nonresidential Service Unit Ratios

Type	Demand Unit	Trip Ends per Demand Unit	Trip Rate Adjustment	Adj. Trips per Demand Unit
Industrial: Light Industrial	1,000 sq. ft.	4.96	50%	2.48
Industrial: Manufacturing	1,000 sq. ft.	3.93	50%	1.97
Industrial: Warehousing	1,000 sq. ft.	1.74	50%	0.87
Commercial/Retail: Shopping Center	1,000 sq. ft.	37.75	33%	12.46
Commercial/Retail: Free Standing Discount Store	1,000 sq. ft.	53.12	33%	17.53
General Office	1,000 sq. ft.	9.74	50%	4.87
Institutional: Schools	1,000 sq. ft.	19.52	33%	6.44
Institutional: Religious Facilities	1,000 sq. ft.	6.95	33%	2.29
Institutional: Medical (Nursing Hm./Asstd Living)	1,000 sq. ft.	6.64	33%	2.19
Institutional: Medical (Clinic, Hospital)	1,000 sq. ft.	38.16	33%	12.59
Hotel	Room	8.36	50%	4.18

Source: See Land Use Assumptions.

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

ARS § 9-463.05(E) (1) requires:

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

ARS § 9-463.05(E)(2) requires:

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

Fire Facilities – Incremental Expansion

The Fire Department operates 19 fire stations, and a fire headquarters building, totaling 235,260 square feet of floor area. The total replacement cost of these facilities combined is approximately $44.33 million. Thus, the average replacement cost per square foot is $188 ($44.33 million / 235,260 square feet). The incremental expansion methodology is used to calculate the facility portion of the development impact fee, with new development maintaining the current infrastructure standards for allowable fire facilities.

As shown in Figure F3, the level of service for residential development is 0.3196 square feet per person, and the nonresidential level of service is 0.0648 square feet per vehicle trip. This is determined by multiplying the total square footage by the proportionate share factors (72% for residential and 28% for nonresidential), and then dividing the respective totals by the current service units (530,015 persons and 1,016,002 nonresidential vehicle trips). To obtain the costs per person and nonresidential vehicle trip, the level of service standards are multiplied by average cost per square foot ($188), producing a cost per person of $60.22 and a cost per vehicle trip of $12.22. Note that while the Level of Service 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 F3: Fire Facilities Inventory and Level of Service Standards

Fire Facilities	Square Feet	Cost per Sq. Ft.	Total Cost
Fire 03	3,330	$166	$551,250
Fire 04	10,548	$159	$1,675,750
Fire 05	7,512	$181	$1,360,000
Fire 06	8,850	$193	$1,708,050
Fire 07	9,600	$195	$1,868,250
Fire 08	6,672	$157	$1,044,250
Fire 09	8,120	$168	$1,365,750
Fire 10	7,216	$168	$1,215,000
Fire 11	3,495	$171	$596,750
Fire 12	4,115	$172	$706,750
Fire 13	3,685	$163	$599,000
Fire 14	4,016	$149	$597,250
Fire 15	3,878	$162	$627,500
Fire 17	9,427	$156	$1,468,250
Fire 18	1,375	$476	$654,750
Fire 19	7,115	$170	$1,208,000
Fire 20	11,085	$218	$2,417,250
Fire 21	11,085	$218	$2,417,250
Fire 22	15,005	$281	$4,211,250
Fire HQ	66,059	$200	$13,211,800
Fire Maintenance	33,072	$146	$4,829,250
Total	**235,260**	**$188**	**$44,333,350**

Level of Service (LOS) Standards

Population in 2019	530,015
Nonresidential Vehicle Trips in 2019	1,016,002
Residential Share	72%
Nonresidential Share	28%
LOS: Square Feet per Person	**0.3196**
LOS: Square Feet per Vehicle Trip	**0.0648**

Cost Analysis

Cost per Square Foot	$188
LOS: Square Feet per Person	0.3196
LOS: Square Feet per Vehicle Trip	0.0648
Cost per Person	**$60.22**
Cost per Vehicle Trip	**$12.22**

Fire Apparatus – Incremental Expansion

The inventory summary of Tucson's fire apparatus is displayed in Figure F4. The Tucson Fire Department owns 145 pieces of apparatus, which have a total replacement cost of $62.46 million. Dividing the total cost by the total number of apparatus yields an average cost per unit of $430,769. The current residential level of service is 0.00020 apparatus per resident, which was calculated by multiplying 145 units by the residential proportionate share (72%) and dividing by the current population (530,015). Similarly, the nonresidential level of service is 0.00004 units per vehicle trip is calculated by multiplying the 145 units by the nonresidential proportionate share (28%) and dividing by the average weekday nonresidential vehicle trips in 2019 (1,016,002 vehicle trips).

Multiplying the average cost per unit ($430,769) by the residential and nonresidential levels of service results in a cost per person of $84.85 and cost per vehicle trip of $17.21. Note that while the Level of Service 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 F4: Fire Apparatus Inventory and Level of Service Standards

Item	Quantity	Unit Cost	Total Cost
Extended Pickup Truck	13	$50,000	$650,000
Fire Engine	39	$785,000	$30,615,000
Aerial Ladder	7	$1,460,000	$10,220,000
Aerial Ladder Quint	2	$1,480,000	$2,960,000
Ambulance	25	$235,000	$5,875,000
Lift & Crane Truck	1	$100,000	$100,000
Fire Prevention Truck	8	$35,000	$280,000
Hazmat Truck with Lift Gate	1	$74,000	$74,000
Heavy/Super Duty Truck	2	$55,000	$110,000
Emergency Response Truck	13	$75,000	$975,000
Pickup Truck	5	$35,000	$175,000
Hazmat Truck	1	$850,000	$850,000
100' Aerial Platform Quint	2	$1,560,000	$3,120,000
Pickup Truck with Lift Gate	2	$75,000	$150,000
Heavy Rescue Truck	1	$250,000	$250,000
Squad Truck	2	$800,000	$1,600,000
Flatbed Trailer	1	$12,500	$12,500
Box Truck	2	$350,000	$700,000
Ladder Tender	4	$550,000	$2,200,000
Fire Safety Trailer	1	$75,000	$75,000
Brush Truck	1	$120,000	$120,000
Hazmat Truck	1	$400,000	$400,000
Brush Truck	1	$105,000	$105,000
Rehab/Recovery	1	$400,000	$400,000
Front-load Dump Truck	1	$100,000	$100,000
Water Tender	1	$250,000	$250,000
Cargo Van	1	$20,000	$20,000
Car Trailer	1	$5,000	$5,000
Gator Utility Vehicle	1	$10,000	$10,000
Golf Cart	1	$11,000	$11,000
Magnum Light Tower	2	$12,000	$24,000
Small Pickup Truck	1	$25,000	$25,000
TOTAL	**145**	**$430,769**	**$62,461,500**

Level of Service (LOS) Standards

Population in 2019	530,015
Nonresidential Vehicle Trips in 2019	1,016,002
Residential Share	72%
Nonresidential Share	28%
LOS: Apparatus per Person	**0.00020**
LOS: Apparatus per Vehicle Trip	**0.00004**

Cost Analysis

Cost per Unit	$430,769
LOS: Apparatus per Person	0.00020
LOS: Apparatus per Vehicle Trip	0.00004
Cost per Person	**$84.85**
Cost per Vehicle Trip	**$17.21**

Development Impact Fee Report – Plan-Based

The cost to prepare the Fire Facilities IIP and Development Impact Fee Report totals $20,769. Tucson 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 $1.11 per person and $0.10 per nonresidential vehicle trip.

Figure F5: Development Impact Fee Report Cost Allocation

Necessary Public Service	Cost	Assessed Against	Proportionate Share	Cost Allocation				Cost per Demand Unit
				Demand Units	2018	2023	Change	
Fire	$20,769	Residential	72%	Population	530,015	543,484	13,469	**$1.11**
		Nonresidential	28%	Vehicle Trips	1,016,002	1,069,801	53,799	**$0.10**

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 27,295 persons and 110,415 nonresidential vehicle trips over the next 10 years, as shown in Figure F6.

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 F6, this new development will demand approximately 15,882 square feet of new fire facilities and 10 pieces of additional apparatus.

The 10-year total of the projected demand for fire station facilities is multiplied by the cost to determine the total cost to accommodate the projected demand over the next 10 years. The cost for the additional fire station floor area is $2.99 million, and the cost for the additional apparatus is $4.31 million, for a total capital cost of $7.3 million.

Figure F6: Projected Demand for Fire Facilities

Growth-Related Need for Facilities

Level of Service			Demand Unit	Unit Cost
Residential	0.320	Square Feet	per Person	$188.44
Nonresidential	0.065		per Vehicle Trip	

Residential	0.00020	Apparatus Units	per Person	$430,769
Nonresidential	0.00004		per Vehicle Trip	

Year		Population	Nonres. Vehicle Trips	Station Square Feet	Apparatus	
Base	2019	530,015	1,016,002	235,260	145	
Year 1	2020	532,681	1,026,544	236,795	146	
Year 2	2021	535,360	1,037,193	238,342	147	
Year 3	2022	538,053	1,047,952	239,900	148	
Year 4	2023	540,760	1,058,821	241,470	149	
Year 5	2024	543,484	1,069,801	243,052	150	
Year 6	2025	546,219	1,080,895	244,646	151	
Year 7	2026	548,969	1,092,102	246,251	152	
Year 8	2027	551,736	1,103,424	247,870	153	
Year 9	2028	554,516	1,114,862	249,500	154	
Year 10	2029	557,310	1,126,417	251,142	155	
10-Year Increase		**27,295**	**110,415**	**15,882**	**10**	**TOTAL**
Growth-Related Expenditures				**$2,992,869**	**$4,307,690**	**$7,300,559**

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 where development impact fees may be used to accommodate needs due to new development, as projected in the previous section, are shown in Figure F7. Fire facility improvements may include but are not limited to the projects listed below in F7. Additional apparatus will be procured as necessitated by growth. In addition to the projects identified in the Fire Facilities IIP (as seen in Figure F7), the City plans to identify projects that will serve growth as part of its annual budget project and annual capital improvement planning process.

Figure F7: Necessary Fire Improvements and Expansions

CITYWIDE
Facilities ***May be the locations listed below, or others as needed due to growth*** • *Station #24 Build and Fit-Out (NW side infill station)* • *Station #25 Build and Fit-Out (SE side station)*
Vehicles and Equipment ***May be to serve locations listed below, or others as needed due to growth*** • *Station #24 Apparatus and Equipment (NW side infill station)* • *Station #25 Apparatus and Equipment (SE side station)*

FIRE FACILITIES DEVELOPMENT IMPACT FEES

Revenue Offset

A revenue offset is not necessary for the Fire Facilities development impact fees because 10-year growth costs exceed the amount of revenue that is projected to be generated by development impact fees according to the Land Use Assumptions, as shown in Figure F9. In addition, dedicated revenues and other funding sources are separate from the portion of the IIP funded from development impact fees.

Proposed Fire Facilities Development Impact Fees

The proposed development impact fees for Fire Facilities are shown in Figure F8. Cost factors for fire facilities, apparatus, and professional services are summarized at the top of the figure. The residential development impact fees are calculated by multiplying the $146.18 cost per person by the service unit ratios (persons per housing unit) for each housing unit size. Nonresidential development impact fees are calculated by multiplying the $29.53 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.

Two sets of comparisons to the City of Tucson's current development impact fees are provided: (1) rates in effect as of August 2019, identified as the "Phase-in Fee Rates" and (2) "Full Adopted Fee Rates," reflecting the maximum amount calculated in the previous development fee study.[6] For the Fire Development Impact Fee, these two amounts are the same. The net change is shown between the proposed fee and both sets of current fees, in two adjacent columns.

[6] Tucson, Arizona, Code of Ordinances Article III, Sec. 23A-91 ("Fee Schedule Tables").

Figure F8: Proposed Fire Facilities Development Impact Fees

Fee Component	Cost per Person	Cost per Vehicle Trip
Facilities	$60.22	$12.22
Apparatus	$84.85	$17.21
Development Fee Report	$1.11	$0.10
TOTAL	**$146.18**	**$29.53**

Residential Development (per Housing Unit)							
Size of Housing Unit (Sq. Ft.)	Demand Unit	Persons per Demand Unit	Proposed Fee	Phase-In Fee Rates*	Increase / (Decrease)	Full Adopted Fee Rates*	Increase / (Decrease)
750 or Less	Housing Unit	1.00	**$146**	$183	($37)	$183	($37)
751 to 1,250	Housing Unit	1.61	**$235**	$183	$52	$183	$52
1,251 to 1,750	Housing Unit	2.15	**$314**	$206	$108	$206	$108
1,751 to 2,250	Housing Unit	2.55	**$372**	$206	$166	$206	$166
2,251 to 2,750	Housing Unit	2.86	**$418**	$303	$115	$303	$115
2,751 to 3,250	Housing Unit	3.12	**$456**	$303	$153	$303	$153
3,251 to 3,750	Housing Unit	3.34	**$488**	$303	$185	$303	$185
3,751 or More	Housing Unit	3.53	**$516**	$303	$213	$303	$213

** Current Tucson Development Impact Fee schedule has three residential categories: Single-family, condo/townhomes, and multi-family/apartments. The comparison assumes multi-family/apartment units are 1,000 sq. ft. or less, condo/townhome units are 1,001-1,500 sq. ft., and single family units are greater than 1,500 sq. ft.*
Note: residential type is determined by the gross floor area of livable space (not including patios, garages, and other non-living areas).

Nonresidential Development (per Demand Unit)								
Type	Demand Unit	Trip Ends per Demand Unit	Trip Rate Adjustment	Proposed Fee	Phase-In Fee Rates**	Increase / (Decrease)	Full Adopted Fee Rates**	Increase / (Decrease)
Industrial: Light Industrial	1,000 Sq. Ft.	4.96	50%	**$73**	$157	($84)	$157	($84)
Industrial: Manufacturing	1,000 Sq. Ft.	3.93	50%	**$58**	$157	($99)	$157	($99)
Industrial: Warehousing	1,000 Sq. Ft.	1.74	50%	**$25**	$157	($132)	$157	($132)
Commercial/Retail: General	1,000 Sq. Ft.	37.75	33%	**$367**	$157	$210	$157	$210
Commercial/Retail: Free Standing Discount Store	1,000 Sq. Ft.	53.12	33%	**$517**	$157	$360	$157	$360
General Office	1,000 Sq. Ft.	9.74	50%	**$143**	$157	($14)	$157	($14)
Institutional: Schools	1,000 Sq. Ft.	19.52	33%	**$190**	$157	$33	$157	$33
Institutional: Religious Facilities	1,000 Sq. Ft.	6.95	33%	**$67**	$157	($90)	$157	($90)
Institutional: Medical (Nursing Hm./Asstd Living)	1,000 Sq. Ft.	6.64	33%	**$64**	$157	($93)	$157	($93)
Institutional: Medical (Clinic, Hospital)	1,000 Sq. Ft.	38.16	33%	**$371**	$157	$214	$157	$214
Hotel	Room	8.36	50%	**$123**	n/a	n/a	n/a	n/a

*** Current fee schedule does not have Institutional category; comparison is to Office.*
Source for current Tucson Development Impact Fee schedule: Tucson, Arizona, Code of Ordinances Article III, Sec. 23A-91 ("Fee Schedule Tables").

FORECAST OF REVENUES

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

Development Impact Fee Revenues for Fire Facilities

Revenue projections shown below assume implementation of the proposed Fire Facilities development impact 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 F9, the 10-year growth costs of fire improvement costs total $7.3 million and approximately $7.0 million is projected from development impact fees, if actual development matches the projections as indicated in the Land Use Assumptions and at the average development fee rates shown.

Figure F9: Projected Fire Facilities Development Impact Fee Revenue

Fee Component	Growth Share
Facilities	$2,992,869
Apparatus	$4,307,690
Development Fee Report	$20,769
Total Expenditures	**$7,321,328**

		Single-Family	Multi-Family	Industrial	Commercial	Institutional	Office & Other
		$346 per Unit*	$228 per Unit*	$52 per KSF**	$442 per KSF**	$173 per KSF**	$143 per KSF
Year		Housing Units	Housing Units	KSF	KSF	KSF	KSF
Base	2018	165,637	72,824	17,653	22,677	92,231	19,633
1	2019	166,366	73,348	17,760	22,908	93,230	19,830
2	2020	167,098	73,876	17,867	23,142	94,239	20,029
3	2021	167,833	74,408	17,975	23,378	95,259	20,231
4	2022	168,571	74,944	18,084	23,616	96,290	20,434
5	2023	169,313	75,484	18,193	23,857	97,332	20,639
6	2024	170,058	76,027	18,303	24,100	98,385	20,847
7	2025	170,806	76,574	18,414	24,345	99,449	21,056
8	2026	171,558	77,125	18,525	24,593	100,524	21,267
9	2027	172,313	77,680	18,637	24,844	101,611	21,481
10	2028	173,071	78,239	18,750	25,097	102,709	21,697
10-year Increase		**7,434**	**5,415**	**1,097**	**2,420**	**10,479**	**2,064**
Projected Revenue		**$2,572,194**	**$1,234,620**	**$57,044**	**$1,069,519**	**$1,812,791**	**$295,182**

** Average-sized unit*
*** Average of respective nonresidential categories*

Projected Revenue	**$7,041,350**
Surplus / (Deficit)	**($279,978)**

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:

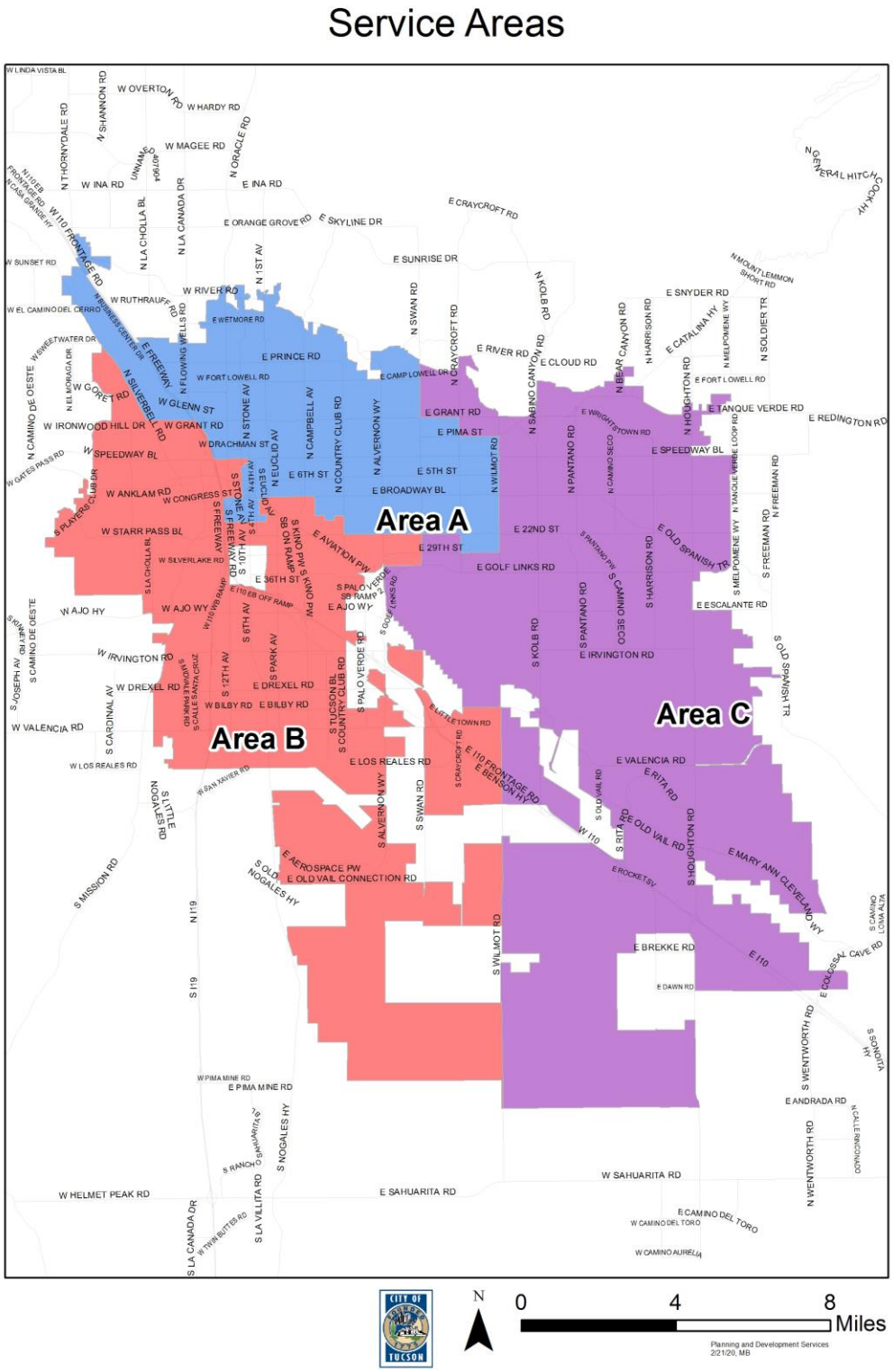
> *"Street facilities located in the service area, including arterial or collector streets or roads that have been designated on an officially adopted plan of the municipality, traffic signals and rights-of-way and improvements thereon."*

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 Impact Fee Report. An incremental expansion methodology is used for arterial street improvements, and a plan-based methodology is used for the Development Impact Fee Report.

Service Area

For Street facilities, capacity projects for which development impact fees will be collected are anticipated to be built both to serve Citywide and subarea transportation needs. Three Service Areas have been developed based on growth patterns and location of infrastructure (see the figure below). For Streets, a portion of the fee is based on Citywide capacity needs reflected in RTA projects and other citywide capacity transportation projects and is recommended to be collected and spent Citywide on those projects. The remainder of the fee is for other non-RTA/citywide capacity street improvement projects and is recommended to be collected and spent within the respective three Services Areas. Potential projects are identified in this chapter. (As noted above, in addition to the three subareas depicted below, a Citywide service area is recommended.)

Figure S1: Service Area Map



METHODOLOGY

Street Facilities development impact 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 Tucson to provide additional capacity at 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. Vehicle trip length, trip generation rates and trip adjustment factors are used to determine the proportionate impact of residential, commercial, office, and industrial land uses on the City's 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 impact 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 include: vehicle trip ends (or trip generation rates), adjustments for commuting patterns and pass-by trips, and trip length weighting factors. Each is discussed further in this section.

Figure S2: Summary of Service Units

Development Type	ITE Code	Weekday Vehicle Trip Ends[1]	Dev Unit	Trip Adj	2019 Trips	Avg Trip Length[2]
Single Units	210	8.19	HU	56%	764,493	4.92
2+ Units	220	3.89	HU	56%	159,645	4.92
Industrial (KSF)	110	4.96	KSF	50%	43,780	3.07
Commercial (KSF)	820	37.75	KSF	33%	282,498	3.15
Institutional (KSF)	520	19.52	KSF	33%	594,114	3.07
Office & Other (KSF)	710	9.74	KSF	50%	95,611	3.07
				Total	**1,940,141**	**3.96**

1. Institute of Transportation Engineers (ITE), Trip Generation, 10th Edition, 2017; TischlerBise analysis.

2. Derived using local traffic counts and Federal Highway Administration, 2017 National Household Travel Survey.

Trip Generation Rates

For nonresidential development, trip generation rates (i.e., vehicle trip ends) are from the 10th edition of the reference book Trip Generation published by the Institute of Transportation Engineers (ITE) (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, 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 Impact 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 56% to account for commuters leaving Tucson 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 S3, the Census Bureau's web application OnTheMap indicates that 41% of resident workers traveled outside the City for work in 2015. In combination, these factors (0.31 X 0.50 X 0.41 = .06) support the additional 6% allocation of trips to residential development (50% plus 6%).

Figure S3: Inflow/Outflow Analysis

Trip Adjustment Factors for Commuters[1]	
Employed Residents	196,003
Residents Working in Tucson	114,890
Residents Commuting Out of Tucson	81,113
Percent Commuting out of Tucson	**41%**
All Outbound Trips	50%
% Weekday Work Trips[2]	31%
Additional Production Trips	6%
Residential Trip Adjustment Factor	**56%**

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

For commercial development, 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. 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 Tucson provided an inventory of existing arterial road segments, including segment lengths, lane quantities, and annual average daily traffic (AADT) counts. Multiplying each segment's length by the number of lanes yields the number of lane miles per segment. The City's arterial (major and minor) road network consists of 1,476 lane miles. By multiplying the traffic counts and segment lengths, daily vehicle miles of travel (VMT) is determined. The sum of all arterial road segment's VMT is approximately 7.7 million, meaning Tucson's arterial street network handles an average of just under 8 million daily VMT.

Figure S4 documents the capacity of Tucson'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. An

urbanized mile segment of a 4-lane arterial street with a Level of Service D should maintain a daily volume of 32,400 vehicles, or 8,100 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 1,476 lane miles is approximately 12 million vehicle miles of capacity.

As noted above, current daily volume on Tucson's arterial network is approximately 7.7 million VMT. The resulting Vehicle Miles of Capacity (VMC) to VMT ratio is 1.55 (12 million VMC / 7.7 million VMT). The baseline VMC/VMT ratio for any incremental expansion method is 1.0 (i.e., VMC=VMT), therefore the current ratio of 1.55 exceeds current level of service ensuring that new capacity built with development impact fee funds will be at or below current level of service.

Figure S4: Arterial Road Network Capacity and Usage

Total Arterial Vehicle Lane Miles	1,476
Vehicle Miles of Capacity (VMC) per Lane*	8,100
Total Vehicle Miles of Capacity (VMC)	11,955,600
Existing Vehicle Miles of Travel (VMT)	7,689,394
VMC/VMT Ratio	**1.55**

** 2012 FDOT Quality/Level of Service Handbook Tables*
(LOS D, Four-Lane Arterial (Class II))

Cost per Vehicle Miles Traveled (VMT)

Figure S5 contains a list of potential transportation projects which Tucson may construct over the next 10 years. The estimated local costs for these projects are used to determine the cost per lane mile used in the analysis. Total project cost per lane mile is approximately $7.5 million. However, after adjusting for other non-development fee funding sources and growth-related needs, the local cost used in the development fee calculation is a weighted average cost per lane mile of $1.2 million (rounded).

Figure S5: Street Facilities Cost Per Lane Mile

Facility Name	Lane Miles	$ Growth-Related Local Costs (Impact Fees)	$ Bonds	$ Other	Total Cost
12th Ave (44th to Drexel)	1.25	$4,000,000	$2,000,000		$6,000,000
1st Ave (Grant to River)	4.50	$3,000,000		$71,400,000	$74,400,000
22nd St (Camino Seco to Houghton)*	4.00	$3,000,000		$6,100,000	$9,100,000
22nd St (I-10 to Tucson Blvd)	3.00	$1,300,000		$68,000,000	$69,300,000
36th Street (Park to Kino)	0.00	$1,080,000			$1,080,000
Camino Seco (Wrightstown to Speedway)	2.00	$4,000,000			$4,000,000
Downtown Links*	4.00	$4,000,000		$59,500,000	$63,500,000
Drexel Bridge over SCR	1.00	$8,000,000			$8,000,000
Grant Rd Corridor (Santa Rita to Swan)*	7.00	$2,300,000		$100,000,000	$102,300,000
Harrison Bridge (Golf Links to Irvington)	0.25	$2,000,000		$6,100,000	$8,100,000
Houghton (Broadway to Tanque Verde)*	4.00	$4,900,000		$3,100,000	$8,000,000
Houghton (Mary Ann Cleveland to Golf Links)	14.00	$6,000,000		$36,000,000	$42,000,000
Houghton (South of I-10)	5.00	$2,000,000		$25,000,000	$27,000,000
Irvington (Kolb to Houghton)	4.00		$1,000,000	$15,000,000	$16,000,000
Kino and Tucson Marketplace	0.00	$1,000,000			$1,000,000
Kolb (Escalante to I-10)	7.50	$13,000,000	$1,500,000		$14,500,000
M L King Jr Way	0.00	$1,566,000			$1,566,000
M L King Jr Way and Tucson Marketplace	0.00	$450,000			$450,000
M L King Jr Way and 36th Street	0.20	$350,000			$350,000
Mary Ann Cleveland Way Widening	3.00	$5,000,000	$700,000		$5,700,000
Park and Tucson Marketplace	0.20	$1,035,000			$1,035,000
Silverbell (Goret to Camino del Cerro)*	3.75	$500,000		$28,000,000	$28,500,000
Starr Pass (Shannon to I-10)	1.50	$17,000,000			$17,000,000
Stone Ave (Drachman to Wetmore)	1.50			$15,000,000	$15,000,000
Valencia (Kolb to Houghton, including intersection improvements at Valencia and Kolb)*	8.00	$3,500,000		$25,500,000	$29,000,000
Grand Total	**79.65**	**$88,981,000**	**$5,200,000**	**$458,700,000**	**$552,881,000**
Total Growth-Related Fee Projects	**74.15**	**$88,981,000**	**$5,200,000**	**$458,700,000**	**$552,881,000**
Cost per Lane Mile		**$1,200,013**	**$70,128**	**$6,186,109**	**$7,456,251**
Cost per Lane Mile (rounded)		**$1,200,000**			

** Anticipated future citywide street facilties capacity projects designated by the Regional Transportation Authority (RTA); reflects 20.5% of total growth-related local costs.*

Source: City of Tucson

The cost per vehicle mile of capacity (VMC) is calculated based on the average cost per lane mile of $1.2 million divided by the average lane capacity of 8,100 average daily vehicle trips (per 1 lane mile). This results in a $148.00 cost per VMC (rounded). The incremental expansion methodology assumes the ratio of VMC to VMT is 1, therefore the cost per VMT is also $148.00.

Figure S6: Cost per VMC Factors

Cost per Lane Mile	$1,200,000
Vehicle Miles of Capacity (VMC) per Lane Mile	8,100
Cost per VMC	$148.15
Cost per VMC (rounded)	$148.00

Vehicle Trips

Figure S7 shows the calculation of vehicle trips generated by existing development. When average weekday vehicle trip ends and trip adjustment percentages (shown in Figure S2) are multiplied by the development unit quantities for Tucson 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 S7, this totals 1,940,141 adjusted vehicle trips.

Figure S7: Vehicle Trips

Development Type	ITE Code	Weekday Vehicle Trip Ends[1]	Dev Unit	Trip Adj	2019 Trips
Single Units	210	8.19	HU	56%	764,493
2+ Units	220	3.89	HU	56%	159,645
Industrial (KSF)	110	4.96	KSF	50%	43,780
Commercial (KSF)	820	37.75	KSF	33%	282,498
Institutional (KSF)	520	19.52	KSF	33%	594,114
Office & Other (KSF)	710	9.74	KSF	50%	95,611
				Total	**1,940,141**

1. Institute of Transportation Engineers (ITE), Trip Generation, 10th Edition, 2017; TischlerBise analysis.

2. Derived using local traffic counts and Federal Highway Administration, 2017 National Household Travel Survey.

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 S8 shows average trip lengths from the *National Household Travel Survey (2017).*[7]

Figure S8: National Average Trip Lengths

Land Use	National Average Trip Length (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 first determines expected demand (VMT) on the City's complete transportation network using the above national travel demand characteristics.

Average daily trips from existing development in each land use category are multiplied by the applicable average trip lengths.

Figure S9. Expected VMT in the City of Tucson

Land Use	Average Daily Trips	National Avg Trip Length (miles)	Expected VMT
Single Units	764,493	12.32	9,418,554
2+ Units	159,645	12.32	1,966,826
Industrial	43,780	7.70	337,106
Commercial	282,498	7.90	2,231,734
Institutional	594,114	7.70	4,574,678
Office & Other	95,611	7.70	736,205
Total	**1,940,141**		**19,265,103**

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

Because expected VMT reflects anticipated travel demand from City development on the entire roadway system, it is therefore higher than actual VMT on the arterial system in the City. To calibrate demand on the arterial system, expected travel demand is compared to actual VMT obtained from the City of Tucson's street segment database. The ratio between actual and expected VMT provides a local adjustment factor that can be applied to national average trip lengths by type of land use. The local adjustment factor is shown in Figure S10.

Figure S10. Local Trip Length Adjustment Factor

Actual Local VMT on Arterials*	7,689,394
Expected Local VMT^	19,265,103
Actual to Expected VMT	**0.399**

** City of Tucson*

^ TischlerBise analysis

As shown in Figure S11, national average trips lengths are adjusted to reflect local conditions.

Figure S11. Local Average Trip Lengths by Land Use

Land Use	National Avg Trip Length (miles)	Local Adj. Factor	Local Trip Length
Residential	12.32	0.399	4.92
Industrial	7.70	0.399	3.07
Commercial/Retail	7.90	0.399	3.15
Institutional	7.70	0.399	3.07
Office and Other	7.70	0.399	3.07

Sources: National trip length from 2017 NHTS and TischlerBise; local adjustment from Figure S10.

Using the above factors, VMT per service unit is calculated, shown below in Figure S12.

Figure S12. VMT per Service Unit on Arterial Network

Development Type	ITE Code	Weekday Vehicle Trip Ends[1]	Trip Adj	Adj Trip Rate	Local Trip Length	VMT per Service Unit
Single Units	210	8.19	56%	4.62	4.92	22.70
2+ Units	220	3.89	56%	2.19	4.92	10.78
Industrial (KSF)	110	4.96	50%	2.48	3.07	7.62
Commercial (KSF)	820	37.75	33%	12.46	3.15	39.28
Institutional (KSF)	520	19.52	33%	6.44	3.07	19.80
Office & Other (KSF)	710	9.74	50%	4.87	3.07	14.97

1. Institute of Transportation Engineers (ITE), Trip Generation, 10th Edition, 2017; TischlerBise analysis.

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 Tucson 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 S13.

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 Tucson over the next 10 years, and the corresponding need for additional lane miles is shown in Figure S13. Trip generation rates and trip adjustment factors convert project development into average weekday vehicle trips. New development over the next ten years in Tucson is projected to generate 156,597 average weekday vehicle 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 S12) are used to derive level of service in Vehicle Miles of Travel and future needs of lane miles. A Vehicle Mile of Travel (VMT) is a measurement unit equal to one vehicle traveling one mile. As shown in Figure S13, based on the increase in VMT (568,845), the City of Tucson would need to construct an additional 70.22 lane miles of arterials to accommodate projected development over the next 10 years.

Figure S13: Projected Travel Demand Model

Development Type	ITE Code	Weekday Vehicle Trip Ends[1]	Dev Unit	Trip Adj	2019 Trips	Avg Trip Length[2]
Single Units	210	8.19	HU	56%	764,493	4.92
2+ Units	220	3.89	HU	56%	159,645	4.92
Industrial (KSF)	110	4.96	KSF	50%	43,780	3.07
Commercial (KSF)	820	37.75	KSF	33%	282,498	3.15
Institutional (KSF)	520	19.52	KSF	33%	594,114	3.07
Office & Other (KSF)	710	9.74	KSF	50%	95,611	3.07
				Total	**1,940,141**	**3.96**

1. Institute of Transportation Engineers (ITE), Trip Generation, 10th Edition, 2017; TischlerBise analysis.

2. Derived using local traffic counts and Federal Highway Administration, 2017 National Household Travel Survey.

Vehicle Capacity per Lane Mile: 8,100

Multi-year Intervals >>

		2019	2020	2021	2022	2023	2024	2029	10-Year
		Base	1	2	3	4	5	10	Increase
Development	Single Family Units	165,637	166,366	167,098	167,833	168,571	169,313	173,071	**7,434**
	Multi-Family Units	72,824	73,348	73,876	74,408	74,944	75,484	78,239	**5,415**
	Industrial KSF	17,653	17,760	17,867	17,975	18,084	18,193	18,750	**1,097**
	Commercial KSF	22,677	22,908	23,142	23,378	23,616	23,857	25,097	**2,420**
	Institutional KSF	92,231	93,230	94,239	95,259	96,290	97,332	102,709	**10,479**
	Office & Other KSF	19,633	19,830	20,029	20,231	20,434	20,639	21,697	**2,064**
Average Weekday Vehicle Trips	Single Family Trips	764,493	767,858	771,237	774,629	778,035	781,460	798,805	**34,312**
	Multi-Family Trips	159,645	160,794	161,952	163,118	164,293	165,477	171,516	**11,871**
	Industrial Trips	43,780	44,045	44,311	44,579	44,849	45,120	46,500	**2,720**
	Commercial Trips	282,498	285,379	288,289	291,228	294,197	297,195	312,642	**30,144**
	Institutional Trips	594,114	600,548	607,050	613,621	620,262	626,973	661,612	**67,498**
	Office & Other Trips	95,611	96,572	97,543	98,523	99,513	100,513	105,663	**10,052**
	Total Vehicle Trips	**1,940,141**	**1,955,196**	**1,970,382**	**1,985,698**	**2,001,149**	**2,016,738**	**2,096,738**	**156,597**
VMT	**Vehicle Miles of Travel**	**7,689,394**	**7,744,217**	**7,799,487**	**7,855,198**	**7,911,369**	**7,968,018**	**8,258,239**	**568,845**
NEED	**Arterial Lane Miles**	**1,476**	**1,483**	**1,490**	**1,496**	**1,503**	**1,510**	**1,546**	**70.22**
	Additional Lane Miles		6.77	6.82	6.88	6.93	6.99	7.28	**70.22**
	Cumulative Lane Miles		6.77	13.59	20.47	27.40	34.39	70.22	**70.22**
	Growth-Related Cost		$8,124,000	$8,184,000	$8,256,000	$8,316,000	$8,388,000	$8,736,000	**$84,264,000**

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 (70.22) by the cost per lane mile from Figure S5 ($1,200,000) results in a 10-year cost of approximately $84 million attributed to arterial lane miles.

Development Impact Fee Report – Plan-Based

The cost to prepare the Street Facilities IIP and Development Impact Fee Report totals $62,307. Tucson 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 $0.22 per average weekday VMT.

Figure S14: Development Impact Fee Report Cost Allocation

Necessary Public Service	*Cost*	*Assessed Against*	*Proportionate Share*	*Cost Allocation*				*Cost per Demand Unit*
				Demand Units	*2018*	*2023*	*Change*	
Streets	$62,307	All Development	100%	Avg Wkdy VMT	7,689,394	7,968,018	278,624	**$0.22**

STREET FACILITIES IIP

Potential Street Facilities Improvements where development impact fees may be used to address capacity needs due to new development—as projected in the previous section—are shown in Figure S15. Street facility improvements may include but are not limited to the projects listed below in S15. In addition to the Streets Facilities IIP (as seen in Figure S15), the City plans to identify projects that will serve growth as part of its annual budget process and annual capital improvement planning process.

Figure S15: Necessary Street Facilities Improvements and Expansions by Service Area

CITYWIDE	AREA A	AREA B	AREA C
Arterial Lane Miles *May be added on Streets identified below, or others as needed due to growth* • *22nd St (Camino Seco to Houghton)* • *Grant Rd (Santa Rita to Swan)* • *Houghton Rd (Broadway to Tanque Verde)* • *Silverbell Rd (Goret to Camino del Cerro)* • *Valencia (Kolb to Houghton, including intersection improvements at Valencia and Kolb)* • *Downtown Links* • *Other projects based on Mobility Master Plan, development impacts and capacity improvements* *Note: These citywide road projects are designated by the Regional Transportation Authority (RTA)*	**Arterial Lane Miles** *May be added on Streets identified below, or others as needed due to growth* • *Stone Ave (Drachman to Wetmore)* • *Other projects based on Mobility Master Plan, development impacts and capacity improvements*	**Arterial Lane Miles** *May be added on Streets identified below, or others as needed due to growth* • *12th Ave (44th to Drexel)* • *36th Street (Park to Kino)* • *Drexel Bridge over SCR* • *Kino and 36th Street* • *Kino and Tucson Marketplace* • *M L King Jr Way* • *M L King Jr Way and Tucson Marketplace* • *M L King Jr Way and 36th Street* • *Park and Tucson Marketplace* • *Starr Pass (Shannon to I-10)* • *Other projects based on Mobility Master Plan, development impacts and capacity improvements*	**Arterial Lane Miles** *May be added on Streets identified below, or others as needed due to growth* • *Camino Seco (Wrightstown to Speedway)* • *Kolb (Escalante to I-10)* • *Mary Ann Cleveland Way Widening* • *Other projects based on Mobility Master Plan, development impacts and capacity improvements*

STREET FACILITIES DEVELOPMENT IMPACT FEES

Revenue Offset

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

Proposed Street Facilities Development Impact Fees

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."*

Infrastructure standards and cost factors for Street Facilities are summarized in the upper portion of Figure S15. The cost per service unit is $148.22 per VMT.

The proposed development impact fees for Street Facilities are shown in Figure S15. Cost factor for streets improvements and professional services are summarized at the top of the figure. Residential development impact fees are expressed by size of unit. Nonresidential development impact fees are expressed per 1,000 square feet (KSF) of floor area and per room for lodging land uses. The Street Facilities development impact fees are calculated by multiplying the $148.22 net cost per VMT/VMC by the VMT per development unit for each land use type.

Two sets of comparisons to the City of Tucson's current development impact fees are provided: (1) rates in effect as of August 2019, identified as the "Phase-in Fee Rates" and (2) "Full Adopted Fee Rates," reflecting the maximum amount calculated in the previous development fee study.[8] The net change is shown between the proposed fee and both sets of current fees, in two adjacent columns.

[8] Tucson, Arizona, Code of Ordinances Article III, Sec. 23A-91 ("Fee Schedule Tables").

Figure S16: Proposed Street Facilities Development Impact Fees

Fee Component	Cost per VMC
Cost per VMT/VMC	$148.00
Development Fee Report	$0.22
Total	**$148.22**

Residential Development (per Housing Unit)							
Size of Housing Unit (Sq. Ft.)	Demand Unit	Avg Wkdy VMT	Proposed Fees	Phase-In Fee Rates*	Increase / (Decrease)	Full Adopted Fee Rates*	Increase / (Decrease)
750 or Less	Housing Unit	9.53	**$1,412**	$2,580	($1,168)	$3,457	($2,045)
751 to 1,250	Housing Unit	14.77	**$2,189**	$2,580	($391)	$3,457	($1,268)
1,251 to 1,750	Housing Unit	19.48	**$2,887**	$3,978	($1,091)	$4,059	($1,172)
1,751 to 2,250	Housing Unit	22.92	**$3,397**	$3,978	($581)	$4,059	($662)
2,251 to 2,750	Housing Unit	25.63	**$3,798**	$4,838	($1,040)	$5,691	($1,893)
2,751 to 3,250	Housing Unit	27.88	**$4,132**	$4,838	($706)	$5,691	($1,559)
3,251 to 3,750	Housing Unit	29.79	**$4,415**	$4,838	($423)	$5,691	($1,276)
3,751 or More	Housing Unit	31.45	**$4,661**	$4,838	($177)	$5,691	($1,030)

** Current Tucson Development Impact Fee schedule has three residential categories: Single-family, condo/townhomes, and multi-family/apartments. The comparison assumes multi-family/apartment units are 1,000 sq. ft. or less, condo/townhome units are 1,001-1,500 sq. ft., and single family units are greater than 1,500 sq. ft. Note: residential type is determined by the gross floor area of livable space (not including patios, garages, and other non-living areas).*

Nonresidential Development (per Demand Unit)								
Development Type	ITE Code	Demand Unit	Avg Wkdy VMT	Proposed Fees	Phase-In Fee Rates	Increase / (Decrease)	Full Adopted Fee Rates	Increase / (Decrease)
Industrial: Light Industrial	110	1,000 Sq. Ft.	7.62	**$1,129**	$806	$323	$806	$323
Industrial: Manufacturing	140	1,000 Sq. Ft.	6.04	**$895**	$806	$89	$806	$89
Industrial: Warehousing	150	1,000 Sq. Ft.	2.67	**$395**	$806	($411)	$806	($411)
Commercial/Retail: General	820	1,000 Sq. Ft.	39.28	**$5,822**	$4,282	$1,540	$6,507	($685)
Commercial/Retail: Free Standing Discount Store	815	1,000 Sq. Ft.	55.27	**$8,192**	$4,282	$3,910	$6,507	$1,685
General Office	710	1,000 Sq. Ft.	14.97	**$2,218**	$3,797	($1,579)	$3,797	($1,579)
Institutional: Schools	520	1,000 Sq. Ft.	19.80	**$2,934**	$3,797	($863)	$3,797	($863)
Institutional: Religious Facilities	560	1,000 Sq. Ft.	7.05	**$1,044**	$3,797	($2,753)	$3,797	($2,753)
Institutional: Medical (Nursing Hm./Asstd Living)	620	1,000 Sq. Ft.	6.73	**$997**	$3,797	($2,800)	$3,797	($2,800)
Institutional: Medical (Clinic, Hospital)	630	1,000 Sq. Ft.	38.70	**$5,736**	$3,797	$1,939	$3,797	$1,939
Hotel	310	Room	13.18	**$1,953**	n/a	n/a	n/a	n/a

*** Current fee schedule does not have Institutional category; comparison is to Office.*
Source for current Tucson Development Impact Fee schedule: Tucson, Arizona, Code of Ordinances Article III, Sec. 23A-91 ("Fee Schedule Tables").

The resulting fee should be assessed by land use type and then allocated to (1) the citywide portion of the Streets Development Impact Fee Fund at 20.5 percent of the fee (reflecting citywide local growth-related costs per Figure S5) and (2) remaining portion to the Service Area portion of the fund in which it was collected (Service Area A, B, or C).

Forecast of Revenue

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

Development Impact Fee Revenues for Street Facilities

Projected fee revenue shown in Figure S17 is based on the development projections in the Land Use Assumptions (see Appendix A) and the updated Street Facilities development impact fees (see Figure S16). Expenditures on arterial street improvements are derived from the anticipated need for approximately 70.22 new lane miles over the next 10 years (see Figure S13) at an average local cost of $1,200,000 per lane mile (see Figure S5). If development occurs at a faster rate than projected, the demand for infrastructure will increase along with development fee revenue. If development occurs at a slower rate than projected, the demand for infrastructure will decrease and development fee revenue will decrease at a similar rate. Anticipated development fee revenue is projected at approximately $84 million over the next 10 years, while expenditures are also estimated at $84 million. Revenue allocation by service area is shown at the bottom of the figure reflecting 20.5 percent of future growth-related needs due to citywide/RTA projects and the remainder by Service Area based on anticipated projected growth in each area.

Figure S17: Projected Street Facilities Development Impact Fee Revenue

Fee Component	Growth Share
Street Improvements	$84,264,000
Development Fee Report	$62,307
Total Expenditures	**$84,326,307**

		Single Family	Multi-Family	Industrial	Commercial	Institutional	Office & Other
		$3,364 per Unit*	$1,597 per Unit*	$806 per KSF**	$7,007 per KSF**	$2,678 per KSF**	$2,218 per KSF
Year		*Units*	*Units*	*KSF*	*KSF*	*KSF*	*KSF*
Base	2019	165,637	72,824	17,653	22,677	92,231	19,633
Year 1	2020	166,366	73,348	17,760	22,908	93,230	19,830
Year 2	2021	167,098	73,876	17,867	23,142	94,239	20,029
Year 3	2022	167,833	74,408	17,975	23,378	95,259	20,231
Year 4	2023	168,571	74,944	18,084	23,616	96,290	20,434
Year 5	2024	169,313	75,484	18,193	23,857	97,332	20,639
Year 6	2025	170,058	76,027	18,303	24,100	98,385	20,847
Year 7	2026	170,806	76,574	18,414	24,345	99,449	21,056
Year 8	2027	171,558	77,125	18,525	24,593	100,524	21,267
Year 9	2028	172,313	77,680	18,637	24,844	101,611	21,481
Year 10	2029	173,071	78,239	18,750	25,097	102,709	21,697
10-Yr Increase		**7,434**	**5,415**	**1,097**	**2,420**	**10,479**	**2,064**
Projected Revenue		**$25,008,272**	**$8,648,336**	**$884,325**	**$16,955,024**	**$28,058,959**	**$4,578,411**

** Average-sized unit*
*** Average of respective nonresidential categories*

Total Projected Revenue	**$84,133,327**
Surplus / (Deficit)	**($192,980)**

10-YEAR REVENUE ALLOCATION		
Citywide Service Area	20.5%	$17,208,466
Area A	29.0%	$19,408,210
Area B	34.0%	$22,754,453
Area C	37.0%	$24,762,198
TOTAL		**$84,133,327**

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 Tucson 2018 development fee update. Development impact 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 impact fees.

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

> *"Projections of change 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 impact fees. Demographic data for January 1, 2018, are used to calculate levels of service provided to existing development in the City of Tucson. Although long-range projections are necessary for planning infrastructure systems, a shorter time frame of five to 10 years is critical for the development impact fees analysis. TischlerBise used compound growth rates to produce conservative projections that increase over time.

Arizona's Development Fee Act requires fees to be updated at least every five years and limits the IIP to a maximum of 10 years for non-utility fees. Therefore, the use of a very long-range "build-out" analysis is no longer acceptable for deriving development impact fees in Arizona municipalities.

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."*

The City's *existing* development fee program used a Citywide service area for Police and Fire fees and subarea services areas for Parks and Streets.

Much of the land in Tucson is characterized by a built environment of older core housing, businesses, institutions and infrastructure from which newer, largely single-family lots spread out to the edges. As a result of the development pattern, the City relies on a variety of revenues and funding mechanisms to pay for public infrastructure and facilities which service residents.

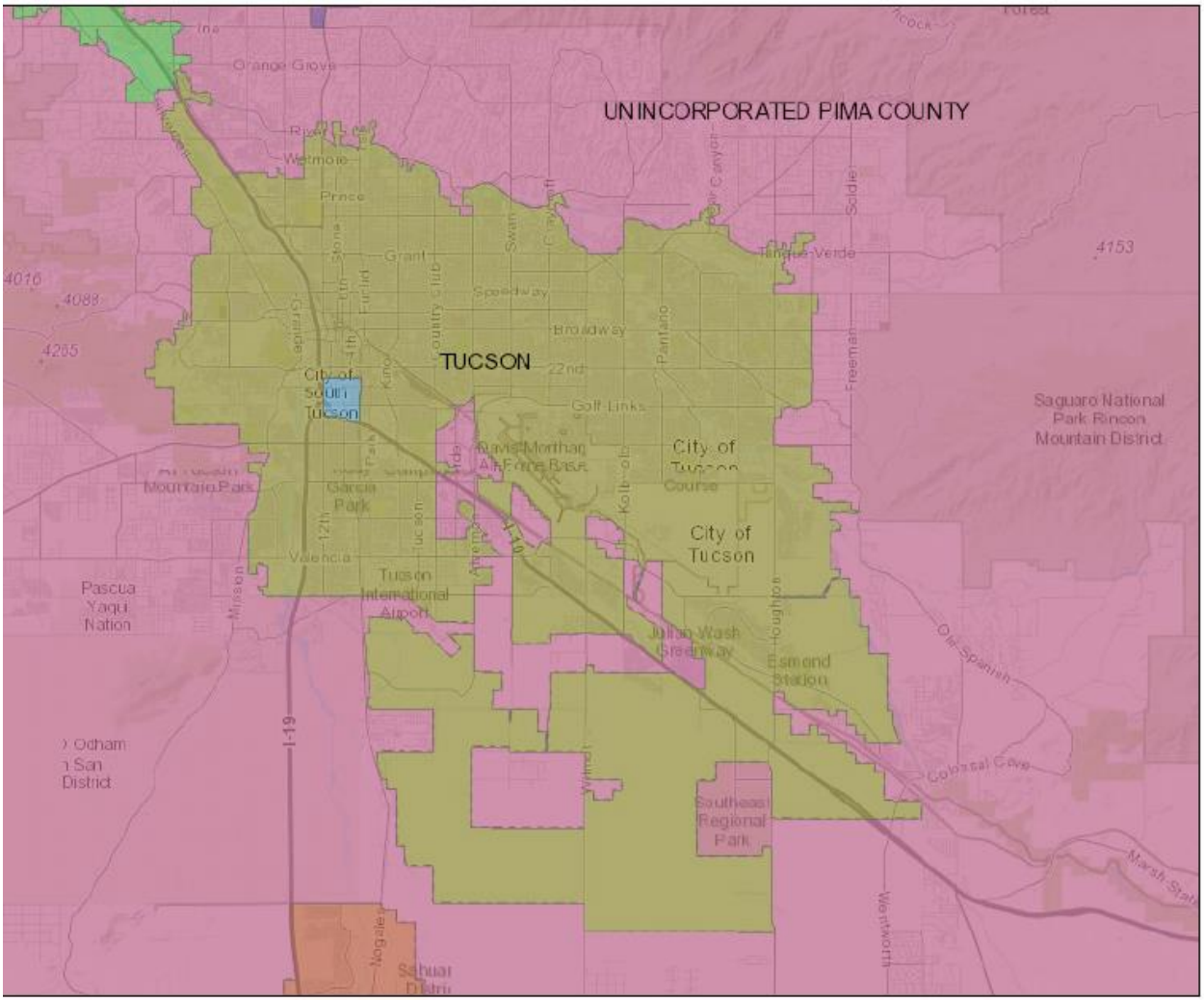
Tucson has been assessing development impact fees on new development since 2005 to pay the proportionate share of growth-related infrastructure improvements for area roads, parks, police, and fire facilities. In light of anticipated development patterns and system-level infrastructure needs, TischlerBise is recommending changes to the Development Impact Fee Service Areas as proposed below.

For Parks and Recreation and Streets, capacity projects for which development impact fees will be collected, are anticipated to be built within the subarea of the City where the fees are collected. Three service areas have been developed based on growth patterns and location of infrastructure.

- For Parks and Recreation, it is recommended that fees be spent in the Service Area collected (Area A, B, or C).
- For Streets, a portion of the fee (17 percent) is based on Citywide capacity needs (i.e., for RTA projects and other citywide capacity needs) and is recommended to be collected and spent Citywide for RTA-identified projects and other citywide transportation improvement projects. The remainder of the fee is for other non-RTA/non-citywide capacity street improvement projects and is recommended to be spent within the Services Area in which it was collected (Service Area A, B, or C)

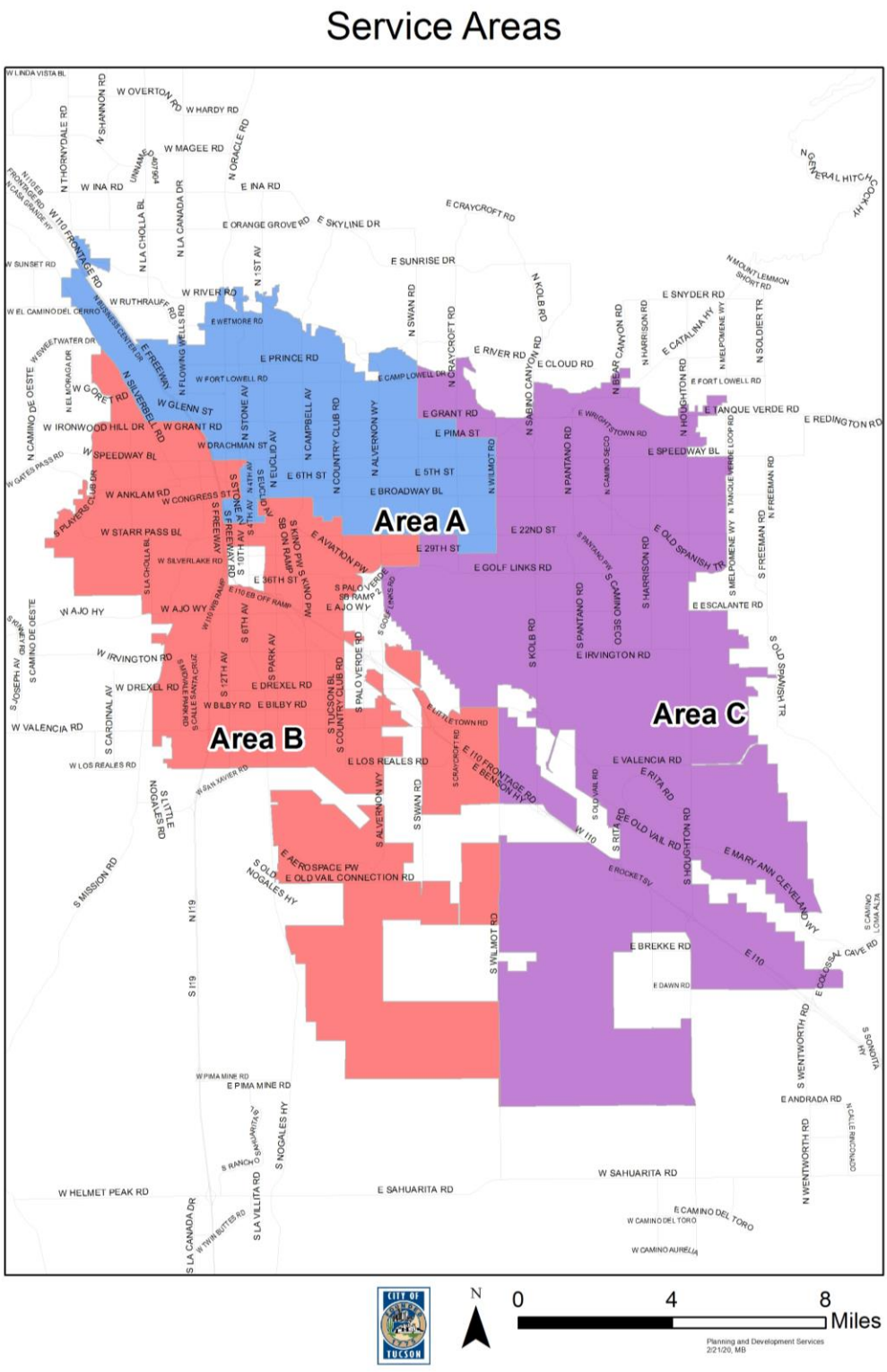
Police and fire development impact fees are proposed to continue as Citywide fees. Public safety infrastructure and deployment changes over time based on migration patterns and is not necessarily restricted to specific geographic sub-zones. As such, TischlerBise is recommending fees continue to be Citywide for Police and Fire categories.

Figure A1. City of Tucson Proposed Development Impact Fee Service Area (Police and Fire)



Source: Map Tucson, City of Tucson; TischlerBise downloaded (April 5, 2019)

Figure A2. City of Tucson Proposed Development Impact Fee Service Area (Parks and Recreation and Streets)



Note: A portion of the Streets Facilities Development Impact Fee is also collected and expended on a Citywide basis.

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 (2018) estimates of housing units were obtained using annual housing unit permit data provided by the City of Tucson's Planning & Development Services department, the 2013 Pima Association of Governments (PAG) Population Projections, the PAG 2045 Regional Mobility and Accessibility Plan (RMAP) and the persons per housing unit ratio derived from the 2017 U.S. Census Bureau's American Community Survey 1-year estimates.

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 impact fees in Tucson, "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 U.S. Census Bureau, a household is a housing unit that is occupied by year-round residents. Development impact 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 development 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 impact fees for residential development in the City of Tucson be imposed according to a number of year-round residents per housing unit. For the development fee calculations, TischlerBise used the American Community Survey results shown at the top of Figure A3 to determine the relative number of persons per housing unit, by units in a residential structure, and the housing mix in Tucson. The ratio of persons per housing unit (PPHU) across housing types is 2.24. To estimate population for future years, however, the single family and multi-family PPHU ratios of 2.37 and 1.56, respectively, are used. The share of multi-family housing in Tucson is approximately 30%. In 2017, approximately 11.5% of the housing stock in Tucson was vacant or used by seasonal residents.

Figure A3. City of Tucson Year-Round Persons per Unit by Type of Housing

Type	Persons	Housing Units	Housing Mix	Persons per Housing Unit
Single Unit*	395,571	166,710	70%	**2.37**
2+ Units**	113,089	72,289	30%	**1.56**
Subtotal	508,660	238,999		2.13
Group Quarters	27,016			
TOTAL	535,676	238,999		2.24

Source: U.S. Census Bureau's American Community Survey, 2017 1-Year Estimates, Tables B25024, B25032, B25033, and B26001.

** Includes detached, attached, and mobile homes.*

*** Includes boat, RV, van, etc.*

Household Size by Dwelling Unit Size

Custom tabulations of demographic data by bedroom range can be created from individual survey responses provided by the U.S. Census Bureau, in files known as Public Use Microdata Samples (PUMS). PUMS files are available for areas of roughly 100,000 persons, and the City of Tucson is covered in Public Use Microdata Areas (PUMA) 202, 205, 206, 207, 208, and 209. Figure A4 shows the survey results for the City of Tucson. Unadjusted persons per housing unit, derived from PUMS data, were adjusted downward to match the control totals for the City of Tucson, as documented above in Figure A3.

Figure A4. Average Number of Persons by Bedroom Range (All Housing Types)

Bedroom Range	Persons	Units	Unadj. Persons/HU	Adj. Persons/HU*
0-2 bdrm	9,920	6,343	1.56	**1.55**
3 bdrm	12,954	5,400	2.40	**2.38**
4 bdrm	6,534	2,164	3.02	**2.99**
5+ bdrm	1,046	277	3.78	**3.74**
Totals	30,454	14,184	2.15	**2.13**

Source: American Community Survey, Public Use Microdata Sample (2017 One-Year unweighted data).

** Adjusted multipliers are scaled to the average household size from American Community Survey 2017 One-Year data for the City of Tucson.*

Average Number of Persons by Dwelling Unit Size

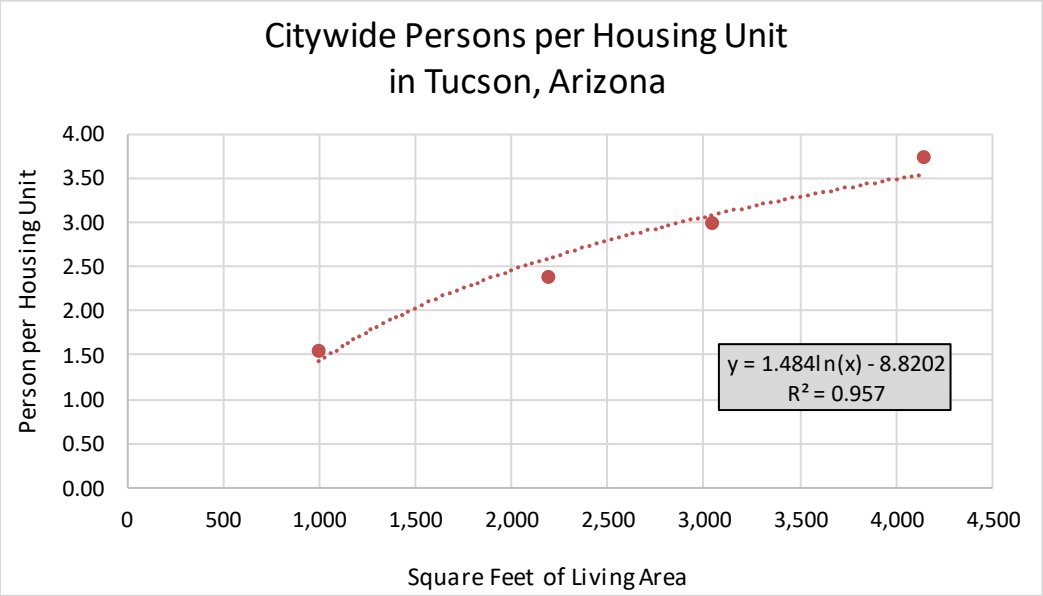
Average floor area and number of persons by bedroom range are plotted in Figure A5, with a logarithmic trend line derived from four unit size averages. Using the trend line formula shown in the chart, TischlerBise derived the estimated average number of persons, by dwelling size, using four size thresholds. For the purpose of development impact fees, TischlerBise recommends a minimum fee based on a unit size of 750 square feet and a maximum fee for units 3,751 square feet or larger. Average dwelling sizes by bedroom range in the City was derived from U.S. Census Bureau regional data.

Figure A5. Persons by Square Feet of Living Space (All Housing Types)

Actual Averages per Housing Unit		
Bedrooms	Square Feet	Persons
0-2	1,000	1.55
3	2,200	2.38
4	3,050	2.99
5+	4,150	3.74

Persons per Housing Unit by Size	
Sq Ft Range	Persons
750 or Less	1.00
751 to 1,250	1.61
1,251 to 1,750	2.15
1,751 to 2,250	2.55
2,251 to 2,750	2.86
2,751 to 3,250	3.12
3,251 to 3,750	3.34
3,751 or More	3.53

Average persons per housing unit derived from 2017 ACS PUMS data for the area that includes Tucson. Unit size for 0-2 bedroom is from the 2017 U.S. Census Bureau average for all multi-family units constructed in the Census West region. Unit size for all other bedrooms is from the 2017 U.S. Census Bureau average for single-family units constructed in the Census Mountain division.



Current Residential Estimates

To estimate the current number of housing units and residents, TischlerBise used building permit data from 2010 through 2018 provided by the City of Tucson's Planning & Development Services department, which were added to the total housing unit count from the 100 percent 2010 Decennial Census.

Figure A6 shows Tucson's recent housing unit permit totals by calendar year, provided by the City of Tucson's Planning & Development Services. Single family permits have been steadily increasing from a low of 269 at the tail end of the Great Recession to a high of 729 in 2016. Multifamily unit permits have fluctuated from year to year as buildings come online. The general trend in housing unit permits is increasing.

Adding residential building permits to the 100 percent estimate from the 2010 U.S. Census Bureau provides a current housing estimate of238,461.

Figure A6. City of Tucson Residential Permits by Year and Current Housing Unit Estimate (2019)

Residential Permits by Year

Year	SF Permits	MF Permits	Total
2010	344	38	382
2011	300	551	851
2012	484	487	971
2013	269	610	879
2014	546	247	793
2015	338	220	558
2016	729	60	789
2017	707	462	1,169
2018	680	176	856
Total	**4,397**	**2,851**	**7,248**

		Housing Units		
		Single Family	Multi-Family	TOTAL
	2010 (Apr 1)	160,267	69,495	**229,762**
	2010 (July 1)	161,412	69,992	**231,404**
Jan. 1	**2011**	161,584	70,011	**231,595**
	2012	161,884	70,562	**232,446**
	2013	162,368	71,049	**233,417**
	2014	162,637	71,659	**234,296**
	2015	163,183	71,906	**235,089**
	2016	163,521	72,126	**235,647**
	2017	164,250	72,186	**236,436**
	2018	164,957	72,648	**237,605**
	2019	165,637	72,824	**238,461**

Source: City of Tucson

Population estimates are derived by multiplying persons per housing unit by type of unit from information provided in Figure A3 by the estimated number of housing units in 2019. These estimates are shown in Figure A7 below. Added to this is population in group quarters, estimated at 4.5 percent of total population in the City of Tucson based on trends from the last eight years.

Figure A7. City of Tucson Current Population Estimate (2019)

Housing Type	2019 Estimated Units*	Persons per Housing Unit^	2019 Estimated Population
Single Family	165,637	2.37	392,559
Multi-Family	72,824	1.56	113,605
Subtotal in Households	**238,461**		**506,164**
plus Group Quarters**			23,851
Grand Total			530,015

** City of Tucson*

^ U.S. Census Bureau's American Community Survey, 2017 1-Year Estimates

*** Estimated based on three-year average of 4.5% total population in group quarters.*

Residential Projections

To derive 10-year housing unit projections, the City of Tucson and TischlerBise analyzed recent residential building activity along with recent projections from Pima Association of Governments (PAG). Recent growth projections have the City is anticipating growth of approximately 2,600 to 2,800 increase in population per year in approximately 700 single family units and 500 multifamily units

Based on this analysis, housing unit projections for 2019 through 2029 are derived using an exponential growth formula. An exponential growth approach provides more conservative short-range projections, with annual increases growing larger over time. Single family units are projected at a .44 percent growth rate and multifamily units are projected at a .72 percent growth rate. These growth rates are used to project housing units from 2019 through 2029, shown in Figure A8. Tucson is projected to add 12,849 housing units between 2019 and 2029.

Tucson's population projections, also shown in Figure A8, were derived by multiplying the housing unit projections by the PPHU ratios for single and multi-family units in Figure A3. The 2017 PPHU ratios of 2.37 persons per single family unit and 1.56 persons per multi-family unit were assumed to remain constant throughout the projection period. Tucson is projected to add 26,067 residents in households and a total of 27,295 population between 2019 and 2029.

Figure A8. City of Tucson Residential Development Projections

						Multi Year Increments>>>		
	2019	2020	2021	2022	2023	2024	2029	10-Year Change
	Base	1	2	3	4	5	10	
Population								
Single Family Population	392,559	394,287	396,022	397,764	399,513	401,272	410,178	17,619
Multi-Family Population	113,605	114,423	115,247	116,076	116,913	117,755	122,053	8,448
Subtotal Household Population	**506,164**	**508,710**	**511,269**	**513,841**	**516,426**	**519,027**	**532,231**	**26,067**
Group Quarters Population	23,851	23,971	24,091	24,212	24,334	24,457	25,079	1,228
GRAND TOTAL POPULATION	**530,015**	**532,681**	**535,360**	**538,053**	**540,760**	**543,484**	**557,310**	**27,295**
Net Increase Per Year		*2,666*	*2,679*	*2,693*	*2,707*	*2,723*	*2,794*	
Housing Units								
Single Family Units	165,637	166,366	167,098	167,833	168,571	169,313	173,071	7,434
Multi-Family Units	72,824	73,348	73,876	74,408	74,944	75,484	78,239	5,415
Total Housing Units	**238,461**	**239,714**	**240,974**	**242,241**	**243,515**	**244,797**	**251,310**	**12,849**
Single Family Net Increase Per Year		*729*	*732*	*735*	*738*	*742*	*758*	
Multifamily Net Increase Per Year		*524*	*528*	*532*	*536*	*540*	*559*	
Total Net Increase Per Year		*1,253*	*1,260*	*1,267*	*1,274*	*1,282*	*1,317*	

NONRESIDENTIAL DEVELOPMENT

In addition to data on residential development, the infrastructure improvements plan and development impact fees require data on nonresidential development in Tucson. 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 (2018) number of jobs, TischlerBise applied most recent (2015) U.S. Census OnTheMap Longitudinal-Employer Household statistics for the City of Tucson to industry sector growth projections from the Pima Association of Governments (PAG) for 2045. Jobs were aggregated into one of four categories: industrial, commercial, institutional, and office & other. These estimates are shown in Figure A9 below. Analysis estimates there were 228,635 jobs in Tucson in 2018.

Figure A9. City of Tucson Jobs Estimates for 2018

	2015*	Annual Growth Rate^	2018 Estimate
Industrial	28,336	0.60%	28,849
Commercial	52,258	1.00%	53,841
Institutional	84,420	1.06%	87,133
Office & Other	57,099	0.99%	58,812
Total	**222,113**		**228,635**

** US Census On The Map, 2015*

^ PAG Annual Growth Rates

The above industry sector growth rates are used to project employment growth to 2028. Tucson's 10-year job projections through 2028 are shown in Figure A10. The City is expected to add a total of 23,190 jobs by 2028.

Figure A10. City of Tucson Employment Projections

		Multi Year Increments>>>						
	2018	2019	2020	2021	2022	2023	2028	10-Year Change
	Base	1	2	3	4	5	10	
Jobs								
Industrial Jobs	28,849	29,022	29,196	29,372	29,548	29,725	30,628	1,778
Commercial & Retail Jobs	53,841	54,380	54,924	55,473	56,028	56,588	59,474	5,633
Institutional Jobs	87,133	88,057	88,990	89,933	90,887	91,850	96,822	9,689
Office & Other Jobs	58,812	59,394	59,982	60,576	61,175	61,781	64,900	6,089
Total Jobs	**228,635**	**230,853**	**233,092**	**235,354**	**237,638**	**239,944**	**251,825**	**23,190**

Nonresidential Floor Area by Type of Development

Figure A11 provides January 1, 2019, floor area estimates for the City of Tucson, subdivided into the four aforementioned categories. Total nonresidential floor area in the aggregate was obtained through CoStar and provided to TischlerBise by the City. This estimate was further allocated by industry sector from employment data and square footage analysis (U.S. Census, OnTheMap).

Figure A11. City of Tucson 2019 Jobs and Floor Area Estimates

2015 Jobs Summary (OnTheMap)

Industrial	28,336	12.8%
Commercial	52,258	23.5%
Institutional	84,420	38.0%
Office & Other	57,099	25.7%
Total	**222,113**	**100.0%**

Sq Ft per Job (from ITE)	
Industrial	**613**
Commercial	**427**
Institutional	**1,075**
Office & Other	**337**

2015 Nonresidential Floor Area Breakdown

Industrial	17,370	**11.6%**
Commercial	22,314	**14.9%**
Institutional	90,752	**60.6%**
Office & Other	19,242	**12.9%**
Total	**149,678**	

2019 (Jan. 1) Total Nonres Floor Area (Costar)	
151,268,525	Square Feet

Sector	2015 % Allocation	2019 Sq. Ft.	
Industrial	11.6%	17,547	KSF
Commercial	14.9%	22,539	KSF
Institutional	60.6%	91,669	KSF
Office & Other	12.9%	19,514	KSF
Total		**151,269**	**KSF**

Figure A12 shows jobs per 1,000 square feet and average weekday vehicle trip ends per 1,000 square feet, broken down by nonresidential land use category. Gray shading indicates the four nonresidential development prototypes used by TischlerBise to correlate Tucson's projected job growth with nonresidential floor area growth and vehicle trips generated by development.

The last column in Figure A12 shows the ratio of jobs per 1,000 square feet from the Institute of Transportation Engineers (ITE) *Trip Generation* Manual (2017). These ratios are used to convert projected job figures into projected nonresidential floor areas over the next 10 years.

Figure A12. ITE Employee and Trip Generation Ratios

ITE Code	Land Use / Size	Demand Unit	Wkdy Trip Ends Per 1,000 Sq. Ft.	Wkdy Trip Ends Per Employee	Employees Per 1,000 Sq. Ft.	Sq. Ft. Per Emp
110	Light Industrial	1,000 Sq Ft	4.96	3.05	1.63	613
130	Industrial Park	1,000 Sq Ft	3.37	2.91	1.16	862
140	Manufacturing	1,000 Sq Ft	3.93	2.47	1.59	629
150	Warehouse	1,000 Sq Ft	1.74	5.05	0.34	2,941
254	Assisted Living	bed	2.60	4.24	0.61	na
320	Motel	room	3.35	25.17	0.13	na
520	Elementary School	1,000 Sq Ft	19.52	21.00	0.93	1,075
530	High School	1,000 Sq Ft	14.07	22.25	0.63	1,587
540	Public/Institutional	1,000 Sq Ft	20.25	14.61	1.39	721
565	Day Care	1,000 Sq Ft	47.62	21.38	2.23	448
610	Hospital	1,000 Sq Ft	10.72	3.79	2.83	353
710	General Office (avg size)	1,000 Sq Ft	9.74	3.28	2.97	337
720	Medical-Dental Office	1,000 Sq Ft	34.80	8.70	4.00	250
730	Government Office	1,000 Sq Ft	22.59	7.45	3.03	330
750	Office Park	1,000 Sq Ft	11.07	3.54	3.13	319
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
815	Free-Standing Discount Store	1,000 Sq Ft	53.12	24.63	2.16	464
520	Institutional: Schools	1,000 Sq Ft	19.52	21.00	0.93	1,075
560*	Institutional: Religious	1,000 Sq Ft	6.95	n/a	1.39	721
620	Institutional: Medical (Nursing Hm/Asst	1,000 Sq Ft	6.64	2.91	2.28	438
630	Institutional: Medical (Clinic)	1,000 Sq Ft	38.16	9.25	4.13	242
310	Hotel	room	8.36	14.34	0.58	1,715

** Employees per demand unit reflect proxy 540 ITE Code.*

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

Using the above employment projections and employees per 1,000 square feet, nonresidential square footage to 2028 can be projected. Over ten years, the City is projected to grow by approximately 16 million square feet of nonresidential space.

Figure A13. City of Tucson Nonresidential Square Footage Projections

								Multi Year Increments>>>
	2018	2019	2020	2021	2022	2023	2028	10-Year Change
	Base	1	2	3	4	5	10	
Nonresidential Floor Area (KSF)								
Industrial KSF	17,547	17,653	17,760	17,867	17,975	18,084	18,637	1,090
Commercial & Retail KSF	22,539	22,769	23,001	23,236	23,473	23,712	24,944	2,405
Institutional KSF	91,669	92,662	93,665	94,679	95,704	96,740	102,085	10,416
Office & Other KSF	19,514	19,710	19,908	20,108	20,310	20,514	21,566	2,052
Total Floor Area (KSF)	**151,269**	**152,794**	**154,334**	**155,890**	**157,462**	**159,050**	**167,232**	**15,963**

TRIP GENERATION BY DWELLING SIZE

Rather than rely on one methodology, the recommended trip generation rates shown at the bottom of Figure A14, shaded gray, are an average of trip rates based on persons and vehicles available for all types of households. In Tucson, each household is expected to generate an average of 7.04 Average Weekday Vehicle Trip Ends (AWVTE), compared to the national average of 9.22 trip ends per household.

Figure A14: Average Weekday Vehicle Trip Ends by Bedroom Range

Bedroom Range	Persons[1]	Vehicles Available[1]	Housing Units[1]	Housing Mix	Unadjusted PPH	Adjusted PPH[2]	Unadjusted VPH	Adjusted VPH[2]
0-2	9,920	6,699	6,343	45%	1.56	**1.55**	1.06	0.92
3	12,954	9,773	5,400	38%	2.40	**2.38**	1.81	1.58
4	6,534	4,568	2,164	15%	3.02	**2.99**	2.11	1.84
5+	1,046	677	277	2%	3.78	**3.74**	2.44	2.13
Total	30,454	21,717	14,184	100%	2.15	**2.13**	1.53	1.34

National Averages According to ITE

ITE Code	AWVTE per Person	AWVTE per Vehicle	AWVTE per HU	Tucson Housing Mix
210 SFD	2.65	6.36	9.44	70%
220 Apt	3.31	5.10	6.65	30%
Weighted Avg	2.85	5.98	8.60	100%

Persons per Household
3.56
2.01
3.10

Vehicles per Household
1.48
1.30
1.43

Recommended AWVTE per Housing Unit

Bedroom Range	AWVTE per Hhld Based on Persons[3]	AWVTE per Hhld Based on Vehicles[4]	AWVTE per Household[5]
0-2	4.42	5.50	**4.96**
3	6.78	9.45	**8.12**
4	8.52	11.00	**9.76**
5+	10.66	12.74	**11.70**
Average	**6.07**	**8.01**	**7.04**

1. American Community Survey, Public Use Microdata Sample for AZ PUMAs area that includes Tucson (2013-2017 5-Year unweighted data).
2. Adjusted multipliers are scaled to make the average PUMS values match control totals for Tucson, based on American Community Survey 2013-2017 5-Year Estimates.
3. Adjusted persons per household multiplied by national weighted average trip rate per person.
4. Adjusted vehicles available per household multiplied by national weighted average trip rate per vehicle.
5. Average trip rates based on persons and vehicles per household.

Bedroom Range	Persons[1]	Vehicles Available[1]	Housing Units1	Housing Mix	Unadjusted PPH	Adjusted PPH[2]
0-2	9,920	6,699	6,343	45%	1.56	**1.55**
3	12,954	9,773	5,400	38%	2.40	**2.38**
4	6,534	4,568	2,164	15%	3.02	**2.99**
5+	1,046	677	277	2%	3.78	**3.74**
Total	30,454	21,717	14,184	100%	2.15	**2.13**

Vehicle Trip Ends by Dwelling Size

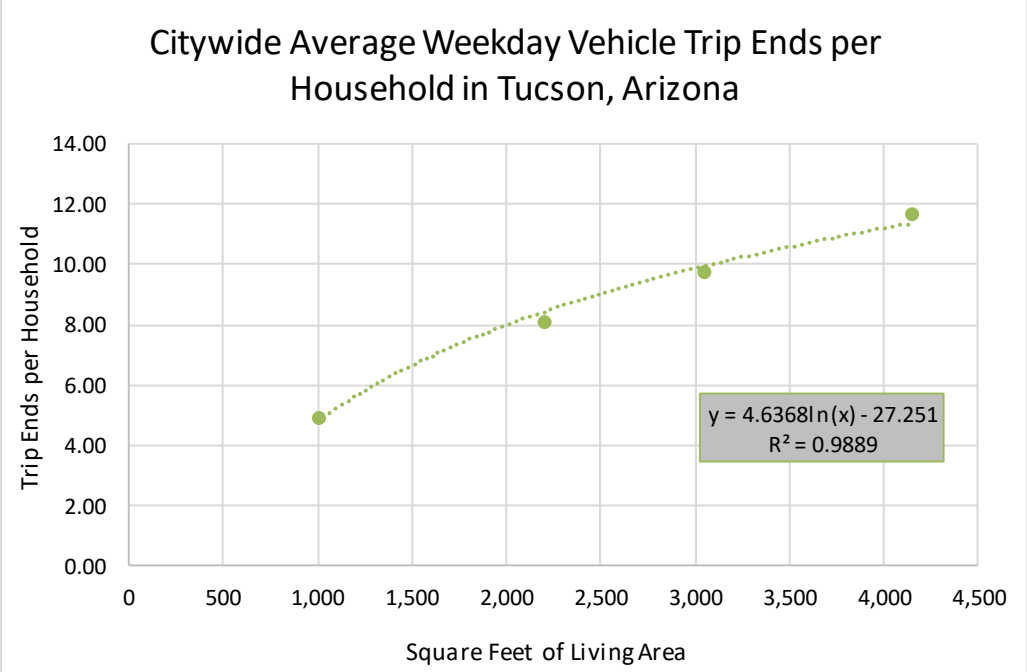
To derive AWVTE by dwelling size, TischlerBise matched trip generation rates and average floor area, by bedroom range, as shown in Figure A15, with a logarithmic trend line derived from 2016 square footage estimates provided by the U.S. Census Bureau (west region). Dwellings with two bedrooms or less average 1,000 square feet of floor area—based on multi-family dwellings constructed in West census region. Three-bedroom dwellings average 2,200 square feet, four-bedroom dwellings average 3,050 square feet, and dwellings with five or more bedrooms average 4,150 square feet—based on single-family dwellings constructed in West census region. Using the trend line formula shown in the chart, TischlerBise derived the estimated average weekday vehicle trip ends, by dwelling size, using the size ranges shown.

As shown in the upper-right corner of the table below, the smallest floor area range (750 square feet or less) generates an estimated average of 3.44 trip ends per dwelling. The largest floor area range (3,751 square feet or more) generates an estimated average of 11.38 trip ends per dwelling.

Figure A15. Vehicle Trip Ends by Dwelling Size

Actual Averages per Household			Fitted-Curve Values	
Bedrooms	Square Feet	Trip Ends	Sq Ft Range	Trip Ends
0-2	1,000	4.96	750 or Less	3.44
3	2,200	8.12	751 to 1,250	5.33
4	3,050	9.76	1,251 to 1,750	7.03
5+	4,150	11.70	1,751 to 2,250	8.27
			2,251 to 2,750	9.25
			2,751 to 3,250	10.06
			3,251 to 3,750	10.75
			3,751 or More	11.35

Average weekday vehicle trips per household derived from 2017 ACS PUMS data for the area that includes the City of Tucson. Unit size for 0-2 bedroom is from the 2017 U.S. Census Bureau average for all multi-family units constructed in the Census West region. Unit size for all other bedrooms is from the 2017 U.S. Census Bureau average for single-family units constructed in the Census Mountain division.



FUNCTIONAL POPULATION

For certain infrastructure facilities TischlerBise often uses "functional population" to establish the relative demand for infrastructure from both residential and nonresidential development. As shown in Figure A16, functional population accounts for people living and working in a jurisdiction. Residents who do not work are assigned 20 hours per day to residential development and four hours per day to nonresidential development (annualized averages). Residents who work in Tucson are assigned 14 hours to residential development and 10 hours to nonresidential development. Residents who work outside Tucson are assigned 14 hours to residential development. Inflow commuters are assigned 10 hours to nonresidential development. Based on 2015 functional population data, the resulting proportionate share is 72 percent from residential development and 28 percent from nonresidential development.

Figure A16. Functional Population

Demand Units in 2015				Demand Hours/Day	Person Hours	Proportionate Share
Residential						
Estimated Residents	524,072					
Residents Not Working		328,069		20	6,561,375	
Resident Workers		196,003				
59% Worked in City			114,890	14	1,608,460	
41% Worked Outside City			81,113	14	1,135,582	
				Residential Subtotal	**9,305,417**	**72%**
Nonresidential						
Non-working Residents		328,069		4	1,312,275	
Jobs Located in City		222,113				
52% Residents Working in City			114,890	10	1,148,900	
48% Non-Resident Workers (inflow commuters)			107,223	10	1,072,230	
				Nonresidential Subtotal	**3,533,405**	**28%**
				TOTAL	**12,838,822**	**100%**

Source: Estimated Residents based on TischlerBise housing unit estimates and persons per housing unit (PPHU) ratios derived from the U.S. Census Bureau (see Land Use Assumptions). Employment data from the U.S. Census Bureau's OneTheMap web application, 2016.

SUMMARY OF GROWTH INDICATORS

Development projections for the City are summarized in Figure A17. These projections will be used to project 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 fee 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 A17. Summary of City of Tucson Projections

		Multi Year Increments>>>						
	2019	2020	2021	2022	2023	2024	2029	10-Year Change
	Base	1	2	3	4	5	10	
Population								
Single Family Population	392,559	394,287	396,022	397,764	399,513	401,272	410,178	17,619
Multi-Family Population	113,605	114,423	115,247	116,076	116,913	117,755	122,053	8,448
Subtotal Household Population	**506,164**	**508,710**	**511,269**	**513,841**	**516,426**	**519,027**	**532,231**	**26,067**
Group Quarters Population	23,851	23,971	24,091	24,212	24,334	24,457	25,079	1,228
GRAND TOTAL POPULATION	**530,015**	**532,681**	**535,360**	**538,053**	**540,760**	**543,484**	**557,310**	**27,295**
Net Increase Per Year		*2,666*	*2,679*	*2,693*	*2,707*	*2,723*	*2,794*	
Housing Units								
Single Family Units	165,637	166,366	167,098	167,833	168,571	169,313	173,071	7,434
Multi-Family Units	72,824	73,348	73,876	74,408	74,944	75,484	78,239	5,415
Total Housing Units	**238,461**	**239,714**	**240,974**	**242,241**	**243,515**	**244,797**	**251,310**	**12,849**
Single Family Net Increase Per Year		*729*	*732*	*735*	*738*	*742*	*758*	
Multifamily Net Increase Per Year		*524*	*528*	*532*	*536*	*540*	*559*	
Total Net Increase Per Year		*1,253*	*1,260*	*1,267*	*1,274*	*1,282*	*1,317*	
Jobs								
Industrial Jobs	29,022	29,196	29,372	29,548	29,725	29,903	30,811	1,789
Commercial & Retail Jobs	54,165	54,706	55,253	55,806	56,364	56,927	59,831	5,667
Institutional Jobs	87,656	88,585	89,524	90,473	91,432	92,401	97,403	9,747
Office & Other Jobs	59,165	59,750	60,342	60,939	61,542	62,152	65,290	6,125
Total Jobs	**230,007**	**232,238**	**234,491**	**236,766**	**239,063**	**241,384**	**253,336**	**23,329**
Nonresidential Floor Area (KSF)								
Industrial KSF	17,653	17,760	17,867	17,975	18,084	18,193	18,750	1,097
Commercial & Retail KSF	22,677	22,908	23,142	23,378	23,616	23,857	25,097	2,420
Institutional KSF	92,231	93,230	94,239	95,259	96,290	97,332	102,709	10,479
Office & Other KSF	19,633	19,830	20,029	20,231	20,434	20,639	21,697	2,064
Total Floor Area (KSF)	**152,193**	**153,728**	**155,278**	**156,843**	**158,424**	**160,021**	**168,253**	**16,984**

APPENDIX B: FORECAST OF REVENUES

ARS § 9-463.05(E)(7) requires:

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

The City of Tucson's Business Services Department projected revenues based on recent trends, characteristics of future development, and Tucson's current revenue structure and rates (as of Fiscal Year 2019/20). The 10-year forecast of revenues is shown in Figure B18 and includes projected revenues generated by existing and future development.

Figure B18: Projected Revenue (Cumulative)

	Fiscal Year									
General Fund Revenues	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**	**2025/26**	**2026/27**	**2027/28**	**2028/29**
Business Privilege Tax	$228,278,070	$232,908,250	$239,429,680	$246,612,570	$254,010,950	$259,091,170	$264,272,990	$269,558,450	$274,949,620	$280,448,610
Public Utility Tax	$27,251,110	$27,796,130	$28,352,050	$28,919,090	$29,497,470	$30,087,420	$30,689,170	$31,302,950	$31,929,010	$32,567,590
Use Tax	$11,886,850	$12,243,460	$12,610,760	$12,989,080	$13,378,750	$13,780,110	$14,193,510	$14,619,320	$15,057,900	$15,509,640
Transient Occupancy and Room Surcharge	$21,098,960	$21,520,940	$21,951,360	$22,390,390	$22,838,200	$23,294,960	$23,760,860	$24,236,080	$24,720,800	$25,215,220
Other Local Taxes	$703,410	$717,480	$731,830	$746,470	$761,400	$776,630	$792,160	$808,000	$824,160	$840,640
Property Taxes	$16,031,060	$16,351,680	$16,678,710	$17,012,280	$17,352,530	$17,699,580	$18,053,570	$18,414,640	$18,782,930	$19,158,590
In Lieu Fees	$2,013,720	$2,213,720	$2,213,720	$2,213,720	$2,235,860	$2,235,860	$2,235,860	$2,235,860	$2,235,860	$2,235,860
Franchise Fees	$15,248,910	$15,477,640	$15,709,800	$15,945,450	$16,184,630	$16,427,400	$16,673,810	$16,923,920	$17,177,780	$17,435,450
State Shared Sales Tax	$55,435,810	$57,098,880	$58,811,850	$60,576,210	$62,393,500	$64,265,310	$66,193,270	$68,179,070	$70,224,440	$72,331,170
State Shared Income Taxes	$70,973,790	$72,251,320	$73,551,840	$74,875,770	$76,223,530	$77,595,550	$78,992,270	$80,414,130	$81,861,580	$83,335,090
State Shared Vehicle License Tax	$26,295,610	$26,926,700	$27,572,940	$28,234,690	$28,912,320	$29,606,220	$30,316,770	$31,044,370	$31,789,430	$32,552,380
Licenses and Permits	$17,606,270	$17,782,330	$17,960,150	$18,139,750	$18,321,150	$18,504,360	$18,689,400	$18,876,290	$19,065,050	$19,255,700
Charges for Services	$57,574,550	$57,574,550	$58,150,300	$58,731,800	$59,319,120	$59,912,310	$60,511,430	$61,116,540	$61,727,710	$62,344,990
Fines and Forfeits	$8,612,410	$8,612,410	$8,612,410	$8,612,410	$8,612,410	$8,612,410	$8,612,410	$8,612,410	$8,612,410	$8,612,410
Other Agencies	$1,456,660	$1,456,660	$1,456,660	$1,456,660	$1,456,660	$1,456,660	$1,456,660	$1,456,660	$1,456,660	$1,456,660
Non Grant Contributions	$4,385,590	$4,429,450	$4,473,740	$4,518,480	$4,563,660	$4,609,300	$4,655,390	$4,701,940	$4,748,960	$4,796,450
Miscellaneous Revenues	$2,131,950	$2,153,270	$2,174,800	$2,196,550	$2,218,520	$2,240,710	$2,263,120	$2,285,750	$2,308,610	$2,331,700
Use of Money and Property	$503,240	$508,270	$513,350	$518,480	$523,660	$528,900	$534,190	$539,530	$544,930	$550,380
Total Revenues	**$567,487,970**	**$578,023,140**	**$590,955,950**	**$604,689,850**	**$618,804,320**	**$630,724,860**	**$642,896,840**	**$655,325,910**	**$668,017,840**	**$680,978,530**

Source: City of Tucson

Using the revenue projections provided by Tucson's Business Services Department, Figure B19 projects the annual change in non-development fee revenue compared to the 2019/20 base year. Modest revenue growth is projected due to continued trends and future development, including business privilege tax. These funds are available for capital investments; however, Tucson directs these revenues to non-development fee eligible capital needs including maintenance, repair, and replacement. Although the projected revenues represent an increase, these revenues will be offset by an increase in operating, maintenance, and replacement capital costs, so they will not be available to fund capital projects to accommodate new growth.

Figure B19: Projected Revenue (Difference from Base Year)

Change in General Fund Revenues	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Business Privilege Tax	*$4,630,180*	*$6,521,430*	*$7,182,890*	*$7,398,380*	*$5,080,220*	*$5,181,820*	*$5,285,460*	*$5,391,170*	*$5,498,990*
Public Utility Tax	*$545,020*	*$555,920*	*$567,040*	*$578,380*	*$589,950*	*$601,750*	*$613,780*	*$626,060*	*$638,580*
Use Tax	*$356,610*	*$367,300*	*$378,320*	*$389,670*	*$401,360*	*$413,400*	*$425,810*	*$438,580*	*$451,740*
Transient Occupancy and Room Surcharge	*$421,980*	*$430,420*	*$439,030*	*$447,810*	*$456,760*	*$465,900*	*$475,220*	*$484,720*	*$494,420*
Other Local Taxes	*$14,070*	*$14,350*	*$14,640*	*$14,930*	*$15,230*	*$15,530*	*$15,840*	*$16,160*	*$16,480*
Property Taxes	*$320,620*	*$327,030*	*$333,570*	*$340,250*	*$347,050*	*$353,990*	*$361,070*	*$368,290*	*$375,660*
In Lieu Fees	*$200,000*	*$0*	*$0*	*$22,140*	*$0*	*$0*	*$0*	*$0*	*$0*
Franchise Fees	*$228,730*	*$232,160*	*$235,650*	*$239,180*	*$242,770*	*$246,410*	*$250,110*	*$253,860*	*$257,670*
State Shared Sales Tax	*$1,663,070*	*$1,712,970*	*$1,764,360*	*$1,817,290*	*$1,871,810*	*$1,927,960*	*$1,985,800*	*$2,045,370*	*$2,106,730*
State Shared Income Taxes	*$1,277,530*	*$1,300,520*	*$1,323,930*	*$1,347,760*	*$1,372,020*	*$1,396,720*	*$1,421,860*	*$1,447,450*	*$1,473,510*
State Shared Vehicle License Tax	*$631,090*	*$646,240*	*$661,750*	*$677,630*	*$693,900*	*$710,550*	*$727,600*	*$745,060*	*$762,950*
Licenses and Permits	*$176,060*	*$177,820*	*$179,600*	*$181,400*	*$183,210*	*$185,040*	*$186,890*	*$188,760*	*$190,650*
Charges for Services	*$0*	*$575,750*	*$581,500*	*$587,320*	*$593,190*	*$599,120*	*$605,110*	*$611,170*	*$617,280*
Fines and Forfeits	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*
Other Agencies	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*
Non Grant Contributions	*$43,860*	*$44,290*	*$44,740*	*$45,180*	*$45,640*	*$46,090*	*$46,550*	*$47,020*	*$47,490*
Miscellaneous Revenues	*$21,320*	*$21,530*	*$21,750*	*$21,970*	*$22,190*	*$22,410*	*$22,630*	*$22,860*	*$23,090*
Use of Money and Property	*$5,030*	*$5,080*	*$5,130*	*$5,180*	*$5,240*	*$5,290*	*$5,340*	*$5,400*	*$5,450*
Total Revenues	***$10,535,170***	***$12,932,810***	***$13,733,900***	***$14,114,470***	***$11,920,540***	***$12,171,980***	***$12,429,070***	***$12,691,930***	***$12,960,690***

Tucson does not have a higher than normal construction excise tax rate, so the offset required by the Enabling Legislation is not applicable. Only revenue generated by future development that is dedicated to growth-related capital improvements needs to be considered in determining the extent of the burden imposed by future development. Offsets against development impact fees are warranted in the following cases: (1) future development will be paying taxes or fees used to retire debt on existing facilities serving existing development; (2) future development will be paying taxes or fees used to fund an existing deficiency; or (3) future development will be paying taxes or fees that are dedicated for growth-related improvements. The analysis provided in the individual sections of this report identified no need for offsets against the proposed development impact fees.

APPENDIX C: PROFESSIONAL SERVICES

As stated in ARS § 9-463.05(A):

> *"a municipality may assess development fees to offset costs to the municipality associated with providing necessary public services to a development, including the costs of infrastructure, improvements, real property, engineering and architectural services, financing and professional services required for the preparation or revision of a development fee pursuant to this section, including the relevant portion of the infrastructure improvements plan."*

Because development impact fees must be updated at least every five years, the cost of professional services is allocated to the projected increase in service units over five years (see Figure C1). Qualified professionals must develop the IIP, using generally accepted engineering and planning practices.

As stated in ARS § 9-463.05(T)(8):

> *"Qualified Professional means a professional engineer, surveyor, financial analyst or planner providing services within the scope of the person's license, education or experience."*

Figure C20: Cost of Professional Services

Necessary Public Service	Cost	Assessed Against	Proportionate Share	Cost Allocation				Cost per Demand Unit
				Demand Units	2018	2023	Change	
Parks & Recreation	$34,615	Residential	96%	Population	530,015	543,484	13,469	$2.46
		Nonresidential	4%	Jobs	230,007	241,384	11,377	$0.12
Police	$20,769	Residential	72%	Population	530,015	543,484	13,469	$1.11
		Nonresidential	28%	Vehicle Trips	1,016,002	1,069,801	53,799	$0.10
Fire	$20,769	Residential	72%	Population	530,015	543,484	13,469	$1.11
		Nonresidential	28%	Vehicle Trips	1,016,002	1,069,801	53,799	$0.10
Streets	$62,307	All Development	100%	Avg Wkdy VMT	7,689,394	7,968,018	278,624	$0.22
TOTAL	**$138,460**							

APPENDIX D: IMPLEMENTATION AND ADMINISTRATION

As specified in ARS § 9-463.05, there are certain accounting requirements that must be met by the City:

> *"Monies received from development fees assessed pursuant to this section shall be placed in a separate fund and accounted for separately and may only be used for the purposes authorized by this section. Monies received from a development fee identified in an infrastructure improvements plan adopted or updated pursuant to subsection D of this section shall be used to provide the same category of necessary public services or facility expansions for which the development fee was assessed and for the benefit of the same service area, as defined in the infrastructure improvements plan, in which the development fee was assessed. Interest earned on monies in the separate fund shall be credited to the fund."*

All costs in the development fee calculations are given in current dollars with no assumed inflation rate over time. If cost estimates change significantly the City should update the fee calculations.

TOOLS FOR REDUCING FEES

Relocating a Business

There is no development fee charge for relocating into an existing building if the intensity of use does not increase. For example, a commercial use is more intense than an office or industrial use and would require payment of development impact fees. (City of Tucson's City Code, Chapter 23A, Article III. Development Impact Fee Regulations, Section 81.A.3.)

Credit Agreement / Development Agreement

Eligibility for development impact fee credits is based on the eligibility of an infrastructure project (which must be identified in the IIP). Developers who wish to privately construct an infrastructure project may apply for impact fee credits through a credit or development agreement with the city. The developer and city staff may work together to add the proposed infrastructure project to the IIP during the Capital Improvement Plan (CIP) Annual Review (every year) or the CIP every five years. Once a project is identified in the CIP, CIP Annual Review, and therefore the IIP, an agreement can be made.

For more information, see the City of Tucson's City Code, Chapter 23A, Article III. Development Impact Fee Regulations, Section 82 and Section 83.

Demolition Credit

ARS § 9-463.05 specifies that development impact fees may only be charged for an increase of use (demonstrated by increased development service units). Therefore, the City of Tucson provides a Demolition Credit. For whatever amount of building space is demolished on a site, the developer receives a fee credit totaling that same size to be used toward new construction on the same site. In order to qualify for the Demolition Credit, the applicant must have received a demolition permit (legally required for any demolition activity) within five years prior to application. (City of Tucson's City Code, Chapter 23A, Article III. Development Impact Fee Regulations, Section 81.B.2.)

The City of Tucson has a number of incentives and requirements regarding demolition of historic structures in order to encourage restoration and adaptive reuse of historic structures. The Historic Preservation Zones require review and approval prior to demolition or relocation of a historic structure. Additionally, demolition permits for buildings 50 or more years old must include architectural documentation to provide a permanent record of buildings of historical significance before their loss.

The Grant Road Investment District (GRID) and Main Gate District (MGD) Urban Overlay Districts and the Infill Incentive District (IID) prevent projects that propose demolition of a historic property (designated as a City Historic Landmark, or listed or eligible to be listed in the National or Arizona Register of Historic Places, individually or as a contributing property) from being eligible for the IID, GRID and MGD benefits, with exceptions. The GRID and the MGD Urban Overlay Districts encourage historic preservation by offering additional uses compatible with restoration of historic properties and/or incorporation of historic buildings into a redevelopment of these properties.

Special Fee Determination

Any development may apply for a Special Fee Determination with the Planning and Development Services Department. Special Fee Determinations are used if a land use is not listed in the categories or if a development's impact on parks and recreation, police, fire, and streets facilities is anticipated to be different than the designated fee schedule. These have commonly been used in the City's most dense areas that have many multimodal options. For more information, see the City of Tucson's City Code, Chapter 23A, Article III. Development Impact Fee Regulations, Section 81.D.

Mixed Use Incentive

The Mixed Use Incentive offers reduced Streets Facilities Development Impact Fees. The purpose of the incentive is to encourage development that increases commuting by transit, bicycle, and walking. This incentive applies to development that meets the criteria below, which will result in fewer vehicle trips and less demand on the street facilities system.

This approach furthers the City's policy goal of incentivizing transit-oriented development and mixed use development along major transit corridors in the City. Transit-oriented development includes a mix of commercial, residential, office and entertainment centered around or located near a transit station. Dense, walkable, mixed-use development near transit attracts people and adds to vibrant, connected communities. Successful TOD depends on access and density around the transit station.

Category A: Transit Access *(required)*

A.1. Development must be located close to transit.

Standard: Within ¼ mile walking distance to a transit stop.

Category B: Residential Proximity *(one of two required)*

B.1. Development must contain a mix of uses, including both residential and nonresidential.

Standard: Minimum ratio of 1 dwelling unit per 500 sq. ft. of nonresidential development.

B.2. Development must be located close to high-density residential.

Standard: Minimum of 2,000 units within ½ mile of development boundary.

Category C: Multimodal Options *(one of two required)*

C.1. Development must be located close to planned or constructed publicly-designated bicycle boulevard or multi-use path.

Standard: Within ¼ mile walking distance.

C.2. Development must provide additional bicycle parking spaces, bicycle share facilities and car share facilities.

Standards: Bicycle parking at 3 times standard rate, and bicycle circulation connection to the building and bicycle parking from every public street, and car share spaces available at no charge to car share provider at the following rates:

Number of Residential Units	Number of Required Carshare Spaces
0-24	0
25-99	1
100+	2, plus 1 for every 100 dwelling units over 100
Number of Parking Spaces for Nonresidential Uses	**Number of Required Carshare Spaces**
0-49	0
50-99	1
100	2, plus 1 for every 100 parking spaces over 100

Meeting the established criteria would make the development eligible for a reduction of the Streets Facilities Development Impact Fees. Methodologies exist to calculate reduced trips based on the specific land uses on a case-by-case basis.[8] However, in lieu of requiring separate, unique analyses for each development, the City of Tucson could apply a blanket reduction of 15 percent to reflect the potential mix of uses and internal trip capture rate.[9] This reduction would result in the following revised fee schedule:

Figure D21: Proposed Streets Facilities Development Impact Fee Schedule with Reduction for Internal Trip Capture

Fee Component	Cost per VMC
Cost per VMT/VMC	$148.00
Development Fee Report	$0.22
Total	**$148.22**

			15%					
Residential Development (per Housing Unit)								
Size of Housing Unit (Sq. Ft.)	**Demand Unit**	**Avg Wkdy VMT**	**Proposed Fees**	**Phase-In Fee Rates***	**Increase / (Decrease)**	**Full Adopted Fee Rates***	**Increase / (Decrease)**
750 or Less	Housing Unit	8.10	**$1,200**	$2,580	($1,380)	$3,457	($2,257)
751 to 1,250	Housing Unit	12.55	**$1,860**	$2,580	($720)	$3,457	($1,597)
1,251 to 1,750	Housing Unit	16.56	**$2,454**	$3,978	($1,524)	$4,059	($1,605)
1,751 to 2,250	Housing Unit	19.48	**$2,887**	$3,978	($1,091)	$4,059	($1,172)
2,251 to 2,750	Housing Unit	21.79	**$3,229**	$4,838	($1,609)	$5,691	($2,462)
2,751 to 3,250	Housing Unit	23.70	**$3,512**	$4,838	($1,326)	$5,691	($2,179)
3,251 to 3,750	Housing Unit	25.32	**$3,753**	$4,838	($1,085)	$5,691	($1,938)
3,751 or More	Housing Unit	26.73	**$3,962**	$4,838	($876)	$5,691	($1,729)

** Current Tucson Development Impact Fee schedule has three residential categories: Single-family, condo/townhomes, and multi-family/apartments. The comparison assumes multi-family/apartment units are 1,000 sq. ft. or less, condo/townhome units are 1,001-1,500 sq. ft., and single family units are greater than 1,500 sq. ft. Note: residential type is determined by the gross floor area of livable space (not including patios, garages, and other non-living areas).*

Nonresidential Development (per Demand Unit)								
Development Type	**ITE Code**	**Demand Unit**	**Avg Wkdy VMT**	**Proposed Fees**	**Phase-In Fee Rates**	**Increase / (Decrease)**	**Full Adopted Fee Rates**	**Increase / (Decrease)**
Industrial: Light Industrial	110	1,000 Sq. Ft.	6.48	**$960**	$806	$154	$806	$154
Industrial: Manufacturing	140	1,000 Sq. Ft.	5.13	**$760**	$806	($46)	$806	($46)
Industrial: Warehousing	150	1,000 Sq. Ft.	2.27	**$336**	$806	($470)	$806	($470)
Commercial/Retail: General	820	1,000 Sq. Ft.	33.39	**$4,948**	$4,282	$666	$6,507	($1,559)
Commercial/Retail: Free Standing Discount Store	815	1,000 Sq. Ft.	46.98	**$6,963**	$4,282	$2,681	$6,507	$456
General Office	710	1,000 Sq. Ft.	12.72	**$1,886**	$3,797	($1,911)	$3,797	($1,911)
Institutional: Schools	520	1,000 Sq. Ft.	16.83	**$2,494**	$3,797	($1,303)	$3,797	($1,303)
Institutional: Religious Facilities	560	1,000 Sq. Ft.	5.99	**$888**	$3,797	($2,909)	$3,797	($2,909)
Institutional: Medical (Nursing Hm./Asstd Living)	620	1,000 Sq. Ft.	5.72	**$847**	$3,797	($2,950)	$3,797	($2,950)
Institutional: Medical (Clinic, Hospital)	630	1,000 Sq. Ft.	32.90	**$4,875**	$3,797	$1,078	$3,797	$1,078
Hotel	310	Room	11.20	**$1,660**	n/a	n/a	n/a	n/a

*** Current fee schedule does not have Institutional category; comparison is to Office.*
Source for current Tucson Development Impact Fee schedule: Tucson, Arizona, Code of Ordinances Article III, Sec. 23A-91 ("Fee Schedule Tables").

ADDING CAPITAL FACILITIES TO THE IIP AND CIP

As part of the City's development impact fee program, an adopted IIP is required. The IIP includes specific growth-related projects and broad categories of projects that can be constructed with impact fees. The goal of including broad categories is to be flexible and responsive to infrastructure as needs arise, and compliant with State Statute.

Planning for capital improvements begins with long-range planning that takes a 20-year view of City needs. For instance, *Plan Tucson* identifies anticipated growth areas within the City. The next step is a 5-year Capital Improvement Plan (CIP) which determines capital needs and begins to identify potential funding sources. The CIP is then reviewed each year as part of the City's annual budget process. During the City's annual budget process, necessary infrastructure projects are identified, evaluated and programmed for construction. Impact fees and impact fee eligible projects are identified as part of the required impact fee update process every 5 years. These projects are then nested into the City's CIP and reviewed as part of the annual budget.

A developer may work with City staff to propose the addition of a capital facility to the IIP and CIP.

RESIDENTIAL DEVELOPMENT

As discussed below, residential development categories are based on data from the U.S. Census Bureau, American Community Survey. Tucson will collect development impact fees from all new residential units, including mobile homes. Development impact fees will be assessed by size of the dwelling unit (gross floor area) and include the following categories of residential development:

Single Unit: includes Single-Family and Mobile Home

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

Mobile Home: includes both occupied and vacant mobile homes, to which no permanent rooms have been added. Mobile homes used only for business purposes or for extra sleeping space and mobile homes for sale on a dealer's lot, at the factory, or in storage are not counted in the housing inventory.

2+ Unit: includes Multi-Family and All Other Types

Multi-Family: includes residential buildings containing units built one on top of another and those built side-by-side which do not have a ground-to-roof wall and/or have common facilities (i.e., attic, basement, heating plant, plumbing, etc.).

All Other Types: includes boats, RVs, vans, etc., occupied as a housing unit or units that do not fit into the other categories. Recreational vehicles, boats, vans, railroad cars, and the like are included only if they are occupied as a current place of residence.

NONRESIDENTIAL DEVELOPMENT

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

Industrial: Light Industrial: A light industrial facility is a free-standing facility devoted to a single use. The facility has an emphasis on activities other than manufacturing and typically has minimal office space. Typical light industrial activities include printing, material testing, and assembly of data processing equipment.

Industrial: Warehousing: A warehouse is primarily devoted to the storage of materials, but it may also include office and maintenance areas (ex. Amazon Fulfillment Center).

Industrial: Manufacturing: A manufacturing facility is an area where the primary activity is the conversion of raw materials or parts into finished products. Size and type of activity may vary substantially from one facility to another. In addition to the actual production of goods, manufacturing facilities generally also have office, warehouse, research, and associated functions (e.g., Raytheon Company).

Commercial/Retail: General: Commercial/Retail: General includes general retail as well as shopping center type establishments, which are an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. General retail/shopping center composition is related to its market area in terms of size, location, and type of store. General retail/shopping center also provides on-site parking facilities sufficient to serve its own parking demands. This category includes outparcels (peripheral buildings or pads located on the perimeter of the center adjacent to the streets and major access points). These buildings are typically drive-in banks, retail stores, or restaurants.

Commercial/Retail: Free Standing Discount Store: A discount store is similar to a free-standing discount superstore. It is also similar to a department store described in Land Use 875 with the exception that it generally offers centralized cashiering and sells products that are advertised at discount prices. Discount stores offer a variety of customer services and typically maintain long store hours seven days a week. The stores included in this land use are often the only ones on the site, but they can also be found in mutual operation with a related or unrelated garden center and/or service station. Free-standing discount stores are also sometimes found as separate parcels within a retail complex, with or without their own dedicated parking (e.g., Costco, Walmart).

Office / Other Services: A general office building houses multiple tenants; it is a location where affairs of businesses, commercial or industrial organizations, or professional persons or firms are conducted. An office building or buildings may contain a mixture of tenants including professional services, insurance companies, investment brokers, and tenant services, such as a bank or savings and loan institution, a restaurant, or cafeteria and service retail facilities.

Institutional: Schools: This land use consists of schools where bus service is usually provided to students living beyond a specified distance from the school. Both public and private schools are included in this land use.

Institutional: Religious Facilities: Proxy land use is a church. A church is a building in which public worship services are held. A church houses an assembly hall or sanctuary; it may also house meeting rooms, classrooms, and, occasionally, dining, catering, or party facilities. Synagogue and mosque are related uses.

Institutional: Medical (Nursing Home/Assisted Living): Nursing home is the proxy land use. A nursing home is any facility whose primary function is to provide care for persons who are unable to care for themselves. Skilled nurses and nursing aides are present 24 hours a day at these sites. Nursing homes are occupied by residents who do little or no driving; traffic is primarily generated by employees, visitors, and deliveries. Assisted living and continuing care retirement community are related uses.

Institutional: Medical (Clinic, Hospital): A clinic is any facility that provides limited diagnostic and outpatient care but is unable to provide prolonged in-house medical and surgical care. Clinics commonly have lab facilities, supporting pharmacies, and a wide range of services (compared to the medical office, which may only have specialized or individual physicians). Hospital, free-standing emergency room, and medical-dental office building are related uses.

Hotel: A hotel is a place of lodging that provides sleeping accommodations and supporting facilities such as restaurants, cocktail lounges, meeting and banquet rooms or convention facilities, limited recreational facilities (pool, fitness room), and/or other retail and service shops. All suites hotel, business hotel, motel, and resort hotel are related uses.