Capital Improvements Plan and Development Fee Update

Prepared for:
Pinal County, Arizona

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EXECUTIVE SUMMARY

Pinal County contracted with TischlerBise to update its Capital Improvements Plan (CIP) for new development and resulting development fees for (1) Parks, (2) Public Safety, and (3) Streets. Development fees are collected from new construction at the time a building permit is issued for the purpose of constructing system improvements needed to accommodate new development. A development fee represents new growth's proportionate share of capital facility needs. Development fees do have limitations and should not be regarded as the total solution for infrastructure funding. Rather, they are one component of a comprehensive funding strategy to ensure provision of adequate public facilities. Development fees may only be used for capital improvements or debt service for growth-related infrastructure. In contrast to general taxes, development fees may not be used for operations, maintenance, replacement of infrastructure, or correcting existing deficiencies.

LEGAL REQUIREMENTS

Both state and federal courts have recognized the imposition of development fees on development as a legitimate form of land use regulation, provided the fees meet standards intended to protect against regulatory takings. Land use regulations, development exactions, and development fees are subject to the Fifth Amendment prohibition on taking of private property for public use without just compensation. To comply with the Fifth Amendment, development regulations must be shown to substantially advance a legitimate governmental interest. In the case of development fees, that interest is in the protection of public health, safety, and welfare by ensuring development is not detrimental to the quality of essential public services. The means to this end are also important, requiring both procedural and substantive due process. The process followed to receive community input (i.e. stakeholder meetings, work sessions, and public hearings) provides opportunities for comments and refinements to the development fees.

There is little federal case law specifically dealing with development fees, although other rulings on other types of exactions (e.g., land dedication requirements) are relevant. In one of the most important exaction cases, the U. S. Supreme Court found that a government agency imposing exactions on development must demonstrate an "essential nexus" between the exaction and the interest being protected (see Nollan v. California Coastal Commission, 1987). In a more recent case (Dolan v. City of Tigard, OR, 1994), the Court ruled that an exaction also must be "roughly proportional" to the burden created by development. However, the Dolan decision appeared to set a higher standard of review for mandatory dedications of land than for monetary exactions such as development fees.

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

All new development in a community creates additional demands on public facilities provided by local government. If the capacity of facilities is not increased to satisfy that additional demand, the quality or availability of public services for the entire community will deteriorate. Development fees may be used to recover the cost of development-related facilities, but only to the extent that the need for facilities is

a consequence of development that is subject to the fees. The Nollan decision reinforced the principle that development exactions may only be used to mitigate conditions created by the developments upon which they are imposed. In this study, the impact of development on infrastructure needs is analyzed in terms of quantifiable relationships between various types of development and the demand for specific facilities, based on applicable level-of-service standards.

The requirement that exactions be proportional to the impacts of development was clearly stated by the U.S. Supreme Court in the Dolan case and is logically necessary to establish a proper nexus. Proportionality is established through the procedures used to identify development-related facility costs, and in the methods used to calculate impact fees for various types of facilities and categories of development. The demand for facilities is measured in terms of relevant and measurable attributes of development (e.g. a typical housing unit's average weekday vehicle trips).

A sufficient benefit relationship requires that development fee revenues be segregated from other funds and expended only on the facilities for which the fees were charged. Development fees must be expended in a timely manner and the facilities funded by the fees must serve the development paying the fees. However, benefit may extend to a general area including multiple real estate developments. Procedures for the earmarking and expenditure of fee revenues are discussed near the end of this study. All of these procedural as well as substantive issues are intended to ensure that new development benefits from the impact fees they are required to pay. The authority and procedures to implement development fees is separate from and complementary to the authority to require improvements as part of subdivision or zoning review.

Arizona Revised Statutes (ARS) 11-1102 authorizes a County to impose development impact fees (see Appendix B). In accordance with state law, this report includes Capital Improvement Plans for Parks, Public Safety, and Streets that are needed to accommodate new development. As documented in this report, Pinal County has complied with applicable legal precedents. Development fees are proportionate and reasonably related to the capital improvement demands of new development, with the projects identified in this study reflected in Pinal County's Capital Improvements Plan (CIP). Specific costs have been identified using local data and current dollars. With input from County staff, TischlerBise determined demand indicators for each type of infrastructure and calculated proportionate share factors to allocate costs by type of development. This report documents the formulas and input variables used to calculate the development fees for each type of public facility. Development fee methodologies also identify the extent to which new development is entitled to various types of credits to avoid potential double payment of growth-related capital costs.

CONCEPTUAL FEE CALCULATION

In contrast to project-level improvements, development fees fund growth-related infrastructure that will benefit multiple development projects, or the entire jurisdiction (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 demand units for each unit of development. For example, an appropriate indicator of the demand for parks is population growth and the number of demand or service units per development unit, can be estimated from the average number of persons per housing unit. The second step in the impact fee formula is to determine infrastructure units per demand unit, typically called Level-Of-Service (LOS) standards. In keeping with the park example, a common LOS standard is park acreage per thousand people. The third step in the

impact fee formula is the cost of various infrastructure units. To complete the park example, this part of the formula would establish the cost per acre for land acquisition and/or park improvements.

General Methods

There are three general methods for calculating development fees. The choice of a particular method depends primarily on the timing of infrastructure construction (past, concurrent, or future) and service characteristics of the facility type being addressed. Each method has advantages and disadvantages in a particular situation, and can be used simultaneously for different cost components.

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

- **Cost Recovery** (past improvements) - The rationale for recoupment, often called cost recovery, is that new development is paying for its share of the useful life and remaining capacity of facilities already built, or land already purchased, from which new growth will benefit. This methodology is often used for utility systems that must provide adequate capacity before new development can take place.
- **Incremental Expansion** (concurrent improvements) - The incremental expansion method documents current level-of-service (LOS) standards for each type of public facility, using both quantitative and qualitative measures. This approach assumes there are no existing infrastructure deficiencies or surplus capacity in infrastructure. New development is only paying its proportionate share for growth-related infrastructure. Revenue will be used to expand or provide additional facilities, as needed, to accommodate new development. An incremental expansion cost method is best suited for public facilities that will be expanded in regular increments to keep pace with development.
- **Plan-Based** (future improvements) - The plan-based 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).
- **Credits** - Regardless of the methodology, a consideration of "credits" is integral to the development of a legally defensible development fee methodology. There are two types of "credits" with specific characteristics, both of which should be addressed in development fee studies and ordinances. The first is a revenue credit due to possible double payment situations, which could occur when other revenues may contribute to the capital costs of infrastructure covered by the development fee. This type of credit is integrated into the development fee calculation, thus reducing the fee amount. The second is a site-specific credit or developer reimbursement for dedication of land or construction of system improvements. This type of credit is addressed in the administration and implementation of the development fee program.

Updated Development Fees

TischlerBise worked with County staff to consolidate and simplify seven current Impact Fee Areas (IFAs) into a single, unincorporated service area for all infrastructure types except arterial street improvements. Figure 1 indicates four Streets Fee Areas (SFAs) that are recommended to ensure arterial street improvements will provide substantial benefit within the sub-areas of unincorporated Pinal County.

Figure 1: Map of 2015 Streets Fee Areas

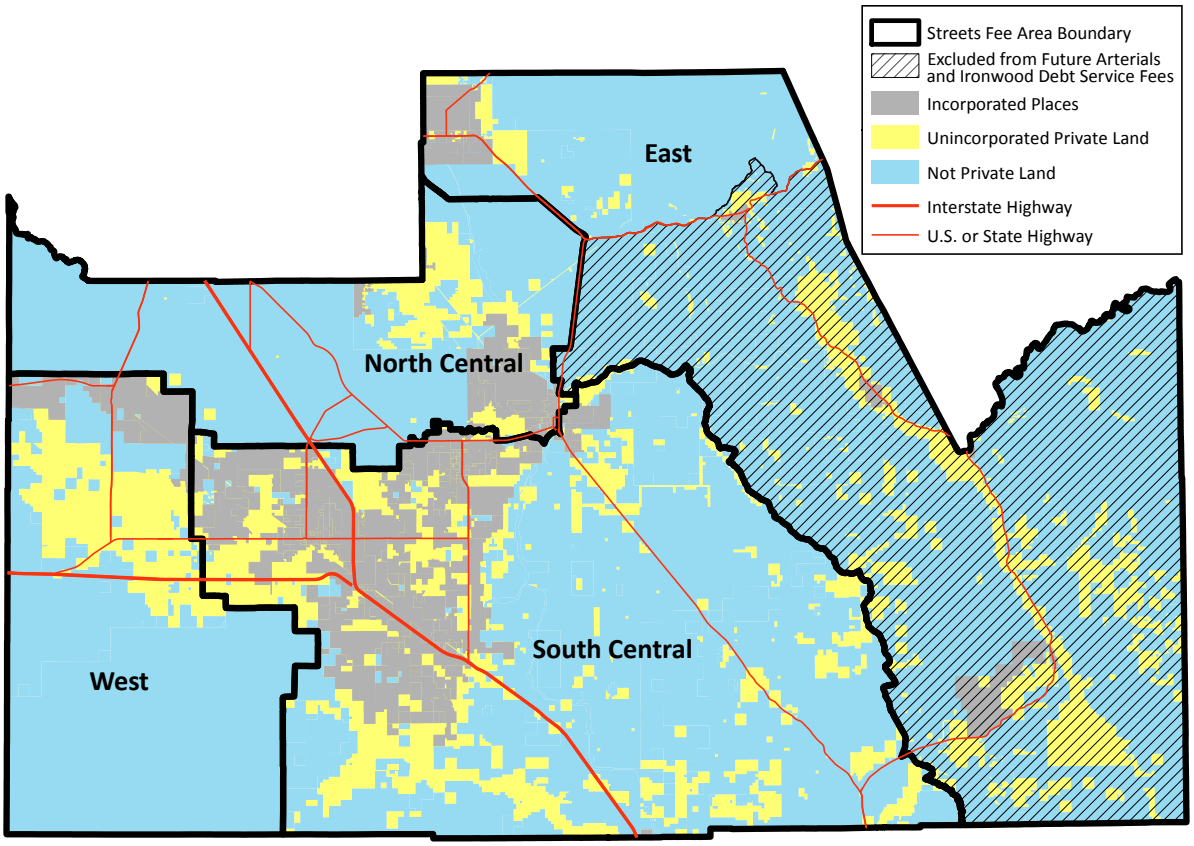


Figure 2 summarizes development fee service areas, general methods, and infrastructure cost components for each development fee.

Figure 2: Proposed Development Fee Service Areas, Methods and Cost Components

Type of Fee	*Service Area*	*Cost Recovery (past)*	*Incremental Expansion (present)*	*Plan-Based (future)*	*Cost Allocation*
Parks	Unincorporated			Regional Open Space and Trails	Year- Round Population
Public Safety	Unincorporated	Detention Center Debt Service	Sheriff & Detention Vehicles	Judicial Court Facilities and Communications Equipment	Year- Round Population & Nonresidential VMT
Public Safety	North Central Streets Fee Area			San Tan Substation	Year- Round Population & Nonresidential VMT
Streets	Unincorporated		Support Facilities, Vehicles & Equipment		Vehicle Miles of Travel
Streets	North Central Streets Fee Area	Ironwood Road Debt Service		Future Arterials	Vehicle Miles of Travel
Streets	South Central Streets Fee Area			Future Arterials	Vehicle Miles of Travel
Streets	East Streets Fee Area	Ironwood Road Debt Service		Future Arterials	Vehicle Miles of Travel
Streets	West Streets Fee Area			Future Arterials	Vehicle Miles of Travel

Figures 3 through 6 provide schedules of updated development fees by Streets Fee Area (SFA) for unincorporated Pinal County, along with the current development fee. Development fees for residential development will be assessed per dwelling unit, based on square feet of finished floor area. Nonresidential impact fees will be assessed per 1,000 square feet of floor area, according to four general types of development. The County 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 the County's LOS standards. TischlerBise will prepare a final development fee study to be consistent with Board of Supervisor decisions during the public hearing process. All costs in the development fee study are in current dollars with no assumed inflation rate over time. If cost estimates change significantly over time, development fees should be recalibrated.

Figure 3: Schedule of Development Fees – North Central SFA

Development Fees in North Central Streets Fee Area							
Residential (per housing unit)							
Square Feet of Finished Floor Area	***Parks***	***Public Safety***	***Streets***	***Proposed Fee****	***Current Fee*****	***Increase or (Decrease)***	***Percent Change***
1000 or less	**$188**	**$245**	**$3,494**	**$3,927**	$4,462	-$535	-12%
1001 to 1500	**$354**	**$462**	**$5,692**	**$6,508**	$4,462	$2,046	46%
1501 to 2100	**$494**	**$645**	**$7,527**	**$8,666**	$8,725	-$59	-1%
2101 or more	**$536**	**$700**	**$7,978**	**$9,214**	$8,725	$489	6%
* Maximum fee limited to average for all single family housing.							
Nonresidential (per 1,000 square feet of building)							
Type	***Parks***	***Public Safety***	***Streets***	***Proposed Fee***	***Current Fee*****	***Increase or (Decrease)***	***Percent Change***
Industrial	**$0**	**$192**	**$1,844**	**$2,036**	$2,080	-$44	-2%
Institutional	**$0**	**$550**	**$5,274**	**$5,824**	$4,640	$1,184	26%
Commercial	**$0**	**$1,379**	**$13,197**	**$14,576**	$11,090	$3,486	31%
Office & Other Services	**$0**	**$596**	**$5,713**	**$6,309**	$4,640	$1,669	36%

** Based on IFA 1

Figure 4: Schedule of Development Fees – South Central SFA

Development Fees in South Central Streets Fee Area							
Residential (per housing unit)							
Square Feet of Finished Floor Area	***Parks***	***Public Safety***	***Streets***	***Proposed Fee****	***Current Fee*****	***Increase or (Decrease)***	***Percent Change***
1000 or less	**$188**	**$190**	**$1,148**	**$1,526**	$3,317	-$1,791	-54%
1001 to 1500	**$354**	**$359**	**$1,871**	**$2,584**	$3,317	-$733	-22%
1501 to 2100	**$494**	**$501**	**$2,474**	**$3,469**	$6,528	-$3,059	-47%
2101 or more	**$536**	**$544**	**$2,623**	**$3,703**	$6,528	-$2,825	-43%
* Maximum fee limited to average for all single family housing.							
Nonresidential (per 1,000 square feet of building)							
Type	***Parks***	***Public Safety***	***Streets***	***Proposed Fee***	***Current Fee*****	***Increase or (Decrease)***	***Percent Change***
Industrial	**$0**	**$158**	**$606**	**$764**	$1,500	-$736	-49%
Institutional	**$0**	**$453**	**$1,734**	**$2,187**	$3,350	-$1,163	-35%
Commercial	**$0**	**$1,135**	**$4,339**	**$5,474**	$8,070	-$2,596	-32%
Office & Other Services	**$0**	**$491**	**$1,878**	**$2,369**	$3,350	-$981	-29%

** Based on IFA 7

Figure 5: Schedule of Development Fees – East SFA

Development Fees in East Streets Fee Area (with Arterials)

Residential (per housing unit)

Square Feet of Finished Floor Area	*Parks*	*Public Safety*	*Streets*	*Proposed Fee**	*Current Fee***	*Increase or (Decrease)*	*Percent Change*
1000 or less	**$188**	**$190**	**$1,065**	**$1,443**	$4,462	-$3,019	-68%
1001 to 1500	**$354**	**$359**	**$1,734**	**$2,447**	$4,462	-$2,015	-45%
1501 to 2100	**$494**	**$501**	**$2,294**	**$3,289**	$8,725	-$5,436	-62%
2101 or more	**$536**	**$544**	**$2,431**	**$3,511**	$8,725	-$5,214	-60%

* Maximum fee limited to average for all single family housing.

Nonresidential (per 1,000 square feet of building)

Type	*Parks*	*Public Safety*	*Streets*	*Proposed Fee*	*Current Fee***	*Increase or (Decrease)*	*Percent Change*
Industrial	**$0**	**$158**	**$561**	**$719**	$2,080	-$1,361	-65%
Institutional	**$0**	**$453**	**$1,607**	**$2,060**	$4,640	-$2,580	-56%
Commercial	**$0**	**$1,135**	**$4,022**	**$5,157**	$11,090	-$5,933	-53%
Office & Other Services	**$0**	**$491**	**$1,741**	**$2,232**	$4,640	-$2,408	-52%

** Based on IFA 1

Development Fees in East (without Arterials)

Residential (per housing unit)

Square Feet of Finished Floor Area	*Parks*	*Public Safety*	*Streets*	*Proposed Fee**	*Current Fee***	*Increase or (Decrease)*	*Percent Change*
1000 or less	**$188**	**$190**	**$41**	**$419**	$4,462	-$4,043	-91%
1001 to 1500	**$354**	**$359**	**$68**	**$781**	$4,462	-$3,681	-82%
1501 to 2100	**$494**	**$501**	**$89**	**$1,084**	$8,725	-$7,641	-88%
2101 or more	**$536**	**$544**	**$95**	**$1,175**	$8,725	-$7,550	-87%

* Maximum fee limited to average for all single family housing.

Nonresidential (per 1,000 square feet of building)

Type	*Parks*	*Public Safety*	*Streets*	*Proposed Fee*	*Current Fee***	*Increase or (Decrease)*	*Percent Change*
Industrial	**$0**	**$158**	**$22**	**$180**	$2,080	-$1,900	-91%
Institutional	**$0**	**$453**	**$63**	**$516**	$4,640	-$4,124	-89%
Commercial	**$0**	**$1,135**	**$157**	**$1,292**	$11,090	-$9,798	-88%
Office & Other Services	**$0**	**$491**	**$68**	**$559**	$4,640	-$4,081	-88%

** Based on IFA 1

Figure 6: Schedule of Development Fees – West SFA

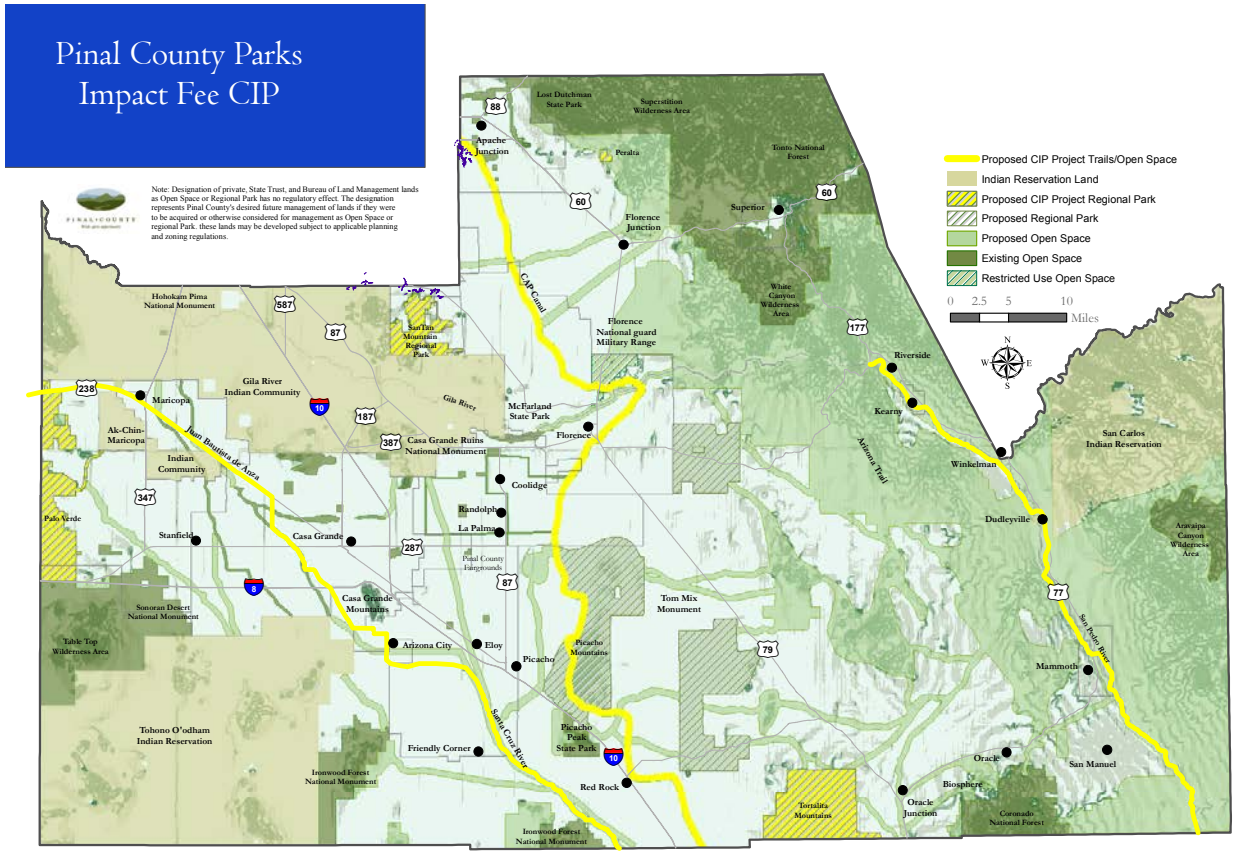
Development Fees in West Streets Fee Area							
Residential (per housing unit)							
Square Feet of Finished Floor Area	***Parks***	***Public Safety***	***Streets***	***Proposed Fee****	***Current Fee*****	***Increase or (Decrease)***	***Percent Change***
1000 or less	**$188**	**$190**	**$662**	**$1,040**	$5,054	-$4,014	-79%
1001 to 1500	**$354**	**$359**	**$1,078**	**$1,791**	$5,054	-$3,263	-65%
1501 to 2100	**$494**	**$501**	**$1,426**	**$2,421**	$9,859	-$7,438	-75%
2101 or more	**$536**	**$544**	**$1,512**	**$2,592**	$9,859	-$7,267	-74%
* Maximum fee limited to average for all single family housing.							
Nonresidential (per 1,000 square feet of building)							
Type	***Parks***	***Public Safety***	***Streets***	***Proposed Fee***	***Current Fee*****	***Increase or (Decrease)***	***Percent Change***
Industrial	**$0**	**$158**	**$349**	**$507**	$2,380	-$1,873	-79%
Institutional	**$0**	**$453**	**$999**	**$1,452**	$5,300	-$3,848	-73%
Commercial	**$0**	**$1,135**	**$2,501**	**$3,636**	$12,640	-$9,004	-71%
Office & Other Services	**$0**	**$491**	**$1,082**	**$1,573**	$5,300	-$3,727	-70%

** Based on IFA 2

PARKS CAPITAL IMPROVEMENTS PLAN

Development fees for parks are one of the infrastructure categories allowed under Arizona law (Appendix B). Parks development fees include regional open space (land and improvements) and regional trails. State law requires the County to have an adopted capital improvements plan (CIP) in order to assess development fees. Figure P1 maps the capital improvements that will receive impact fee funding.

Figure P1: Map of Pinal County Improvements for Parks



REGIONAL PARKS LAND

The County's Open Space & Trails Master Plan (OS&TMP) provides acreage totals for each of its planned regional parks. This plan is the result of demand from both existing residential development as well as new residential development in unincorporated Pinal County. Regional parks are needed to accommodate residential development.

Figure P2 lists land acquisitions for regional parks with expected completion dates and estimated costs. Palo Verde Mountain Regional Park and Peralta Regional Park are located on Bureau of Land Management (BLM) land and will not require a traditional site purchase. Estimated costs are for implementation of an agreement between Pinal County and the BLM for public access to the land. Pinal County provided costs associated with these agreements.

Acreage for San Pedro River Regional Open Space is from the OS&TMP and acreage for San Tan Mountain Regional Park is from the Maricopa County Parks and Recreation Department. Staff from the County's Open Space & Trails Department consulted the Assessor's data and recent sales of Arizona State Trust Land to determine the planned cost per acre of land. Because the OS&TMP assumed a projected population of 1,206,000, and the development fee update is based on a more conservative population projection of 596,000 in 2030, TischlerBise applied a planning horizon adjustment (596,000 / 1,206,000 = 49.4%) to scale back total land acquisition cost.

To ensure new development only pays for its share of improvements, a growth share is applied to the costs associated with implementation agreements and land acquisition. The 29.8% growth share is calculated by dividing the unincorporated area population increase (from 2014 to 2030), by the projected 2030 population of the unincorporated area. Dividing the land cost to be funded by development fees by the increase in population ($12,890,213 / 82,755) yields a truncated cost of $155 per person for regional open space land.

Figure P2: Cost Allocation for Regional Park and Open Space Land

Description	*Acquisition Source*	*Acres**	*Cost per Acre***	*Years 1-5*	*Years 6-16*	*Land Acquisition Cost*	*Development Fee Share*	*Development Fee Funding*	*Total Cost*
Palo Verde Mountain***	BLM			$750,000	$750,000	$1,500,000	29.8%	$446,287	$0
Peralta Regional***	BLM			$450,000	$300,000	$750,000	29.8%	$223,143	$0
San Pedro River	State Trust & Fee Simple	16,500	$4,000	$0	$32,616,915	$32,616,915	29.8%	$9,704,334	$66,000,000
San Tan Mountain	Fee Simple	3,290	$5,202	$0	$8,457,952	$8,457,952	29.8%	$2,516,448	$17,114,580
		19,790	**$2,189**	**$1,200,000**	**$42,124,867**	**$43,324,867**	**29.8%**	**$12,890,213**	**$83,114,580**
				Funding from Other Revenue Sources =>			70.2%	$30,434,655	

** Pinal County Open Space and Trails Master Plan, 2007*
*** 2014 Open Space and Trails CIP*
**** Acquisition costs anticipated to include BLM reviews, processes, and necessary environmental clearances.*

Cost Allocation for Regional Open Space Land

2014 Unincorporated Population	195,391	**Growth Share**	***Cost per Person***
Increase in Service Units	82,755	29.8%	$155
2030 Unincorporated Population	278,146		

2030 Countywide Population	596,000	***Planning Horizon Adjustment***
Master Plan Population	1,206,000	49.4%

Regional Park Improvements

Updated development fees include the cost of improvements to the regional parks discussed above. As shown in Figure P3, costs per acre for Palo Verde and Peralta parks are from the 2014 Open Space & Trails CIP. Acreage and cost per acre estimates for San Tan Mountain are from the Maricopa County Parks and Recreation Department's 10-year CIP for San Tan Mountain. Consistent with the previous section, the 2030 need for regional park improvements was also reduced by the 49.4% planning horizon adjustment. The cost of $40 per person for regional park improvements is derived from the projected need of $3.3 million to be funded by development fees, allocated to the projected increase of 82,755 unincorporated area residents from 2014 to 2030.

Figure P3: Cost Allocation for Regional Park Improvements

Description	*Acres**	*Cost per Acre***	*Years 1-5*	*Years 6-16*	*Improvement Cost*	*Development Fee Share*	*Development Fee Funding*	*Total Cost*
Palo Verde Mountain	50	$27,540	$200,000	$600,507	$800,507	29.8%	$238,171	$1,377,000
Peralta Regional	50	$27,540	$385,000	$295,507	$680,507	29.8%	$202,468	$1,377,000
San Tan Mountain***	596	$32,923	$1,013,991	$8,683,216	$9,697,207	29.8%	$2,885,157	$19,622,200
	696	**$16,061**	**1,598,991**	**$9,579,231**	**$11,178,222**	**29.8%**	**$3,325,796**	**$22,376,200**
				Funding from Other Revenue Sources =>		70.2%	$7,852,426	

Cost Allocation for Regional Open Space Improvements

2014 Unincorporated Population	195,391	**Growth Share**	***Cost per Person***
Increase in Service Units	82,755	29.8%	$40
2030 Unincorporated Population	278,146		

2030 Countywide Population	596,000	***Planning Horizon Adjustment***
Master Plan Population	1,206,000	49.4%

** Open Space and Trails Master Plan, 2007*
*** 2014 Open Space and Trails CIP*
**** Maricopa CIP*

REGIONAL TRAILS

The Open Space & Trails Master Plan (OS&TMP) identified the need for regional trails, as shown in Figure P4. Similar to regional parks, mileage totals for regional trails are based on a master plan projected population of 1,206,000. The 49.4% planning horizon adjustment scales the 2030 need to the more conservative population projections used in this development fee update.

To ensure new development pays for only its share of improvements, a 29.8% growth share is applied to the cost of trail improvements. The cost of regional trail improvements is $24 per additional resident in the unincorporated area, assuming development fees will provide approximately $2 million in funding through 2030.

Figure P4: Cost Allocation for Regional Trails

Description	*Miles**	*Cost per Mile***	*Years 1-5*	*Years 6-16*	*Trail Development Cost*	*Development Fee Share*	*Development Fee Funding*
Anza National Historic Trail	36	$60,670	$0	$2,184,120	$2,184,120	29.8%	$649,829
CAP Trail	49	$60,670	$1,486,415	$1,486,415	$2,972,830	29.8%	$884,490
Tortolita Mountain	27	$60,670	$819,045	$819,045	$1,638,090	29.8%	$487,372
	112	**$60,670**	**2,305,460**	**4,489,580**	**6,795,040**	**29.8%**	**$2,021,691**
				Funding from Other Revenue Sources =>		70.2%	$4,773,349

** Open Space and Trails Master Plan, 2007 multiplied by planning horizon adjustment*
*** 2014 Open Space and Trails CIP*

Cost Allocation for Regional Trails

2014 Unincorporated Population	195,391	**Growth Share**	***Cost per Person***
Increase in Service Units	82,755	29.8%	$24
2030 Unincorporated Population	278,146		

2030 Countywide Population	596,000	***Planning Horizon Adjustment***
Master Plan Population	1,206,000	49.4%

Development Fees for Parks

Figure P5 provides a schedule of Parks Development Fees for unincorporated Pinal County. Infrastructure standards and cost factors for park improvements are summarized in the upper portion of Figure P5. The conversion of infrastructure needs and costs per service unit into a cost per development unit is also shown in the table below. The average number of persons per housing unit provides the necessary conversion. Development fees for residential development will be assessed by dwelling size, measured in square feet of finished floor area. For example, a dwelling unit with 1,700 square feet of finished living space will pay $494 in parks fees ($219 X 2.26).

Figure P5: Schedule of Parks Development Fees

Input Variables

	Cost Per Person
Regional Park and Open Space Land	$155
Regional Park Improvements	$40
Regional Trails	$24
Total	**$219**

Residential (per housing unit)

Square Feet of Finished Floor Area	***Persons per Housing Unit****	***Parks Development Fee***	***Current Fee***	***Increase or (Decrease)***	***Percent Change***
1000 or less	0.86	**$188**	$128	$60	47%
1001 to 1500	1.62	**$354**	$276	$78	28%
1501 to 2100	2.26	**$494**	$276	$218	79%
2101 or more	2.45	**$536**	$276	$260	94%

** See Figure A12. Maximum fee limited to average for all single family housing.*

Parks CIP Summary and Projected Fee Revenue

In accordance with state law, this report includes a CIP for park improvements needed to accommodate new development. Projected fee revenue shown in Figure P6 is based on the development projections in the *Land Use Assumptions* document (Appendix A) and the updated development fees for parks. To the extent these assumptions change, the projected fee revenue will change correspondingly. If development occurs at a more rapid rate than projected, the demand for infrastructure will increase and development fee revenue will increase at a corresponding rate. If development occurs at a slower rate than is projected, the demand for infrastructure will also decrease, along with development fee revenue.

Anticipated impact fee revenue over the next 16 years is approximately equal to the projected growth cost of park improvements. Existing development's cost share (Figure P6) will have to be funded from other revenue sources.

Figure P6: Capital Costs and Revenues for Park Improvements

Sixteen-Year Growth-Related Costs for Regional Parks

	Growth Share	***Existing Development's Share***
Regional Park and Open Space Land	$12,890,213	$30,434,655
Regional Park Improvements	$3,325,796	$7,852,426
Regional Trails	$2,021,691	$4,773,349
Total	$18,237,699	$43,060,429
	30%	70%

		Average Residential **$490** **per housing unit**
	Year	*Hsg Units*
Base	2014	87,366
Year 1	2015	89,713
Year 2	2016	91,434
Year 3	2017	93,385
Year 4	2018	95,373
Year 5	2019	97,372
Year 6	2020	99,339
Year 7	2021	101,538
Year 8	2022	103,799
Year 9	2023	106,121
Year 10	2024	108,482
Year 11	2025	110,945
Year 12	2026	113,467
Year 13	2027	116,047
Year 14	2028	118,729
Year 15	2029	121,510
Year 16	2030	124,369
	Sixteen-Yr Increase	37,003
	Projected Fees =>	$18,130,000

PUBLIC SAFETY CAPITAL IMPROVEMENTS PLAN

Development fees for public safety are one of the infrastructure categories allowed under Arizona law (Appendix B). Public Safety development fees include debt service for existing public safety facilities, the incremental expansion cost of public safety vehicles, and planned improvements to judicial courts plus communications equipment. In addition, the public safety development fees for the North Central SFA will include a new San Tan Valley Sheriff substation. State law requires the County to have an adopted capital improvements plan (CIP) in order to assess development fees.

UNINCORPORATED AREA PUBLIC SAFETY COSTS

To meet the proportionality requirement, Public Safety development fees allocate capital cost to residential and nonresidential development based on Vehicle Miles of Travel (VMT). Figure PS1 shows the change in VMT over time for residential and nonresidential development in unincorporated Pinal County. The travel demand model uses the demographic data discussed in the Land Use Assumptions (see Appendix A). According to the proportionate share analysis, residential development accounts for 92% of the demand for public safety infrastructure, and nonresidential development accounts for 8% of the public safety infrastructure demand.

Figure PS1: Public Safety Proportionate Share Factors for Unincorporated Pinal County

	ITE Code	Dev Type	Weekday VTE	Dev Unit	Trip Adj	Trip Length Wt Factor
R1		0-1 Bedroom	3.72	HU	64%	1.21
R2		2 Bedrooms	5.63	HU	64%	1.21
R3		3 Bedrooms	6.85	HU	64%	1.21
R4		4+ Bedrooms	9.20	HU	64%	1.21
NR1	150	Industrial	3.56	KSF	50%	0.73
NR2	520	Institutional	15.43	KSF	33%	0.73
NR3	820	Commercial	42.70	KSF	33%	0.66
NR4	710	Office & Other	11.03	KSF	50%	0.73
Avg Trip Length (miles)	10.71					
Vehicle Capacity Per Lane	7,500					

Year->	*Base*	*1*	*2*	*3*	*4*	*5*	*10*	*10-Year*
Unincorporated Travel Model	***FY14-15***	***FY15-16***	***FY16-17***	***FY17-18***	***FY18-19***	***FY19-20***	***FY24-25***	*Increase*
0-1 Bedroom (10% of units)	9,162	9,408	9,589	9,793	10,002	10,211	11,376	2,214
2 Bedrooms (22% of units)	19,240	19,757	20,136	20,566	21,004	21,444	23,890	4,650
3 Bedrooms (42% of units)	36,452	37,431	38,149	38,963	39,792	40,626	45,262	8,810
4+ Bedrooms (26% of units)	22,512	23,117	23,560	24,063	24,576	25,090	27,953	5,441
Industrial KSF	4,910	4,994	5,075	5,156	5,238	5,324	5,831	920
Institutional KSF	5,545	5,643	5,737	5,827	5,918	6,011	6,560	1,015
Commercial KSF	929	933	935	935	936	938	975	46
Office & Other Services KSF	1,113	1,125	1,135	1,145	1,154	1,165	1,242	129
0-1 Bedroom Trips	21,813	22,399	22,829	23,315	23,813	24,310	27,084	
2 Bedroom Trips	69,326	71,188	72,554	74,103	75,682	77,267	86,080	
3 Bedroom Trips	159,806	164,098	167,245	170,814	174,448	178,104	198,429	
4+ Bedroom Trips	132,551	136,113	138,721	141,683	144,703	147,730	164,587	
Industrial Trips	8,740	8,889	9,034	9,178	9,324	9,476	10,378	
Institutional Trips	28,233	28,735	29,211	29,671	30,134	30,609	33,402	
Commercial Trips	13,091	13,147	13,172	13,180	13,192	13,215	13,734	
Office & Other Services Trips	6,137	6,204	6,261	6,312	6,365	6,422	6,850	
Total Vehicle Trips	439,696	450,773	459,028	468,257	477,661	487,134	540,544	
Vehicle Miles of Travel (VMT)	5,399,329	5,538,855	5,642,207	5,758,386	5,876,782	5,995,887	6,663,788	1,264,460
LANE MILES	719.9	738.5	752.3	767.8	783.6	799.5	888.5	168.6
						Ten-Year VMT Increase =>		19.0%
Total IFA Hsg Units	87,366	89,713	91,434	93,385	95,373	97,372	108,482	21,116
Residential VMT	4,969,746	5,103,260	5,201,135	5,312,134	5,425,275	5,538,871	6,170,868	1,201,122
Res Share	92%	92%	92%	92%	92%	92%	93%	
Nonresidential VMT	429,583	435,595	441,072	446,252	451,507	457,016	492,920	63,337
Nonres Share	8%	8%	8%	8%	8%	8%	7%	

Existing Public Safety Facilities

The County debt-financed expansion of several public safety facilities in 2004 to provide capacity for new development throughout Pinal County, with the detention center being the major cost component. The cost recovery portion of the Public Safety development fee will be used to cover new development's share of detention center debt service payments. The portion of the facility that will be utilized by new development in municipalities will not be recouped through the County development fees. To ensure no potential double payment for existing public safety facilities, the fee calculations include a revenue credit for future debt service payments.

Future debt service for the detention center, as shown in Figure PS2, is approximately $74.6 million. In order to allocate the appropriate share of remaining debt service between Pinal County's municipalities and the unincorporated area, TischlerBise used population and jobs in 2029, the final year of debt

service payments. As seen in Figure PS2, population and jobs in the unincorporated County will account for 44.9% of the total population and jobs in 2029 making the unincorporated area's share of the remaining debt service $33,494,971 (approximately 44.9% X $74,593,976).

Figure PS2: Detention Center Remaining Debt Service

	Fiscal Year	*2004 COPS*	
1	*2015-16*	$4,974,525	
2	*2016-17*	$4,970,400	
3	*2017-18*	$4,982,100	
4	*2018-19*	$4,971,950	
5	*2019-20*	$4,973,113	
6	*2020-21*	$4,971,269	
7	*2021-22*	$4,971,025	
8	*2022-23*	$4,971,856	
9	*2023-24*	$4,973,238	
10	*2024-25*	$4,974,500	
11	*2025-26*	$4,970,750	
12	*2026-27*	$4,972,125	
13	*2027-28*	$4,973,000	
14	*2028-29*	$4,972,875	
15	*2029-30*	$4,971,250	
	TOTAL	***$74,593,976***	
	2029 Population plus Jobs in Municipalities =>	357,155	55.1%
	2029 Population plus Jobs in Unincorporated =>	291,075	44.9%
	Total County 2029 Population plus Jobs =>	648,231	

Cost Allocation for Detention Center

Description	*Debt Service Over 15 Years*
Unincorporated Share	$33,494,971

As shown in Figure PS3, TischlerBise used a conservative average-cost allocation (i.e. the unincorporated share of total principal and interest payments was divided by total service units in 2029). For residential development, the truncated cost per person assumes a 92% cost allocation and a projected population of 271,751 residents in the unincorporated area by 2029 ($56,459,630 x 92% / 271,751). For nonresidential development, the truncated cost per VMT assumes an 8% nonresidential share and 532,306 vehicle miles of travel to nonresidential development in the unincorporated area by 2029 ($56,459,630 x 8% / 532,306).

Figure PS3: Average-Cost Allocation for Existing Public Safety Facilities

Name of Debt Obligation	*FY of Final Payment*	*Unincorporated Share (45%) of Principal plus Interest*	*Unincorporated Population in 2029*	*Unincorporated VMT in 2029*
2004 COPS	2029-30	$56,459,630	271,751	532,306
Ten-Year Debt Service =>		$22,332,073		

Cost Allocation		
Residential (per person)	92.0%	$191.23
Nonresidential (per VMT)	8.0%	$8.43

* *Total principal is $71,615,000 and total interest is $54,121,733.*

Credit Evaluation

To ensure fee-payers avoid potential double payment for annual debt service (see the second column from the left in the table below), TischlerBise included in revenue credit in the development fee calculations. Following the same methodology as the cost analysis, annual debt service was split between residential and nonresidential development and then divided by annual service units to yield payments per person or vehicles miles of travel. As shown in the bottom right corner of Figure PS4, a present value adjustment accounts for the time value of annual payments through 2029. The discount rate of 4.625% is the average annual interest rate paid by Pinal County on the 2004 certificates.

Figure PS4: Revenue Credit for Future Debt Service Payments

FY	*Unincorporated Share of 2004 COPS Debt Service*	*Residential Share 92%*	*Nonresidential Share 8%*	*Unincorporated Population*	*Unincorporated VMT to Nonres*	*Payment Per Person*	*Payment Per Nonres VMT*
2015-16	$2,233,714	$2,055,016	$178,697	200,639	435,595	$10.24	$0.41
2016-17	$2,231,861	$2,053,312	$178,549	204,488	441,072	$10.04	$0.40
2017-18	$2,237,115	$2,058,146	$178,969	208,851	446,252	$9.85	$0.40
2018-19	$2,232,557	$2,053,953	$178,605	213,298	451,507	$9.63	$0.40
2019-20	$2,233,079	$2,054,433	$178,646	217,767	457,016	$9.43	$0.39
2020-21	$2,232,251	$2,053,671	$178,580	222,168	462,729	$9.24	$0.39
2021-22	$2,232,142	$2,053,571	$178,571	227,086	470,274	$9.04	$0.38
2022-23	$2,232,515	$2,053,914	$178,601	232,142	477,824	$8.85	$0.37
2023-24	$2,233,136	$2,054,485	$178,651	237,335	485,374	$8.66	$0.37
2024-25	$2,233,702	$2,055,006	$178,696	242,616	492,920	$8.47	$0.36
2025-26	$2,232,018	$2,053,457	$178,561	248,124	500,460	$8.28	$0.36
2026-27	$2,232,636	$2,054,025	$178,611	253,764	508,438	$8.09	$0.35
2027-28	$2,233,029	$2,054,386	$178,642	259,535	516,403	$7.92	$0.35
2028-29	$2,232,973	$2,054,335	$178,638	265,532	524,361	$7.74	$0.34
2029-30	$2,232,243	$2,053,664	$178,579	271,751	532,306	$7.56	$0.34
TOTAL	$33,494,971	$30,815,374	$2,679,598		Total	$133.04	$5.60
					Discount Rate	4.625%	4.625%
					Present Value	**$96.16**	**$4.03**

Judicial Courts

Pinal County currently provides judicial courts facilities necessary to serve countywide residential and nonresidential development. The County plans to expand these facilities as identified in the 2014 Public Works Capital Improvement Plan (CIP). In order to allocate the appropriate share of the total cost between Pinal County's municipalities and the unincorporated area, TischlerBise used population and jobs in 2024. As shown in Figure PS5, population and jobs in the unincorporated area will account for 45% of the countywide population and jobs in 2024.

According to the 2014 Public Works CIP, the total cost to expand the judicial courts facilities is $15 million, and the unincorporated area's share of the total cost is approximately $6.8 million (45% X $15 million). As shown in Figure PS5, the 19% growth share is based on the increase in VMT from 2014 to 2024 (1 – [5,399,329 / 6,663,788]). To derive the cost per service unit, the growth cost is allocated to the increase in residential and nonresidential service units. For residential development, the truncated cost of $25 per person assumes a 92% cost allocation and a projected population increase of 47,225 persons in the unincorporated area from 2014 to 2024 ($1,291,421 x 92% / 47,225). For nonresidential development, the truncated cost of $1 per VMT assumes a cost allocation of 8% and a projected increase of 63,337 vehicle miles of travel to nonresidential development in the unincorporated area from 2014 to 2024 ($1,291,421 x 8% / 63,337).

Figure PS5: Judicial Courts Cost Allocation

Description	*Years 1-5*	*Years 6-10*	*Total Cost*	
Judicial Courts	$3,500,000	$11,500,000	$15,000,000	
2024 Population plus Jobs in Municipalities =>			313,599	55%
2024 Population plus Jobs in Unincorporated =>			260,469	45%
Total County 2014 Population plus Jobs =>			574,069	
Cost Allocation for Judicial Courts				
Unincorporated Share of Judicial Courts			$6,805,878	
Growth Share*			19%	
Unincorporated Growth Cost			$1,291,421	
2014-2024 Unincorporated Population Increase			47,225	
2014-2024 Increase in VMT to Unincorporated Nonresidential			63,337	
		Share	*Cost*	
Residential (per person)		92%	$25	
Nonresidential (per VMT)		8%	$1	

* *Unincorporated growth share formula is 1-(VMT in 2014/VMT in 2024)*

Communications System

To comply with federal standards and improve coverage, the County plans to replace its analog public safety radio system with a digital radio system. This upgrade is necessary to accommodate countywide demand from both existing residential and nonresidential development. The share of the communications system that is the result of existing development in the unincorporated County cannot be funded through development fees. Also, development fees will not be used to fund the portion of the communications system attributable to existing and new development in municipalities.

As identified in the Pinal County Public Safety Communication Roadmap (June 2014), the total cost of the digital radio system is $19 million. As discussed in the previous section, total population and jobs in 2024 is used to derive the unincorporated area's share of the total cost ($8,620,779 = 45% X $19 million). A 19% growth share is based on the unincorporated VMT increase from 2014 to 2024. As shown in Figure PS6, the unincorporated growth cost of the upgraded radio system is approximately $1.6 million (19% X $8,620,779). To derive the cost per service unit, the growth cost of the communications system is allocated to the increase in residential and nonresidential service units. For residential development, the truncated cost of $31 per person assumes a 92% proportionate share and a projected population increase of 47,225 persons in the unincorporated area from 2014 to 2024 ($1,635,800 x 92% / 47,225). For nonresidential development, the truncated cost of $2 per VMT assumes a proportionate share of 8% and a projected increase of 63,337 vehicle miles of travel to nonresidential development in the unincorporated area from 2014 to 2014 ($1,635,800 x 8% / 63,337).

Figure PS6: Communications System Cost Allocation

Description	*Years 1-5*	*Years 6-10*	*Total Cost*
Communications System	$5,000,000	$14,000,000	$19,000,000
2024 Population plus Jobs in Municipalities =>			313,599
2024 Population plus Jobs in Unincorporated =>			260,469
Total County 2014 Population plus Jobs =>			574,069
Cost Allocation for Communications			
Unincorporated Share of Communications			$8,620,779
Growth Share*			19%
Unincorporated Growth Cost			$1,635,800
2014-2024 Unincorporated Population Increase			47,225
2014-2024 Increase in VMT to Unincorporated Nonresidential			63,337
		Share	*Cost*
Residential (per person)		92%	$31
Nonresidential (per VMT)		8%	$2

* *Unincorporated growth share formula is 1-(VMT in 2014/VMT in 2024)*

Sheriff & Detention Vehicles

Development fees will be used to expand Pinal County's fleet of public safety vehicles. Figure PS7 lists the current vehicles and equipment used by Pinal County during FY14-15. Pinal County currently has 269 vehicles representing a capital investment of approximately $15.6 million. The weighted average cost is approximately $58,000 per vehicle ($15,573,200 / 269). Public Safety vehicles are allocated per person for residential development and per nonresidential VMT for nonresidential development. Pinal County's existing infrastructure standard for residential development is 0.00127 vehicles per person based on the unincorporated population in 2014 (269 X 92% / 195,391). The nonresidential infrastructure standard, based on unincorporated VMT in 2014, is 0.00005 vehicles per VMT (269 X 8% / 429,583). To maintain current infrastructure standards over the next ten years, Pinal County will need to spend $3,654,000 for additional public safety vehicles (see Figure PS8). Each additional person in the unincorporated area requires a truncated capital cost of $71 ($3,654,000 X 92% / 47,225). Similarly, each additional VMT to nonresidential development requires a truncated capital cost of $4 ($3,654,000 X 8% / 63,337).

Figure PS7: Existing Standards for Public Safety Vehicles

Public Safety Vehicles	*Items*	*Unit Cost*	*Total Cost*
Sheriff	240	$60,200	$14,448,000
Detention	29	$38,800	$1,125,200
TOTAL	269		$15,573,200

Allocation Factors for Public Safety Vehicles

Average Cost per Unit	$58,000
Residential Share	92%
Nonresidential Share	8%
2014 Unincorporated Population	195,391
2014 Unincorporated Nonres VMT	429,583

Infrastructure Standards for Public Safety Vehicles

	Public Safety Vehicles	*Capital Cost*
Residential (per person)	0.00127	$71
Nonresidential (per VMT)	0.00005	$4

As shown in Figure PS8, unincorporated area population and nonresidential VMT drive the need for public safety vehicles. Based on the development projections in the Land Use Assumptions (see Appendix A), Pinal County will need approximately 63 additional public safety vehicles over the next ten years ([47,225 X 0.00127] + [63,337 X 0.00005]). The ten-year, growth-related capital cost associated with these additional public safety vehicles is approximately $3.7 million (63 X $58,000).

Figure PS8: Growth-Related Need for Public Safety Vehicles

Public Safety Vehicles - Residential	0.00127	vehicles per person
Public Safety Vehicles - Nonresidential	0.00005	vehicles per VMT
Public Safety Vehicle Cost	$58,000	per vehicle

			Public Safety Vehicles Needed	
	Year	*Unincorporated Population*	*Nonresidential VMT*	*Public Safety Vehicles*
Base	2014	195,391	429,583	269
Year 1	2015	200,639	435,595	276
Year 2	2016	204,488	441,072	281
Year 3	2017	208,851	446,252	287
Year 4	2018	213,298	451,507	293
Year 5	2019	217,767	457,016	299
Year 6	2020	222,168	462,729	305
Year 7	2021	227,086	470,274	311
Year 8	2022	232,142	477,824	318
Year 9	2023	237,335	485,374	325
Year 10	2024	242,616	492,920	332
	Ten-Yr Increase	47,225	63,337	63
			Total Growth Share =>	**$3,654,000**

Unincorporated Area Public Safety Development Fees

Infrastructure standards and cost factors for public safety are summarized in the upper portion of Figure PS9. The conversion of infrastructure costs per service unit into a cost per development unit is also shown in the table below. For residential development, average number of persons per housing unit provides the necessary conversion. Development fees for residential development are determined by dwelling size, measured in square feet of finished floor area. For example, a dwelling unit with 1,700 square feet will pay $501 in public safety fees based on a cost factor of $222.07 per person and an average of 2.26 persons per housing unit ($222.07 x 2.26 = $501 truncated).

Nonresidential development fees are stated per 1,000 square feet of floor area, by type of land use. For example, the proposed Public Safety fee of $158 per 1,000 square feet of industrial development is derived from a capital cost of $11.40 per VMT multiplied by the average VMT per 1,000 square feet of industrial floor area ($11.40 X 3.56 x 50% x 73% x 10.71 = $158 truncated).

Figure PS9: Schedule of Public Safety Development Fees for the Unincorporated Area

Unincorporated Area Development Fee Inputs

Average Miles per Trip	10.71

	Cost per Person	*Cost per VMT*
2004 COPS (average cost allocation)	$191.23	$8.43
Revenue Credit for 2004 COPS Debt Service	-$96.16	-$4.03
Judicial Courts	$25.00	$1.00
Communications System	$31.00	$2.00
Sheriff & Detention Vehicles	$71.00	$4.00
TOTAL	$222.07	$11.40

Residential (per housing unit)

Square Feet of Finished Floor Area	*Persons per Hsg Unit**	*Unincorporated Public Safety Fee*	*Current Fee*	*Increase or (Decrease)*	*Percent Change*
1000 or less	0.86	**$190**	$582	-$392	-67%
1001 to 1500	1.62	**$359**	$1,252	-$893	-71%
1501 to 2100	2.26	**$501**	$1,252	-$751	-60%
2101 or more	2.45	**$544**	$1,252	-$708	-57%

** See Figure A12. Maximum fee limited to average for all single family housing.*

Nonresidential (per 1,000 square feet of building)

Type	*Avg Wkdy Veh Trip Ends***	*Trip Rate Adjustment*	*Trip Length Adjustment*	*Unincorporated Public Safety Fee*	*Current Fee*	*Increase or (Decrease)*	*Percent Change*
Industrial	3.56	50%	73%	**$158**	$70	$88	126%
Institutional	15.43	33%	73%	**$453**	$170	$283	166%
Commercial	42.70	33%	66%	**$1,135**	$430	$705	164%
Office & Other Services	11.03	50%	73%	**$491**	$170	$321	189%

*** See Figure A6.*

Unincorporated Area Public Safety Development Fee Revenue

Projected fee revenue shown in Figure PS10 is based on the development projections in the Land Use Assumptions (see Appendix A) and the updated Public Safety development fees (see Figure PS9). 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 impact fee revenue from the unincorporated area ($11.2 million over the next ten years) is approximately equal to projected growth cost of public safety improvements due to development in the unincorporated area. As shown in Figure PS10, the unincorporated area's cost share due to existing development will have to be funded from other revenue sources.

Figure PS10: Projected Revenue from Unincorporated Public Safety Development Fee

Ten-Year Costs for Public Safety

	Municipalities	*Unincorporated Share*	*TOTAL*
Public Safety Facilities Debt Service =>	$27,401,903	$22,332,073	$49,733,976
Judicial Courts =>	$8,194,122	$6,805,878	$15,000,000
Communications System =>	$10,379,221	$8,620,779	$19,000,000
Sheriff and Detention Vehicles =>	$0	$3,654,000	$3,654,000
Total Ten-Year Growth Cost =>	$45,975,246	$41,412,730	$87,387,976
	53%	47%	

Public Safety Impact Fee Revenue from Unincorporated Area

	Year	*Average Residential* $497 per housing unit	*Industrial* $158 per 1000 Sq Ft	*Institutional* $453 per 1000 Sq Ft	*Commercial* $1,135 per 1000 Sq Ft	*Office & Other Services* $491 per 1000 Sq Ft
		Hsg Units	*KSF*	*KSF*	*KSF*	*KSF*
Base	2014	87,366	4,910	5,545	929	1,113
Year 1	2015	89,713	4,994	5,643	933	1,125
Year 2	2016	91,434	5,075	5,737	935	1,135
Year 3	2017	93,385	5,156	5,827	935	1,145
Year 4	2018	95,373	5,238	5,918	936	1,154
Year 5	2019	97,372	5,324	6,011	938	1,165
Year 6	2020	99,339	5,413	6,106	940	1,175
Year 7	2021	101,538	5,517	6,220	949	1,192
Year 8	2022	103,799	5,622	6,333	957	1,209
Year 9	2023	106,121	5,726	6,447	966	1,225
Year 10	2024	108,482	5,831	6,560	975	1,242
Ten-Yr Increase		21,116	920	1,015	46	129
Projected Revenue =>		$10,495,000	$145,000	$460,000	$52,000	$63,000
					Total Projected Revenues (rounded) =>	$11,215,000

Additional Cost in North Central Area

Pinal County plans to replace its existing leased substation by building a 20,000 square foot substation to serve the San Tan Valley (i.e. North Central SFA). According to the 2014 Public Works CIP, the estimated cost of the San Tan Substation is $8 million. The future infrastructure cost was allocated to total 2024 service units in the North Central streets fee area. For residential development, the truncated cost of $64 per person assumes a 92% cost allocation and a 2024 population of 114,572 persons in the North Central SFA ($8 million x 92% / 114,572). For nonresidential development, the truncated cost of $2 per VMT assumes a cost allocation of 8% and a 2024 total of 290,486 vehicle miles of travel to nonresidential development in the North Central SFA ($8 million x 8% / 290,486).

Figure PS11: San Tan Substation Cost Allocation

Description	*Years 1-5*	*Years 6-10*	*Total Cost*
San Tan Substation	$8,000,000	$0	$8,000,000

Cost Allocation for San Tan Substation

2024 North Central Population		114,572
2024 North Central VMT to Nonresidential		290,486
	Share	*Cost*
Residential (per person)	92%	$64
Nonresidential (per VMT)	8%	$2

San Tan Substation Development Fees

Figure PS12 provides a schedule of Public Safety development fees for the North Central SFA. Infrastructure standards and cost factors for the San Tan Substation are summarized in the upper portion of Figure PS12. The conversion of infrastructure needs and costs per service unit into a cost per development unit is also shown in the table below. For residential development, average number of persons per housing unit provides the necessary conversion. Average vehicles miles of travel per 1,000 square feet of floor area provide the necessary conversion for nonresidential development.

Updated residential development fees will be assessed by dwelling size, measured in square feet of finished floor area. Development fees for nonresidential development will be assessed per 1,000 square feet of floor area, by type of land use. For example, a residential unit with 1,700 square feet will pay $144 in public safety fees ($64 X 2.26). Commercial development in the North Central SFA will pay $244 in public safety fees per 1,000 square feet of floor area ($2 x 42.70 x 33% X 66% x 13.14).

Figure PS12: San Tan Substation Fee Schedule for North Central Area

North Central San Tan Substation Development Fees

Average Miles per Trip	13.14

	Cost per Person	***Cost per VMT***
San Tan Substation	$64	$2

Residential (per housing unit)

Square Feet of Finished Floor Area	***Persons per Hsg Unit****	***Additional North Central Public Safety Fees***
1000 or less	0.86	**$55**
1001 to 1500	1.62	**$103**
1501 to 2100	2.26	**$144**
2101 or more	2.45	**$156**

** See Figure A12. Maximum fee limited to average for all single family housing.*

Nonresidential (per 1,000 square feet of building)

Type	***Avg Wkdy Veh Trip Ends*****	***Trip Rate Adjustment***	***Trip Length Adjustment***	***Additional North Central Public Safety Fees***
Industrial	3.56	50%	73%	**$34**
Institutional	15.43	33%	73%	**$97**
Commercial	42.70	33%	66%	**$244**
Office & Other Services	11.03	50%	73%	**$105**

*** See Figure A6.*

San Tan Substation Development Fee Revenue

The projected fee revenue shown in Figure PS13 is based on the development projections in the Land Use Assumptions (see Appendix A) and the above fee schedule. If development occurs faster than projected, the demand for infrastructure will increase and development fee revenue will increase at a corresponding rate. If development occurs at a slower rate than projected, demand for infrastructure will decrease along with development fee revenue. Anticipated impact fee revenue over the next ten years is approximately $1.4 million. Existing development's cost share of approximately $6.6 million will have to be funded from other revenue sources.

Figure PS13: Projected Substation Fee Revenue from North Central Area

Ten-Year Growth Costs for North Central Streets Fee Area

San Tan Substation => $8,000,000

North Central Fee Revenue

	Year	*Average Residential* $143 per housing unit	*Industrial* $34 per 1000 Sq Ft	*Institutional* $97 per 1000 Sq Ft	*Commercial* $244 per 1000 Sq Ft	*Office & Other Services* $105 per 1000 Sq Ft
		Hsg Units	*KSF*	*KSF*	*KSF*	*KSF*
Base	2014	41,938	590	3,902	349	249
Year 1	2015	42,759	619	3,937	350	253
Year 2	2016	43,619	660	3,983	351	258
Year 3	2017	44,595	700	4,028	351	263
Year 4	2018	45,589	741	4,074	352	268
Year 5	2019	46,588	784	4,121	353	273
Year 6	2020	47,572	828	4,168	354	278
Year 7	2021	48,452	870	4,214	357	285
Year 8	2022	49,356	912	4,259	361	292
Year 9	2023	50,285	954	4,304	364	298
Year 10	2024	51,229	996	4,350	368	305
Ten-Yr Increase		9,292	406	447	19	56
Projected Revenue =>		$1,329,000	$14,000	$43,000	$5,000	$6,000
					Total Projected Revenues (rounded) =>	$1,397,000
					Projected Revenue Deficit due to Existing Development =>	$6,603,000

STREETS CAPITAL IMPROVEMENTS PLAN

Development fees for streets are one of the infrastructure categories allowed under Arizona law (see Appendix B). Streets development fees for the unincorporated area include street support facilities, vehicles, and equipment. Pinal County will also collect streets development fees for arterial streets, including future improvements and debt service for past improvements to Ironwood Road. These costs are specific to a particular Street Fee Area (SFA).

UNINCORPORATED AREA INCREMENTAL EXPANSION COST COMPONENTS

Pinal County will maintain current standards for street support facilities, vehicles, and equipment. As documented below, new residential and nonresidential development in the unincorporated area will need additional street support facilities, vehicles, and apparatus.

Street Support Facilities Cost Analysis

Updated streets development fees are based on the same level of service provided to existing development. Figure S1 inventories existing street support facilities that serve the unincorporated area. For residential and nonresidential development, Pinal County will use vehicle miles of travel as the service unit. Figure S1 indicates the allocation of street support facility space to residential and nonresidential development, along with 2014 service units in Pinal County. VMT to development located in the unincorporated area is shown above in Figure PS1.

Pinal County has 66,967 square feet of support facilities, with an estimated total value of $4,839,131, yielding an average cost of $72 per square foot ($4,839,131 / 66,967). Based on 2014 service units, the current standard in Pinal County is 0.0124 square feet of street support facilities per VMT (66,967 / 5,399,329).

Figure S1: Existing Standards for Street Support Facilities

Support Facilities	*Square Feet*	*Total Cost*
Sign Shop	2,334	$45,000
Bridg Crew/Pavement Pres.	2,856	$60,000
Apache Junction	3,476	$140,000
Casa Grande	7,104	$450,000
Oracle	2,518	$150,000
AZ City	7,236	$260,000
Survey	160	$8,000
Bldg F	10,743	$1,000,000
Fleet	13,680	$667,624
Riverside	480	$95,000
Santan Yard	7,500	$1,036,000
Hidden Valley	6,000	$767,507
Modular 1 - Hwy inspectors	1,440	$80,000
Modular 2 - Hwy maint	1,440	$80,000
TOTAL	66,967	$4,839,131

Allocation Factors for Street Support Facilities

Cost per Square Foot	$72
VMT in 2014	5,399,329

Infrastructure Standards for Street Support Facilities

	Square Feet	*Capital Cost*
per VMT	0.0124	$0.89

Street Support Vehicles and Equipment Cost Analysis

Development fees will be used to expand the fleet of street support vehicles and purchase additional equipment. Figure S2 lists the current fleet of street support vehicles and equipment used by Pinal County. In FY14-15, Pinal County has 107 vehicles and 223 equipment items, with a purchase price of approximately $38 million. The weighted average cost is approximately $115,000 per vehicle ($38 million / 330). Pinal County's existing infrastructure standard is 0.0001 vehicle and equipment items per VMT in 2014 (330 / 5,399,329).

Figure S2: Existing Standards for Street Support Vehicles and Equipment

Support Vehicles & Equipment	*Items*	*Unit Cost*	*Total Cost*
Equipment	223	$155,000	$34,582,444
Vechicles	107	$32,000	$3,439,289
TOTAL	330	$115,000	$38,021,733

Allocation Factors for Street Support Units

Average Cost per Unit	$115,000
VMT in 2014	5,399,329

Infrastructure Standards for Street Support Units

	Units	*Capital Cost*
per VMT	0.0001	$7.04

Projected Need for Street Support Facilities, Vehicles, and Equipment

As shown in Figure S3, projected VMT to development in the unincorporated area drives the need for street support facilities and vehicles/equipment. Over the next ten years, Pinal County will need 15,683 additional square feet of support facilities costing approximately $1.1 million (15,683 x $72). To accommodate projected development over the next ten years, the unincorporated area will need 77 additional vehicles/equipment items (1,264,460 X 0.0001) at an estimated cost of $8.9 million (77 x $115,000). In combination, Pinal County anticipates capital costs of approximately $10 million for growth-related street support infrastructure over the next ten years.

Figure S3: Growth-Related Need for Streets Support Facilities, Vehicles, and Equipment

	Support Facilities		0.0124	Sq Ft per VMT
	Facilities Cost		$72	per square foot
	Support Vehicles & Equipment		0.0001	units per VMT
	Unit Cost		$115,000	per unit
			Support Infrastructure Needed	
	Year	***Unincorporated VMT***	***Square Feet of Support Facilities***	***Support Vehicles & Equipment***
Base	2014	5,399,329	66,967	330
Year 1	2015	5,538,855	68,697	339
Year 2	2016	5,642,207	69,979	345
Year 3	2017	5,758,386	71,420	352
Year 4	2018	5,876,782	72,888	359
Year 5	2019	5,995,887	74,366	366
Year 6	2020	6,113,534	75,825	374
Year 7	2021	6,246,193	77,470	382
Year 8	2022	6,382,368	79,159	390
Year 9	2023	6,521,988	80,891	399
Year 10	2024	6,663,788	82,649	407
	Ten-Yr Increase	1,264,460	15,683	77
	Growth Cost of Street Support Facilities =>		**$1,129,000**	
	Cost per Additional VMT =>		$1	
	Growth Cost of Vehicles & Equipment =>			**$8,887,000**
	Cost per Additional VMT =>			$7
	Total Growth Cost =>			**$10,016,000**

Cost Recovery for Ironwood Road

Pinal County debt-financed an expansion of Ironwood Road in 2006 that benefits development in the North Central and East SFAs. The cost recovery portion of the updated Streets development fee will be used to pay new development's share of the remaining debt service. Because the growth share of Ironwood Road debt service will not require property tax revenue, a credit against the development fees is not necessary.

As shown in Figure S4, the remaining balance of the 2006 debt service is approximately $51.4 million. To ensure each SFA only pays for its proportionate share, Pinal County staff allocated 85% of the remaining debt service to the North Central SFA and the remaining 15% to the East SFA.

Figure S4: Ironwood Road Remaining Debt Service

Series 2006-1, Ironwood			
Fiscal Year	***Principal***	***Interest***	***Annual Debt Service***
2015-16	*$3,185,000*	*$1,939,675*	$5,124,675
2016-17	*$3,350,000*	*$1,780,425*	$5,130,425
2017-18	*$3,520,000*	*$1,612,925*	$5,132,925
2018-19	*$3,705,000*	*$1,436,925*	$5,141,925
2019-20	*$3,895,000*	*$1,251,675*	$5,146,675
2020-21	*$4,090,000*	*$1,056,925*	$5,146,925
2021-22	*$4,300,000*	*$852,425*	$5,152,425
2022-23	*$4,510,000*	*$637,425*	$5,147,425
2023-24	*$4,720,000*	*$434,475*	$5,154,475
2024-25	*$4,935,000*	*$222,075*	$5,157,075
TOTAL	***$40,210,000***	***$11,224,950***	***$51,434,950***

As shown in Figure S5, a 55.6% growth share yields the growth cost attributable to new development in the North Central and East SFAs. The growth share is based on ten remaining years of the 18-year bond term. For new development in the North Central SFA, the truncated cost of $35 per VMT assumes an 85% cost allocation and a projected increase of 682,504 VMT from 2014 to 2024 ($28,574,972 x 85% / 682,504). For East SFA development, the truncated cost of $142 per VMT assumes a cost allocation of 15% and a projected increase of 29,706 vehicle miles of travel from 2014 to 2024 ($28,574,972 x 15% / 29,706).

Figure S5: Ironwood Road Cost Allocation

Year of Debt Obligation	***Public Facility***	***Growth Share****	***FY of Final Payment***	***Remaining Principal and Interest***	***Growth Cost***	***North Central VMT Increase***	***East VMT Increase*****
2006	Ironwood Road	55.6%	2024-25	$51,434,950	$28,574,972	682,504	29,706

** Based on ten remaining years of 18-year bond term.*
***Does not include VMT from excluded area.*

	Cost Allocation	
	Share by Area*	***Cost per VMT Increase***
North Central Streets Fee Area	85%	$35
East Streets Fee Area	15%	$142

*** Provided by staff

FUTURE ARTERIAL IMPROVEMENTS

Development fees for transportation are derived using a plan-based approach for growth-related improvements, with vehicle miles of travel as the service units. Each component used to derive vehicle miles of travel is described below.

Trip Generation Rates

Pinal County's streets development fees use average weekday trip generation rates from the reference book *Trip Generation* published by the Institute of Transportation Engineers (ITE 2012). 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 streets development fees, trip generation rates require an adjustment factor to avoid double counting each trip at both the origin and destination points. Therefore, the basic trip adjustment factor is 50%. As discussed further below, the development fee methodology includes additional adjustments to make the fees proportionate to the infrastructure demand for particular types of development.

Adjustments for Commuting Patterns and Pass-By Trips

Residential development has a larger trip adjustment factor of 64% to account for commuters leaving Pinal County for work. According to the 2009 National Household Travel Survey (see Table 30) weekday work trips are typically 31% of production trips (i.e., all out-bound trips, which are 50% of all trip ends). As shown in Figure S6, the Census Bureau's web application OnTheMap indicates that 78.2% of resident workers traveled outside Pinal County for work in 2011. For the unincorporated area, 88% of resident workers traveled outside of Pinal County for work in 2011. In combination, these factors (0.31 x 0.50 x 0.88 = 0.14) support the additional 14% allocation of trips to residential development.

Figure S6: Inflow/Outflow Analysis

Inflow/Outflow Job Counts (All Jobs)

	2011 Count	2011 Share
Employed in the Selection Area	46,692	100.0%
Employed in the Selection Area but Living Outside	19,785	42.4%
Employed and Living in the Selection Area	26,907	57.6%
Living in the Selection Area	123,500	100.0%
Living in the Selection Area but Employed Outside	96,593	78.2%
Living and Employed in the Selection Area	26,907	21.8%

For commercial development, the trip adjustment factor is less than 50% because retail development attracts vehicles as they pass by on arterial and collector roads. For example, when someone stops at a convenience store on the way home from work, the convenience store is not the primary destination. For the average shopping center, ITE data 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 trip ends.

Vehicle Miles of Travel

A Vehicle Mile of Travel (VMT) is a measurement unit equal to one vehicle traveling one mile. In the aggregate, VMT is the product of vehicle trips multiplied by the average trip length. The average trip length by SFA is calibrated to the increase in vehicle trips from new development over the next ten years, assuming a lane capacity standard (discussed below), and the increase in lane miles by SFA based on the ten-year improvements plan.

Lane Capacity

Streets development fees are based on a lane capacity standard of 7,500 vehicles per lane. The lane capacity assumption was reviewed by County staff and found to be consistent with actual traffic counts on Pinal County arterials.

Trip Length Weighting Factor by Type of Land Use

The streets development fee methodology includes a percentage adjustment, or weighting factor, to account for trip length variation by type of land use. As documented in Table 6 of the 2009 National Household Travel Survey, vehicle trips from residential development are approximately 121% of the average trip length. The residential trip length adjustment factor includes data on home-based work trips, social, and recreational purposes. Conversely, shopping trips associated with commercial development are roughly 66% of the average trip length, while other nonresidential development typically accounts for trips that are 73% of the average for all trips.

North Central SFA

The relationship between the amount of development in the North Central SFA and planned system improvements is documented below. Figure S7 summarizes the input variables used to determine the average trip length on arterial improvements. In the table below HU means housing units, KSF means square feet of nonresidential development, in thousands, Institute of Transportation Engineers is abbreviated ITE, and VTE means vehicle trip ends. Trip generation rates by bedroom range are documented in Figures A11 and A12 and related text.

Projected development in the North Central SFA over the next ten years, and the corresponding need for additional lane miles, is shown in the middle section of Figure S7. Trip generation rates and trip adjustment factors convert projected development into average weekday vehicle trips. A typical vehicle trip, such as a person leaving their home and traveling to work, generally begins on a local street that connects to a collector street, which connects to an arterial road and eventually to a state or interstate highway. This progression of travel up and down the functional classification chain limits the average trip length determination, for the purpose of development fees, to the following question, "What is the average vehicle trip length on development fee system improvements?"

With the planned increase of 91 additional arterial lane-miles in the North Central SFA (see Figure S9) and a lane capacity standard of 7,500 vehicles per lane, the planned network has 682,500 vehicle miles of capacity (i.e., 7,500 vehicles per lane traveling the entire 91 lane miles). To derive the average utilization (i.e., average trip length expressed in miles) of planned system improvements, divide vehicle miles of capacity by the ten-year increase in vehicle trips attracted to development in the service area. As shown in the bottom-right corner of the table below, new development produces an increase of 44,360 average weekday vehicle trips over ten years. Dividing 682,500 vehicle miles of capacity by ten-year increase of 44,360 inbound average weekday vehicle trips yields an un-weighted average trip length of approximately 15.4 miles. However, the calibration of average trip length includes the same adjustment factors used in the impact fee calculations (i.e., journey-to-work commuting, pass-by adjustment and average trip length adjustment by type of land use). With these adjustments, TischlerBise determined the weighted-average trip length to be 13.14 miles.

Figure S7: North Travel Demand and Trip Length Calibration

	ITE Code	Dev Type	Weekday VTE	Dev Unit	Trip Adj	Trip Length Wt Factor
R1		0-1 Bedroom	3.72	HU	64%	1.21
R2		2 Bedrooms	5.63	HU	64%	1.21
R3		3 Bedrooms	6.85	HU	64%	1.21
R4		4+ Bedrooms	9.20	HU	64%	1.21
NR1	150	Industrial	3.56	KSF	50%	0.73
NR2	520	Institutional	15.43	KSF	33%	0.73
NR3	820	Commercial	42.70	KSF	33%	0.66
NR4	710	Office & Other	11.03	KSF	50%	0.73
Avg Trip Length (miles)	13.14					
Vehicle Capacity Per Lane	7,500					

Year->	*Base*	*1*	*2*	*3*	*4*	*5*	*10*	*10-Year*
North Central Streets Fee Area	***2014***	***2015***	***2016***	***2017***	***2018***	***2019***	***2024***	*Increase*
0-1 Bedroom (10% of units)	4,398	4,484	4,574	4,677	4,781	4,886	5,372	974
2 Bedrooms (22% of units)	9,236	9,417	9,606	9,821	10,040	10,260	11,282	2,046
3 Bedrooms (42% of units)	17,498	17,840	18,199	18,606	19,021	19,438	21,374	3,876
4+ Bedrooms (26% of units)	10,806	11,018	11,240	11,491	11,747	12,005	13,201	2,395
Industrial KSF	590	619	660	700	741	784	996	406
Institutional KSF	3,902	3,937	3,983	4,028	4,074	4,121	4,350	447
Commercial KSF	349	350	351	351	352	353	368	19
Office & Other Services KSF	249	253	258	263	268	273	305	56
0-1 Bedroom Trips	10,471	10,676	10,890	11,135	11,383	11,633	12,790	
2 Bedroom Trips	33,279	33,931	34,612	35,387	36,176	36,969	40,651	
3 Bedroom Trips	76,711	78,211	79,784	81,569	83,388	85,216	93,704	
4+ Bedroom Trips	63,626	64,874	66,181	67,659	69,166	70,685	77,727	
Industrial Trips	1,050	1,102	1,174	1,246	1,319	1,396	1,772	
Institutional Trips	19,869	20,045	20,283	20,513	20,744	20,981	22,147	
Commercial Trips	4,915	4,935	4,947	4,951	4,957	4,968	5,179	
Office & Other Services Trips	1,372	1,395	1,424	1,450	1,476	1,505	1,681	
Total Vehicle Trips	211,293	215,168	219,296	223,910	228,610	233,353	255,652	44,360
Vehicle Miles of Travel (VMT)	3,183,313	3,243,204	3,306,604	3,377,865	3,450,464	3,523,640	3,865,816	682,504
LANE MILES	424.4	432.4	440.9	450.4	460.1	469.8	515.4	91.0
							Ten-Year VMT Increase =>	17.7%

Planned transportation improvements are mapped in Figure S8 and listed in Figure S9. Even though the projects recommended for development fee funding are selected from the Transportation Improvement & Maintenance Program and long-range transportation plans, the "need" for transportation improvements is more difficult to determine for streets than for utility systems. The key difference is that water and sewer utilities are closed systems, but a street network is an open system. The demand for street capacity can be influenced by development units outside the service area and by what is known as "triple convergence." In essence, this concept acknowledges that transportation capacity is consumed by drivers changing their time, route, and mode of travel, with the latter being more significant in urban areas. Also, "traffic congestion" is a relative and more subjective measure that is closely connected with a person's willingness to pay. Given this complexity, the list of transportation improvements can be reduced by the Board of Supervisors during the public hearing process to eliminate lower priority projects, or lower growth shares (assuming additional funding is available from revenue sources other than impact fees). Conversely, if elected officials desire to expand the list of transportation improvements, proposed impact fees would increase proportionately.

Figure S8: Map of Improvements in North Central SFA

As shown in Figure S9, growth-related arterial improvements over the next ten years have a total cost of $91.9 million, with $44.9 million to be funded by development fees (48.8%). Development fee funding for each project is calculated by applying the growth share, provided by staff, to the estimated cost of

each project. When the cost for arterial improvements is allocated to future development, the truncated cost is $65 per VMT ($44.9 million / 682,504).

Figure S9: List of Street Improvements in North Central SFA

Project Description	*Start*	*End*	*Current*	*Proposed*	*Additional Travel Lane-Miles*	*Time-frame*	*Estimated Cost*	*Growth Share*	*Development Fee Funding*
Arizona Farms	Hunt Highway	Quail Run	2 lane AC	5 lanes	4	5 years	$4,357,221	25.0%	$1,089,300
Bella Vista	Gantzel	Quail Run	2 lane AC	4 lanes	6	10 years	$5,228,666	50.0%	$2,614,300
Combs	Kenworthy	Schnepf	2 lane AC	4 lanes	2	5 years	$1,742,889	50.0%	$871,400
Germann	Meridian	Ironwood	Dirt	5 lanes	4	5 years	$4,357,221	50.0%	$2,178,600
Hunt Highway	Arizona Farms	Gary			15	5 years	$20,000,000	50.0%	$10,000,000
Hunt Highway	Arizona Farms	Empire	Varies	7 lanes	18	10 years	$15,685,997	50.0%	$7,843,000
Ironwood	Bella Vista	IFA Boundary	5 lanes	7 lanes	23	10 years	$20,043,219	50.0%	$10,021,600
Ocotillo	Meridian	Schnepf	3 lane AC	5 lanes	6	5 years	$5,228,666	50.0%	$2,614,300
Pecos	Meridian	Ironwood		5 lanes	4	10 years	$4,357,221	50.0%	$2,178,600
Ray	Meridian	Ironwood	Dirt	5 lanes	4	5 years	$4,357,221	50.0%	$2,178,600
Skyline	Terminus	Schnepf	Dirt	3 lanes	4	5 years	$5,228,666	50.0%	$2,614,300
Thompson	Hunt Highway	Empire	Dirt	3 lanes	1	5 years	$1,307,166	50.0%	$653,600
					91		**$91,894,154**	**48.8%**	**$44,857,600**
					Funding from Other Revenue Sources =>			51.2%	$47,036,554

Input variables for the North Central SFA are shown in the upper section of Figure S10. VMT by type of development, multiplied by the capacity cost per vehicle mile of travel, yields the fee per development unit. To derive the fee for commercial development per 1,000 square feet of floor area, multiply the following factors from Figure S10.

42.70 weekday vehicle trip ends per 1,000 square feet
x
33% adjustment factor for inbound trips, including pass-by
x
13.14 average miles per trip
x
66% trip length adjustment factor for commercial development
x
$108 total cost per VMT
=
$13,197 per 1,000 square feet (truncated)

Figure S10: Fee Schedule in North Central SFA

North Central Streets Fee Area Input Variables

Average Miles per Trip	13.14
CIP Growth Cost	$44,857,600
VMT Increase Over Ten Years	682,504

	Future Arterials	*Ironwood Arterial Debt Service*	*Vehicles & Equipment*	*Support Facilities*	*Total*
Capital Cost per VMT	$65	$35	$7	$1	$108

Residential (per housing unit)

Development Type	*Avg Wkdy Veh Trip Ends**	*Trip Rate Adjustment*	*Trip Length Adjustment*	*North Central Streets Development Fees*	*Current Fee in IFA 1*	*Increase or (Decrease)*	*Percent Change*
1000 or less	3.18	64%	121%	**$3,494**	$3,752	-$258	-7%
1001 to 1500	5.18	64%	121%	**$5,692**	$7,197	-$1,505	-21%
1501 to 2100	6.85	64%	121%	**$7,527**	$7,197	$330	5%
2101 or more	7.26	64%	121%	**$7,978**	$7,197	$781	11%

** See Figure A13. Maximum fee limited to average for all single family housing.*

Nonresidential (per 1,000 Square Feet of Floor Area)

Development Type	*Avg Wkdy Veh Trip Ends***	*Trip Rate Adjustment*	*Trip Length Adjustment*	*North Central Streets Development Fees*	*Current Fee in IFA 1*	*Increase or (Decrease)*	*Percent Change*
Industrial	3.56	50%	73%	**$1,844**	$2,010	-$166	-8%
Institutional	15.43	33%	73%	**$5,274**	$4,470	$804	18%
Commercial	42.70	33%	66%	**$13,197**	$10,660	$2,537	24%
Office & Other Services	11.03	50%	73%	**$5,713**	$4,470	$1,243	28%

*** See Figure A6.*

The ten-year plan for North Central SFA street improvements has a growth cost of approximately $74.6 million to be funded by development fees. As shown in Figure S11, cumulative development fee revenue is approximately equal to the growth cost of improvements over the next ten years. A credit for other revenues is only necessary if there is potential double payment for system improvements. There is no potential double payment from other revenues because streets development fees will exclusively fund the growth share of system improvements.

Revenue projections shown below assume implementation of the proposed streets development fees and the development projections described in Appendix A. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the development fee revenue.

Figure S11: Projected Capital Costs and Fee Revenue in North Central SFA

Ten-Year Capital Cost in North Central Streets Fee Area

Growth Cost of Future Arterials =>	$44,857,600
Ironwood Debt Service =>	$24,342,000
Vehicles & Equipment =>	$4,797,000
Support Facilities =>	$609,000
	$74,605,600

Fee Revenue in North Central Streets Fee Area

	Year	***Average Residential*** **$7,538 per housing unit**	***Industrial*** **$1,844 per 1000 Sq Ft**	***Institutional*** **$5,274 per 1000 Sq Ft**	***Commercial*** **$13,197 per 1000 Sq Ft**	***Office & Other Services*** **$5,713 per 1000 Sq Ft**
		Hsg Units	*KSF*	*KSF*	*KSF*	*KSF*
Base	2014	41,938	590	3,902	349	249
Year 1	2015	42,759	619	3,937	350	253
Year 2	2016	43,619	660	3,983	351	258
Year 3	2017	44,595	700	4,028	351	263
Year 4	2018	45,589	741	4,074	352	268
Year 5	2019	46,588	784	4,121	353	273
Year 6	2020	47,572	828	4,168	354	278
Year 7	2021	48,452	870	4,214	357	285
Year 8	2022	49,356	912	4,259	361	292
Year 9	2023	50,285	954	4,304	364	298
Year 10	2024	51,229	996	4,350	368	305
Ten-Yr Increase		9,292	406	447	19	56
Projected Revenue =>		$70,041,000	$748,000	$2,360,000	$248,000	$321,000
					Total Projected Revenues - North Central IFA (rounded) =>	$73,718,000

South Central SFA

The relationship between the amount of development in the South Central SFA and planned system improvements is documented below. Figure S12 summarizes the input variables used to determine the average trip length on South Central SFA arterials. In the table below HU means housing units, KSF means square feet of nonresidential development, in thousands, Institute of Transportation Engineers is abbreviated ITE, and VTE means vehicle trip ends. Trip generation rates by bedroom range are documented in Figures A11 and A12 and related text.

Projected development in the South Central SFA over the next ten years, and the corresponding need for additional lane miles, is shown in the middle section of Figure S12. Trip generation rates and trip adjustment factors convert projected development into average weekday vehicle trips. A typical vehicle trip, such as a person leaving their home and traveling to work, generally begins on a local street that connects to a collector street, which connects to an arterial road and eventually to a state or interstate highway. This progression of travel up and down the functional classification chain limits the average trip length determination, for the purpose of development fees, to the following question, "What is the average vehicle trip length on development fee system improvements?"

With the planned increase of 56.4 additional arterial lane-miles in the South Central SFA (see Figure S14) and a lane capacity standard of 7,500 vehicles per lane, the planned network has 423,000 vehicle miles of capacity (i.e., 7,500 vehicles per lane traveling the entire 56.4 lane miles). To derive the average utilization (i.e., average trip length expressed in miles) of planned system improvements, divide vehicle miles of capacity by the ten-year increase in vehicle trips attracted to development in the service area. As shown in the bottom-right corner of the table below, new development produces an increase of 27,879 average weekday vehicle trips over ten years. Dividing 423,000 vehicle miles of capacity by ten-year increase of 27,879 inbound average weekday vehicle trips yields an un-weighted average trip length of approximately 15.2 miles. However, the calibration of average trip length includes the same adjustment factors used in the impact fee calculations (i.e., journey-to-work commuting, pass-by adjustment and average trip length adjustment by type of land use). With these adjustments, TischlerBise determined the weighted-average trip length to be 12.96 miles.

Figure S12: South Central Travel Demand and Trip Length Calibration

	ITE Code	Dev Type	Weekday VTE	Dev Unit	Trip Adj	Trip Length Wt Factor
R1		0-1 Bedroom	3.72	HU	64%	1.21
R2		2 Bedrooms	5.63	HU	64%	1.21
R3		3 Bedrooms	6.85	HU	64%	1.21
R4		4+ Bedrooms	9.20	HU	64%	1.21
NR1	150	Industrial	3.56	KSF	50%	0.73
NR2	520	Institutional	15.43	KSF	33%	0.73
NR3	820	Commercial	42.70	KSF	33%	0.66
NR4	710	Office & Other	11.03	KSF	50%	0.73
Avg Trip Length (miles)	12.96					
Vehicle Capacity Per Lane	7,500					

Year->	*Base*	*1*	*2*	*3*	*4*	*5*	*10*	*10-Year*
South Central Streets Fee Area	***2014***	***2015***	***2016***	***2017***	***2018***	***2019***	***2024***	*Increase*
0-1 Bedroom (10% of units)	2,712	2,786	2,822	2,863	2,904	2,946	3,323	611
2 Bedrooms (22% of units)	5,695	5,850	5,926	6,011	6,099	6,187	6,978	1,283
3 Bedrooms (42% of units)	10,789	11,083	11,226	11,389	11,555	11,722	13,221	2,432
4+ Bedrooms (26% of units)	6,663	6,845	6,933	7,034	7,136	7,239	8,165	1,502
Industrial KSF	2,517	2,543	2,559	2,575	2,591	2,609	2,773	255
Institutional KSF	279	309	328	346	364	383	560	281
Commercial KSF	216	217	217	218	218	218	231	15
Office & Other Services KSF	276	279	281	283	285	287	313	37
0-1 Bedroom Trips	6,457	6,633	6,719	6,816	6,914	7,014	7,911	
2 Bedroom Trips	20,520	21,079	21,353	21,659	21,976	22,293	25,143	
3 Bedroom Trips	47,299	48,588	49,215	49,929	50,657	51,389	57,961	
4+ Bedroom Trips	39,232	40,303	40,822	41,416	42,017	42,623	48,076	
Industrial Trips	4,481	4,526	4,555	4,583	4,613	4,643	4,935	
Institutional Trips	1,423	1,574	1,669	1,761	1,853	1,948	2,853	
Commercial Trips	3,042	3,059	3,064	3,066	3,068	3,073	3,250	
Office & Other Services Trips	1,521	1,541	1,552	1,562	1,573	1,584	1,725	
Total Vehicle Trips	123,975	127,302	128,947	130,793	132,671	134,568	151,854	27,879
Vehicle Miles of Travel (VMT)	1,876,248	1,926,968	1,951,888	1,980,007	2,008,612	2,037,477	2,298,970	422,722
LANE MILES	250.2	256.9	260.3	264.0	267.8	271.7	306.5	56.4
							Ten-Year VMT Increase =>	18.4%

Planned transportation improvements in the South Central SFA are mapped in Figure S13 and listed in Figure S14. Even though the projects recommended for development fee funding are selected from the Transportation Improvement & Maintenance Program and long-range transportation plans, the "need" for transportation improvements is more difficult to determine for streets than for utility systems. The key difference is that water and sewer utilities are closed systems, but a street network is an open system. The demand for street capacity can be influenced by development units outside the service area and by what is know as "triple convergence." In essence, this concept acknowledges that transportation capacity is consumed by drivers changing their time, route, and mode of travel, with the latter being more significant in urban areas. Also, "traffic congestion" is a relative and more subjective measure that is closely connected with a person's willingness to pay. Given this complexity, the list of transportation improvements can be reduced by the Board of Supervisors during the public hearing process to eliminate lower priority projects, or lower growth shares (assuming additional funding is available from revenue sources other than impact fees). Conversely, if elected officials desire to expand the list of transportation improvements, proposed impact fees would increase proportionately.

Figure S13: Map of Improvements in South Central SFA

As shown in Figure S14, growth-related arterial improvements over the next ten years have a total cost of $47.8 million, with $11.9 million to be funded by development fees (25%). Development fee funding for each project is calculated by applying the growth share, provided by staff, to the estimated cost of each project. When the growth cost of arterial improvements is allocated to future development, the truncated cost is $28 VMT ($11.9 million / 422,722). Proposed arterial improvements will enhance connectivity and relieve vehicular congestion, thus benefiting the entire service area.

Figure S14: List of Street Improvements in South Central SFA

Project Description	*Start*	*End*	*Current*	*Proposed*	*Additional Travel Lane-Miles*	*Time-frame*	*Estimated Cost*	*Growth Share*	*Development Fee Funding*
Battaglia	*Henness*	*City Limit*	2 lane ARDP	3 lanes	8	5 years	$9,171,315	25.0%	$2,292,800
McCartney	*I-10*	*Overfield*	2 lane AC	4 lanes	5	10 years	$3,821,381	25.0%	$955,300
Selma Highway	*Tweedy*	*SR 87*	2 lane AC	4 lanes	8	10 years	$6,114,210	25.0%	$1,528,600
Selma Highway	*Montgomery*	*Jimmie Kerr*	Dirt	2 lanes	17	10 years	$12,992,697	25.0%	$3,248,200
Sunland Gin	*Milligan*	*Houser*	2 lane AC	4 lanes	6	10 years	$4,585,658	25.0%	$1,146,400
Val Vista	*Avalon*	*Cox*	2 lane AC	4 lanes	4	10 years	$3,057,105	25.0%	$764,300
Mar.-Casa Grande Hwy	*IFA Boundary*	*CG City Limit*	2 lane ARDP	5 lanes	8.4	10 years	$8,024,901	25.0%	$2,006,200
				Total	**56.4**		**$47,767,268**	**25.0%**	**$11,941,800**
					Funding from Other Revenue Sources =>			75.0%	$35,825,468

Input variables for the South Central streets development fees are shown in the upper section of Figure S15. To derive the development fee for the industrial development per 1,000 square feet of floor area, multiply the following factors from Figure S15.

3.56 weekday vehicle trip ends per 1,000 square feet
x
50% adjustment factor for inbound trips
x
12.96 average miles per trip
x
73% trip length adjustment factor for industrial development
x
$36 total cost per VMT
=
$606 per 1,000 square feet (truncated)

Figure S15: Fee Schedule in South Central SFA

South Central Streets Fee Area Input Variables

Average Miles per Trip	12.96
CIP Growth Cost	$11,941,800
VMT Increase Over Ten Years	422,722

	Future Arterials	*Ironwood Arterial Debt Service*	*Vehicles & Equipment*	*Support Facilities*	*Total*
Capital Cost per VMT	$28	$0	$7	$1	$36

Residential (per housing unit)

Development Type	*Avg Wkdy Veh Trip Ends**	*Trip Rate Adjustment*	*Trip Length Adjustment*	*South Central Streets Development Fees*	*Current Fee in IFA 7*	*Increase or (Decrease)*	*Percent Change*
1000 or less	3.18	64%	121%	**$1,148**	$2,607	-$1,459	-56%
1001 to 1500	5.18	64%	121%	**$1,871**	$5,001	-$3,130	-63%
1501 to 2100	6.85	64%	121%	**$2,474**	$5,001	-$2,527	-51%
2101 or more	7.26	64%	121%	**$2,623**	$5,001	-$2,378	-48%

** See Figure A13. Maximum fee limited to average for all single family housing.*

Nonresidential (per 1,000 Square Feet of Floor Area)

Development Type	*Avg Wkdy Veh Trip Ends***	*Trip Rate Adjustment*	*Trip Length Adjustment*	*South Central Streets Development Fees*	*Current Fee in IFA 7*	*Increase or (Decrease)*	*Percent Change*
Industrial	3.56	50%	73%	**$606**	$1,430	-$824	-58%
Institutional	15.43	33%	73%	**$1,734**	$3,180	-$1,446	-45%
Commercial	42.70	33%	66%	**$4,339**	$7,640	-$3,301	-43%
Office & Other Services	11.03	50%	73%	**$1,878**	$3,180	-$1,302	-41%

*** See Figure A6.*

The ten-year plan for South Central street improvements has a growth cost of approximately $15.3 million to be funded by development fees. As shown in Figure S16, cumulative development fee revenue is approximately equal to the growth cost of improvements over the next ten years. A credit for other revenues is only necessary if there is potential double payment for system improvements. There is no potential double payment from other revenues because streets development fees will exclusively fund the growth share of system improvements.

Revenue projections shown below assume implementation of the proposed streets development fees and the development projections described in Appendix A. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the development fee revenue.

Figure S16: Projected Capital Costs and Fee Revenue in South Central SFA

Ten-Year CIP in South Central Streets Fee Area

Growth Cost of Future Arterials =>	$11,942,000
Ironwood Debt Service =>	$0
Vehicles & Equipment =>	$2,971,000
Support Facilities =>	$377,000
	$15,290,000

Fee Revenue in South Central Streets Fee Area

		Average Residential **$2,478**	***Industrial*** **$606**	***Institutional*** **$1,734**	***Commercial*** **$4,339**	***Office & Other Services*** **$1,878**
	Year	**per housing unit**	**per 1000 Sq Ft**	**per 1000 Sq Ft**	**per 1000 Sq Ft**	**per 1000 Sq Ft**
		Hsg Units	*KSF*	*KSF*	*KSF*	*KSF*
Base	2014	25,858	2,517	279	216	276
Year 1	2015	26,562	2,543	309	217	279
Year 2	2016	26,907	2,559	328	217	281
Year 3	2017	27,297	2,575	346	218	283
Year 4	2018	27,694	2,591	364	218	285
Year 5	2019	28,094	2,609	383	218	287
Year 6	2020	28,488	2,626	402	219	289
Year 7	2021	29,257	2,663	441	222	295
Year 8	2022	30,049	2,699	481	225	301
Year 9	2023	30,861	2,736	521	228	307
Year 10	2024	31,688	2,773	560	231	313
Ten-Yr Increase		5,829	255	281	15	37
Projected Revenue =>		$14,445,000	$155,000	$487,000	$64,000	$70,000
					Total Projected Revenues in South Central IFA (rounded) =>	$15,221,000

East SFA

The relationship between the amount of development in the East SFA and planned system improvements is documented below. Figure S17 summarizes the input variables used to determine the average trip length on East SFA arterials. In the table below HU means housing units, KSF means square feet of nonresidential development, in thousands, Institute of Transportation Engineers is abbreviated ITE, and VTE means vehicle trip ends. Trip generation rates by bedroom range are documented in Figures A11 and A12 and related text.

Projected development in the East SFA over the next ten years, and the corresponding need for additional lane miles, is shown in the middle section of Figure S17. Trip generation rates and trip adjustment factors convert projected development into average weekday vehicle trips. A typical vehicle trip, such as a person leaving their home and traveling to work, generally begins on a local street that connects to a collector street, which connects to an arterial road and eventually to a state or interstate highway. This progression of travel up and down the functional classification chain limits the average trip length determination, for the purpose of development fees, to the following question, "What is the average vehicle trip length on development fee system improvements?"

With the planned increase of four additional arterial lane-miles in the East SFA (see Figure S19) and a lane capacity standard of 7,500 vehicles per lane, the planned network has 30,000 vehicle miles of capacity (i.e., 7,500 vehicles per lane traveling the entire 4 lane miles). To derive the average utilization (i.e., average trip length expressed in miles) of planned system improvements, divide vehicle miles of capacity by the ten-year increase in vehicle trips attracted to development in the service area. As shown in the bottom-right corner of the table below, new development produces an increase of 12,072 average weekday vehicle trips over ten years. Dividing 30,000 vehicle miles of capacity by ten-year increase of 12,072 inbound average weekday vehicle trips yields an un-weighted average trip length of approximately 2.5 miles. However, the calibration of average trip length includes the same adjustment factors used in the impact fee calculations (i.e., journey-to-work commuting, pass-by adjustment and average trip length adjustment by type of land use). With these adjustments, TischlerBise determined the weighted-average trip length to be 2.12 miles.

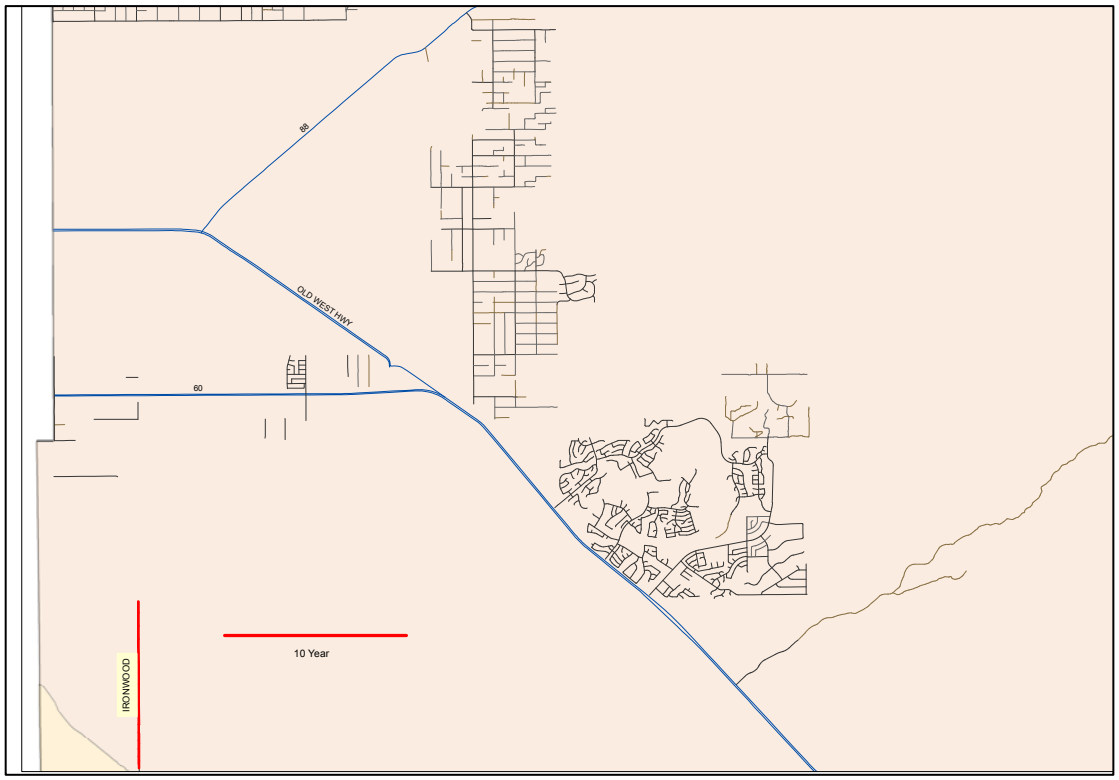
Figure S17: East Travel Demand and Trip Length Calibration

	ITE Code	Dev Type	Weekday VTE	Dev Unit	Trip Adj	Trip Length Wt Factor
R1		0-1 Bedroom	3.72	HU	64%	1.21
R2		2 Bedrooms	5.63	HU	64%	1.21
R3		3 Bedrooms	6.85	HU	64%	1.21
R4		4+ Bedrooms	9.20	HU	64%	1.21
NR1	150	Industrial	3.56	KSF	50%	0.73
NR2	520	Institutional	15.43	KSF	33%	0.73
NR3	820	Commercial	42.70	KSF	33%	0.66
NR4	710	Office & Other	11.03	KSF	50%	0.73
Avg Trip Length (miles)	2.12					
Vehicle Capacity Per Lane	7,500					

Year->	*Base*	*1*	*2*	*3*	*4*	*5*	*10*	*10-Year*
East Streets Fee Area	***2014***	***2015***	***2016***	***2017***	***2018***	***2019***	***2024***	*Increase*
0-1 Bedroom (10% of units)	1,049	1,078	1,099	1,123	1,147	1,172	1,308	259
2 Bedrooms (22% of units)	2,203	2,263	2,307	2,358	2,409	2,460	2,747	544
3 Bedrooms (42% of units)	4,173	4,288	4,372	4,467	4,564	4,661	5,204	1,031
4+ Bedrooms (26% of units)	2,577	2,648	2,700	2,759	2,819	2,879	3,214	637
Industrial KSF	560	572	584	597	609	622	698	138
Institutional KSF	221	235	249	263	277	291	373	152
Commercial KSF	259	260	260	260	260	261	266	7
Office & Other Services KSF	230	232	234	235	236	238	250	19
0-1 Bedroom Trips	2,497	2,567	2,616	2,674	2,731	2,790	3,114	
2 Bedroom Trips	7,938	8,154	8,313	8,496	8,680	8,864	9,898	
3 Bedroom Trips	18,294	18,799	19,167	19,583	20,009	20,434	22,814	
4+ Bedroom Trips	15,173	15,591	15,898	16,245	16,598	16,952	18,924	
Industrial Trips	996	1,019	1,040	1,062	1,084	1,107	1,242	
Institutional Trips	1,124	1,199	1,270	1,339	1,409	1,480	1,899	
Commercial Trips	3,652	3,661	3,665	3,666	3,668	3,671	3,749	
Office & Other Services Trips	1,270	1,280	1,289	1,296	1,304	1,313	1,377	
Total Vehicle Trips	50,945	52,269	53,257	54,362	55,482	56,610	63,017	12,072
Vehicle Miles of Travel (VMT)	122,977	126,253	128,680	131,412	134,183	136,967	152,683	29,706
LANE MILES	16.4	16.8	17.2	17.5	17.9	18.3	20.4	4.0
							Ten-Year VMT Increase =>	19.5%

Planned transportation improvements are mapped in Figure S18 and listed in Figure S19. Even though the projects recommended for development fee funding are selected from the Transportation Improvement & Maintenance Program and long-range transportation plans, the "need" for transportation improvements is more difficult to determine for streets than for utility systems. The key difference is that water and sewer utilities are closed systems, but a street network is an open system. The demand for street capacity can be influenced by development units outside the service area and by what is know as "triple convergence." In essence, this concept acknowledges that transportation capacity is consumed by drivers changing their time, route, and mode of travel, with the latter being more significant in urban areas. Also, "traffic congestion" is a relative and more subjective measure that is closely connected with a person's willingness to pay. Given this complexity, the list of transportation improvements can be reduced by the Board of Supervisors during the public hearing process to eliminate lower priority projects, or lower growth shares (assuming additional funding is available from revenue sources other than impact fees). Conversely, if elected officials desire to expand the list of transportation improvements, proposed impact fees would increase proportionately.

Figure S18: Map of Improvements in East SFA



As shown in Figure S19, growth-related arterial improvements over the next ten years have a total cost of $3.2 million, with $1.6 million to be funded by development fees (50%). When the cost for arterial improvements is allocated to future development, the truncated cost is $54 per VMT ($1.6 million / 29,706).

Figure S19: List of Street Improvements in East SFA

Project Description	*Start*	*End*	*Current*	*Proposed*	*Additional Travel Lane-Miles*	*Time-frame*	*Estimated Cost*	*Growth Share*	*Impact Fee Funding*
Ironwood	IFA Boundary	City Limit	5 lanes	7 lanes	4	10 years	$3,216,286	50.0%	$1,608,100
				Total	**4**		**$3,216,286**	**50.0%**	**$1,608,100**
					Funding from Other Revenue Sources =>			50.0%	$1,608,186

Input variables for the East SFA are shown in the upper section of Figure S20. To derive the development fee for the smallest residential unit, multiply the following factors from Figure S20.

3.18 weekday vehicle trip ends per dwelling
x
64% adjustment factor for inbound trips with commuting adjustment
x
2.12 average miles per trip
x
121% trip length adjustment factor for residential development
x
$204 total cost per VMT
=
$1,065 per dwelling (truncated)

The far-right column indicates updated streets development fee without the cost of future arterials and Ironwood Road debt service. New development in the "excluded area" (see the map in Figure A3) only pays for support facilities, vehicles, and equipment.

Figure S20: Fee Schedule in East SFA

East Streets Fee Area Input Variables

Average Miles per Trip	2.12
CIP Growth Cost	$1,608,100
VMT Increase Over Ten Years	29,706

	Future Arterials	*Ironwood Arterial Debt Service*	*Vehicles & Equipment*	*Support Facilities*	*Total*
Capital Cost per VMT	$54	$142	$7	$1	$204

Residential (per housing unit)

Development Type	*Avg Wkdy Veh Trip Ends**	*Trip Rate Adjustment*	*Trip Length Adjustment*	*Streets Fee with Arterials*	*Current Fee in IFA 1*	*Increase or (Decrease)*	*Percent Change*	*Streets Fee without Arterials*
1000 or less	3.18	64%	121%	**$1,065**	$3,752	-$2,687	-72%	**$41**
1001 to 1500	5.18	64%	121%	**$1,734**	$7,197	-$5,463	-76%	**$68**
1501 to 2100	6.85	64%	121%	**$2,294**	$7,197	-$4,903	-68%	**$89**
2101 or more	7.26	64%	121%	**$2,431**	$7,197	-$4,766	-66%	**$95**

** See Figure A13. Maximum fee limited to average for all single family housing.*

Nonresidential (per 1,000 Square Feet of Floor Area)

Development Type	*Avg Wkdy Veh Trip Ends***	*Trip Rate Adjustment*	*Trip Length Adjustment*	*Streets Fee with Arterials*	*Current Fee in IFA 1*	*Increase or (Decrease)*	*Percent Change*	*Streets Fee without Arterials*
Industrial	3.56	50%	73%	**$561**	$2,010	-$1,449	-72%	**$22**
Institutional	15.43	33%	73%	**$1,607**	$4,470	-$2,863	-64%	**$63**
Commercial	42.70	33%	66%	**$4,022**	$10,660	-$6,638	-62%	**$157**
Office & Other Services	11.03	50%	73%	**$1,741**	$4,470	-$2,729	-61%	**$68**

*** See Figure A6.*

The ten-year plan for East street improvements has a growth cost of approximately $6.1 million to be funded by development fees. As shown in Figure S21, cumulative development fee revenue is approximately equal to the growth cost of improvements over the next ten years. A credit for other revenues is only necessary if there is potential double payment for system improvements. There is no potential double payment from other revenues because streets development fees will exclusively fund the growth share of system improvements.

Revenue projections shown below assume implementation of the proposed streets development fees and the development projections described in Appendix A. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the development fee revenue.

Figure S21: Projected Capital Costs and Fee Revenue in East SFA

Ten-Year Capital Cost in East Streets Fee Area

Growth Cost of Future Arterials =>	$1,608,100
Ironwood Debt Service =>	$4,233,000
Vehicles & Equipment =>	$209,000
Support Facilities =>	$27,000
	$6,077,100

Fee Revenue in East Streets Fee Area

		Average Residential **$2,297**	***Industrial*** **$561**	***Institutional*** **$1,607**	***Commercial*** **$4,022**	***Office & Other Services*** **$1,741**
	Year	**per housing unit**	**per 1000 Sq Ft**	**per 1000 Sq Ft**	**per 1000 Sq Ft**	**per 1000 Sq Ft**
		Hsg Units	*KSF*	*KSF*	*KSF*	*KSF*
Base	2014	10,002	560	221	259	230
Year 1	2015	10,276	572	235	260	232
Year 2	2016	10,478	584	249	260	234
Year 3	2017	10,706	597	263	260	235
Year 4	2018	10,939	609	277	260	236
Year 5	2019	11,172	622	291	261	238
Year 6	2020	11,403	635	305	261	240
Year 7	2021	11,660	651	322	262	242
Year 8	2022	11,924	666	339	263	245
Year 9	2023	12,196	682	356	265	247
Year 10	2024	12,472	698	373	266	250
Ten-Yr Increase		2,471	138	152	7	19
Projected Revenue =>		$5,675,000	$77,000	$245,000	$28,000	$34,000
					Total Projected Revenues - East IFA (rounded) =>	$6,059,000

West SFA

The relationship between the amount of development in the West SFA and planned system improvements is documented below. Figure S22 summarizes the input variables used to determine the average trip length on East SFA arterials. In the table below HU means housing units, KSF means square feet of nonresidential development, in thousands, Institute of Transportation Engineers is abbreviated ITE, and VTE means vehicle trip ends. Trip generation rates by bedroom range are documented in Figures A11 and A12 and related text.

Projected development in the West SFA over the next ten years, and the corresponding need for additional lane miles, is shown in the middle section of Figure S22. Trip generation rates and trip adjustment factors convert projected development into average weekday vehicle trips. A typical vehicle trip, such as a person leaving their home and traveling to work, generally begins on a local street that connects to a collector street, which connects to an arterial road and eventually to a state or interstate highway. This progression of travel up and down the functional classification chain limits the average trip length determination, for the purpose of development fees, to the following question, "What is the average vehicle trip length on development fee system improvements?"

With the planned increase of 17.2 additional arterial lane-miles in the West SFA (see Figure S24) and a lane capacity standard of 7,500 vehicles per lane, the planned network has 129,000 vehicle miles of capacity (i.e., 7,500 vehicles per lane traveling the entire 17.2 lane miles). To derive the average utilization (i.e., average trip length expressed in miles) of planned system improvements, divide vehicle miles of capacity by the ten-year increase in vehicle trips attracted to development in the service area. As shown in the bottom-right corner of the table below, new development produces an increase of 13,478 average weekday vehicle trips over ten years. Dividing 129,000 vehicle miles of capacity by ten-year increase of 13,478 inbound average weekday vehicle trips yields an un-weighted average trip length of approximately 9.57 miles. However, the calibration of average trip length includes the same adjustment factors used in the impact fee calculations (i.e., journey-to-work commuting, pass-by adjustment and average trip length adjustment by type of land use). With these adjustments, TischlerBise determined the weighted-average trip length to be 8.15 miles.

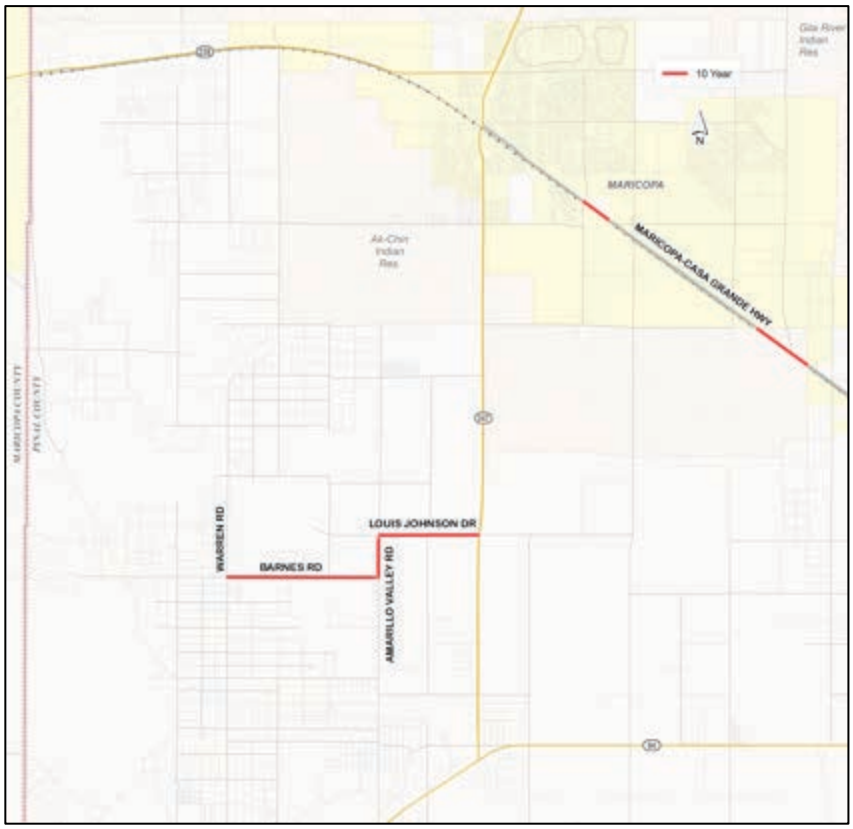
Figure S22: West Travel Demand and Trip Length Calibration

	ITE Code	Dev Type	Weekday VTE	Dev Unit	Trip Adj	Trip Length Wt Factor
R1		0-1 Bedroom	3.72	HU	64%	1.21
R2		2 Bedrooms	5.63	HU	64%	1.21
R3		3 Bedrooms	6.85	HU	64%	1.21
R4		4+ Bedrooms	9.20	HU	64%	1.21
NR1	150	Industrial	3.56	KSF	50%	0.73
NR2	520	Institutional	15.43	KSF	33%	0.73
NR3	820	Commercial	42.70	KSF	33%	0.66
NR4	710	Office & Other	11.03	KSF	50%	0.73
Avg Trip Length (miles)	8.15					
Vehicle Capacity Per Lane	7,500					

Year->	*Base*	*1*	*2*	*3*	*4*	*5*	*10*	*10-Year*
West Streets Fee Area	***2014***	***2015***	***2016***	***2017***	***2018***	***2019***	***2024***	*Increase*
0-1 Bedroom (10% of units)	527	576	603	634	665	696	823	296
2 Bedrooms (22% of units)	1,106	1,209	1,266	1,331	1,396	1,462	1,729	623
3 Bedrooms (42% of units)	2,096	2,291	2,399	2,521	2,646	2,771	3,275	1,179
4+ Bedrooms (26% of units)	1,294	1,415	1,482	1,557	1,634	1,711	2,023	729
Industrial KSF	713	730	742	754	767	779	835	121
Institutional KSF	703	722	736	750	764	778	837	135
Commercial KSF	32	32	33	33	33	33	37	5
Office & Other Services KSF	298	301	302	303	305	306	315	17
0-1 Bedroom Trips	1,255	1,371	1,436	1,509	1,583	1,657	1,959	
2 Bedroom Trips	3,985	4,356	4,562	4,796	5,030	5,268	6,230	
3 Bedroom Trips	9,189	10,044	10,517	11,052	11,600	12,148	14,358	
4+ Bedroom Trips	7,619	8,332	8,726	9,168	9,621	10,074	11,911	
Industrial Trips	1,269	1,299	1,321	1,343	1,364	1,387	1,485	
Institutional Trips	3,578	3,679	3,750	3,819	3,889	3,960	4,263	
Commercial Trips	445	457	460	462	463	467	520	
Office & Other Services Trips	1,644	1,657	1,666	1,674	1,682	1,690	1,736	
Total Vehicle Trips	28,985	31,195	32,438	33,822	35,232	36,651	42,463	13,478
Vehicle Miles of Travel (VMT)	258,443	279,624	291,468	304,726	318,239	331,816	387,140	128,697
LANE MILES	34.5	37.3	38.9	40.6	42.4	44.2	51.6	17.2
							Ten-Year VMT Increase =>	33.2%

Planned transportation improvements are mapped in Figure S23 and listed in Figure S24. Even though the projects recommended for development fee funding are selected from the Transportation Improvement & Maintenance Program and long-range transportation plans, the "need" for transportation improvements is more difficult to determine for streets than for utility systems. The key difference is that water and sewer utilities are closed systems, but a street network is an open system. The demand for street capacity can be influenced by development units outside the service area and by what is know as "triple convergence." In essence, this concept acknowledges that transportation capacity is consumed by drivers changing their time, route, and mode of travel, with the latter being more significant in urban areas. Also, "traffic congestion" is a relative and more subjective measure that is closely connected with a person's willingness to pay. Given this complexity, the list of transportation improvements can be reduced by the Board of Supervisors during the public hearing process to eliminate lower priority projects, or lower growth shares (assuming additional funding is available from revenue sources other than impact fees). Conversely, if elected officials desire to expand the list of transportation improvements, proposed impact fees would increase proportionately.

Figure S23: Map of Improvements in West SFA



As shown in Figure S24, growth-related arterial improvements over the next ten years have a total cost of $13.2 million, with $3.3 million to be funded by development fees (25%) and the other 75% to be funded from other revenues. Development fee funding for each project is calculated by applying the growth share, provided by staff, to the estimated cost of each project. Allocating the cost of arterial improvements to future development yields a truncated cost of $25 per VMT ($3.3 million / 128,697).

Figure S24: List of Street Improvements in West SFA

Project Description	*Start*	*End*	*Current*	*Proposed*	*Additional Travel Lane-Miles*	*Time-frame*	*Estimated Cost*	*Growth Share*	*Development Fee Funding*
Barnes	*Warren*	*Amarillo Valley*	Dirt	2 lanes	6	10 years	$4,265,658	25.0%	$1,066,400
Amarillo Valley	*Barnes*	*Louis Johnson*	Dirt	2 lanes	2	10 years	$1,421,886	25.0%	$355,500
Louis Johnson	*Amarillo Valley*	*SR 347*	Dirt	2 lanes	4	10 years	$2,843,772	25.0%	$710,900
Mar.-Casa Grande Hwy	*Maricopa City Limit*	*IFA Boundary*	2 lane ARDP	5 lanes	5.2	10 years	$4,621,129	25.0%	$1,155,300
				Total	**17.2**		**$13,152,444**	**25.0%**	**$3,288,100**
						Funding from Other Revenue Sources =>		75.0%	$9,864,344

Input variables for the West SFA are shown in the upper section of Figure S25. To derive the development fee for the largest residential unit, multiply the following factors from Figure S25.

7.26 weekday vehicle trip ends per dwelling
x
64% adjustment factor for inbound trips with commuting adjustment
x
8.15 average miles per trip
x
121% trip length adjustment factor for residential development
x
$33 total cost per VMT
=
$1,512 per dwelling (truncated)

Figure S25: Fee Schedule in West SFA

West Streets Fee Area Input Variables

Average Miles per Trip	8.15
CIP Growth Cost	$3,288,100
VMT Increase Over Ten Years	128,697

	Future Arterials	*Ironwood Arterial Debt Service*	*Vehicles & Equipment*	*Support Facilities*	*Total*
Capital Cost per VMT	$25	$0	$7	$1	$33

Residential (per housing unit)

Development Type	*Avg Wkdy Veh Trip Ends**	*Trip Rate Adjustment*	*Trip Length Adjustment*	*West Streets Development Fees*	*Current Fee in IFA 2*	*Increase or (Decrease)*	*Percent Change*
1000 or less	3.18	64%	121%	**$662**	$4,344	-$3,682	-85%
1001 to 1500	5.18	64%	121%	**$1,078**	$8,331	-$7,253	-87%
1501 to 2100	6.85	64%	121%	**$1,426**	$8,331	-$6,905	-83%
2101 or more	7.26	64%	121%	**$1,512**	$8,331	-$6,819	-82%

** See Figure A13. Maximum fee limited to average for all single family housing.*

Nonresidential (per 1,000 Square Feet of Floor Area)

Development Type	*Avg Wkdy Veh Trip Ends***	*Trip Rate Adjustment*	*Trip Length Adjustment*	*West Streets Development Fees*	*Current Fee in IFA 2*	*Increase or (Decrease)*	*Percent Change*
Industrial	3.56	50%	73%	**$349**	$2,310	-$1,961	-85%
Institutional	15.43	33%	73%	**$999**	$5,130	-$4,131	-81%
Commercial	42.70	33%	66%	**$2,501**	$12,210	-$9,709	-80%
Office & Other Services	11.03	50%	73%	**$1,082**	$5,130	-$4,048	-79%

*** See Figure A6.*

The ten-year plan for West SFA street improvements has a growth cost of approximately $4.3 million to be funded by development fees. As shown in Figure S26, cumulative development fee revenue is approximately equal to the growth cost of improvements over the next ten years. A credit for other revenues is only necessary if there is potential double payment for system improvements. There is no potential double payment from other revenues because streets development fees will exclusively fund the growth share of system improvements.

Revenue projections shown below assume implementation of the proposed streets development fees and the development projections described in Appendix A. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the development fee revenue.

Figure S26: Projected Capital Costs and Fee Revenue in West SFA

Ten-Year Capital Cost in West Streets Fee Area

Growth Cost of Future Arterials =>	$3,288,100
Ironwood Debt Service =>	$0
Vehicles & Equipment =>	$905,000
Support Facilities =>	$115,000
	$4,308,100

Fee Revenue in West Streets Fee Area

		Average Residential **$1,428** **per housing unit**	***Industrial*** **$349** **per 1000 Sq Ft**	***Institutional*** **$999** **per 1000 Sq Ft**	***Commercial*** **$2,501** **per 1000 Sq Ft**	***Office & Other Services*** **$1,082** **per 1000 Sq Ft**
	Year	*Hsg Units*	*KSF*	*KSF*	*KSF*	*KSF*
Base	2014	5,022	713	703	32	298
Year 1	2015	5,492	730	722	32	301
Year 2	2016	5,750	742	736	33	302
Year 3	2017	6,043	754	750	33	303
Year 4	2018	6,341	767	764	33	305
Year 5	2019	6,641	779	778	33	306
Year 6	2020	6,936	793	792	33	308
Year 7	2021	7,156	803	803	34	310
Year 8	2022	7,382	814	815	35	311
Year 9	2023	7,614	824	826	36	313
Year 10	2024	7,850	835	837	37	315
Ten-Yr Increase		2,828	121	135	5	17
Projected Revenue =>		$4,038,000	$42,000	$134,000	$13,000	$18,000
					Total Projected Revenues in West IFA (rounded) =>	$4,245,000

APPENDIX A: LAND USE ASSUMPTIONS

Supporting documentation on population, housing units, jobs, and nonresidential floor area is essential in order to update development fees for Pinal County. Although long-range projections are necessary for planning capital improvements, a shorter time frame of five to ten years is critical for the development fee analysis. In Pinal County the fiscal year begins on July 1st.

SUMMARY OF GROWTH INDICATORS

Development projections and growth rates are summarized in Figure A1. These projections will be used to estimate development fee revenue and to indicate the anticipated need for growth-related infrastructure. If actual development is slower than projected, development fees revenues will also decline, but so will the need for growth-related infrastructure. In contrast, if development is faster than anticipated, the County will receive an increase in development fee revenue, but will also need to accelerate the capital improvements program to keep pace with development. In other words, proportionate-share fee amounts are generally based on the cost of infrastructure per development unit, thus minimizing sensitivity to precise development projections.

Pinal County data for the demographic analysis and development projections include 2010 census counts of population and housing units and 2013 1-year American Community Survey data. The projected countywide long-range increase in permanent population is based on low range projections from the Arizona Department of Administration's (AZDA) Office of Employment & Population Statistics. Projected countywide population in housing units was calculated by subtracting the population in Group Quarters from the AZDA Low Series Population Projections (Total Population). Because TischlerBise recommends a 3-5 year update cycle for development fees, the development fee study does not vary the persons per housing unit ratio over time, nor assume any change to the residential vacancy rate in Pinal County. At the time of the 2013 ACS estimate, approximately 22% of the housing stock in Pinal County was vacant or only used seasonally. To calculate housing units, the population in housing units is divided by the 2013 average of 2.24 year-round residents per housing unit. The compound growth rate from 2014 to 2019 for countywide housing unit growth equals 2.89%. During the same period, housing unit growth in incorporated places is 3.63%, and the unincorporated area housing unit growth rate is 2.19 %.

Nonresidential floor area in 2011 is based on 2011 jobs estimates from the U.S. Census Bureau's OnTheMap web application. The development fee study assumes a continued increase in the percentage of County jobs located within incorporated places. Projected jobs within Pinal County are based on Woods & Poole Economics (2010) projections and are converted to nonresidential floor area using average square-feet-per-employee multipliers. For nonresidential development in Pinal County, the development fee study assumes a compound annual growth rate of 2.16% from 2014 to 2019 and 1.32% in the unincorporated area.

Figure A1: Development Projections and Growth Rates

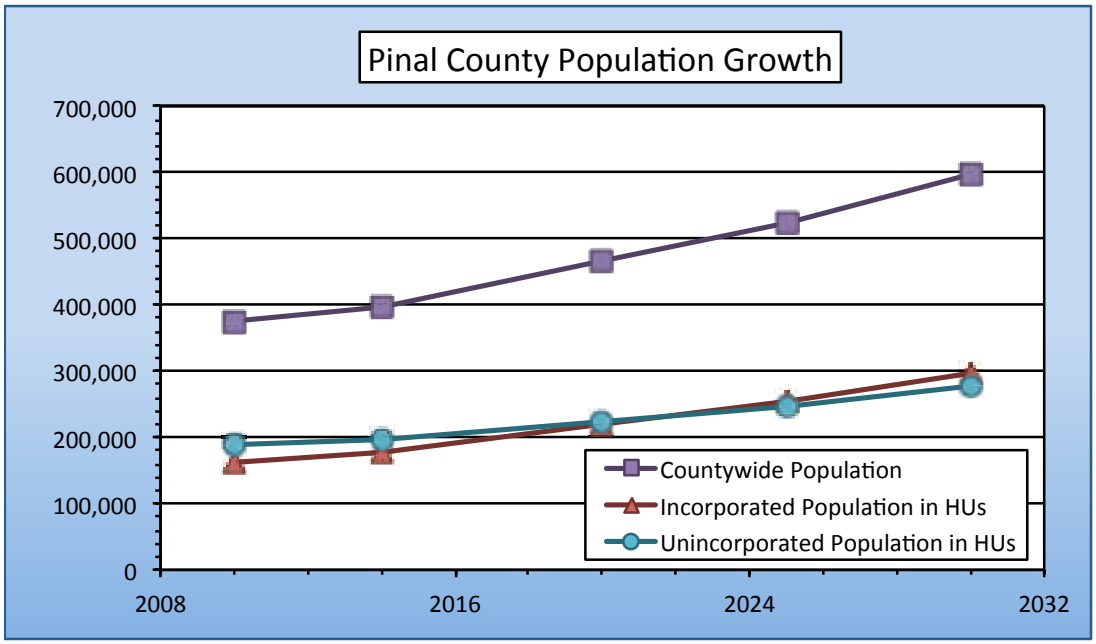
								2014 to 2019 Average Annual	
Housing Units	***2014***	***2015***	***2016***	***2017***	***2018***	***2019***	***2024***	***Increase***	***Compound Growth Rate***
Countywide	167,333	172,951	177,467	182,564	187,751	192,938	219,542	**5,121**	**2.89%**
Incorporated Places	79,967	83,238	86,033	89,179	92,378	95,566	111,060	**3,120**	**3.63%**
Unincorporated Area	87,366	89,713	91,434	93,385	95,373	97,372	108,482	**2,001**	**2.19%**
Nonresidential Floor Area (square feet in thousands = KSF)									
Countywide KSF	34,290	35,045	35,809	36,583	37,364	38,156	42,263	**773**	**2.16%**
Incorporated Places KSF	21,793	22,350	22,927	23,520	24,118	24,719	27,656	**585**	**2.55%**
Unincorporated Area KSF	12,497	12,695	12,882	13,063	13,247	13,437	14,607	**188**	**1.46%**

POPULATION FORECAST

Figure A2 indicates the unincorporated area's share of countywide population over time. The ratio of Pinal County's incorporated to unincorporated population—as projected by the Central Arizona Governments' Incorporated Place Level Population Projections (2010-2040)—is applied to the countywide population discussed above to determine the population in housing units. Since over 95% of the group quarters population (2010 Census) resides in census tracts located within incorporated places, population in Group Quarters is subtracted from the incorporated places' share of countywide population. This provides the population in housing units in incorporated places. According to these projections, the share of Pinal County's population in the unincorporated area decreases from 49.8% in 2010 to 46.7% in 2030.

Figure A2: Population Share

Area	2010	2014	2020	2025	2030
Countywide Population	375,770	396,237	464,900	525,900	596,000
Group Quarters Population	26,245	22,003	22,003	22,003	22,003
Incorporated Population in Housing Units	162,302	178,843	220,729	255,773	295,851
Unincorporated Population in Housing Units	187,223	195,391	222,168	248,124	278,146
Unincorporated Share of Total Population	**49.8%**	**49.3%**	**47.8%**	**47.2%**	**46.7%**



Sources: Population in housing units calculated by removing group quarters population from Arizona Department of Administration, Office of Employment & Population Statistics, Low Series Population Projections 2012 to 2050, 12/07/2012. Ratio of incorporated population to unincorporated population from the CAG Incorporated Place Level Population Projections (2010-2040) used to determine population in housing units by area.

Figure A3 indicates proposed Streets Fee Areas (SFAs) for the 2015 street fee. Cross-hatching indicates areas excluded from streets development fees related to arterials. These are areas of low population density where insignificant development is expected over the next five to ten years. SFAs are based on 2010 census tracts.

Figure A3: Map of 2015 Streets Fee Areas

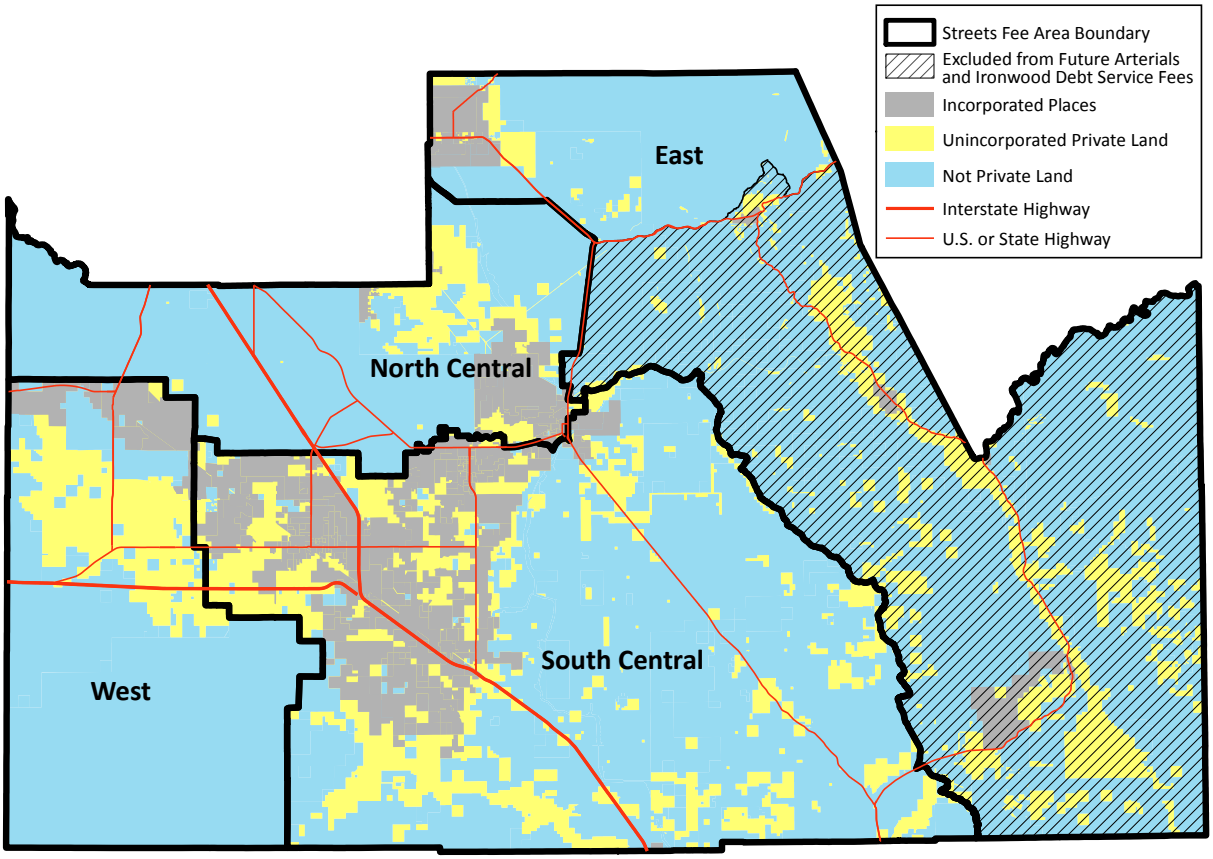
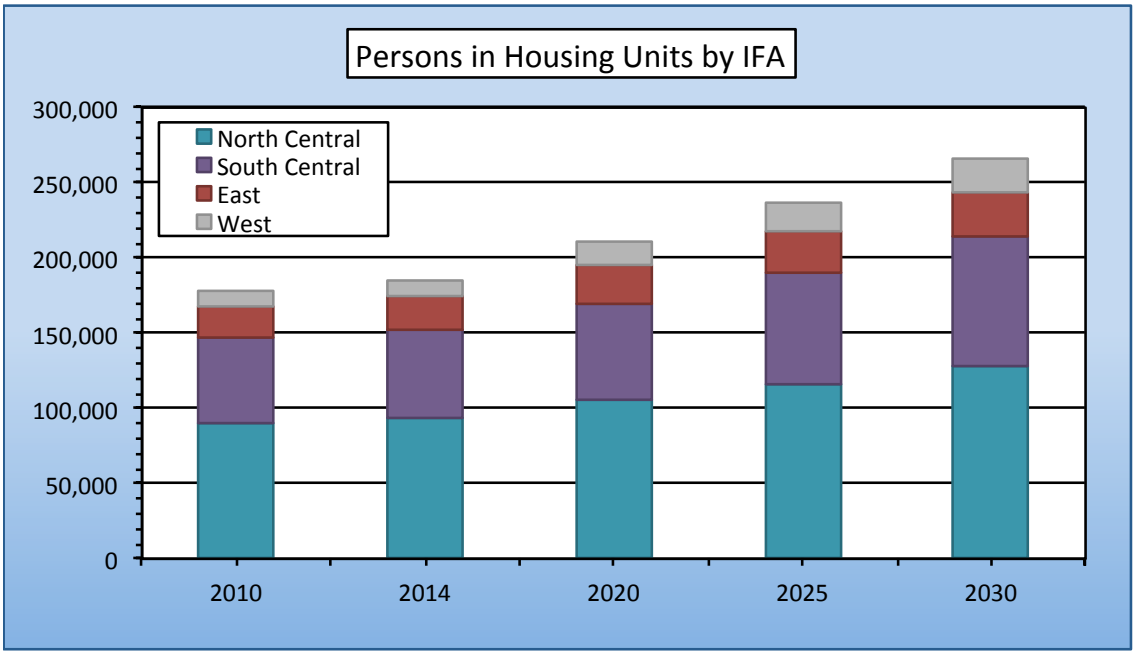


Figure A4 shows population estimates and projections for each Streets Fee Area. The total increase in service area population (see Figure 2) is allocated to four geographic sub-areas by County staff in five-year increments. From 2010 to 2015, the capture ratio for each subarea (i.e. percentage allocation) is based on building permit activity over the past four years. Future capture ratios are based on the professional judgment of staff, after consideration of the adopted land use plan, approved development, proposed development currently under review, and real estate markets.

Figure A4: Persons in Housing Units by Streets Fee Area

Impact Fee Area	*2010*	*2014*	*2020*	*2025*	*2030*
North Central	90,933	93,792	106,393	116,775	128,784
South Central	55,381	57,831	63,711	72,796	84,805
East	21,413	22,369	25,502	28,538	30,880
West	9,599	11,233	15,511	18,107	21,109
Persons in Housing Units by IFA	**177,326**	**185,224**	**211,117**	**236,217**	**265,579**



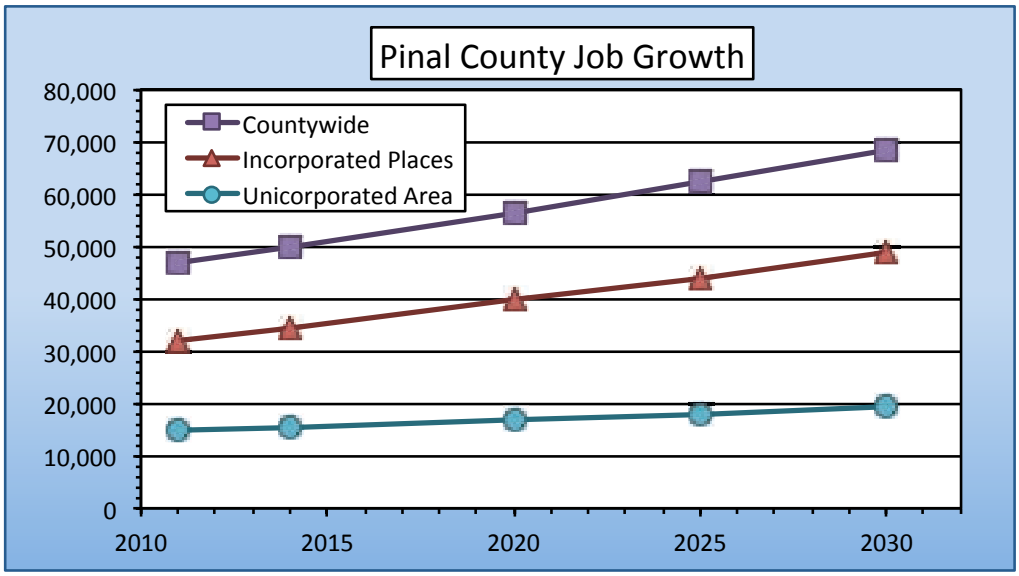
Sources: Persons in housing units calculated by applying CAG share of unincorporated population to AZDA Low Series projections and subtracting the population in incorporated places from each IFA's total population.

JOBS FORECAST

In addition to data on residential development, the calculation of development fees requires data on nonresidential development. TischlerBise uses the term "jobs" to refer to employment by place of work. Similar to the population share evaluation discussed above, countywide jobs are shown in Figure A5 along with the share of jobs in the incorporated places and the unincorporated area of Pinal County. County and City data for 2011 are from OnTheMap, the U.S. Census Bureau's web application. OnTheMap estimates journey-to-work jobs used to analyze commuting patterns. Jobs projections are based on Woods & Poole Economics (2010) estimates for Pinal County with unincorporated job share tied to unincorporated population share. Similar to the decrease in population share over time, unincorporated Pinal County's share of jobs decreases from 31.5% of total jobs in 2011 to 28.7% of total jobs in 2030.

Figure A5: Job Share

Area	2011	2014	2020	2025	2030
Countywide	46,692	49,829	56,412	62,233	68,355
Incorporated Places	32,000	34,335	39,677	44,100	48,734
Unicorporated Area	14,692	15,494	16,735	18,133	19,621
Unincorporated Share	**31.5%**	**31.1%**	**29.7%**	**29.1%**	**28.7%**



Sources: County and City data for all jobs 2009-2011 are from OnTheMap, U.S. Census Bureau web application.

EMPLOYEES PER SQUARE FOOT OF NONRESIDENTIAL DEVELOPMENT

In Figure A6, shading indicates four nonresidential development prototypes used by TischlerBise to estimate nonresidential floor area and derive vehicle trips for the development fee analysis. Average weekday vehicle trip generation rates are from the Institute of Transportation Engineers (Trip Generation, 2012). The prototype development for industrial jobs is warehousing. The prototype for commercial (i.e., retail and restaurants) is an average-size shopping center. The prototype for institutional development is an elementary school. For office and other services, the prototype is a general office building.

The text below from Trip Generation (ITE 2012) supports the consultant's recommendation to use ITE 820 Shopping Center as a reasonable proxy for all commercial development. The shopping center trip generation rates are based on 302 studies with an r-squared value of 0.79. The latter is a goodness-of-fit indicator with values ranging from 0 to 1. Higher values indicate the independent variable (floor area) provides a better prediction of the dependent variable (average weekday vehicle trip ends). If the r-squared value is less than 0.50, ITE does not publish the value because factors other than floor area provide a better prediction of trip rates.

> *"A shopping center is an integrated group of commercial establishments. Shopping centers, including neighborhood, community, regional, and super regional centers, were surveyed for this*

land use. Some of these centers contained non-merchandising facilities, such as office buildings, movie theaters, restaurants, post offices, banks, and health clubs. Many shopping centers, in addition to the integrated unit of shops in one building or enclosed around a mall, include out parcels (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, restaurants, or small offices. Although the data herein do not indicate which of the centers studied include peripheral buildings, it can be assumed that some of the data show their effect."

Figure A6: Employee and Building Area Ratios

ITE Code	Land Use / Size	Demand Unit	Wkdy Trip Ends Per Dmd Unit[1]	Wkdy Trip Ends Per Employee[1]	Emp Per Dmd Unit	Sq Ft Per Emp
110	Light Industrial	1,000 Sq Ft	6.97	3.02	2.31	433
130	Industrial Park	1,000 Sq Ft	6.83	3.34	2.04	489
140	Manufacturing	1,000 Sq Ft	3.82	2.13	1.79	558
150	Warehousing	1,000 Sq Ft	3.56	3.89	0.92	1,093
254	Assisted Living	Bed	2.66	3.93	0.68	N/A
320	Motel	Room	5.63	12.81	0.44	N/A
520	Elementary School	1,000 Sq Ft	15.43	15.71	0.98	1,018
530	High School	1,000 Sq Ft	12.89	19.74	0.65	1,531
540	Community College	Student	1.23	15.55	0.08	N/A
550	University/College	Studen	1.71	8.96	0.19	N/A
565	Day Care	Student	4.38	26.73	0.16	N/A
610	Hospital	1,000 Sq Ft	13.22	4.50	2.94	340
620	Nursing Home	1,000 Sq Ft	7.60	3.26	2.33	429
710	General Office (Avg Size)	1,000 Sq Ft	11.03	3.32	3.32	301
760	Research & Dev Center	1,000 Sq Ft	8.11	2.77	2.93	342
770	Business Park	1,000 Sq Ft	12.44	4.04	3.08	325
820	Shopping Center (Avg Size)	1,000 Sq Ft	42.70	N/A	2.00	500

1. Trip Generation, Institute of Transportation Engineers, 9th Edition (2012).

JOBS BY TYPE OF NONRESIDENTIAL DEVELOPMENT

Figure A7 indicates the County's 2011 job estimate and nonresidential floor area estimates, derived using national averages of floor area per job. The latter are based on data published by the Institute of Transportation Engineers (ITE 2012), discussed further in the next section. The percentage distribution of jobs by type of nonresidential development is from the U.S. Census Bureau's OnTheMap web application. TischlerBise estimates Pinal County had approximately 32 million square feet of nonresidential development in 2011. This estimate includes private, public, and institutional development, such as schools and churches. Unincorporated Pinal County's share of nonresidential development is estimated to be 11.8 million square feet in 2011 with 14,692 jobs.

Figure A7: Jobs and Floor Area Estimate

	2011 Jobs[1]	*% of Total*	*Sq Ft per Job[2]*	*2011 Estimated Floor Area*	*Jobs per 1000 Sq Ft*	*W&P Mix*
Industrial[3]	8,010	17%	1,093	8,754,930	0.91	20%
Institutional[4]	13,365	29%	1,018	13,605,570	0.98	32%
Commercial[5]	10,494	22%	500	5,247,000	2.00	17%
Office & Other Services[6]	14,823	32%	301	4,461,723	3.32	31%
Total	46,692	100%	687	32,069,223	1.46	

1. Jobs in 2011 from Work Area Profile, OnTheMap, U.S. Census Bureau web application.

2. Trip Generation, Institute of Transportation Engineers, 9th Edition (2012).

3. Major sectors are Manufacturing, Agriculture, and Construction.

4. Major sectors are Educational Services and Public Administration.

5. Major sectors are Retail and Accommodation/Food Services.

6. Major sectors are Health Care, Administration & Support, Waste Management and Remediation.

DETAILED DEVELOPMENT PROJECTIONS

Demographic data shown in Figure A8 and Figure A9 provides key inputs for updating development fees in Pinal County. As discussed in the next section, TischlerBise recommends the use of persons per housing unit to derive development fees. Therefore, vacancy rates and number of households are not essential to the demographic analysis.

Figure A8: Residential Data

	FY14-15	*FY15-16*	*FY16-17*	*FY17-18*	*FY18-19*	*FY19-20*	*FY24-25*	*FY30-31*
	2014	***2015***	***2016***	***2017***	***2018***	***2019***	***2024***	***2030***
Population	***Base Yr***	***1***	***2***	***3***	***4***	***5***	***10***	***16***
Total Population	396,237	408,800	418,900	430,300	441,900	453,500	513,000	596,000
Group Quarters	22,003	22,003	22,003	22,003	22,003	22,003	22,003	22,003
Persons in Housing Units	374,234	386,797	396,897	408,297	419,897	431,497	490,997	573,997
Incorporated Places	178,843	186,158	192,409	199,446	206,599	213,730	248,381	295,851
Unincorporated Area	195,391	200,639	204,488	208,851	213,298	217,767	242,616	278,146
% Unincorporated =>	49.3%	49.1%	48.8%	48.5%	48.3%	48.0%	47.3%	46.7%
Persons in Housing Units by Streets Fee Area								
North Central	93,792	95,628	97,553	99,735	101,958	104,193	114,572	128,784
South Central	57,831	59,406	60,175	61,048	61,938	62,831	70,868	84,805
East	22,369	22,983	23,433	23,944	24,464	24,987	27,894	30,880
West	11,233	12,282	12,859	13,514	14,181	14,851	17,556	21,109
Housing Units								
Countywide	167,333	172,951	177,467	182,564	187,751	192,938	219,542	256,655
Incorporated Places	79,967	83,238	86,033	89,179	92,378	95,566	111,060	132,286
Unincorporated Area	87,366	89,713	91,434	93,385	95,373	97,372	108,482	124,369
Housing Units by Streets Fee Area								
North Central	41,938	42,759	43,619	44,595	45,589	46,588	51,229	57,584
South Central	25,858	26,562	26,907	27,297	27,694	28,094	31,688	37,919
East	10,002	10,276	10,478	10,706	10,939	11,172	12,472	13,808
West	5,022	5,492	5,750	6,043	6,341	6,641	7,850	9,439

Figure A9: Nonresidential Data

	FY14-15	*FY15-16*	*FY16-17*	*FY17-18*	*FY18-19*	*FY19-20*	*FY24-25*	*FY30-31*
	2014	***2015***	***2016***	***2017***	***2018***	***2019***	***2024***	***2030***
	Base Yr	***1***	***2***	***3***	***4***	***5***	***10***	***16***
Jobs in Pinal County	49,829	50,896	51,976	53,068	54,170	55,288	61,069	68,355
Jobs in Incorporated Places	34,335	35,180	36,056	36,953	37,857	38,768	43,215	48,734
Jobs in Unincorporated Area	15,494	15,716	15,920	16,115	16,313	16,520	17,854	19,621
Nonresidential Floor Area in Pinal County (square feet in thousands = KSF)								
Total	34,290	35,045	35,809	36,583	37,364	38,156	42,263	47,445
Unincorporated Nonresidential Floor Area (square feet in thousands = KSF)								
Total	12,497	12,695	12,882	13,063	13,247	13,437	14,607	16,144
KSF - North Central								
Industrial	590	619	660	700	741	784	996	1,267
Institutional	3,902	3,937	3,983	4,028	4,074	4,121	4,350	4,628
Commercial	349	350	351	351	352	353	368	390
Office & Other Services	249	253	258	263	268	273	305	347
KSF - South Central								
Industrial	2,517	2,543	2,559	2,575	2,591	2,609	2,773	3,039
Institutional	279	309	328	346	364	383	560	834
Commercial	216	217	217	218	218	218	231	253
Office & Other Services	276	279	281	283	285	287	313	354
KSF - East								
Industrial	560	572	584	597	609	622	698	771
Institutional	221	235	249	263	277	291	373	448
Commercial	259	260	260	260	260	261	266	272
Office & Other Services	230	232	234	235	236	238	250	261
KSF - West								
Industrial	713	730	742	754	767	779	835	902
Institutional	703	722	736	750	764	778	837	907
Commercial	32	32	33	33	33	33	37	43
Office & Other Services	298	301	302	303	305	306	315	325

PERSONS PER HOUSING UNIT

The 2010 census did not obtain detailed information using a "long-form" questionnaire. Instead, the U.S. Census Bureau has switched to a continuous monthly mailing of surveys, known as the American Community Survey (ACS), which has some limitations due to sample-size constraints. For example, data on detached housing units are now combined with attached single units (commonly known as townhouses). As shown in Figure A10, "Single Detached or Attached" includes single-family detached and townhouses. The category of "2+ Units" includes duplexes and apartments with two or more units per structure. The final category includes mobile homes (also known as manufactured housing), boats, RVs, and vans.

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

calculations, infrastructure standards are derived using year-round population. When persons per household is used in the fee calculations, the development fee methodology assumes all housing units will be occupied, thus requiring seasonal or peak population to be used when deriving infrastructure standards. TischlerBise recommends that development fees for residential development in Pinal County be imposed according to the number of year-round residents per housing unit.

As shown at the bottom of Figure A10, ACS estimates indicate Pinal County had 164,254 housing units in 2013. Dwellings with a single unit per structure (detached and attached) averaged 2.45 persons per housing unit. Dwellings in structures with multiple units averaged 1.76 year-round residents per unit. Mobile homes, boats, RVs, and vans averaged 1.60 year-round residents per unit. Pinal County averaged 2.24 persons per housing unit in 2013.

Figure A10: Year-Round Persons per Unit by Type of Housing

2013 Summary by Type of Housing

Units in Structure	*Persons in Housing Units*	*House-holds*	*Persons per Household*	*Housing Units*	*Persons per Housing Unit*	*Housing Mix*	*Vacancy Rate*
Single Detached or Attached	297,134	98,705	3.01	121,418	2.45	74%	19%
2+ Units	17,187	7,463	2.30	9,776	1.76	6%	24%
Mobile Home, Boat, RV, Van, etc.	53,026	21,868	2.42	33,060	1.60	20%	34%
Total	367,347	128,036	2.87	164,254	2.24		22%

Source: 2013 American Community Survey, 1-Year Estimates; tables B25024, B25032, and B25033.

CUSTOMIZED TRIP GENERATION RATES PER HOUSING UNIT

As an alternative to simply using the national average trip generation rate for residential development, the Institute of Transportation Engineers (ITE) publishes regression curve formulas that may be used to derive custom trip generation rates, using local demographic data. Key independent variables needed for the analysis (i.e. vehicles available, housing units, households and persons) are available from American Community Survey data for Pinal County. Customized average weekday trip generation rates by type of housing are shown in Figure A11. A vehicle trip end represents a vehicle either entering or exiting a development, as if a traffic counter were placed across a driveway. The custom trip generation rates for Pinal County vary slightly from the national averages. For example, single-unit residential development is expected to produce 7.26 average weekday vehicle trip ends per dwelling, which is lower than the national average of 9.52 (see ITE code 210). Similarly, multi-unit residential development is expected to produce 5.40 average weekday vehicle trip ends per dwelling, which is lower than the national average of 6.65. Mobile homes, however, are expected to produce 5.81 average weekday vehicle trips. This is higher than the national average of 4.99 for mobile home parks.

Figure A11: Residential Trip Generation Rates by Type of Housing

		Households[2]				
Tenure	***Vehicles Available[1]***	***Single Unit Detached or Attached***	***2+ Units per Structure***	***Mobile Home, Boat, RV, Van, etc.***	***Total***	***Vehicles per Household by Tenure***
Owner-occupied	158,008	72,465	48	16,286	88,799	1.78
Renter-occupied	60,939	26,240	7,415	5,582	39,237	1.55
Total	218,947	98,705	7,463	21,868	128,036	1.71
Housing Units[6]		121,418	9,776	33,060	164,254	

Units per Structure	***Persons[3]***	***Trip Ends[4]***	***Vehicles by Type of Housing***	***Trip Ends[5]***	***Average Trip Ends***	***Trip Ends per Housing Unit***
Single Detached or Attached	297,134	780,536	169,697	982,909	881,722	7.26
2+ Units	17,187	59,574	11,602	46,004	52,789	5.40
Mobile Home, Boat, RV, Van, etc.	53,026	162,664	37,649	221,374	192,019	5.81
Total	367,347	1,002,774	218,947	1,250,287	1,126,531	**6.86**

1. Vehicles available by tenure from Table B25046, American Community Survey, 2013. 1-Year.

2. Households by tenure and units in structure from Table B25032, American Community Survey, 2013.

3. Persons by units in structure from Table B25033, American Community Survey, 2013.

*4. Vehicle trips ends based on persons using formulas from Trip Generation (ITE 2012). For single units and mobile homes (ITE 210), the fitted curve equation is EXP(0.91*LN(persons)+1.52). To approximate the average population of the ITE studies, persons were divided by 629 and the equation result multiplied by 629.*

*For 2+ unit housing (ITE 220), the fitted curve equation is (3.47*persons)-64.48.*

*5. Vehicle trip ends based on vehicles available using formulas from Trip Generation (ITE 2012). For single units and mobile homes (ITE 210), the fitted curve equation is EXP(0.99*LN(vehicles)+1.81). To approximate the average number of vehicles in the ITE studies, vehicles available were divided by 806 and the equation result multiplied by 806. For 2+ unit housing (ITE 220), the fitted curve equation is (3.94*vehicles)+293.58.*

6. Housing units from Table B25024, American Community Survey, 2013.

Demand Indicators by Dwelling Size

Development fees must be proportionate to the demand for infrastructure. Because averages per housing unit, for both persons and vehicle trips, have a strong, positive correlation to the number of bedrooms, TischlerBise recommends residential fee schedules that increase by house 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 only available for areas of at least 100,000 persons, with Pinal County included in Public Use Microdata Areas 00803, 00805, and 00807.

As shown in Figure A11, TischlerBise derived trip generation rates and average persons per housing unit by bedroom range, from un-weighted PUMS data. The recommended multipliers by bedroom range are for all types of housing units, adjusted to the control totals for Pinal County. As shown in Figure A12, Pinal County averages 6.86 weekday vehicle trip ends and 2.24 persons per housing unit (Figure A10).

Figure A12: Vehicle Trip Ends and Persons by Bedroom Range

							Recommended Multipliers[4]		
Bedrooms	***Persons[1]***	***Trip Ends[2]***	***Vehicles Available[1]***	***Trip Ends[3]***	***Average Trip Ends***	***Housing Units[1]***	***Trip Ends per Housing Unit***	***Persons per Housing Unit***	***Housing Mix***
0-1	155	520	102	608	564	140	3.72	1.14	10%
2	493	1,491	356	2,094	1,793	294	5.63	1.72	22%
3	1,184	3,310	850	4,957	4,133	557	6.85	2.18	42%
4+	1,080	3,044	652	3,812	3,428	344	9.20	3.23	26%
Total	2,912	8,365	1,960	11,472	9,918	1,335	6.86	2.24	

1. American Community Survey, Public Use Microdata Sample for AZ PUMAs 803, 805, and 807 (2012 1-Year unweighted data).

*2. Vehicle trips ends based on persons using formulas from Trip Generation (ITE 2012). For single unit housing (ITE 210), the fitted curve equation is EXP(0.91*LN(persons)+1.52). To approximate the average population in the ITE studies, persons were divided by 5 and the equation result multiplied by 5.*

*3. Vehicle trip ends based on vehicles available using formulas from Trip Generation (ITE 2012). For single unit housing (ITE 210), the fitted curve equation is EXP(0.99*LN(vehicles)+1.81). To approximate the average number of vehicles in the ITE studies, vehicles available were divided by 8 and the equation result multiplied by 8.*

4. Recommended multipliers are scaled to make the average values for PUMA 803, 805, and 807 match the average values for Pinal County, derived from American Community Survey 2013, 1-Year data.

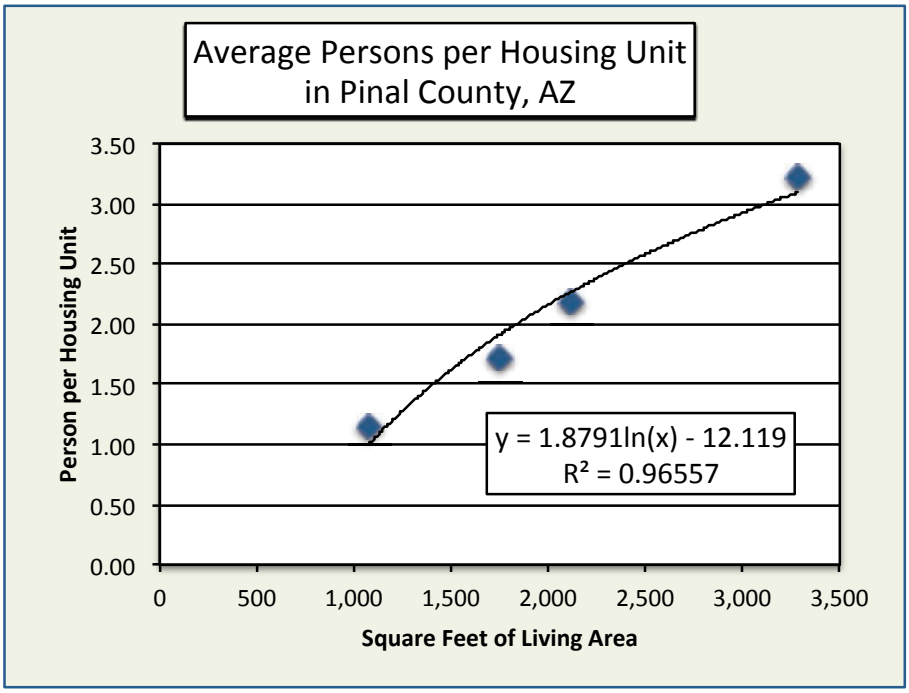
Average floor area and number of persons by bedroom range are plotted in Figure A13, with a logarithmic trend line derived from four actual averages for Pinal County. Using the trend line formula shown in the chart, TischlerBise derived the estimated average number of persons by dwelling size. For the purpose of development fees, TischlerBise recommends a minimum fee based on a unit size of 1,000 square feet and a maximum fee for units 2,101 square feet or larger. Proposed fees are limited to 2.45 persons per housing unit, which is the average for single unit housing (see Figure A10 above).

For 0-1 bedroom units, TischlerBise used data from the U.S. Census Bureau indicating an average of 1,076 square feet of floor area per multifamily unit constructed in 2013 in the West census region. As shown in the upper-right of the table below, the lowest floor area range (1,000 square feet or less) has an estimated average of 0.86 persons. Square feet of living area for a 2, 3, and 4+ bedrooms are based on Survey of Construction microdata for single-family housing (both detached and attached) constructed during 2013 in Mountain West states.

Figure A13: Persons by Square Feet of Living Space

Actual Averages per Hsg Unit			*Fitted-Curve Values*	
Bedrooms	***Square Feet***	***Persons***	***Sq Ft Range***	***Persons***
0-1	1,076	1.14	1000 or less	0.86
2	1,744	1.72	1001 to 1500	1.62
3	2,115	2.18	1501 to 2100	2.26
4+	3,283	3.23	2101 or more	2.45

Average persons per housing unit are derived from 2012 ACS PUMS data for Pinal County (PUMA 803, 805, 807). U.S. Census Bureau is the data source for average square feet by bedroom range. Unit size for 0-1 bedroom is the average of multifamily units constructed in the West Census Region during 2013. Unit size for 2, 3, and 4+ bedrooms is from 2013 Survey of Construction microdata for single detached and attached units in the Mountain West Census Division.

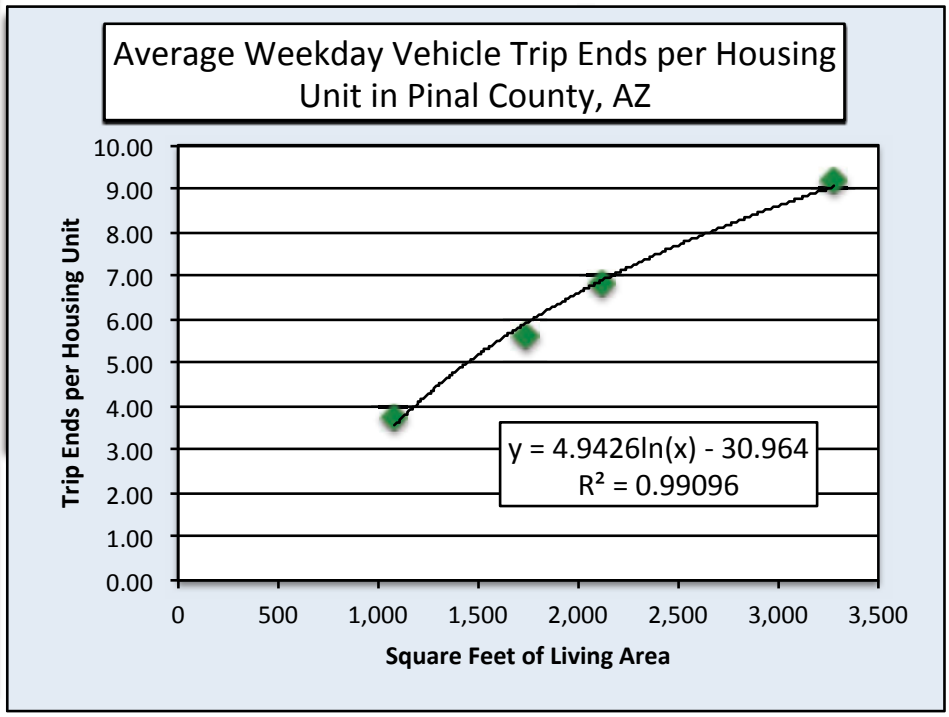


To derive average weekday vehicle trip ends by house size, TischlerBise combined demographic data derived from U.S. Census Bureau PUMS files with floor area data from the U.S. Census Bureau, as discussed above. Average floor area and weekday vehicle trip ends, by bedroom range, are plotted in Figure A14, with a logarithmic trend line derived from four actual averages for Pinal County. TischlerBise used the trend line formula to derive estimated trip ends by housing unit size, with the largest size range capped at 7.26 trip ends (i.e. the average for all single unit housing as shown in Figure A11 above).

Figure A14: Vehicle Trips by Dwelling Size

Average weekday vehicle trip ends per housing unit are derived from 2012 ACS PUMS data for Pinal County (PUMA 803, 805, 807). U.S. Census Bureau is the data source for average square feet by bedroom range. Unit size for 0-1 bedroom is the average of multifamily units constructed in the West Census Region during 2013. Unit size for 2, 3, and 4+ bedrooms is from 2013 Survey of Construction microdata for single detached and attached units in the Mountain West Census Division.

Actual Averages per Hsg Unit			*Fitted-Curve Values*	
Bedrooms	*Square Feet*	*Trip Ends*	*Sq Ft Range*	*Trip Ends*
0-1	1,076	3.72	1000 or less	3.18
2	1,744	5.63	1001 to 1500	5.18
3	2,115	6.85	1501 to 2100	6.85
4+	3,283	9.20	2101 or more	7.26



APPENDIX B: ARIZONA REVISED STATUTES

The text below regarding County development fees is from ARS 11-1102.

A. *If a county has adopted a capital improvements plan, the county may assess development fees within the covered planning area in order to offset the capital costs for water, sewer, streets, parks and public safety facilities determined by the plan to be necessary for public services provided by the county to a development in the planning area.*

B. *Development fees assessed under this section are subject to the following requirements:*

   1. *Development fees shall result in a beneficial use to the development.*

   2. *Monies received from development fees shall be placed in a separate fund and accounted for separately and may only be used for the purposes authorized by this section. Interest earned on monies in the separate fund shall be credited to the fund.*

   3. *The county shall prescribe the schedule for paying the development fees. The county shall provide a credit toward the payment of the fee for the required dedication of public sites and improvements provided by the developer for which that fee is assessed. The developer of residential dwelling units shall be required to pay the fees when construction permits for the dwelling units are issued.*

   4. *The amount of any development fees must bear a reasonable relationship to the burden of capital costs imposed on the county to provide additional necessary public services to the development. In determining the extent of the burden imposed by the development, the county shall consider, among other things, the contribution made or to be made in the future in cash by taxes, fees or assessments by the property owner toward the capital costs of the necessary public service covered by the development fee.*

   5. *Development fees shall be assessed in a nondiscriminatory manner.*

   6. *In determining and assessing a development fee applying to land in a community facilities district established under title 48, chapter 4, article 6, the county shall take into account all public infrastructure provided by the district and capital costs paid by the district for necessary public services and shall not assess a portion of the development fee based on the infrastructure or costs.*

C. *Before assessing or increasing a development fee, the county shall:*

   1. *Give at least one hundred twenty days' advance notice of intention to assess a new or increased development fee.*

   2. *Release to the public a written report including all documentation that supports the assessment of a new or increased development fee.*

   3. *Conduct a public hearing on the proposed new or increased development fee at any time after the expiration of the one hundred twenty day notice of intention to assess a new or increased development fee and at least fourteen days before the scheduled date of adoption of the new or increased fee.*

D. *A development fee assessed pursuant to this section is not effective for at least ninety days after its formal adoption by the board of supervisors.*

E. Each county that assesses development fees shall submit an annual report accounting for the collection and use of the fees. The annual report shall include the following:

1. The amount assessed by the county for each type of development fee.

2. The balance of each fund maintained for each type of development fee assessed as of the beginning and end of the fiscal year.

3. The amount of interest or other earnings on the monies in each fund as of the end of the fiscal year.

4. The amount of development fee monies used to repay:

(a) Bonds issued by the county to pay the cost of a capital improvement project that is the subject of a development fee assessment.

(b) Monies advanced by the county from funds other than the funds established for development fees in order to pay the cost of a capital improvement project that is the subject of a development fee assessment.

5. The amount of development fee monies spent on each capital improvement project that is the subject of a development fee assessment and the physical location of each capital improvement project.

6. The amount of development fee monies spent for each purpose other than a capital improvement project that is the subject of a development fee assessment.

F. Within ninety days following the end of each fiscal year, each county shall submit a copy of the annual report to the clerk of the board of supervisors. Copies shall be made available to the public on request. The annual report may contain financial information that has not been audited.

G. A county that fails to file the report required by this section shall not collect development fees until the report is filed.

H. This section does not affect any development fee adopted before May 18, 2000.

APPENDIX C: IMPLEMENTATION AND ADMINISTRATION

As specified in A.R.S. 11-1102, there are certain accounting requirements that must be met by the County:

> *Monies received from development fees shall be placed in a separate fund and accounted for separately and may only be used for the purposes authorized by this section. Interest earned on monies in the separate fund shall be credited to the fund.*

Additionally, the County will have to maintain a separate fund for each of the four streets fee areas (SFAs) in order to account for where development fee revenues are coming from and dollars being used to construct capital projects that are the result of new development. This will ensure that new development receives a substantial benefit from the development fees.

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 County should redo the fee calculations.

RESIDENTIAL DEVELOPMENT

As discussed below, residential development categories are based on data from the U.S. Census Bureau, American Community Survey. Pinal County will collect development fees from all new residential units, including mobile homes and Recreational Vehicles (RV). For a parcel intended for occupancy by multiple mobile homes and/or RVs, the landowner will pay a development fee for each site than can accommodate a residential unit. One-time development fees are determined by site capacity (i.e. number of residential units) and will not be imposed on replacement units.

Single-Family Detached — This is a 1-unit structure detached from any other house, that is, with open space on all four sides. Such structures are considered detached even if they have an adjoining shed or garage. A one-family house that contains a business is considered detached as long as the building has open space on all four sides. Mobile homes to which one or more permanent rooms have been added or built also are included.

Single-Family Attached (Townhouses) — This is a 1-unit structure that has one or more walls extending from ground to roof separating it from adjoining structures. In row houses (sometimes called townhouses), double houses, or houses attached to nonresidential structures, each house is a separate, attached structure if the dividing or common wall goes from ground to roof.

2+ Units (Duplexes and Apartments) — These are units in structures containing 2 or more housing units, further categorized as units in structures with "2, 3 or 4, 5 to 9, 10 to 19, 20 to 49, and 50 or more apartments."

Mobile Home — Both occupied and vacant mobile homes, to which no permanent rooms have been added, are counted in this category. 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.

Boat, RV, Van, Etc. — This category is for any living quarters occupied as a housing unit that does not fit the other categories (e.g., houseboats, railroad cars, campers, and vans). 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 construction within Pinal County. 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). Figure C1 indicates how the current categories are grouped according to the four proposed categories.

Figure C1: Comparison of Proposed and Current Nonresidential Categories

Industrial
Business Park
Light Industrial
Manufacturing
Mini-warehouse (self storage)
Warehousing
Institutional
Church
Elementary School
High School
Middle School/Junior High
Commercial
Commercial / Shopping Center
Office & Other Services
Assisted Living
Hospital
Hotel
Office

Industrial: Establishments primarily engaged in the production, transportation, or storage of goods. By way of example, *Industrial* includes manufacturing plants, distribution warehouses, trucking companies, utility substations, power generation facilities, and telecommunications buildings.

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

Institutional: Public and quasi-public buildings providing educational, social assistance, or religious services. By way of example, *Institutional* includes schools, universities, churches, daycare facilities, government buildings, and prisons.

Office & Other Services: Establishments providing management, administrative, professional, or business services; personal and health care services; and lodging facilities. By way of example, *Office & Other Services* includes banks, business offices; hotels and motels; assisted living facilities, nursing homes, hospitals and medical offices; and veterinarian clinics.