DRAFT

Land Use Assumptions, Infrastructure Improvements Plan and Development Fee Report

Prepared for:

Town of Oro Valley, Arizona

March 4, 2020

4701 Sangamore Road, Suite S240
Bethesda, MD
301.320.6900
www.tischlerbise.com

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EXECUTIVE SUMMARY

The Town of Oro Valley hired TischlerBise, Inc., to document land use assumptions, prepare an Infrastructure Improvements Plan (hereinafter referred to as the "IIP"), and update development fees pursuant to Arizona Revised Statutes ("ARS") § 9-436.05 (hereinafter referred to as the "Enabling Legislation"). Municipalities in Arizona may assess development fees to offset infrastructure costs to a municipality for necessary public services. The development fees must be based on an Infrastructure Improvements Plan and Land Use Assumptions. The IIPs for each type of infrastructure are located in each infrastructure type's corresponding section, and the Land Use Assumptions can be found in Appendix A. The proposed development fees are displayed in the Development Fee Report chapter.

Development fees are one-time payments used to construct system improvements needed to accommodate new development. The fee represents future development's proportionate share of infrastructure costs. Development fees may be used for infrastructure improvements or debt service for growth related infrastructure. In contrast to general taxes, development fees may not be used for operations, maintenance, replacement, or correcting existing deficiencies.

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

- Parks and Recreational Facilities
- Police Facilities
- Street Facilities
- Water Facilities

This plan also includes all necessary elements required to be in full compliance with Arizona Revised Statutes ("ARS") § 9-436.05 (SB 1525).

ARIZONA DEVELOPMENT FEE ENABLING LEGISLATION

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

Necessary Public Services

Under the requirements of the Enabling Legislation, development fees may only be used for construction, acquisition or expansion of public facilities that are necessary public services. "Necessary public service" means any of the following categories of facilities that have a life expectancy of three or more years and that are owned and operated on behalf of the municipality: water, wastewater, storm water, drainage, flood control, library, streets, fire and police, and neighborhood parks and recreation. Additionally, a necessary public service includes any facility, not included in the aforementioned categories (e.g., general government facilities), that was financed before June 1, 2011 and that meets the following requirements:

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

Infrastructure Improvements Plan

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

- A description of the existing necessary public services in the service area and the costs to update, improve, expand, correct or replace those necessary public services to meet existing needs and usage and stricter safety, efficiency, environmental or regulatory standards, which shall be prepared by qualified professionals licensed in this state, as applicable.
- An analysis of the total capacity, the level of current usage and commitments for usage of capacity of the existing necessary public services, which shall be prepared by qualified professionals licensed in this state, as applicable.
- A description of all or the parts of the necessary public services or facility expansions and their costs necessitated by and attributable to development in the service area based on the approved Land Use Assumptions, including a forecast of the costs of infrastructure, improvements, real property, financing, engineering and architectural services, which shall be prepared by qualified professionals licensed in this state, as applicable.
- A table establishing the specific level or quantity of use, consumption, generation or discharge of a service unit for each category of necessary public services or facility expansions and an equivalency or conversion table establishing the ratio of a service unit to various types of land uses, including residential, commercial and industrial.
- The total number of projected service units necessitated by and attributable to new development in the service area based on the approved Land Use Assumptions and calculated pursuant to generally accepted engineering and planning criteria.
- The projected demand for necessary public services or facility expansions required by new service units for a period not to exceed 10 years.
- A forecast of revenues generated by new service units other than development fees, which shall include estimated state-shared revenue, highway users revenue, federal revenue, ad valorem property taxes, construction contracting or similar excise taxes and the capital recovery portion of utility fees attributable to development based on the approved Land Use Assumptions and a plan to include these contributions in determining the extent of the burden imposed by the development.

Qualified Professionals

The IIP must be developed by qualified professionals using generally accepted engineering and planning practices. A qualified professional is defined as "a professional engineer, surveyor, financial analyst or planner providing services within the scope of the person's license, education, or experience." TischlerBise is a fiscal, economic, and planning consulting firm specializing in the cost of growth services and is licensed to do business in Arizona. Our services include development fees, fiscal impact analysis, infrastructure financing analyses, user fee/cost of service studies, capital improvement plans, and fiscal software. TischlerBise has prepared over 900 development fee studies over the past 40 years for local governments across the United States.

Conceptual Development Fee Calculation

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

Evaluation of Offsets

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

DEVELOPMENT FEE REPORT

METHODOLOGY

Development fees for the necessary public services made necessary by new development must be based on the same level-of-service provided to existing development in the service area. There are three basic methodologies used to calculate development fees. They examine the past, present, and future status of infrastructure. The objective of evaluating these different methodologies is to determine the best measure of the demand created by new development for additional infrastructure capacity. Each method has advantages and disadvantages in a particular situation and can be used simultaneously for different cost components. Additionally, development fees for public services can also include the cost of professional services for preparing IIP's and the related Development Fee report.

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

- **Cost Recovery** (past improvements) - The rationale for recoupment, often called cost recovery, is that new development is paying for its share of the useful life and remaining capacity of facilities already built, or land already purchased, from which new growth will benefit. This methodology is often used for utility systems that must provide adequate capacity before new development can take place.

- **Incremental Expansion** (concurrent improvements) - The incremental expansion method documents current level-of-service standards for each type of public facility, using both quantitative and qualitative measures. This approach assumes there are no existing infrastructure deficiencies or surplus capacity in infrastructure. New development is only paying its proportionate share for growth-related infrastructure. Revenue will be used to expand or provide additional facilities, as needed, to accommodate new development. An incremental expansion cost method is best suited for public facilities that will be expanded in regular increments to keep pace with development.

- **Plan-Based** (future improvements) - The plan-based method allocates costs for a specified set of improvements to a specified amount of development. Improvements are typically identified in a long-range facility plan and development potential is identified by a land use plan. There are two basic options for determining the cost per demand unit: (1) total cost of a public facility can be divided by total demand units (average cost), or (2) the growth-share of the public facility cost can be divided by the net increase in demand units over the planning timeframe (marginal cost).

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

Figure 1: Recommended Calculation Methodologies

Facility Type	*Service Area*	*Incremental Expansion*	*Plan-Based*	*Cost Recovery*	*Cost Allocation*
Parks and Recreational	Townwide	Developed Parks, Park Amenities	Development Fee Study	N/A	Population, Jobs
Police	Townwide	Vehicles	Development Fee Study	Facilities	Population, Nonres. Trips
Street	Townwide	Arterial Lane Miles, Signalized Intersections	Development Fee Study	N/A	VMT
Water	Townwide	N/A	Development Fee Study, Water Distribution, Storage and Supply	CAP Water Allocation	Gallons per Service Unit

A Note on Rounding

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

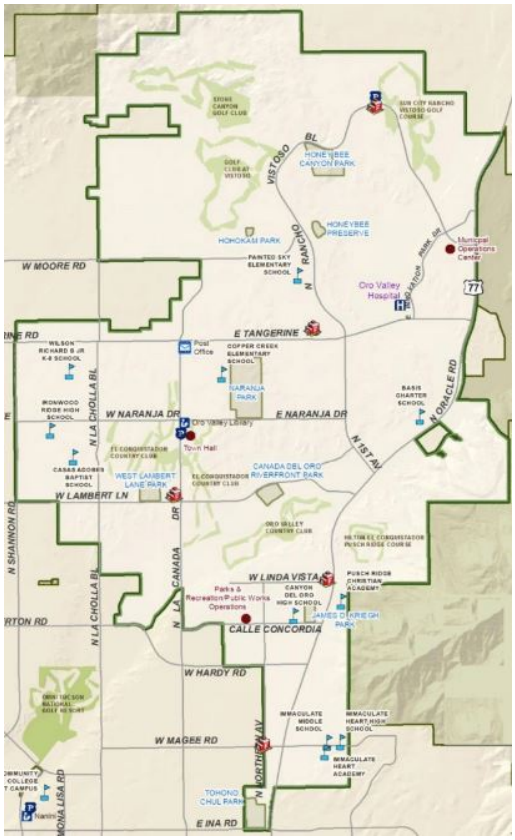
SERVICE AREA

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

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

The Town's previous Land Use Assumptions, Infrastructure Improvement Plan and Development Study recommended one services area, shown below in Figure 2.

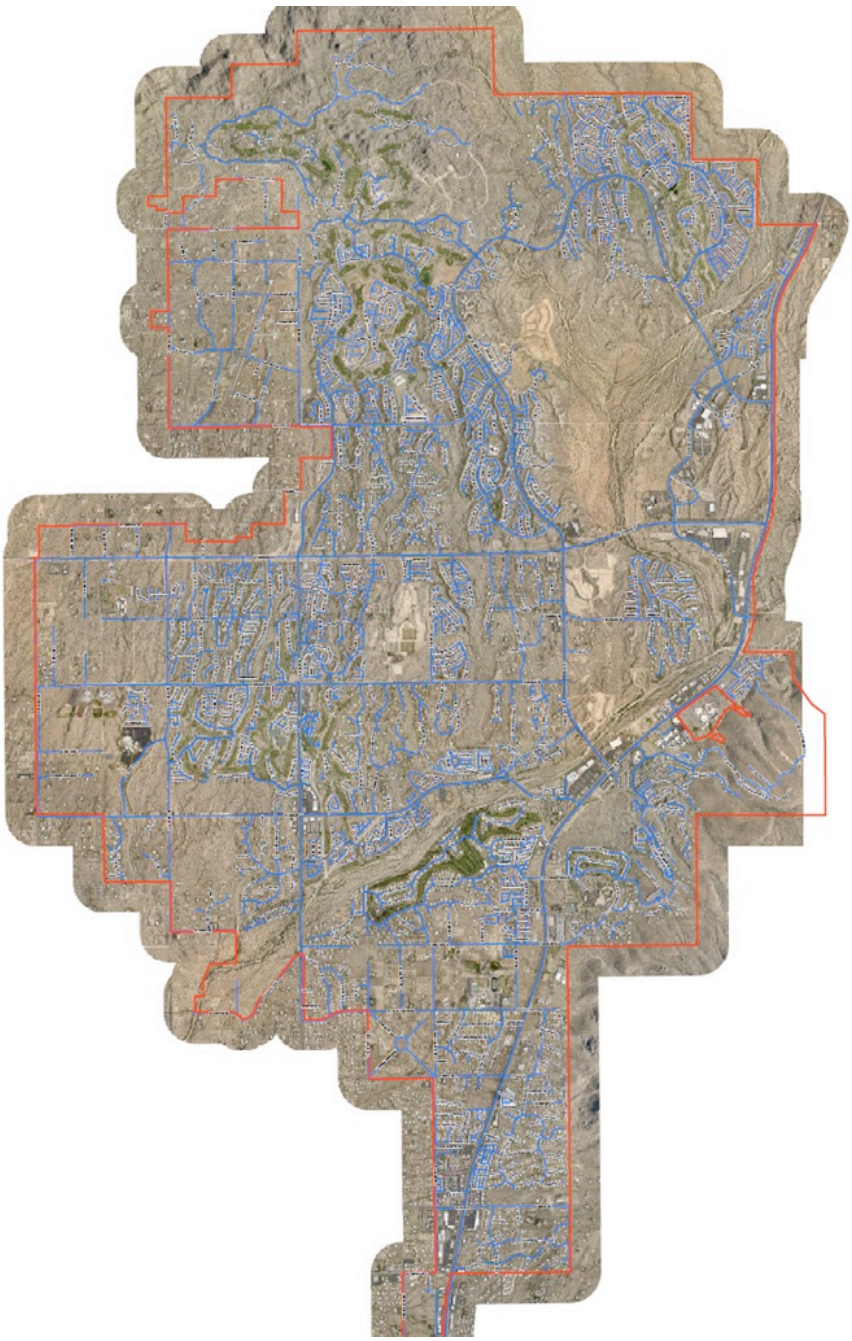
Figure 2: Current Development Fee Service Area



Much of the land in Oro Valley is characterized by a built environment of dispersed, detached single family housing, transected by arterial roadways leading to concentrated nodes of businesses, institutions and commercial development with, largely single-family lots spread out to the northern edges. As a result of the development pattern, the Town relies on a variety of revenues and funding mechanisms to pay for public infrastructure and facilities which service residents. Oro Valley has embraced numerous policies and plans to guide future development, most notably the *2016 Your Voice, Our Future* General Plan aimed at encouraging new development as much as possible to pay the proportional share of growth-related infrastructure improvements for area roads, parks, police, fire and public facilities. In light of the plan-specific policies outlined by the Town along with discussions with Town staff regarding anticipated development patterns and infrastructure needs, TischlerBise is recommending no changes to the Development Fee Service Area as displayed in Figure 2.

The single Development Fee Service Area is supported first and foremost because, parks and recreation, police, and roadway infrastructure are intended to serve the entire Town with a standard level-of-service as opposed to bounded districts or subareas. As an example, referring to Figure 2, a new residential development in the northeast area is still likely to also utilize regional parks or police facilities located throughout Town. Furthermore, many services such as police and roadway infrastructure react to deployment changes over time based on migration patterns of people and are not necessarily restricted to specific geographic sub-zones. As such, TischlerBise is recommending all fees for these categories be assessed as a Townwide fee.

Figure 3: Proposed Development Fee Service Area



CURRENT DEVELOPMENT FEES

Oro Valley's current development fees are shown below in Figures 4, 5, 6 and 7. Demand for non-utility services (transportation, parks & recreation and police) is driven by the intensity of the use on those particular services; therefore, fees are assessed based on development type – Residential or Non-Residential; current non-utility fees are shown in Figure 4. The Town of Oro Valley assess Water Facilities development fees for water based on meter type — and include the following classifications: Single Family Residential, Multifamily Residential, Commercial and Irrigation. Each of these categories include independent impact fee charges attributed to Alternative Water Resources Development Impact Fee (AWRDIF), which is related to alternative water resource projects such as Central Arizona Project and the Potable Water System Development Impact Fee (PWSDIF). Current Water Facilities fees are shown in Figure 5, 6 and 7.

Figure 4: Current Non-Utility Development Fees

Residential (per unit)

Unit Type	*Transportation*	*Parks*	*Police*	*Current Fees*
Single Unit	$1,990	$856	$310	**$3,156**
Multifamily	$1,231	$599	$215	**$2,045**
Mobile Home Park (per space)	$649	$651	$234	**$1,534**

Nonresidential (per 1,000 square feet)

Land Use Type	*Transportation*	*Parks*	*Police*	*Current Fee*
Hotel/Motel (room)	$758	$0	$200	**$958**
Retail/Commercial	$2,412	$0	$447	**$2,859**
Office & Other Services	$1,822	$0	$156	**$1,978**
Industrial	$983	$0	$65	**$1,048**
Warehouse	$915	$0	$63	**$978**
Public/Institutional	$1,379	$0	$118	**$1,497**

Figure 5: Current Residential Water Facilities Development Fees

Residential OVWU Meter Size	*AWRDIF Fee*	*PWSDIF Fee*	*Total Fees*
5/8" x 3/4"	$4,045	$2,015	**$6,060**
3/4" x 3/4"	$6,067	$3,022	**$9,089**
1"	$10,111	$5,037	**$15,148**
1.5" standard	$20,223	$10,074	**$30,297**
2" compound	$32,356	$16,118	**$48,474**
Per Unit Cost	$1,941	$967	**$2,908**

Source: Oro Valley Utility Impact Fees

Figure 6: Current Nonresidential Water Facilities Development Fees

Nonresidential OVWU Meter Size	*AWRDIF Fee*	*PWSDIF Fee*	*Total Fees*
5/8"	$5,258	$2,619	**$7,877**
3/4"	$7,887	$3,929	**$11,816**
1"	$13,145	$6,548	**$19,693**
1.5" standard	$26,289	$13,096	**$39,385**
2" compound	$42,063	$20,953	**$63,016**
3" compound	$84,126	$41,906	**$126,032**
4" compound	$131,447	$65,478	**$196,925**
6" compound	$262,894	$130,956	**$393,850**
8" compound	$420,631	$209,530	**$630,161**

Figure 7: Current Irrigation Development Fees

Irrigation Meter Size	*AWRDIF Fee*	*PWSDIF Fee*	*Total Fees*
5/8" x 3/4"	$7,280	$3,626	**$10,906**
3/4" x 3/4"	$10,920	$5,440	**$16,360**
1"	$18,200	$9,066	**$27,266**
1.5" standard	$36,401	$18,132	**$54,533**
2" compound	$58,241	$29,012	**$87,253**
3" compound	$116,482	$58,024	**$174,506**
4" compound	$182,004	$90,662	**$272,666**
6" compound	$364,007	$181,324	**$545,331**
8" compound	$582,412	$290,118	**$872,530**

PROPOSED DEVELOPMENT FEES

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

Proposed development fees are shown below in Figures 8, 9 and 10. All tables show the proposed fee, the current fee and the total dollar change. Proposed utility development fees shown in Figure 8 are assessed per meter based on capacity ratios referenced from the American Water Works Association *Manual of Water Supply Practices* and apply a Demand Adjustment Factor calculated from 2017-2018 consumption data per nonresidential and irrigation meter classifications. Utilization of these capacity ratios replicate current fee methodologies and yield the Town a consistent comparison and approach. Further, and at the direction of staff, the Water Facilities development fees have been consolidated into a single fee. The relationship between infrastructure funded with current PWSDIF revenue and

infrastructure funded with AWRDIF revenue are very similar. Both are potable water resource driven and both are required to meet the demands of growth. As such, the infrastructure needs are being combined into one IIP resulting in the creation of one new development impact fee to replace the two existing impact fees. The new development fee will be known as the Water Facilities development fee. The Water Facilities development fee is intended to fund all types of water resources, the infrastructure to deliver those resources and any related debt including CAP capital infrastructure repayment costs.

All other non-utility services (transportation, parks & recreation, police) are shown in Figures 9 and 10 based on residential or nonresidential development type. Development fees for residential development are assessed per dwelling unit, based on the type of unit. Nonresidential development fees are assessed per 1,000 square feet of floor area.

Figure 8: Water Facilities Development Fees Comparative Analysis (proposed vs. current nonresidential)

Residential

Residential Meter Size	*Proposed Fees*	*Current Total Fees*	*Change*
5/8"	**$6,387**	**$6,060**	$327
3/4"	**$9,569**	**$9,089**	$480
1"	**$15,934**	**$15,148**	$786
1.5" standard	**$31,846**	**$30,297**	$1,549
2" compound	**$50,941**	**$48,474**	$2,467
Per Unit Cost	**$2,044**	**$2,908**	($864)

Nonresidential Meter Size

Nonresidential Meter Size	*Proposed Fees*	*Current Total Fees*	*Change*
5/8"	**$7,087**	**$7,877**	($790)
3/4"	**$10,619**	**$11,816**	($1,197)
1"	**$17,684**	**$19,693**	($2,009)
1.5" standard	**$35,347**	**$39,385**	($4,038)
2" compound	**$56,542**	**$63,016**	($6,474)
3" compound	**$113,062**	**$126,032**	($12,970)
4" compound	**$176,647**	**$196,925**	($20,278)
6" compound	**$353,273**	**$393,850**	($40,577)
8" compound	**$565,224**	**$630,161**	($64,937)

Irrigation Meter Size

Irrigation Meter Size	*Proposed Fees*	*Current Total Fees*	*Change*
5/8"	**$14,343**	**$10,906**	$3,437
3/4"	**$21,503**	**$16,360**	$5,143
1"	**$35,824**	**$27,266**	$8,558
1.5" standard	**$71,627**	**$54,533**	$17,094
2" compound	**$114,590**	**$87,253**	$27,337
3" compound	**$229,158**	**$174,506**	$54,652
4" compound	**$358,047**	**$272,666**	$85,381
6" compound	**$716,072**	**$545,331**	$170,741
8" compound	**$1,145,702**	**$872,530**	$273,172

Figure 9: Residential Development Fees Comparative Analysis (proposed vs. current)

Residential (per unit)

Unit Type	Transportation	Parks	Police	Proposed Fee	Current Fee	Difference
Single-Family	$1,660	$1,054	$283	**$2,997**	**$3,156**	($159)
Multi-Family	$870	$762	$204	**$1,837**	**$2,045**	($208)

Figure 10: Nonresidential Development Fees Comparative Analysis (proposed vs. current)

Nonresidential (per 1,000 square foot unless noted otherwise)

Land Use Type	Transportation	Parks	Police	Proposed Fee	Current Fee	Difference
Hotel/Motel (room)	$839	$222	$227	**$1,288**	**$958**	$330
Retail/Commercial	$2,567	$558	$680	**$3,805**	**$2,859**	$946
Office & Other Services	$978	$708	$260	**$1,946**	**$1,978**	($32)
Industrial	$498	$389	$130	**$1,017**	**$1,048**	($31)
Warehouse	$175	$81	$50	**$306**	**$978**	($672)
Public/Institutional	$1,294	$222	$350	**$1,866**	**$1,497**	$369

To demonstrate the impact of the proposed development fees, the example in Figure 11 below contemplates all fees (Utility and Non-Utility) for a single-family unit, assuming a 0.625-inch water meter, in Oro Valley, representing a 4.8 percent increase.

Figure 11: Single-Family Unit All Development Fees Comparative Analysis (proposed vs. current)

Unit Type	Current Fee	Proposed Fee	Difference
Single-Family	$9,216	$9,383	$167

PARKS AND RECREATIONAL FACILITIES INFRASTRUCTURE IMPROVEMENT PLAN

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

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

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

Service Area

The Town of Oro Valley plans to provide a uniform level-of-service and equal access to parks and recreational facilities within the Town limits. The parks and recreation programs are structured and provided to make full use of Oro Valley's total inventory of facilities. Therefore, the recommended service area for the Parks and Recreational Facilities IIP is Townwide.

Proportionate Share

ARS § 9-463.05 (B)(3) states that the development fee shall not exceed a proportionate share of the cost of necessary public services needed to accommodate new development. TischlerBise recommends daytime population as a reasonable indicator of the potential demand for Parks and Recreational Facilities from residential and nonresidential development. According to the U.S. Census Bureau web application OnTheMap, there were 8,201 inflow commuters in 2015, which is the number of persons who work in Oro Valley but live outside the Town. OnTheMap is a web-based mapping and reporting application that shows where workers are employed and where they live. It describes geographic patterns of jobs by their employment locations and residential locations as well as the connections between the two locations. OnTheMap was developed through a unique partnership between the U.S. Census Bureau and its Local Employment Dynamics (LED) partner states. OnTheMap data is used, as shown in Figure PR1, to derive Functional Population shares for Oro Valley. The estimated Town population in 2015 from PAG is estimated at 42,259. The study uses 2015 data because this the most recent year available for inflow/outflow data. Therefore, it is compared to the population estimate for the corresponding year.

As shown in Figure PR1, the proportionate share is based on cumulative impact days per year. Oro Valley residents were allocated 365 days per year, for a total of 15,424,535 impact days. Inflow commuters were allocated 4 days per week, and 50 weeks per year, for a total of 1,640,200 impact days per year. Adding

the respective impact days of residents and inflow commuters (shown below in days) yields the total annual impact days for both residential and nonresidential categories. Residential's proportionate share of the total impact hours is 90%, while the nonresidential share is 10%.

Figure PR1: Daytime Population in 2015

		Cumulative Impact Days per Year			*Cost Allocation for Parks*	
Residents	**Inflow Commuters**	**Residential[1]**	**Nonresidential[2]**	**Total**	**Residential**	**Nonresidential**
42,259	8,201	15,424,535	1,640,200	17,064,735	90%	10%

1. Days per Year = ***365***

2. 4 Days per Week x 50 Weeks per Year = ***200***

Source: Pima Association of Goverments 2015 Population Estimate; U.S. Census Bureau, OnTheMap 6.6 Application, 2015.

RATIO OF SERVICE UNITS TO DEVELOPMENT UNITS

ARS § 9-463.05(E)(4) requires:

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

Figure PR2 displays the demand indicators for residential and nonresidential land uses. For residential development, the table displays the persons per housing unit for single-family (or single unit) and multifamily units. For nonresidential development, the table displays the number of employees per thousand square feet for four different types of nonresidential development.

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

Residential Development

Housing Type	Persons per Housing Unit
Single Family	2.09
Multi-Family	1.51

Source: Land Use Assumptions

Nonresidential Development

Type	Jobs per 1,000 Square Feet
Industrial	1.63
Commercial	2.34
Institutional	0.93
Office & Other	2.97

Source: Institute of Transportation Engineers, 2017

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

ARS § 9-463.05(E)(1) requires:

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

ARS § 9-463.05(E)(2) requires:

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

Park Land Improvements – Incremental Expansion

The summary of park land in Oro Valley is displayed in Figure PR3. Town-owned golf courses, regional parks, retention ponds, and conservation parks were excluded from the inventory. Oro Valley has a total of 389 acres of park land. The level-of-service for residential development is 0.0020 acres per resident, which is found by multiplying the total number of improved acres (99) by the residential proportionate share (90%) and dividing this total by the 2018 population (45,184). The nonresidential level-of-service is 0.009 developed acres per job, which is found by multiplying the total number of improved acres (99) by the nonresidential proportionate share (10%) and dividing this total by the number of jobs in 2018 (10,642). According to information provided by Town staff, the average cost to develop an acre of park land is $68,769. The cost per demand unit is determined by multiplying the level-of-service standard by the average development cost per acre. This results in a cost per person of $135.47 (0.0020 x $68,769) and $63.96 per job (0.0009 x $68,769).

Because the Town of Oro Valley does not anticipate any substantial neighborhood or community park land purchases over the next 10 years (or, developers will be asked to dedicate a reasonable portion of land to the Town for development as park land), **the cost of additional park land acquisition is not recommended for inclusion in the Development Fee Report** and is excluded from the Town's development fee calculations. **Park land improvements—including but not limited to elements such as irrigation, landscaping, lighting or turf —however are included in the Fee with the expectation that the Town will maintain the current level-of-service through incremental improvements on existing but unimproved park land.**

Figure PR3: Park Land Inventory and Level-of-Service Standards

Park Land	*Total Acres*	*Improved Acres*
Canada del Oro	30	30
Jame D. Kriegh	29	29
West Lambert Lane	40	2
Naranja	213	30
Honey Bee Canyon	77	8
TOTAL	**389**	**99**
Improvement Cost per Acre[1]		**$68,769**

Level-of-Service (LOS) Standards	
Residential	
Residential Share	90%
2018 Population	45,184
LOS: Developed Acres per Persons	**0.0020**
Cost per Person	**$135.47**
Nonresidential	
Nonresidential Share	10%
2018 Jobs	10,642
LOS: Developed Acres per Job	**0.0009**
Cost per Job	**$63.96**

Park Amenities and Improvements – Incremental Expansion

The inventory summary of Oro Valley's park amenities is displayed in Figure PR4. Oro Valley parks have 87 amenities that have a total replacement cost of approximately $18.3 million. Dividing the total replacement cost by the total number of amenities yields an average cost per improvement of $210,936. The current residential level-of-service is 0.00173 amenities per resident, which was obtained by multiplying the 87 amenities by the residential proportionate share (90%) and dividing this amount by the current population (45,184). Similarly, the nonresidential level-of-service is 0.0082 units per job (90 x 10% x 10,642). Multiplying the average cost per amenity ($210,936) by the residential and nonresidential levels-of-service results in a cost per person of $364.92 and $172.97 per job. Note that while the LOS Standards shown are rounded to the fifth decimal place, the analysis does not round these figures. Therefore, the cost analysis calculations may not produce the same result if the reader replicates the calculations using the factors shown (due to the rounding of figures shown, not in the analysis).

Figure PR4: Park Amenities Inventory and Level-of-Service Standards

Description	Units	Unit Cost	Replacement Cost
Restrooms (lighted)	6	$215,000	$1,290,000
Playground (shaded)	2	$150,000	$300,000
Accessible Playground (shaded)	1	$150,000	$150,000
Covered Ramada (lighted)	5	$90,000	$450,000
Covered Ramada (lighted)	3	$50,000	$150,000
Soccer Fields (lighted)	2	$210,000	$420,000
Softball Fields (lighted)	4	$250,000	$1,000,000
Multiuse Field (lighted)	4	$1,200,000	$4,800,000
Baseball Fields (lighted)	3	$250,000	$750,000
Sand Volleyball	2	$25,000	$50,000
Horseshoe Pits	2	$1,000	$2,000
Concession Stand	2	$150,000	$300,000
Tennis Court	32	$140,000	$4,480,000
Basketball Court (lighted)	1	$100,000	$100,000
Parking Lot (lighted)	7	$340,000	$2,380,000
Walking Path	1	$54,400	$54,400
Racquetball Courts (lighted)	4	$50,000	$200,000
Dog Park	2	$150,000	$300,000
Splash Pad	1	$875,000	$875,000
Archery Range (fixed)	1	$150,000	$150,000
Archery Range (walk around)	2	$75,000	$150,000
Total	87	$210,936	$18,351,400

** Average Cost Per Pool, Town of Oro Valley.*

Level-of-Service Standards	
Existing Amenities	87
Residential	
Residential Share	90%
2018 Population	45,184
Amenities per Person	**0.00173**
Cost per Person	**$364.92**
Nonresidential	
Nonresidential Share	10%
2018 Jobs	10,642
Amenities per Job	**0.00082**
Cost per Job	**$172.97**

Development Fee Report – Plan-Based

The cost to prepare the Parks and Recreational Development Fees and IIP totals $15,268. Oro Valley plans to update its report every five years. Based on this cost, proportionate share, and five-year projections of new development from the Land Use Assumptions document, the cost per person is $4.39 and the cost per job is $1.71.

Figure PR5: Development Fee Report Cost Allocation

Necessary Public Service	*Cost*	*Assessed Against*	*Proportionate Share*	*Demand Unit*	*2019*	*2024*	*Change*	*Cost per Demand Unit*
Parks	***$15,268***	Residential	90%	Population	45,857	48,989	3,132	**$4.39**
		Nonresidential	10%	Jobs	10,812	11,705	893	**$1.71**

PROJECTED DEMAND FOR SERVICES AND COSTS

ARS § 9-463.05(E)(5) requires:

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

As shown in Figure PR6 and PR7, the Land Use Assumptions projects an additional 5,991 persons and 1,831 jobs over the next 10 years.

ARS § 9-463.05(E)(6) requires:

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

These projected service units are multiplied by the current levels-of-service for the IIP components shown in Figure PR6 and PR7. New development will demand an additional 13 acres of improved park land.

The park improvements totals demanded by new development multiplied by the respective costs suggests the Town will need to spend approximately $927,694 on new park land improvements to accommodate projected demand.

Figure PR6: Projected Demand for Improved Park Land

Type of Infrastructure	Level of Service	Demand Unit	Cost per Acre
Park Land Improvements	0.002 Improved Acres	Persons	$68,769
	0.001 Improved Acres	Jobs	

	Need for Parks Infrastructure					
	Year	Population	Jobs	Residential Acres	Nonresidential Acres	Total Acres
Base	2018	45,184	10,642	89	10	99
Year 1	2019	45,857	10,812	90	10	100
Year 2	2020	46,536	10,985	92	10	102
Year 3	2021	47,192	11,160	93	10	103
Year 4	2022	47,820	11,340	94	11	105
Year 5	2023	48,413	11,522	95	11	106
Year 6	2024	48,989	11,705	97	11	107
Year 7	2025	49,557	11,892	98	11	109
Year 8	2026	50,112	12,082	99	11	110
Year 9	2027	50,648	12,275	100	11	111
Year 10	2028	51,175	12,473	101	12	112
	10-Yr Increase	5,991	1,831	**12**	**2**	**13**
	Growth-Related Expenditures =>			**$810,787**	**$116,907**	**$927,694**
					Total	**$927,694**

The park amenities demanded by new development multiplied by the respective costs suggests the Town will need to spend $2.5 million on new park amenities to accommodate projected demand.

Figure PR7: Projected Demand for Parks and Recreational Amenities

Type of Infrastructure	Level of Service	Demand Unit	Cost per Amenity
Park Amenities	0.0017 Amenities	Persons	$210,936
	0.0008 Amenities	Jobs	

	Need for Parks Infrastructure					
	Year	Population	Jobs	Residential Units	Nonresidential Units	Total Amenities
Base	2018	45,184	10,642	78	9	87
Year 1	2019	45,857	10,812	79	9	88
Year 2	2020	46,536	10,985	81	9	90
Year 3	2021	47,192	11,160	82	9	91
Year 4	2022	47,820	11,340	83	9	92
Year 5	2023	48,413	11,522	84	9	93
Year 6	2024	48,989	11,705	85	10	94
Year 7	2025	49,557	11,892	86	10	95
Year 8	2026	50,112	12,082	87	10	97
Year 9	2027	50,648	12,275	88	10	98
Year 10	2028	51,175	12,473	89	10	99
	10-Yr Increase	5,991	1,831	**10**	**2**	**12**
			Growth-Related Expenditures =>	**$2,185,293**	**$316,403**	**$2,501,696**
					Total	**$2,501,696**

PARKS AND RECREATION FACILITIES IIP

ARS § 9-463.05(E)(3) requires:

> *"A description of all or the parts of the necessary public services or facility expansions and their costs necessitated by and attributable to development in the service area based on the approved land use assumptions, including a forecast of the costs of infrastructure, improvements, real property, financing, engineering and architectural services, which shall be prepared by qualified professionals licensed in this state, as applicable."*

Potential Parks and Recreational Facilities that Oro Valley may use development fees for in order to accommodate new development over the next 10 years are shown in Figure PR8.

Figure PR8: Necessary Parks & Recreational Improvements and Expansions

Park Infrastructure Improvement Plan	
Improvement	**Estimated Cost**
Skate Park	$1,500,000
Playground and Parking Lot	$1,700,000
Multiuse Fields (lighted)	$1,200,000
Dog Park	$150,000
Total	**$4,550,000**

PARKS AND RECREATIONAL FACILITIES DEVELOPMENT FEES

Required Offsets

An offset is not necessary for the Parks and Recreational Facilities development fees because 10-year growth costs exceed the amount of revenue that is projected to be generated by development fees according to the Land Use Assumptions, as shown in Figure PR10.

Proposed Parks and Recreational Facilities Development Fees

Infrastructure standards and cost factors for Parks and Recreational Facilities, including park amenities, park land improvements and pool facilities, and the professional services cost for the IIP and Development Fee Report are summarized at the top of Figure PR9. Updated development fees for Parks and Recreational Facilities are shown in the column with green shading alongside the current development fees, and the net change is shown in the far-right column. The proposed development fees for parks and recreation increased across all development types from the current fee amounts.

Figure PR9: Proposed Parks and Recreational Facilities Development Fees

Fee Component	Cost per Person	Cost per Job
Park Land Improvements	$135.33	$63.85
Park Amenities	$364.76	$172.80
Development Fee Study	$4.39	$1.71
TOTAL	$504.48	$238.36

Residential (per unit)

Development Type	Persons per Housing Unit	Proposed Fees	Current Fee	Increase / Decrease
Single Unit	2.09	**$1,054**	$856	$198
2+ Units	1.51	**$762**	$599	$163

Nonresidential (per square foot unless noted otherwise)

Development Type	Jobs per 1,000 Sq Ft	Proposed Fees	Current Fee	Increase / Decrease
Hotel/Motel (room)	0.93	**$0.22**	$0	$0.22
Retail/Commercial	2.34	**$0.56**	$0	$0.56
Office & Other Services	2.97	**$0.71**	$0	$0.71
Industrial	1.63	**$0.39**	$0	$0.39
Warehouse	0.34	**$0.08**	$0	$0.08
Public/Institutional	0.93	**$0.22**	$0	$0.22

FORECAST OF REVENUES

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

Parks and Recreational Facilities Development Fee Revenue

The top of Figure PR10 summarizes the growth-related cost of infrastructure in Oro Valley over the next 10 years (approximately $3.4 million for Parks and Recreational Facilities). Oro Valley should receive approximately $3.2 million in Parks and Recreational Facilities development fee revenue over the next 10 years if actual development matches the Land Use Assumptions. This yields a minor net deficit of approximately $209,000.

Figure PR10: Projected Parks and Recreational Facilities Development Fee Revenue

Fee Component	Growth Share
Developed Park Land	$927,694
Park Amenities	$2,501,696
Development Fee Report	$15,268
Total	$3,444,658

		Single Family	*Multi-Family*	*Industrial*	*Commercial*	*Institutional*	*Office*
		$1,054 per unit	**$762 per unit**	**$0.39 per sq. ft.**	**$0.56 per sq. ft.**	**$0.22 per sq. ft.**	**$0.71 per sq. ft.**
Year		Housing Units	Housing Units	KSF	KSF	KSF	KSF
Base	2018	17,158	5,478	620	1,407	545	1,965
Year 1	2019	17,407	5,497	630	1,430	554	1,996
Year 2	2020	17,613	5,562	640	1,453	563	2,028
Year 3	2021	17,822	5,628	650	1,476	571	2,061
Year 4	2022	18,033	5,695	661	1,500	581	2,094
Year 5	2023	18,246	5,762	671	1,524	591	2,127
Year 6	2024	18,463	5,830	681	1,548	599	2,162
Year 7	2025	18,682	5,899	692	1,573	609	2,196
Year 8	2026	18,903	5,969	704	1,598	619	2,231
Year 9	2027	19,128	6,040	715	1,624	628	2,267
Year 10	2028	19,354	6,112	726	1,650	639	2,303
10-Year Increase		2,196	634	106	243	94	338
Projected Revenue		**$2,315,104**	**$483,066**	**$41,234**	**$135,594**	**$20,868**	**$239,304**

Projected Fee Revenue	**$3,235,170**
Surplus/**(Deficit)**	($209,488)

POLICE FACILITIES INFRASTRUCTURE IMPROVEMENT PLAN

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

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

The Police Facilities IIP and Development Fees includes components for police stations, police vehicles, and the cost of professional services for preparing the Police Facilities IIP and related Development Fee Report. Three different methodologies are utilized across the Police IIP. A cost recovery methodology is used for police facilities, an incremental approach is utilized for vehicles, and a plan-based methodology is used for the Development Fee Report.

Service Area

The Town of Oro Valley's Police Department strives to provide a uniform response time Townwide. Therefore, a Townwide service area is recommended for the Police Facilities IIP.

Proportionate Share

ARS § 9-463.05 (B)(3) states that the development fee shall not exceed a proportionate share of the cost of necessary public services needed to accommodate new development. TischlerBise recommends functional population to allocate the cost of police facilities to residential and nonresidential development. Functional population is similar to what the U.S. Census Bureau calls "daytime population," by accounting for people living and working in a jurisdiction, but also considers commuting patterns and time spent at home and at nonresidential locations. OnTheMap is a web-based mapping and reporting application that shows where workers are employed and where they live. It describes geographic patterns of jobs by their employment locations and residential locations as well as the connections between the two locations. OnTheMap was developed through a unique partnership between the U.S. Census Bureau and its Local Employment Dynamics (LED) partner states. OnTheMap data is used, as shown in Figure P1, to derive Functional Population shares for Oro Valley.

Residents that do not work are assigned 20 hours per day to residential development and 4 hours per day to nonresidential development (annualized averages). Residents that work in Oro Valley are assigned 14 hours to residential development and 10 hours to nonresidential development. Residents that work outside Oro Valley are assigned 14 hours to residential development. Inflow commuters are assigned 10 hours to nonresidential development. Based on 2015 functional population data for Oro Valley, the cost allocation for residential development is 78 percent while nonresidential development accounts for 22 percent of the demand for police facilities.

Figure P1: Police Proportionate Share

	Demand Units in 2015		Demand Hours/Day	Person Hours	Proportionate Share
Residential					
Estimated Residents	42,259				
Residents Not Working		27,298	20	545,960	
Employed Residents		14,961			
Employed in Oro Valley		1,946	14	27,244	
Employed outside Oro Valley		13,015	14	182,210	
		Residential Subtotal		755,414	**78%**
Nonresidential					
Non-working Residents		27,298	4	109,192	
Jobs in Oro Valley		10,147			
Residents Employed in Oro Valley		1,946	10	19,460	
Non-Resident Workers (inflow Commuters)		8,201	10	82,010	
		Nonresidential Subtotal		210,662	**22%**
			TOTAL	966,076	**100%**

Source: Pima Association of Governments 2015 Population Estimate; U.S. Census Bureau, OnTheMap 6.6 Application, 2015.

RATIO OF SERVICE UNITS TO DEVELOPMENT UNITS

ARS § 9-463.05(E)(4) requires:

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

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

TischlerBise recommends using nonresidential vehicle trips as the best demand indicator for police facilities and vehicles. Trip generation rates are used for nonresidential development because vehicle trips are highest for commercial/retail developments, such as shopping centers, and lowest for industrial development. Office and institutional trip rates fall between the other two categories. This ranking of trip rates is consistent with the relative demand for police from nonresidential development. Other possible nonresidential demand indicators, such as employment or floor area, will not accurately reflect the

demand for service. For example, if employees per thousand square feet were used as the demand indicator, police development fees would be too high for office and institutional development because offices typically have more employees per 1,000 square feet than retail uses.

Trip generation rates per average weekday are from the reference book Trip Generation published by the Institute of Transportation Engineers (ITE 10th Edition 2017). A vehicle trip end represents a vehicle either entering or exiting a development (as if a traffic counter were placed across a driveway). To calculate development fees, trip generation rates require an adjustment factor to avoid double counting each trip at both the origin and destination points. Therefore, the basic trip adjustment factor is 50%.

For commercial and institutional development, the trip adjustment factor is less than 50% because retail development and some services attract vehicles as they pass by on arterial and collector roads. For example, when someone stops at a convenience store on the way home from work, the convenience store is not the primary destination. For the average shopping center, the ITE data indicates that 34% of the vehicles that enter are passing by on their way to some other primary destination. In other words, 34% of trips to the average shopping center are already being counted because the shopping center is not their final destination, and therefore these trips must be discounted. The remaining 66% of attraction trips have the commercial site as their primary destination. Because attraction trips are half of all trips, the trip adjustment factor is 66% multiplied by 50%, or approximately 33% of the vehicle trips. These factors are shown to derive inbound vehicle trips for each type of nonresidential land use.

The ratio of service unit to development unit for each type of nonresidential development is calculated by multiplying the ITE trip generation rate by the trip rate adjustment factor to avoid double-counting trips, as discussed above. By way of example, the service unit to development unit ratio for a Commercial development is found by multiplying the ITE trip generation rate of 37.75 trips (per 1,000 square feet) by the trip rate adjustment factor of 33%, yielding an adjusted trip rate of 12.46 trips per 1,000 square feet. Therefore, it is reasonable to assume a 100,000 square foot commercial development would generate 1,246 primary destination trips per average weekday.

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

Type of Household	Persons per Housing Unit[1]
Single-Family	2.09
Multi-Family	1.51

Type	Trips per 1,000 Sq. Ft.[2]	Trip Rate Adjustment	Adjusted Trips per 1,000 Sq. Ft.
Industrial	4.96	50%	2.48
Commercial/Retail	37.75	33%	12.46
Institutional	19.52	33%	6.44
Office and Other	9.74	50%	4.87
Hotel (per room)	8.36	50%	4.18

1. Derived from U.S. Census Bureau American Community Survey 1-year Estimates, 2017

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

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

ARS § 9-463.05(E)(1) requires:

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

ARS § 9-463.05(E)(2) requires:

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

Police Facilities – Cost Recovery

The Police Department recently opened a new Police Station, totaling 24,000 square feet of floor area. Prior to the opening of this facility, the Police Department was housed in a 15,165 square foot facility. As shown in Figure P3, the construction of this new station represents a substantial increase to the Town's level-of-service. For example, the level-of-service per person in 2018 is 0.262 square feet per person. In 2019, with the construction of the new stations, the level-of-service person is 0.408 square feet per person. To ensure that new development is not correcting an existing deficiency, TischlerBise is utilizing a cost recovery method based on the ***total*** projected service units in 2033, the last year of debt service. As shown in Figure P3, the level-of-service per person is projected to be 0.349 square feet in 2033, an

increase of 25% over the current level-of-service. The level-of-service per nonresidential vehicle trip is projected to be 0.129 in 2033, an increase of 20% over the current level-of-service.

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

Year	Square Feet	Residential Proportionate Share	Residential Share of Square Footage	Residential Service Units (Population)	LOS per Person	Nonesidential Proportionate Share	Nonresidential Share of Square Footage	Nonresidential Service Units (Vehicle Trips)	LOS per Nonres. Trip
2018	15,165	78%	11,829	45,184	**0.262**	22%	3,336	32,153	**0.104**
2019	24,000	78%	18,720	45,857	**0.408**	22%	5,280	32,668	**0.162**
2033	24,000	78%	18,720	53,684	**0.349**	22%	5,280	40,798	**0.129**

As shown in Figure P4, the total facility cost (including principal and interest) totaled $2,549,274. The cost recovery portion of the Police Facilities development fee will be used to cover new development's share of Police Station debt service payments. When this cost is spread over the projected service unit (population and nonresidential vehicle trips) in 2033 (the year the debt obligation is retired), the cost per person is $37.04 and the cost per nonresidential trip is $13.75. Based on the land use assumptions, it is projected that new development will generate development fee revenue of approximately $298,000 over the next 10 years.

Figure P4: Police Facilities Service Unit Cost Summary

Facility	Cost	Proportionate Share	Demand Unit	Demand Units in 2033	Cost per Demand Unit
Oro Valley Police Station	$2,549,274	78%	person	53,684	**$37.04**
		22%	nonres. trip	40,798	**$13.75**

10-Year Increase in Population	5,991
10-Year Increase in Nonresidential Vehicle Trips	5,534
10-Year Cost Recovery	**$297,984**

Current Remaining Principal	**$2,549,274**
10-Year Development Fee Revenue	$297,984
Remaining Principal in 2028	**$2,251,290**

Police Vehicles and Equipment – Incremental Expansion

The first step in applying the incremental expansion method to Police Vehicles is determining the cost of new vehicles. The Town provided an inventory of police vehicles along with cost which is displayed in

Figure P5. The Oro Valley Police Department has an inventory of 129 vehicles, which have a total estimated replacement cost of $6 million. Dividing the total cost by the total number of units yields an average cost per unit of $46,563. The level-of-service standards and cost analysis for police vehicles are continued on the following page. The current residential level-of-service is 0.0022 units per resident, which was obtained by multiplying the 129 units by the residential proportionate share (78%) and dividing this amount by the current population (45,184). Similarly, the nonresidential level-of-service is 0.0009 units per vehicle trip. Multiplying the average cost per unit ($46,563) by the residential and nonresidential levels-of-service results in a cost per person of $102.44 and $41.91 per vehicle trip. Note that while the LOS Standards shown are rounded to the fifth decimal place, the analysis does not round these figures. Therefore, the cost analysis calculations may not produce the same result if the reader replicates the calculations using the factors shown (due to the rounding of figures shown, not in the analysis).

Figure P5: Police Vehicles and Equipment Inventory and Level-of-Service Standards

Description	*Number of Units*	*Cost per Unit*	*Replacement Cost*
Patrol Tahoe	62	$62,362	$3,866,470
Van	3	$35,000	$105,000
ID Truck	3	$55,023	$165,069
Motorcycle	8	$30,480	$243,840
CRU Truck	4	$30,688	$122,752
Specialty/Under Cover	8	$62,362	$498,899
C.V.A.P.	5	$27,440	$137,200
Other-Crown Victoria, Impala, Camry	36	$24,095	$867,420
Total	**129**	**$46,563**	**$6,006,650**

Level-of-Service (LOS) Standards

Existing Units	129
2018 Population	45,184
2018 Nonresidential Vehicle Trips	32,153
Residential Share	78%
Nonresidential Share	22%

LOS per Person	**0.0022**
LOS per Nonresidential Trip	**0.0009**

Cost Analysis

Cost per Vehicle	$46,563
LOS: Vehicles per Person	0.0022
LOS: Vehicles per Vehicle Trip	0.0009
Cost per Person	**$102.44**
Cost per Vehicle Trip	**$41.91**

Source: Town of Oro Valley, AZ

Development Fee Report – Plan-Based

The cost to prepare the Police Facilities IIP and related Development Fee Report totals $15,268. Oro Valley plans to update its report every five years. Based on this cost, proportionate share, and five-year projections of new residential and nonresidential development from the Land Use Assumptions document, the cost per person is $3.80 and the cost per nonresidential trip is $1.05.

Figure P6: Development Fee Report Cost Allocation

Necessary Public Service	Cost	Assessed Against	Proportionate Share	Demand Unit	2019	2024	Change	Cost per Demand Unit
Police	***$15,268***	Residential	78%	Population	45,857	48,989	3,132	**$3.80**
		Nonresidential	22%	Trips	32,153	35,364	3,211	**$1.05**

PROJECTED SERVICE UNITS AND PROJECTED DEMAND FOR SERVICES

ARS § 9-463.05(E)(5) requires:

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

The Land Use Assumptions projects an additional 5,991 persons and 5,534 nonresidential vehicle trips over the next 10 years, as shown in Figure P7.

ARS § 9-463.05(E)(6) requires:

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

As shown in Figure P7, this new development will demand approximately 18 additional units of vehicles. The 10-year total of the projected demand for new police vehicles/equipment is multiplied by the cost to determine the total cost to accommodate the projected demand over the next 10 years. The projected demand for additional police vehicles and equipment will cost approximately $846,050 in total.

Figure P7: Projected Demand for Police Vehicles

Type of Infrastructure	Level of Service	Demand Unit	Cost per Unit
Police Vehicles	0.0022 Units	Per Person	$46,563
	0.0009 Units	Per Nonres. Trip	

	Need for Police Vehicles and Equipment					
	Year	Population	Nonres. Trips	Residential	Nonresidential	Total Patrol Vehicles
Base	2018	45,184	32,153	99	29	128
Year 1	2019	45,857	32,668	101	29	130
Year 2	2020	46,536	33,191	102	30	132
Year 3	2021	47,192	33,717	104	30	134
Year 4	2022	47,820	34,264	105	31	136
Year 5	2023	48,413	34,814	107	31	138
Year 6	2024	48,989	35,364	108	32	140
Year 7	2025	49,557	35,930	109	32	141
Year 8	2026	50,112	36,505	110	33	143
Year 9	2027	50,648	37,088	111	33	145
Year 10	2028	51,175	37,688	113	34	147
	10-Yr Increase	5,991	5,534	13	5	18
	Growth-Related Expenditures =>			**$614,166**	**$231,884**	**$846,050**

POLICE FACILITIES IIP

ARS § 9-463.05(E)(3) requires:

> *"A description of all or the parts of the necessary public services or facility expansions and their costs necessitated by and attributable to development in the service area based on the approved land use assumptions, including a forecast of the costs of infrastructure, improvements, real property, financing, engineering and architectural services, which shall be prepared by qualified professionals licensed in this state, as applicable."*

Potential Police Facilities that Oro Valley may use development fees for in order to accommodate new development over the next 10 years are shown in Figure P8. Additional vehicles will be procured as necessitated by growth.

Figure P8: Necessary Police Improvements and Expansions (10-Yr Total)

Police Infrastructure Improvement Plan		
Improvement	**Timeframe**	**Estimated Cost**
Police Vehicles	2020-2028	$846,050
	Total	**$846,050**

POLICE FACILITIES DEVELOPMENT FEES

Required Offsets

The Town of Oro Valley will fund the new Police Station with a bond that will be retired using sales tax. Since new development will generate future sales tax that may be used to retire debt, TischlerBise has calculated an offset for the Police Facilities development fee. As discussed previously, the new Police Station will elevate the level-of-service for station space within the Town. The cost per service unit for the station component was determined based on the projected 2033 demand base, which would represent a 25% increase in the level-of-service for residential development and a 20% increase for nonresidential development. To determine the offset for future principal payments, TischlerBise obtained the amortization schedule for this debt. Given the fact this new facility results in an increase in the level-of-service, TischlerBise apportioned the share of future principal payments to residential and nonresidential development that is used to elevate the existing level-of-service (discussed above) and calculated a net present value of the offset. For example, the projected principal payment in FY2021-22 is $121,500. This payment is multiplied the Police Facilities proportionate share factors (shown in Figure P1) to determine the residential and nonresidential shares, which is then multiplied further by the projected level-of-service increase (25% for residential development and 20% for nonresidential development). These residential and nonresidential shares are then divided by the residential and nonresidential service units to determine the appropriate offset. As shown in Figure P9, projected future principal payments from residential development that is directed toward the level-of-service increase is $396,825. Annual principal payments are discounted using a net present value formula based on the bond interest rate of 3.02%. The nonresidential share is $89,540. This results in offset per person of $7.89 and $2.42 per nonresidential vehicle trip.

Figure P9: Offset for Future Principal Payments

	Principal Payments	Residential Share (x25%)	Population	Debt Cost Per Capita	Nonresidential Share (x20%)	Nonres Vehicle Trips	Debt Cost Per Trip End
2018-2019	$77,250	$15,064	45,857	$0.33	$3,399	32,668	$0.10
2019-2020	$114,500	$22,328	46,536	$0.48	$5,038	33,191	$0.15
2020-2021	$117,750	$22,961	47,192	$0.49	$5,181	33,717	$0.15
2021-2022	$121,500	$23,693	47,820	$0.50	$5,346	34,264	$0.16
2022-2023	$125,000	$24,375	48,413	$0.50	$5,500	34,814	$0.16
2023-2024	$129,000	$25,155	48,989	$0.51	$5,676	35,364	$0.16
2024-2025	$132,750	$25,886	49,557	$0.52	$5,841	35,930	$0.16
2025-2026	$136,750	$26,666	50,112	$0.53	$6,017	36,505	$0.16
2026-2027	$141,000	$27,495	50,648	$0.54	$6,204	37,088	$0.17
2027-2028	$145,250	$28,324	51,175	$0.55	$6,391	37,688	$0.17
2028-2029	$149,500	$29,153	51,687	$0.56	$6,578	38,288	$0.17
2029-2030	$154,000	$30,030	52,188	$0.58	$6,776	38,898	$0.17
2030-2031	$158,750	$30,956	52,679	$0.59	$6,985	39,522	$0.18
2031-2032	$163,500	$31,883	53,190	$0.60	$7,194	40,156	$0.18
2032-2033	$168,500	$32,858	53,684	$0.61	$7,414	40,798	$0.18
Total	**$2,035,000**	**$396,825**			**$89,540**		
		Discount Rate	**3.02%**				**3.02%**
		Net Present Value	**$7.89**				**$2.42**

Proposed Police Facilities Development Fees

The proposed Police development fees are shown in Figure P10. Cost factors for police facilities, vehicles and equipment, and professional services are summarized at the top of the figure. The residential development fees are calculated by multiplying the $135.39 cost per person by the service unit ratios (persons per housing unit) for each housing type. Nonresidential development fees are calculated by multiplying the $54.28 per vehicle trip by the average weekday vehicle trips per 1,000 square feet ratios and the trip adjustment factors for each development type. Proposed development fees for Police increased for most all nonresidential development type and decrease slightly for residential from the current fees.

Figure P10: Proposed Police Facilities Development Fees

Fee Component	*Cost per Person*	*Cost per Nonres. Trip*
Substation Debt	$37.04	$13.75
Vehicles and Equipment	$102.44	$41.91
Development Fee Study	$3.80	$1.05
Offest for Future Principal Payment	($7.89)	($2.42)
Total	**$135.39**	**$54.28**

Residential (per unit)

Unit Type	*Persons per Housing Unit*	*Proposed Fee*	*Current Fee*	*Increase / Decrease*
Single Unit	2.09	**$283**	$310	($27)
Multifamily	1.51	**$204**	$215	($11)

Nonresidential (per square foot unless noted otherwise)

Land Use Type	*Avg Wkdy Veh Trip Ends*	*Trip Rate Adjustment*	*Proposed Fee*	*Current Fee*	*Increase / Decrease*
Hotel/Motel (room)	8.36	50%	**$227**	$200	$27
Retail/Commercial	37.75	33%	**$0.68**	$0.45	$0.23
Office & Other Services	9.74	50%	**$0.26**	$0.16	$0.10
Industrial	4.96	50%	**$0.13**	$0.07	$0.07
Warehouse	1.74	50%	**$0.05**	$0.06	($0.01)
Public/Institutional	19.52	33%	**$0.35**	$0.12	$0.23

FORECAST OF REVENUES

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

Development Fee Revenues for Police Facilities and Vehicles

Revenue projections shown below assume implementation of the proposed Police development fees and that development over the next 10 years is consistent with the Land Use Assumptions. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the development fee revenue. As shown in Figure P11, the 10-year growth costs of police facilities and vehicles total approximately $1.15 million, and approximately $1.05 million will be collected from development fees. The result is a slight deficit of approximately $108,000. Due to the offset for future principal payments.

Figure P11: Projected Police Development Fee Revenue

Fee Component	Growth Share
Substation Debt	$297,984
Police Vehicles	$846,050
Development Fee Report	$15,268
Total	$1,159,302

Police Facilities Development Fee Revenue

		Single-Family	*Multi-Family*	*Industrial*	*Commercial*	*Institutional*	*Office*
		$283 per unit	**$204 per unit**	**$0.13 per sq. ft.**	**$0.68 per sq. ft.**	**$0.35 per sq. ft.**	**$0.26 per sq. ft.**
Year		*Hsg Unit*	*Hsg Unit*	*KSF*	*KSF*	*KSF*	*KSF*
Base	2018	17,158	5,478	620	1,407	545	1,965
Year 1	2019	17,407	5,497	630	1,430	554	1,996
Year 2	2020	17,613	5,562	640	1,453	563	2,028
Year 3	2021	17,822	5,628	650	1,476	571	2,061
Year 4	2022	18,033	5,695	661	1,500	581	2,094
Year 5	2023	18,246	5,762	671	1,524	591	2,127
Year 6	2024	18,463	5,830	681	1,548	599	2,162
Year 7	2025	18,682	5,899	692	1,573	609	2,196
Year 8	2026	18,903	5,969	704	1,598	619	2,231
Year 9	2027	19,128	6,040	715	1,624	628	2,267
Year 10	2028	19,354	6,112	726	1,650	639	2,303
Ten-Year Increase		**2,196**	**634**	**106**	**243**	**94**	**338**
Projected Revenue		**$621,541**	**$129,605**	**$13,831**	**$164,924**	**$32,759**	**$87,883**

Projected Fee Revenue	**$1,050,544**
Surplus/**(Deficit)**	($108,759)

STREET FACILITIES INFRASTRUCTURE IMPROVEMENT PLAN

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

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

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

Service Area

The service area for the Street Facilities IIP is Townwide, however due to the probability of incremental development outside existing Town limits, Oro Valley may want to enter into development/annexation agreements, or use some other instrument with prospective developers working outside established Town limits which may include payments to the Town to help cover the cost of street infrastructure improvements and/or mitigation measures that are determined to be necessary.

METHODOLOGY

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

Proportionate Share

ARS § 9-463.05 (B)(3) states that the development fee shall not exceed a proportionate share of the cost of necessary public services needed to provide necessary public services to the development. Trip length, trip generation rates and trip adjustment factors are used to determine the proportionate impact of residential, commercial, office, and industrial land uses on the Town's street network.

RATIO OF SERVICE UNITS TO DEVELOPMENT UNITS

ARS § 9-463.05(E)(4) requires:

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

Service Units

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

Figure S1: Summary of Service Units

Development Type	ITE Code	Weekday VTE	Dev Unit	Trip Adj	Adj Trip Rate	Local Trip Length
Single Units	210	8.20	HU	63%	5.17	3.10
Multifamily	220	4.30	HU	63%	2.71	3.10
Industrial (KSF)	110	4.96	KSF	50%	2.48	1.94
Commercial / Retail (KSF)	820	37.75	KSF	33%	12.46	1.99
Institutional (KSF)	520	19.52	KSF	33%	6.44	1.94
Office & Other (KSF)	710	9.74	KSF	50%	4.87	1.94

Trip Generation Rates

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

Adjustments for Commuting Patterns and Pass-By Trips

To calculate Street Facilities Development Fees, trip generation rates require an adjustment factor to avoid double counting each trip at both the origin and destination points. Therefore, the basic trip adjustment factor is 50%. As discussed further below, the development fee methodology includes additional adjustments to make the fees proportionate to the infrastructure demand for particular types of development.

Residential development has a larger trip adjustment factor of 63% to account for commuters leaving Oro Valley for work. According to the 2009 National Household Travel Survey, weekday work trips are typically 31% of production trips (i.e., all out-bound trips, which are 50% of all trips). As shown in Figure S2, the Census Bureau's web application OnTheMap indicates that 87% of resident workers traveled outside the Town for work in 2015. In combination, these factors (0.31 X 0.50 X 0.87 = .13) support the additional 13% allocation of trips to residential development.

Figure S2: Inflow/Outflow Analysis

Trip Adjustment Factor for Commuters [1]	
Employed Residents	14,961
Residents Working in Oro Valley	1,946
Residents Working Outside Oro Valley (Commuters)	13,015
Percent Commuting out of Oro Valley	**87%**
Additional Production Trips[2]	**13%**
Residential Trip Adjustment Factor	**63%**

1. U.S. Census Bureau, OnTheMap Application (version 6.6) and LEHD Origin-Destination Employment Statistics, 2015.
2. According to the National Household Travel Survey (2009), published in December 2011 (see Table 30), home-based work trips are typically 30.99 percent of "production" trips, in other words, out-bound trips (which are 50 percent of all trip ends). Also, LED OnTheMap data from 2015 indicate that 87 percent of Oro Valley workers travel outside the town for work. In combination, these factors (0.3099 x 0.50 x 0.87 = 0.1347) account for 13 percent of additional production trips. The total adjustment factor for residential includes attraction trips (50 percent of trip ends) plus the journey-to-work commuting adjustment (13 percent of production trips) for a total of 63 percent.*
**http://nhts.ornl.gov/publications.shtml ; Summary of Travel Trends - Table "Daily Travel Statistics*

For commercial development, the trip adjustment factor is less than 50% because retail development and some services attract vehicles as they pass by on arterial and collector roads. For example, when someone stops at a convenience store on the way home from work, the convenience store is not the primary destination. For the average shopping center, the ITE data indicates that 34% of the vehicles that enter are passing by on their way to some other primary destination. The remaining 66% of attraction trips have the commercial site as their primary destination. Because attraction trips are half of all trips, the trip adjustment factor is 66% multiplied by 50%, or approximately 33% of the trips. These factors are shown to derive inbound vehicle trips for each type of nonresidential land use.

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

ARS § 9-463.05(E)(1) requires:

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

As shown in Appendix C, the Town of Oro Valley provided an inventory of arterial road segments, including segment lengths, lane quantities, and annual average daily traffic (AADT) counts. Multiplying each segment's length by the number of lanes yields the number of lane miles per segment. The Town's arterial road network consists of 118.5 lane miles. By multiplying the traffic counts and segment lengths, the daily vehicle miles of travel (VMT) is obtained. The sum of each arterial road segment's VMT is 383,580.

Figure S3 documents the capacity of Oro Valley's arterial road network. According to Town staff, the Town's arterial streets operate at a Level-of-Service A, and the average number of lanes for arterials is roughly 4 lanes. A mile segment of a 4-lane arterial street with a Level-of-Service A should maintain a daily volume of 12,600 vehicles, or 3,150 vehicles per lane mile over a 24-hour period. Given the incremental expansion methodology used in this analysis, and the Town's current level-of-service (LOS A), the baseline VMC/VMT ratio for any incremental expansion method is 1.0 (i.e., VMC=VMT).

Figure S3: Arterial Road Network Capacity and Usage

Total Vehicle Lane Miles	118.5
Capacity per Lane Mile (LOS A)	3,150
Total Vehicle Miles of Capacity	383,580
Existing Vehicle Miles of Travel	383,580
VMC/VMT Ratio	**1.00**

Vehicle Trips

Figure S4 shows the calculation of vehicle trips generated by existing development. When the average weekday VTE and Trip Adjustment percentages (shown in Figure S1) are multiplied by the development unit quantities for Oro Valley from the Land Use Assumption in Appendix A (housing units and nonresidential KSF), the total number of vehicle trips generated by existing development is determined. As shown in Figure S4, this totals 135,631 adjusted vehicle trips.

Figure S4: Vehicle Trips

Development Type	ITE Code	Weekday VTE	Dev Unit	Trip Adj	2018 Dev Units
Single Units	210	8.20	HU	63%	88,638
Multifamily	220	4.30	HU	63%	14,840
Industrial (KSF)	110	4.96	KSF	50%	1,537
Commercial / Retail (KSF)	820	37.75	KSF	33%	17,533
Institutional	520	19.52	KSF	33%	3,514
Office & Other (KSF)	710	9.74	KSF	50%	9,570
		Total Adjusted Vehicle Trips			**135,631**

Average Trip Length

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

Figure S5 shows average trip lengths from the *National Household Travel Survey (2017).*[1]

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

Figure S5: National Average Trip Lengths

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

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

The national average trip length needs to be adjusted to reflect actual local demand on the Town's arterial network. To do this, TischlerBise first determines expected demand (VMT) on the Town's complete transportation network using the above national travel demand characteristics.

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

Figure S6. Expected VMT in the Town of Oro Valley

Land Use	ADT	National Avg Trip Length (miles)	Expected VMT
Single Units	88,638	12.32	1,092,023
Multifamily	14,840	12.32	182,828
Industrial	1,537	7.70	11,838
Commercial/Retail	17,533	7.90	138,507
Institutional	3,514	7.70	27,054
Office & Other	9,570	7.70	73,687
Total			**1,525,937**

Because expected VMT reflects anticipated travel demand from Town development on the entire roadway system, it is therefore higher than actual VMT on the arterial system in the Town. To calibrate demand on the arterial system, expected travel demand is compared to actual VMT obtained from the Town of Oro Valley. The ratio between actual and expected VMT provides a local adjustment factor that can be applied to national average trip lengths by type of land use. The local adjustment factor is shown in Figure S7.

Figure S7. Local Trip Length Adjustment Factor

Actual Local VMT on Arterials*	383,580
Expected Local VMT^	1,525,937
Actual to Expected VMT	**0.251**

** Town of Oro Valley 2018 Inventory*

^ TischlerBise analysis

As shown in Figure S8, the national average trips lengths are adjusted to reflect local conditions.

Figure S8. Local Average Trip Lengths by Land Use

Type	National Avg Trip Length (miles)	Local Adj. Factor	Local Trip Length
Residential	12.32	0.251	3.10
Industrial	7.70	0.251	1.94
Commercial/Retail	7.90	0.251	1.99
Institutional	7.70	0.251	1.94
Office and Other	7.70	0.251	1.94
Hotel (per room)	7.70	0.251	1.94

Sources: National trip length from 2017 NHTS and TischlerBise; local adjustment from Figure S9.

Using the above factors, VMT per service unit is calculated, shown below in Figure S9.

Figure S9. VMT per Service Unit on Arterial Network

Development Type	ITE Code	Weekday VTE	Trip Adj	Adj Trip Rate	Local Trip Length	VMT per Service Unit
Single Units	210	8.20	63%	5.17	3.10	16.00
Multifamily	220	4.30	63%	2.71	3.10	8.39
Industrial (KSF)	110	4.96	50%	2.48	1.94	4.80
Commercial / Retail (KSF)	820	37.75	33%	12.46	1.99	24.74
Institutional (KSF)	520	19.52	33%	6.44	1.94	12.47
Office & Other (KSF)	710	9.74	50%	4.87	1.94	9.43
Hotel (per room)	310	8.36	50%	4.18	1.94	8.09
Warehousing (KSF)	150	1.74	50%	0.87	1.94	1.68

Cost per VMT and Infrastructure Improvement Plan

Figure S10 contains a list of planned transportation projects including intersection improvements and multi-modal facilities which Oro Valley plans to construct over the next 10 years. The total estimated cost of these projects includes a credit of $2.86 million for street development impact fees which were collected between 2014 and 2018 but have not yet been spent.

Figure S10: Street Facilities Improvement Improvements Plan

Location	Description	New Lanes	Distance	Lane Miles	Total Project Cost
La Cholla Blvd, Tangerine Rd-Lambert Ln	Road Widening	2.0	3.0	6.0	$1,700,000
Shannon Rd, Tangerine Rd-Naranja Dr	New Road	2.0	1.0	2.0	$1,000,000
Lambert Ln. .5 mi E of Shannnon-Rancho Sonora	Road Widening	2.0	1.0	2.0	$1,000,000
Rancho Vistosto & Woodbume	Intersection Improvement	0.0	0.0	0.0	$750,000
Oracle Rd & Rams Field Intersection	Intersection Improvement	0.0	0.0	0.0	$750,000
Moore Rd La Cholla Blvd	Intersection Improvement	0.0	0.0	0.0	$900,000
Moore Rd -extension E of Rancho Vistoso Blvd	New Road & Intersection	2.0	2.0	4.0	$1,026,840
Moore Rd & La Canada Dr Intersection	Intersection Improvement	0.0	0.0	0.0	$1,200,000
Glover Rd Multi Use Path	Multi-modal facility	0.0	0.3	0.0	$150,000
Glover Rd south half widening	Road Widening	1.0	0.3	0.3	$500,000
	Total			**14.25**	**$8,976,840**
	2018 DIF Balance				$2,860,095
	Total Cost				**$6,116,745**
	Lane Miles				14.25
	Cost per Lane Mile				**$429,245**

A cost per vehicle mile of capacity (VMC) is calculated based on the average cost per lane mile of $429,245 and the average lane capacity of 3,150 average daily vehicle trips (per 1 lane mile). This results in a $136.27 cost per VMC. The incremental expansion methodology assumes the ratio of VMC to VMT is 1, therefore the cost per VMT is also $136.27.

Figure S11: Cost per VMT Factors

Cost per Lane Mile	$429,245
Capacity per Lane Mile	3,150
Cost per VMC	**$136.27**

SERVICE UNITS, DEMAND, AND COST FOR SERVICES

ARS § 9-463.05(E)(2) requires:

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

TischlerBise created an aggregate travel model to convert development units within Oro Valley to vehicle trips and vehicle miles of travel. This includes the factors discussed above, as well as average trip length, and is shown in Figure S12.

Travel Demand Model

ARS § 9-463.05(E)(5) requires:

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

Projected development in Oro Valley over the next 10 years, and the corresponding need for additional lane miles is shown in Figure S12. Trip generation rates and trip adjustment factors convert project development into average weekday vehicle trips. New development in Oro Valley will generate 18,599 trips.

ARS § 9-463.05(E)(6) requires:

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

The travel demand model inputs above (Figure S9) are used to derive level-of-service in Vehicle Miles of Travel and future needs of lane miles. A Vehicle Mile of Travel (VMT) is a measurement unit equal to one vehicle traveling one mile. As shown in Figure S12, based on the increase in vehicle miles of travel (51,323), the Town of Oro Valley would need to construct an additional 16.3 lane miles of arterials to accommodate projected development over the next 10 years in order to maintain current level-of-service.

Figure S12: Projected Travel Demand Model

		2018	2019	2020	2021	2022	2023	2028	10-Year
		Base	1	2	3	4	5	10	Increase
Development	Single Units	17,158	17,407	17,613	17,822	18,033	18,246	19,354	**2,196**
	Multifamily	5,478	5,497	5,562	5,628	5,695	5,762	6,112	**634**
	Industrial KSF	620	630	640	650	661	671	726	**106**
	Commercial / Retail (KSF)	1,407	1,430	1,453	1,476	1,500	1,524	1,650	**243**
	Institutional	545	554	563	571	581	591	639	**94**
	Office & Other (KSF)	1,965	1,996	2,028	2,061	2,094	2,127	2,303	**338**
Average Weekday Vehicle Trips	Single Unit Res Trips	88,638	89,924	90,989	92,067	93,157	94,261	99,985	**11,347**
	Multifamily Unit Res Trips	14,840	14,891	15,068	15,246	15,427	15,609	16,557	**1,717**
	Industrial Trips	1,537	1,562	1,586	1,612	1,638	1,664	1,801	**264**
	Commercial Trips	17,533	17,815	18,102	18,389	18,687	18,985	20,554	**3,021**
	Institutional	3,514	3,569	3,624	3,680	3,742	3,805	4,116	**603**
	Office & Other Trips	9,570	9,722	9,878	10,036	10,197	10,361	11,216	**1,646**
	Total Nonresidential Trips	32,153	32,668	33,191	33,717	34,264	34,814	37,688	
	Total Vehicle Trips	**135,631**	**137,483**	**139,247**	**141,030**	**142,848**	**144,685**	**154,230**	**18,599**
VMT	Vehicle Miles of Travel	383,580	388,732	393,602	398,524	403,535	408,600	434,903	**51,323**
							25,021		
NEED	Additional Lane Miles		1.64	1.55	1.56	1.59	1.61	1.72	**16.3**
	Growth-Related Cost		$702,066	$663,621	$670,815	$682,823	$690,203	$737,272	**$6,993,749**

ARS § 9-463.05(E)(3) requires:

> *"A description of all or the parts of the necessary public services or facility expansions and their costs necessitated by and attributable to development in the service area based on the approved land use assumptions, including a forecast of the costs of infrastructure, improvements, real property, financing, engineering and architectural services, which shall be prepared by qualified professionals licensed in this state, as applicable."*

Multiplying the increase in number of lane miles (16.3) by the cost per lane mile from Figure S10 ($429,245) results in a 10-year cost of approximately $6.99 million attributed to arterial lane miles. However, the Town of Oro Valley only expects plans to build approximately 14.25 lane and intersections, at a net cost of $6.1 million, which yields an adjusted cost per VMT of $119.18.

Figure S13: Adjusted Cost per Vehicle Mile of Travel/Vehicle Mile of Capacity

IIP Cost	$6,116,745
10-Year Increase in VMT/VMC	51,323
Cost per VMC	**$119.18**

Development Fee Report – Plan-Based

The cost to prepare the Street Facilities IIP and Development Fee Report totals $15,268. Oro Valley plans to update its report every five years. Based on this cost, proportionate share, and five-year projections of new residential and nonresidential development from the Land Use Assumptions document, the cost is $0.61 per vehicle mile of travel.

Figure S14: Development Fee Report Cost Allocation

Necessary Public Service	*Cost*	*Assessed Against*	*Proportionate Share*	*Demand Unit*	*2019*	*2024*	*Change*	*Cost per Demand Unit*
Transportation	***$15,268***	Residential Nonresidential	All Development All Development	VMT	388,732	413,714	24,982	**$0.61**

STREET FACILITIES DEVELOPMENT FEES

Required Offsets

The Arizona Development Impact Fee Act requires consideration of any 'excess" construction sales tax that may be used to fund growth-related capital facilities. The Town has a construction sales tax rate of 4 percent, of which 1.5% is in excess of the Town's regular sales tax rate of 2.5%. However, the Town accounts for all sales tax within its General Fund, so there is no dedicated portion directed towards growth-related capital improvements. However, the Town does have a policy of allocating a minimum of 5% of the Town's estimated excise tax collections to fund capital needs including asset repair and maintenance, subject to Council approval and funding availability. For purposes of the development fees, an offset for "excess" construction sales tax is provided for the Street Facilities development fee although at present, any construction sales tax directed toward capital improvements is dedicated to debt service payments for capital facilities that are not development fee eligible or credits have already been evaluated. The Town of Oro Valley provided a 5-year projection of total construction sales tax, which totals $21.6 million, or $4.3 million on an average annual basis. The "excess" portion of that sales tax totals $8.1 million, or $1.6 million annually. As stated previously (an in more detail in Appendix B), much of this revenue is already committed to non-development fee eligible debt obligations. However, in keeping with the Town's policy of allocating 5% of sales tax collections, TischlerBise has provided an offset for 5% of the "excess" construction sales tax, which results in an offset per VMT of $16.05.

Figure S15: Offset for Excess Construction Sales Tax Revenue

	Construction Sales Tax (4%)	Excess Portion (1.5%)	5% of Excess Portion	Annual VMT Increase
FY 20/21	$4,550,000	$1,706,250	$85,313	4,923
FY 21/22	$5,099,004	$1,912,127	$95,606	5,011
FY 22/23	$4,762,470	$1,785,926	$89,296	5,065
FY 23/24	$3,709,964	$1,391,237	$69,562	5,114
FY 240/25	$3,535,596	$1,325,849	$66,292	5,193
Total	***$21,657,034***	***$8,121,388***	***$406,069***	***25,305***
Avg. Annual	**$4,331,407**	**$1,624,278**	**$81,214**	**5,061**
			Offset per VMT	**$16.05**

Proposed Street Facilities Development Fees

The existing Street Facilities development fees and how much they differ from the proposed development fees are shown in Figure S16. Cost factor for road improvements and professional services are summarized at the top of the figure. Proposed fees represent a decrease across all categories of development. Residential development fees are expressed per housing unit. Nonresidential development fees are expressed per square foot of floor area. The Street Facilities development fees are calculated by multiplying the $103.74 net cost per VMT/VMC by the VMT per development unit for each land use type.

Figure S16: Proposed and Existing Fees Comparison

Input Variables

Cost per VMT/VMC	$119.18
Development Fee Study	$0.61
Offset for "Ecess" Construction Sales Tax	($16.05)
Net Cost per VMT	$103.74

Residential Development (per Housing Unit)

Development Type	*VMT per Development Unit*	*Proposed Fees*	*Current Fee*	*Increase / Decrease*
Single Unit	16.00	**$1,660**	$1,990	($330)
Multifamily	8.39	**$870**	$1,231	($361)

Nonresidential (per square foot unless noted otherwise)

Development Type	*VMT per Development Unit*	*Proposed Fees*	*Current Fee*	*Increase / Decrease*
Hotel/Motel (room)	8.09	**$839**	$758	$81
Retail/Commercial	24.74	**$2.57**	$2.41	$0.15
Office & Other Services	9.43	**$0.98**	$1.82	($0.84)
Industrial	4.80	**$0.50**	$0.98	($0.49)
Warehouse	1.68	**$0.17**	$0.92	($0.74)
Public/Institutional	12.47	**$1.29**	$1.38	($0.09)

PROJECTED STREET FACILITIES DEVELOPMENT FEE REVENUE

Projected fee revenue shown in Figure S17 is based on the development projections in the Land Use Assumptions (see Appendix A) and the updated Street Facilities development fees (see Figure S16). Expenditures on arterial street improvements are derived from the anticipated need for approximately 14.25 new lane miles over the next 10 years (see Figure S10) at a cost of $6.1 million. Anticipated development fee revenue is approximately $800,000 less than expenditures due to the offset for “excess” construction sales tax revenue.

Figure S17: Projected Street Facilities Development Fee Revenue

Fee Component	*Growth Share*
	Within 10 Yrs.
Arterial Street Improvements	$6,116,745
Development Fee Study	$15,268
Total	**$6,132,013**

Street Facilities Development Fee Revenue

		Single Unit	*Multi-Family*	*Industrial*	*Commercial*	*Institutional*	*Office*
		$1,660 per unit	**$870 per unit**	**$0.50 per sq. ft.**	**$2.57 per sq. ft.**	**$1.29 per sq. ft.**	**$0.98 per sq. ft.**
Year		*Hsg Unit*	*Hsg Unit*	*KSF*	*KSF*	*KSF*	*KSF*
Base	2018	17,158	5,478	620	1,407	545	1,965
Year 1	2019	17,407	5,497	630	1,430	554	1,996
Year 2	2020	17,613	5,562	640	1,453	563	2,028
Year 3	2021	17,822	5,628	650	1,476	571	2,061
Year 4	2022	18,033	5,695	661	1,500	581	2,094
Year 5	2023	18,246	5,762	671	1,524	591	2,127
Year 6	2024	18,463	5,830	681	1,548	599	2,162
Year 7	2025	18,682	5,899	692	1,573	609	2,196
Year 8	2026	18,903	5,969	704	1,598	619	2,231
Year 9	2027	19,128	6,040	715	1,624	628	2,267
Year 10	2028	19,354	6,112	726	1,650	639	2,303
10-Year Increase		**2,196**	**634**	**106**	**243**	**94**	**338**
10-Year Projected Revenue		**$3,645,692**	**$551,768**	**$52,984**	**$622,471**	**$121,068**	**$330,549**

Projected Development Fee Revenue	**$5,324,532**
Total Expenditures	**$6,132,013**
Surplus/(Deficit)	**($807,481)**

WATER FACILITIES INFRASTRUCTURE IMPROVEMENT PLAN

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

> *"Water facilities, including the supply, transportation, treatment, purification and distribution of water, and any appurtenances for those facilities."*

The Water Facilities IIP includes components for the plan-based development of various improvements to integrate the delivery of additional CAP water needed to serve future growth. The Town completed a master plan in 2006 which provided recommended system improvements to allow for the initial delivery of CAP water allocation. Beginning in 2012, the Town began delivering a portion of this water allocation through the Tucson Water distribution system and, in 2024, the Town will significantly expand their CAP water deliveries through the Northwest Recharge, Recovery, and Delivery System (NWRRDS). The project will result in a transition from majority well supply to a more balanced well and CAP water supply and will require a significant change in the way the distribution system is operated and how water is delivered across the system. These changes are required to accommodate the water demands attributed to growth and to ensure that groundwater pumping stays below 5,000 AFY as an established target identified in the Master Plan. In 2018, the Town adopted the *Potable Water Master Plan* (the Master Plan) which provides a 10-year planning horizon road map for the Town Water Utility. The Master Plan includes infrastructure improvements that will benefit existing customers as well as future growth.

The relationship between infrastructure historically funded with PWSDIF revenue and infrastructure funded with AWRDIF revenue are very similar. Both are potable water resource driven and both are required to meet the demands of growth. As such, the infrastructure needs are being combined into one IIP resulting in the creation of one new development impact fee to replace the two existing impact fees. The new development impact fee will be known as the Water Facilities Development Impact Fee. The Water Facilities Development Impact Fee is intended to fund all types of water resources, the infrastructure to deliver those resources and any related debt including CAP capital infrastructure repayment costs.

Upon the completion of the 10-year infrastructure improvement plan (IIP), the Town will have the capacity to deliver 4,960 acre-feet per year (AFY) of CAP water into the main service area which will reduce groundwater pumping from 5,320 AFY to 4,400 AFY thereby complying with the Town's targeted groundwater production goal of no more than 5,000 AFY. The Master Plan identifies a number of system improvements required to accommodate future growth, including new wells, storage, pipelines and approximately 20 separate NWRRDS projects to allow integration of additional CAP supply into the distribution system. In addition to these costs, the cost of professional services for preparing the Water Facilities IIP and related Development Fee Report have been included.

Service Area

Because new development in Oro Valley will connect to the Town's water system, the service area for Water Facilities IIP is Townwide.

Proportionate Share

ARS § 9-463.05 (B)(3) states that the development fee shall not exceed a proportionate share of the cost of necessary public services needed to provide necessary public services to the development.

The Water Facilities IIP and development fees are assessed on both residential and nonresidential development as both types of development create a burden for additional water facilities. Customers by land use are used to determine the proportionate share of this burden. In 2017-2018, approximately 82% of water connections in Oro Valley were for single family residential units, accounting for approximately 75% of the average daily demand. Approximately 12% of connections were for multifamily housing and nonresidential connections, accounting for approximately 13% of the average daily demand. Irrigation use accounts for the remaining 12% of use. As shown in Figure W1, equivalent residential service unit factors for commercial/industrial meters recognize these types of meters use far more water on average than a comparably sized single family water meter. For example, a typical single family meter demands 0.28 acre feet a year, whereas commercial/industrial users in Oro Valley demand 0.31 acre feet annually, which is 1.11 times the single family residential equivalent.

Figure W1: Water Facilities Consumption Data and Service Unit Capacity Factor

	Total# SU	Total Water Use	%	Annual Water Use per SU	AF per SU per Year	SU Capacity Factor
Single Family	19,918	1,812,556,000	75%	91,001	0.28	1.00
Multi-Family	1,002	112,985,000	5%	112,759	0.09	0.32
Commercial	1,967	200,660,000	8%	102,013	0.31	1.11
Irrigation	1,351	277,513,000	12%	205,413	0.63	2.25
Total	**24,238**	**2,403,714,000**	**100%**			

Source: TOVWU Classification and Consumption 2017-2018

RATIO OF SERVICE UNITS TO DEVELOPMENT UNITS

ARS § 9-463.05(E)(4) requires:

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

Water Facilities development fees are assessed by meter. Therefore, capacity ratios by meter size are the appropriate demand indicator for Water Facilities. Capacity ratios equate 5/8" (0.625) meters to the average day gallons per single-family residential unit. Utilizing average day gallons is the most efficient way to show a direct relationship between development units, usage, and system capacity. The nonresidential Water Facilities development fees are calculated by multiplying the number of gallons per single-family unit by the capacity ratio for the corresponding size and type of water meter, which are provided by the American Water Works Association (2012) and shown in Figure W2 below.

Figure W2: Water Facilities Ratio of Service Unit to Development Unit

Meter Size (inches)	*Capacity Ratio***
5/8"	1.00
3/4"	1.50
1"	2.50
1.5"	5.00
2"	8.00
3"	16.00
4"	25.00
6"	50.00
8"	80.00

***AWWA Manual of Water Supply Practices*

ANALYSIS OF CAPACITY AND USAGE OF EXISTING PUBLIC SERVICES

ARS § 9-463.05(E)(5) requires:

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

ARS § 9-463.05(E)(2) requires:

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

Water Facilities Level-of-Service Standards

The Town delivers a combination of groundwater and CAP water wheeled through the Tucson Water distribution system to meet its potable water demands within its service area. The existing water distribution system consists of approximately 366 miles of public water mains, 13 storage reservoirs and 24 pump stations. In 2017, the Town main service area potable water production consisted of 5,069 acre-feet of groundwater (73 percent of total production) and 1,842 acre-feet of CAP water (27 percent of production). The Town manages 17 active wells with a total approximate pumping capacity of 12.5 million gallons per day (MGD). The well demand fluctuates daily, but according to the Master Plan, typical well demand during average day conditions is approximately 4 MGD, and during peak day conditions typically increases to 8 MGD. All of the wells are permitted by ADWR as recovery wells, which allows the use of recharge credits to offset its annual replenishment obligations as determined by the state's Assured Water

Supply (AWS) rules. In addition to the wells, the Town receives approximately 2,600 AFY of CAP water wheeled through the Tucson Water distribution system, which based on the IIP will increase to 4,960 AFY upon completion of the NWRRDS project. Finally, the Town is served by 13 storage reservoirs representing 10.45 million gallons (MG) of storage for the distribution system. The Town maintains operating storage criteria of 1.25 times average day demand.

PROJECTED DEMAND FOR WATER FACILITIES

ARS § 9-463.05(E)(1) requires:

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

ARS § 9-463.05(E)(3) requires:

> *"A description of all or the parts of the necessary public services or facility expansions and their costs necessitated by and attributable to development in the service area based on the approved land use assumptions, including a forecast of the costs of infrastructure, improvements, real property, financing, engineering and architectural services, which shall be prepared by qualified professionals licensed in this state, as applicable."*

ARS § 9-463.05(E)(6) requires:

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

Current water consumption and number of connections area shown in Figure W3. Figure W3 also shows the ratio of connections to housing units and jobs for residential and nonresidential development. These standards are used for calculating future demand shown below in Figure W4.

Figure W3: Water Facilities Level-of-Service Standards

Type	Average Gallons per Day[1]	Connections[1]	Gallons per Connection per Day	Connections per HU/Job
Residential	4,965,907	19,918	249	0.94
Nonresidential	549,753	1,967	279	0.19
Irrigation	760,310	1,351	563	0.06
Total	6,585,518	24,238	272	

1. 2018 Oro Valley Water Utility Water Classification by use.

Future projections of water connections and consumption are shown in Figure W4, divided between residential and nonresidential development. Water connection projections are derived from the connections per HU/Job ratios in Figure W3 and the projected growth contained in the Land Use Assumptions (Appendix A). Over the next 10 years, it is projected there will be an increase of 2,811 residential connections and 344 nonresidential connections.

Water consumption projections were derived using the Gallons per Day per Connection ratios in Figure W3. As shown in Figure W4, this will result in an estimated additional 892,818 gallons of water consumption per day by 2028.

Figure W4: Future Projections of Water Consumption

Year		Avg. Gallons per Day	Residential Connections	Nonresidential Connections	Irrigation Connections	Total Service Units	Annual Increase		Cumulative Increase	
							Service Units	Avg. Gallons per Day	Service Units	Avg. Gallons per Day
Base	2018	6,585,518	20,920	1,967	1,351	24,238				
1	2019	6,683,971	21,236	1,999	1,370	24,605	367	98,453	367	98,453
2	2020	6,783,305	21,554	2,031	1,389	24,975	370	99,335	737	197,788
3	2021	6,879,749	21,862	2,064	1,408	25,335	359	96,443	1,097	294,231
4	2022	6,972,664	22,157	2,098	1,426	25,681	346	92,916	1,443	387,146
5	2023	7,061,071	22,435	2,132	1,443	26,010	329	88,407	1,772	475,554
6	2024	7,147,290	22,705	2,167	1,459	26,331	321	86,219	2,093	561,772
7	2025	7,232,676	22,972	2,202	1,475	26,649	318	85,386	2,411	647,158
8	2026	7,316,460	23,232	2,237	1,491	26,961	312	83,784	2,723	730,942
9	2027	7,397,895	23,484	2,274	1,506	27,264	303	81,436	3,026	812,378
10	2028	7,478,336	23,731	2,311	1,521	27,563	299	80,441	3,325	892,818
10-year Change		892,818	2,811	344	170	3,325			3,325	892,818

Source: TischlerBise, using Average Day Demand factors, Figure W3 and projected development shown in Figure A13.

WATER FACILITIES INFRASTRUCTURE IMPROVEMENT PLAN

Cost Recovery for Excess Capacity in Supply Projects

In 2007 the Town acquired 3,557 acre feet of additional CAP water to meet the water demands for future growth. As of December of 2019, the Town's Water Utility has calculated that of the original 3,557 acre feet earmarked for growth, approximately 3,000 acre feet (2,678,227 gallons per day) remains available. Based on current consumption rates, this remaining capacity can serve additional 10,715 equivalent service units. Remaining debt for this water allocation is $3,436,451. Therefore, the Water Facilities development fee includes a cost recovery component shown in Figure W5, which recognizes the original acquisition in the form of a cost recovery of $320.74 per service unit ($3,436,451/10,714=$320.74).

Figure W5: Cost Recovery for Supply Projects

Cost Recovery Summary: Supply Projects

Year*	Description	Remaining Capacity (AF)	Capacity (GPD)	Cost
2007	Growth-Related CAP Water Entitlement	3,000	2,678,227	$3,436,451

Total Cost	$3,436,451
Gallons of Capacity (GPD)	2,678,227
Additional SU	10,714
Cost per SU	**$320.74**

Water Facilities Projects – Plan Based

The Town recently completed the 2018 Water Utility Potable Water Master Plan which identifies a variety of projects required to meet the water demand of future growth through the anticipated integration and increase of CAP water deliveries into the system. As identified in the Master Plan, the cost of the various projects is attributed to existing deficiencies and those improvements required to serve future growth. The following projects are directly related to Water Facilities and include a combination of supply, storage, transmission capacity expansion to meet future growth demands of the system. The total cost of improvements planned over the next 10 years is $39,549,923 million ($6.3 million for supply projects, $19.4 million for storage and $13.8 million for distribution). As is discussed below, each project provides additional fixed system capacity which corresponds to fee levels and the duration that the fee will be imposed.

Water Facilities Supply Projects – Plan Based

Illustrated in Figure W6, Water Facilities supply projects identified by Oro Valley staff will add an additional 1,400 Acre Feet of capacity, able to provide for 5,143 service units with a total cost of $6.3 million. The Town has been collecting development fees in anticipation of developing these projects and as a result maintains an existing Water Facilities balance of $14.8 million which is proportionately applied to the supply projects resulting in a net cost of supply projects of $3.9 million and shown in Figure W6. The resulting cost per acre foot of supply is $4,021 and cost per service unit is $1,125.80 ($3,937,882 / 5,143 = $1,125.80).

Figure W6: Infrastructure Improvement Plan: Water Supply

Infrastructure Improvement Plan: Supply

Year	Description	Cost	less Existing DIF Balance	Net Cost	Capacity (acre-feet)	Net Cost per AF	Service Units	Cost per Service Unit (ERU)
2018-2019	Steam Pump D-Zone Well	$1,500,000	($562,409)	**$937,591**	484	$1,937	1,729	$542.41
2018-2023 (P)	Program Management Support Services	$1,050,000	($393,686)	**$656,314**	1,440	$456	5,143	$127.62
2019-2020 (P)	Well Improvement Analysis and Recovery Permits	$150,000	($56,241)	**$93,759**	1,440	$65	5,143	$18.23
2020-2021 (P)	Well Drilling and Testing	$300,000	($112,482)	**$187,518**	1,440	$130	5,143	$36.46
2022-2023 (P)	Construction Permitting, Drilling, Development and Testing	$1,500,000	($562,409)	**$937,591**	1,440	$651	5,143	$182.31
2022-2023 (P)	Well Equipment Design and Site Improvements	$1,800,000	($674,891)	**$1,125,109**	1,440	$781	5,143	$218.77
Source: 2018 TOVWU Potable Water Master Plan		**$6,300,000**	**($2,362,118)**	**$3,937,882**		**$4,021**	**Total Cost per SU**	**$1,125.80**

Water Facilities Storage Projects – Plan Based

The Town has identified and plans on activating a variety of new storage facilities over the next 15 years to help meet additional water demand from new development. Figure W7 shows each new storage element, cost, reduction of existing impact fee balance, net cost and added average capacity in acre feet per year. The new storage projects will have a net growth related cost of $12.1 million and will add an additional 1,400 AFY of capacity. Dividing the net cost by the total added capacity yields a cost per acre foot of capacity of $10,453 and a cost per service unit of $2,926.93.

Figure W7: Infrastructure Improvement Plan: Storage

Infrastructure Improvement Plan: Storage

Year	Description	Cost	less Existing DIF Balance	Net Cost	Capacity (acre-feet)	Net Cost per AF	Service Units	Cost per Service Unit (ERU)
2019-2023	Palisades C-Zone Storage Tank and Pipeline	$4,250,000	($1,593,492)	$2,656,508	1,120	$2,372	4,000	$664.13
2028-2033	Pressure Zone G Storage Expansion	$8,000,000	($2,999,515)	$5,000,485	1,120	$4,465	4,000	$1,250.12
2028-2033	Pressure Zone G, H and I Storage Expansion	$4,000,000	($1,499,757)	$2,500,243	1,120	$2,232	4,000	$625.06
2019-2020 (P)	Forebay Design	$99,231	($37,206)	$62,025	1,440	$43	5,143	$12.06
2021-2023 (P)	Forebay Reservoir Construction	$900,000	($337,445)	$562,555	1,440	$391	5,143	$109.39
2020-2021 (Ind.)	Shannon Rd Forebay Reservoir And Booster Station Prop	$240,000	($89,985)	$150,015	1,440	$104	5,143	$29.17
2019-2020 (Ind.)	Forebay Reservoir Booster Station Design	$90,000	($33,745)	$56,255	1,440	$39	5,143	$10.94
2020-2021 (Ind.)	Shannon Rd Forebay Reservoir and Booster Station Design	$180,000	($67,489)	$112,511	1,440	$78	5,143	$21.88
2021-2022 (Ind.)	Booster Station Construction Forebay Res.	$300,000	($112,482)	$187,518	1,440	$130	5,143	$36.46
2022-2024 (Ind.)	Shannon Road Forebay Res. Construction	$840,000	($314,949)	$525,051	1,440	$365	5,143	$102.09
2022-2024 (Ind.)	Shannon Road Forebay Res. Construction	$540,000	($202,467)	$337,533	1,440	$234	5,143	$65.63
Source: 2018 TOVWU Potable Water Master Plan		**$19,439,231**	**($7,288,533)**	**$12,150,698**		**$10,453**	**Total Cost per SU**	**$2,926.93**

Water Facilities Distribution Projects – Plan Based

Ten distribution related projects identified by staff all work in concert to help meet additional water demand from new development. Figure W8 shows each component associated with the new distribution architecture cost and added capacity in acre feet per year. Water Facilities distribution projects will in total will add an additional 1,400 acre feet of capacity, able to support water distribution for 5,143 service units with a total net cost of $8.6 million. The resulting cost per acer foot of distribution capacity is $7,112 resulting in a cost per service unit of $1,991.43.

Figure W8: Infrastructure Improvement Plan: Distribution

Infrastructure Improvement Plan: Distribution

Year	Description	Cost	less Existing DIF Balance	Net Cost	Capacity (acre-feet)	Net Cost per AF	Service Units	Cost per Service Unit (ERU)
2020-2021	Moore Road F-Zone Interconnect	$750,000	($281,205)	$468,795	807	$581	2,882	$162.66
2019-2024	Water Plant 14 Booster Capacity Expansion	$250,000	($93,735)	$156,265	161	$971	575	$271.77
2019-2020 (P)	Pipeline Design (Recovery Water & Transmission)	$660,692	($247,719)	$412,973	1,440	$287	5,143	$80.30
2021-2023 (P)	Pipeline Construction	$4,320,000	($1,619,738)	$2,700,262	1,440	$1,875	5,143	$525.05
2018-2019 (Ind.)	Pipeline Route Study and Preliminary Design	$120,000	($44,993)	$75,007	1,440	$52	5,143	$14.58
2019-2020 (Ind.)	Pipeline Easement Acquisition	$450,000	($168,723)	$281,277	1,440	$195	5,143	$54.69
2019-2020 (Ind.)	Pipeline Design	$600,000	($224,964)	$375,036	1,440	$260	5,143	$72.92
2024-2025 (Ind.)	Pipeline Construction NWRRDS to La Canada Res.	$5,880,000	($2,204,643)	$3,675,357	1,440	$2,552	5,143	$714.65
2024-2025 (Int.)	Interconnect to Tangerine Rd.	$270,000	($101,234)	$168,766	1,440	$117	5,143	$32.82
2024-2025 (Int.)	Interconnect to Lambert Lane	$510,000	($191,219)	$318,781	1,440	$221	5,143	$61.99
		$13,810,692	**($5,178,172)**	**$8,632,520**		**$7,112**	**Total Cost per SU**	**$1,991.43**

Development Fee Report – Plan-Based

The cost to prepare the Water Facilities Development Fees and IIP report totals $30,536. Oro Valley plans to update its report every five years. Based on this cost, proportionate share, and five-year water meter connection projections, the cost is $21.73 per meter.

Figure W9: Development Fee Report Cost Allocation

Necessary Public Service	*Cost*	*Assessed Against*	*Proportionate Share*	*Demand Unit*	*2019*	*2024*	*Change*	*Cost per Demand Unit*
Water	***$30,536***	Residential Nonresidential	100%	Connections	24,605	26,010	1,405	**$21.73**

WATER FACILITIES DEVELOPMENT FEE

Required Offsets

A revenue credit/offset is not necessary for the Water Facilities development fees because 10-year growth costs approximates the amount of revenue that is projected to be generated by development fees according to the Land Use Assumptions, as shown in Figure W11.

Proposed Water Facilities Development Fees

The proposed Water Facilities development fees for Water Facilities are shown in Figures W10. For a single family residential 5/8"-inch water meter, the proposed fee is found by multiplying the cost per ERU ($6,249.40) by the AWWA capacity ratio (1.0) and the demand adjustment factor (1.0) and adding the $21.73 fee study cost per meter (see Figure W9). Equivalent residential service unit factors for commercial/industrial meters recognize that these types of meters use more water on average than a comparably sized single family water meter. For example, a typical single family meter demands 0.28 acre feet a year, whereas commercial/industrial users in Oro Valley demand 0.31 acre feet annually, which is 1.11 times the single family residential equivalent. The development fee for irrigation and nonresidential meters is determined by multiplying the cost per service unit by the meter capacity ratio and the demand adjustment factor then adding the cost per meter of $21.73.

Figure W10: Proposed Water Facilities Development Fees

Demand Factor per Service Unit (1 EDU)	*Component*
Supply	$1,125.80
Storage	$2,926.93
Distribution	$1,991.43
Excess Capacity CAP Water	$320.74
Net Capital Cost per Service Unit	**$6,364.89**

Cost Factors per Connection	
Fee Study	$21.73
Share Net Capital Cost per Meter	**$21.73**

Proposed and Current Utility Development Fees (PWSDIF)

Residential

Residential Meter Size	*Capacity Ratio [1]*	*Demand Adjustment Factor [2]*	*Proposed Fee*	*Current Fees*	*Increase / (Decrease)*
5/8"	1.00	1.00	$6,387	$6,060	**$327**
3/4"	1.50	1.00	$9,569	$9,089	**$480**
1"	2.50	1.00	$15,934	$15,148	**$786**
1.5" standard	5.00	1.00	$31,846	$30,297	**$1,549**
2" compound	8.00	1.00	$50,941	$48,474	**$2,467**
Mulit-Family (Per Unit)	N/A	0.32	$2,044	$2,908	**($864)**

Nonresidential

Nonresidential Meter Size	*Capacity Ratio [1]*	*Demand Adjustment Factor [2]*	*Proposed Fee*	*Current Fees*	*Increase / (Decrease)*
5/8"	1.00	1.11	$7,087	$7,877	**($790)**
3/4"	1.50	1.11	$10,619	$11,816	**($1,197)**
1"	2.50	1.11	$17,684	$19,693	**($2,009)**
1.5" standard	5.00	1.11	$35,347	$39,385	**($4,038)**
2" compound	8.00	1.11	$56,542	$63,016	**($6,474)**
3" compound	16.00	1.11	$113,062	$126,032	**($12,970)**
4" compound	25.00	1.11	$176,647	$196,925	**($20,278)**
6" compound	50.00	1.11	$353,273	$393,850	**($40,577)**
8" compound	80.00	1.11	$565,224	$630,161	**($64,937)**

Irrigation Meter Size

Irrigation Meter Size	*Capacity Ratio [1]*	*Demand Adjustment Factor [2]*	*Proposed Fee*	*Current Fees*	*Increase / (Decrease)*
5/8"	1.00	2.25	$14,343	$10,906	**$3,437**
3/4"	1.50	2.25	$21,503	$16,360	**$5,143**
1"	2.50	2.25	$35,824	$27,266	**$8,558**
1.5" standard	5.00	2.25	$71,627	$54,533	**$17,094**
2" compound	8.00	2.25	$114,590	$87,253	**$27,337**
3" compound	16.00	2.25	$229,158	$174,506	**$54,652**
4" compound	25.00	2.25	$358,047	$272,666	**$85,381**
6" compound	50.00	2.25	$716,072	$545,331	**$170,741**
8" compound	80.00	2.25	$1,145,702	$872,530	**$273,172**

1. AWWA Manual of Water Supply Practices M1, 7th Edition.

2. Based on local water demand

FORECAST OF REVENUES

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

Development Fee Revenues for Water Facilities

Revenue projections shown below assume implementation of the proposed Water Facilities development fees and that development over the next 10 years is consistent with the Land Use Assumptions. To the extent the rate of development either accelerates or slows down, there will be a corresponding change in the development fee revenue. As shown in Figure W11, the 10-year water improvement costs total $24.75 million and approximately $24.1 million will be collected from development fees.

Figure W11: Projected Water Facilities Development Fee Revenue

Costs for Water Facilities Expansion

Supply Projects	$6,300,000
Storage Projects	$19,439,231
Distribution Projects	$13,810,692
Fee Study	$30,536
TOTAL	**$39,580,459**
Less AWR & PWS DIF Balances	**($14,828,823)**
Net WRS System Facility Expansion Cost	**$24,751,636**

Ten-Year Water Facility Development Fee Revenue

		$6,387 per SU	$10,619 per SU	$14,343 per SU	$21.73 per connection
Year		*Residential*	*Nonresidential*	*Irrigation*	*Connections*
Base	2018	20,920	1,967	1,351	24,238
Year 1	2019	21,236	1,999	1,370	24,605
Year 2	2020	21,554	2,031	1,389	24,975
Year 3	2021	21,862	2,064	1,408	25,335
Year 4	2022	22,157	2,098	1,426	25,681
Year 5	2023	22,435	2,132	1,443	26,010
Year 6	2024	22,705	2,167	1,459	26,331
Year 7	2025	22,972	2,202	1,475	26,649
Year 8	2026	23,232	2,237	1,491	26,961
Year 9	2027	23,484	2,274	1,506	27,264
Year 10	2028	23,731	2,311	1,521	27,563
Ten-Year Increase		**2,811**	**344**	**170**	**3,325**
Projected Revenue		**$17,953,073**	**$3,651,510**	**$2,443,332**	**$72,268**

Total Revenue	**$24,120,183**
Total Expenditures	**$24,751,636**
Surplus / (Deficit)	**($631,453)**

APPENDIX A: LAND USE ASSUMPTIONS

EXECUTIVE SUMMARY

For municipalities in Arizona, the state enabling legislation requires supporting documentation on land use assumptions, a plan for infrastructure improvements, and development fee calculations. This document contains the land use assumptions for the Town of Oro Valley's 2019 development fee update. Development fees must be updated every five years, making short-range projections the critical time frame. The Infrastructure Improvements Plan (IIP) is limited to 10 years for non-utility fees, thus a very long-range "build-out" analysis may not be used to derive development fees.

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

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

TischlerBise prepared current demographic estimates and future development projections for both residential and nonresidential development that will be used in the Infrastructure Improvement Plan (IIP) and calculation of the development fees. Demographic data for FY 18-19 (beginning July 1, 2018) are used in calculating levels-of-service provided to existing development in the Town of Oro Valley. Although long-range projections are necessary for planning infrastructure systems, a shorter time frame of five to 10 years is critical for the impact fees analysis. TischlerBise used compound growth rates to produce conservative projections that increase over time.

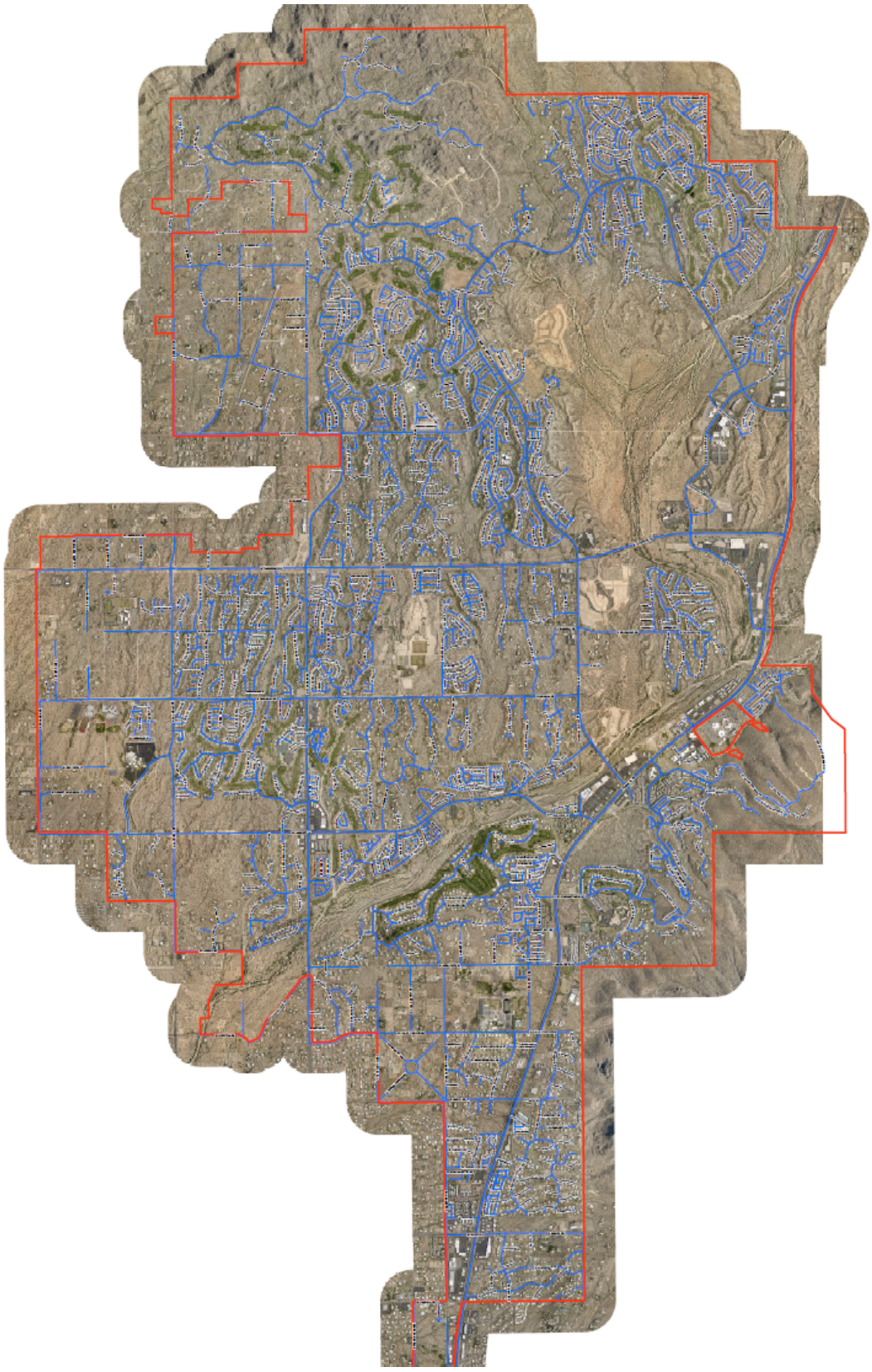
SERVICE AREA

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

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

The Town's previous Land Use Assumptions, Infrastructure Improvement Plan and Development Study recommended a single services area, shown below in Figure A1.

Figure A1: Current Development Fee Service Area



Much of the land in Oro Valley is characterized by a built environment of dispersed, detached single family housing, transected by arterial roadways leading to concentrated nodes of businesses, institutions and commercial development from with, largely single-family lots spread out to the northern edges. As a result of the development pattern, the Town relies on a variety of revenues and funding mechanisms to pay for public infrastructure and facilities which service residents. Oro Valley has embraced numerous policies and plans to guide future development, most notably the *2016 Your Voice, Our Future* General Plan aimed at encouraging new development as much as possible to pay the proportional share of growth-related infrastructure improvements for area roads, parks, police, fire and public facilities. In light of the plan-specific policies outlined by the Town along with discussions with Town staff regarding anticipated development patterns and infrastructure needs, TischlerBise is recommending no changes to the Development Fee Service Area as displayed in Figure A1.

The single Development Fee Service Area is supported first and foremost because, parks and recreation, police, and roadway infrastructure are intended to serve the entire Town with a standard level-of-service as opposed to bounded districts or subareas. As an example, referring to Figure A1, a new residential development in the northeast area is still likely to also utilize regional parks or police facilities located throughout Town. Furthermore, many services such as police and roadway infrastructure react to deployment changes over time based on migration patterns of people and are not necessarily restricted to specific geographic sub-zones. As such, TischlerBise is recommending all fees for these categories be assessed as a Townwide fee.

RESIDENTIAL DEVELOPMENT

Current estimates and future projections of residential development are detailed in this section, including population and housing units by type (single family versus multi-family units). Current (2018) estimates of housing units were obtained using annual housing unit permit data provided by the Town of Oro Valley's Planning & Development Services department. Population estimates were derived from the Arizona Office of Economic Opportunity (AOEO), 2018 Place Level Population tables along with 2016-2050 Sub-County projections and the persons per housing unit ratio derived from the 2017 U.S. Census Bureau's American Community Survey 5-year estimates.

Persons per Housing Unit

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

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

household are used in the fee calculations, the development fee methodology assumes all housing units will be occupied, this requiring seasonal or peak population to be used when deriving infrastructure standards.

TischlerBise recommends that development fees for residential development in the Town of Oro Valley be imposed according to a number of year-round residents per housing unit. For the development fee calculations, TischlerBise used the ACS results shown at the top of Figure A2 to indicate the relative number of persons per housing unit, by units in a residential structure, and the housing mix in Oro Valley. The ratio of persons per housing unit (PPHU) across housing types is 2.00. To estimate population for future years, however, PAG average annual growth rates are applied to base year population estimates and described further in this report. According to the 2017 ACS estimates, the share of multi-family housing in Oro Valley is approximately 16%. In 2017, approximately 13% of the housing stock in Oro Valley was vacant or used by seasonal residents.

Figure A2: Year-Round Persons per Unit by Type of Housing

Unit Type	Persons	Housing Units	Persons per Housing Unit	Housing Mix	Vacancy Rate
Single-Family Unit[1]	37,509	17,908	2.09	83.6%	12%
Multi-Family Unit[2]	5,305	3,517	1.51	16.4%	14%
TOTAL	42,814	21,425	2.00		13%

Source: U.S. Census Bureau, 2013-2017 American Community Survey, 5-Year Estimates.

1. Includes detached, attached (townhouse), and manufactured units.

2. Includes duplexes, structures with two or more units, and all other units.

Current Residential Estimates

To estimate the current number of housing units, TischlerBise used building permit data from 2010 through 2018 provided by the Town of Oro Valley's Planning & Development Services Department which were added to the total housing unit count from the 100 percent 2010 Decennial Census. Base year population estimates were derived from AOEO. These estimates are shown in Figure A3 below, along with 2028 projections. The estimates show there were 45,184 persons and 22,636 housing units in Oro Valley in 2018, and project 51,175 residents and 25,632 housing units by 2028.

Figure A3: Oro Valley Population and Housing Estimates for 2018 and 2028

	Housing Units		Population	
	2018	2028	2018	2028
	22,636	25,632	45,184	51,175
Increase	**2,996**		**5,991**	

Source: Population-AOEO 2018 Population Estimates. 2019-2028 growth rates from AOEO. 2018 Housing derived from Oro Valley Building Permit Data. Housing projections based on population growth and 2017 ACS PPHU estimates.

Figure A4 shows Oro Valley's recent housing unit permit totals by fiscal year, provided by the Town's Planning & Development Services. The average number of residential units permitted per year during this

eight-year period was 287, although there was a high degree of variation from year to year. Single family permits have been steadily increasing from a low of 47 at the tail end of the Great Recession to a high of 338 in 2017, while multi-family unit permits appear to far more inconsistent ranging from a high of 646 in 2014 to zero in other years, but have averaged 101 per year over the time period. The general trend in housing unit permits is increasing.

Figure A4: Recent Residential Permits by Fiscal Year

Year	Single Family	Multi-Family	Total	Cumulative
2010/11	47	0	47	47
2011/12	63	0	63	110
2012/13	217	144	361	471
2013/14	136	646	782	1,253
2014/15	142	0	142	1,395
2015/16	220	0	220	1,615
2016/17	338	0	338	1,953
2017/18	327	16	343	2,296
Avg.	186	101	287	

Source: Planning Division, Oro Valley, Arizona.

Residential Projections

To derive the 10-year housing unit projections, TischlerBise started with the 100 percent 2010 Decennial Census figure of 20,340 housing units and added the permit figures for fiscal years 2010-18 from Figure A4 (1,490 SF and 806 MF units = 2,296) resulting in a base year figure of 22,636 housing units.

Housing unit estimates for 2018 through 2028 were calculated using the AOEO 2016-2028 population estimated average annual growth rate of 1.20 percent and applying the 2017 ACS PPHU figure of 2.00 across all housing types. The resulting annual growth in housing units for the 2018-2028 period is 299 units per year, shown in Figure A5. The 2010 through 2018 building permit data show an average of 287 total units per year and imply an average annual growth rate in housing units of 1.28 percent. These growth rates likely reflect the recent short-term increase in building activity and favorable economic conditions. According to Town building permit data, the housing mix of 76 percent single family units and 24 percent multi-family units was assumed to remain constant. Oro Valley is projected to add 2,996 housing units between 2018 and 2028.

Oro Valley's population projections, also shown in Figure A5, were derived by first establishing a base year population from AOEO and then applying their annual rate of growth projection of 1.20 percent. Oro Valley is projected to add 5,991 residents between 2018 and 2028.

Figure A5: Oro Valley Residential Development Projections

						Multi Year Increments>>>		
	Base	*1*	*2*	*3*	*4*	*5*	*10*	*10-Year*
Population	***2018***	***2019***	***2020***	***2021***	***2022***	***2023***	***2028***	***Increase***
Population	45,184	45,857	46,536	47,192	47,820	48,413	51,175	**5,991**
Housing Units	22,636	22,973	23,312	23,640	23,954	24,250	25,632	**2,996**
Population								
Single Family Population	39,585	40,175	40,770	41,345	41,894	42,414	44,834	**5,249**
Multi-Family Population	5,599	5,682	5,766	5,847	5,925	5,999	6,341	**742**
Total Population	45,184	45,857	46,536	47,192	47,820	48,413	51,175	
Housing Units								
Single-Family	17,158	17,459	17,717	17,966	18,205	18,430	19,480	**2,322**
Multi-Family	5,478	5,513	5,595	5,674	5,749	5,820	6,152	**674**

NONRESIDENTIAL DEVELOPMENT

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

Jobs by Type of Nonresidential Development

To estimate the current number of jobs, TischlerBise applied most recent, (2015) U.S. Census OnTheMap Longitudinal-Employer Household statistics for the Town of Oro Valley to the 2016-2026 Arizona Office of Economic Opportunity annual industry growth estimate for the area of 1.6 percent. Jobs were aggregated into one of four categories: Industrial, Commercial, Institutional, and Office & Other. These estimates are shown in Figure A6 below. Analysis estimates there were 10,642 jobs in Oro Valley in 2018, and the number of jobs will grow to 12,473 by 2028.

Figure A6: Oro Valley Jobs Estimates for 2018 and 2028

	Oro Valley Employment		Increase
	2018	2028	
Industrial Jobs	1,008	1,181	173
Commercial & Retail Jobs	3,296	3,864	568
Institutional Jobs	507	594	87
Office & Other Jobs	5,831	6,834	1,003
Total Jobs	**10,642**	**12,473**	**1,831**

Source: 2015 estimates from OnTheMap. Sector Growth rates (1.6%) based on AOEO 2016-2026 projections.

Looking more closely at the projections, AOEO forecast 1.6% annual growth in employment per year between 2018 and 2028. Oro Valley's 10-year job projections through 2028 are shown in Figure A7. The

Town is expected to add a total of 1,831 jobs by 2028, and 54 percent this job growth (1,003 jobs) is projected to come from the Office and Other Services jobs category.

Figure A7: Oro Valley Employment Projections

				Multi Year Increments>>>				
	Base	*1*	*2*	*3*	*4*	*5*	*10*	***10-Year***
	2018	***2019***	***2020***	***2021***	***2022***	***2023***	***2028***	***Increase***
Industrial	1,008	1,024	1,040	1,057	1,074	1,091	1,181	173
Commercial / Retail	3,296	3,349	3,403	3,457	3,513	3,569	3,864	568
Institutional	507	515	523	531	540	549	594	87
Office & Other Services	5,831	5,924	6,019	6,115	6,213	6,313	6,834	1,003
Total Jobs	**10,642**	**10,812**	**10,985**	**11,160**	**11,340**	**11,522**	**12,473**	**1,831**

Nonresidential Floor Area by Type of Development

Figure A8 indicates 2018 floor area estimates for the Town of Oro Valley grouped into four industry classifications: Industrial, Commercial/Retail, Institutional and Office/Other Services. Floor area by sector was derived from 2015 OnTheMap employment figures which were adjusted to 2018 by applying the AOEO employment growth rate of 1.6%. Utilizing 2018 employment estimates, TischlerBise then applied ITE square foot per employee figures to derive current estimated nonresidential floor area by industry sector. 2019-2028 projections utilize AOEO growth in employment and ITE factors in the same manner. Institutional uses have the highest square foot per job ratio at 1,076, followed by Industrial at 615 square feet per job, Commercial at 427 square feet per job, and Office & Other at 337 square feet per job. The last column in Figure A9 shows the ratio of jobs per 1,000 square feet from the Institute of Transportation Engineers (ITE) *Trip Generation* Manual (2017). In total, Oro Valley is projected to add 781,000 square feet of nonresidential floor area by 2028.

Figure A8: Nonresidential Floor Area Estimates for 2018 and 2028

				Multi Year Increments>>>				
	Base	*1*	*2*	*3*	*4*	*5*	*10*	***10-Year***
Nonresidential Floor Area (KFS)	***2018***	***2019***	***2020***	***2021***	***2022***	***2023***	***2028***	***Increase***
Industrial	620	630	640	650	661	671	726	106
Commercial / Retail	1,407	1,430	1,453	1,476	1,500	1,524	1,650	243
Institutional	545	554	563	571	581	591	639	94
Office & Other Services	1,965	1,996	2,028	2,061	2,094	2,127	2,303	338
Total	**4,538**	**4,610**	**4,684**	**4,758**	**4,835**	**4,913**	**5,318**	**781**

Source: 2018 Floor Area Estimate by sector , Base 2015 OnTheMap employment by sector. Employment Growth rates based on AOEO 2016-2026 growth projections. Sq. Ft. conversion from ITE 10th Edition (2017)

Figure A9 shows the ITE's ratios of jobs per 1,000 square feet and average weekday vehicle trip ends per 1,000 square feet, broken down by nonresidential land use category. Gray shading indicates the four nonresidential development prototypes used by TischlerBise to correlate Oro Valley's projected job growth with nonresidential floor area growth and vehicle trips generated by development.

Figure A9: ITE Employee and Trip Generation 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**	**4.96**	**3.05**	**1.63**	**615**
130	Industrial Park	1,000 Sq Ft	3.37	2.91	1.16	864
140	Manufacturing	1,000 Sq Ft	3.93	2.47	1.59	628
150	Warehousing	1,000 Sq Ft	1.74	5.05	0.34	2,902
520	**Elementary School**	**1,000 Sq Ft**	**19.52**	**21.00**	**0.93**	**1,076**
610	Hospital	1,000 Sq Ft	10.72	3.79	2.83	354
710	**General Office (average size)**	**1,000 Sq Ft**	**9.74**	**3.28**	**2.97**	**337**
720	Medical-Dental Office	1,000 Sq Ft	34.80	8.70	4.00	250
730	Government Office	1,000 Sq Ft	22.59	7.45	3.03	330
760	Research & Dev Center	1,000 Sq Ft	11.26	3.29	3.42	292
820	**Shopping Center (average size)**	**1,000 Sq Ft**	**37.75**	**16.11**	**2.34**	**427**

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

AVERAGE WEEKDAY VEHICLE TRIPS

Average Weekday Vehicle Trips are used as a measure of demand by land use. Vehicle trips are estimated using average weekday vehicle trip ends from the reference book, *Trip Generation, 10th Edition*, published by the Institute of Transportation Engineers (ITE) in 2017. A vehicle trip end represents a vehicle entering or exiting a development (as if a traffic counter were placed across a driveway).

Trip Rate Adjustments

To calculate street 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 percent. As discussed further below, the development impact fee methodology includes additional adjustments to make the fees proportionate to the infrastructure demand for particular types of development.

Commuter Trip Adjustment

Residential development has a larger trip adjustment factor of 63 percent to account for commuters leaving Oro Valley for work. According to the 2009 National Household Travel Survey (see Table 30) weekday work trips are typically 31 percent of production trips (i.e., all out-bound trips, which are 50 percent of all trip ends). As shown in Figure A10, the U.S. Census Bureau's OnTheMap web application indicates that 87 percent of resident workers traveled outside of Oro Valley for work in 2015. In combination, these factors (0.31 x 0.50 x 0.87 = 0.13) support the additional 13 percent allocation of trips to residential development.

Figure A10: Commuter Trip Adjustment

Trip Adjustment Factor for Commuters [1]	
Employed Residents	14,961
Residents Working in Oro Valley	1,946
Residents Working Outside Oro Valley (Commuters)	13,015
Percent Commuting out of Oro Valley	**87%**
Additional Production Trips [2]	**13%**
Residential Trip Adjustment Factor	**63%**

1. U.S. Census Bureau, OnTheMap Application (version 6.6) and LEHD Origin-Destination Employment Statistics, 2015.
2. According to the National Household Travel Survey (2009), published in December 2011 (see Table 30), home-based work trips are typically 30.99 percent of "production" trips, in other words, out-bound trips (which are 50 percent of all trip ends). Also, LED OnTheMap data from 2015 indicate that 87 percent of Oro Valley workers travel outside the town for work. In combination, these factors (0.3099 x 0.50 x 0.87 = 0.1347) account for 13 percent of additional production trips. The total adjustment factor for residential includes attraction trips (50 percent of trip ends) plus the journey-to-work commuting adjustment (13 percent of production trips) for a total of 63 percent.*
**http://nhts.ornl.gov/publications.shtml ; Summary of Travel Trends - Table "Daily Travel*

Adjustment for Pass-By Trips

For commercial development, the trip adjustment factor is less than 50 percent 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 indicate 34 percent of the vehicles that enter are passing by on their way to some other primary destination. The remaining 66 percent of attraction trips have the commercial site as their primary destination. Because attraction trips are half of all trips, the trip adjustment factor is 66 percent multiplied by 50 percent, or approximately 33 percent of the trip ends.

Estimated Residential Vehicle Trip Rates

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. Shown in Figure A11, custom trip generation rates for Oro Valley vary slightly from the national averages. For example, single-family residential development is expected to generate 8.20 average weekday vehicle trip ends per dwelling – compared to the national average of 9.44 (ITE 210). Multi-family residential development is expected to generate 4.30 average weekday vehicle trip ends per dwelling, which is lower than the national average of 5.44 (ITE 221).

Figure A11: Average Weekday Vehicle Trip Ends by Housing Type

		Households by Structure Type[2]			
	Vehicles Available[1]	Single-Family	Multi-Family	Total	Vehicles per HH by
Owner-occupied	26,777	13,920	164	14,084	1.90
Renter-occupied	6,732	1,757	2,850	4,607	1.46
TOTAL	**33,509**	**15,677**	**3,014**	**18,691**	**1.79**

	Persons in Households[3]	*Trip Ends[4]*	*Vehicles by Type of Unit*	*Trip Ends[5]*	*Average Trip Ends*	*Housing Units[6]*	*Trip Ends per Unit*	
							Oro Valley	*ITE[7]*
Single-Family	37,509	104,432	29,033	189,224	146,828	17,908	8.20	9.44
Multi-Family	5,305	12,067	4,476	17,931	14,999	3,517	4.30	5.44
TOTAL	**42,814**	**116,500**	**33,509**	**207,155**	**161,827**	**21,425**	**7.60**	

1. Vehicles available by tenure from Table B25046, American Community Survey, 2013-2017 5-Year Estimates.
2. Households by tenure and units in structure from Table B25032, American Community Survey, 2013-2017 5-Year Estimates.
3. Total population in households from Table25033, American Community Survey, 2013-2017 5-Year Estimates.
4. Vehicle trips ends based on persons using formulas from Trip Generation (ITE 2017). For single-family housing (ITE 210), the fitted curve equation is EXP(0.89*LN(persons)+1.72). To approximate the average population of the ITE studies, persons were divided by 67 and the equation result multiplied by 67. For multi-family housing (ITE 221), the fitted curve equation is (2.29*persons)-81.02.
5. Vehicle trip ends based on vehicles available using formulas from Trip Generation (ITE 2017). For single-family housing (ITE 210), the fitted curve equation is EXP(0.99*LN(vehicles)+1.93). To approximate the average number of vehicles in the ITE studies, vehicles available were divided by 113 and the equation result multiplied by 113. For multi-family housing (ITE 221), the fitted curve equation is (3.94*vehicles)+293.58.
6. Housing units from Table B25024, American Community Survey, 2013-2017 5-Year Estimates.
7. Trip Generation, Institute of Transportation Engineers, 10th Edition (2017).

Functional Population

TischlerBise recommends functional population to allocate the cost of certain facilities to residential and nonresidential development. As shown in Figure A12, functional population accounts for people living and working in a jurisdiction. OnTheMap is a web-based mapping and reporting application that shows where workers are employed and where they live. It describes geographic patterns of jobs by their employment locations and residential locations as well as the connections between the two locations. OnTheMap was developed through a unique partnership between the U.S. Census Bureau and its Local Employment Dynamics (LED) partner states.

Residents that do not work are assigned 20 hours per day to residential development and four hours per day to nonresidential development (annualized averages). Residents that work in Oro Valley are assigned 14 hours to residential development and 10 hours to nonresidential development. Residents that work outside Oro Valley are assigned 14 hours to residential development. Inflow commuters are assigned 10 hours to nonresidential development. Based on 2015 functional population data for Oro Valley, the proportionate share is 78 percent for residential development and 22 percent for nonresidential development.

Figure A12: Functional Population

Demand Units in 2015			Demand Hours/Day	Person Hours	Proportionate Share
Residential					
Estimated Residents	42,259				
Residents Not Working		27,298	20	545,960	
Employed Residents		14,961			
Employed in Oro Valley		1,946	14	27,244	
Employed outside Oro Valley		13,015	14	182,210	
		Residential Subtotal		755,414	**78%**
Nonresidential					
Non-working Residents		27,298	4	109,192	
Jobs in Oro Valley		10,147			
Residents Employed in Oro Valley		1,946	10	19,460	
Non-Resident Workers (inflow Commuters)		8,201	10	82,010	
		Nonresidential Subtotal		210,662	**22%**
			TOTAL	966,076	**100%**

Source: Pima Association of Governments 2015 Population Estimate; U.S. Census Bureau, OnTheMap 6.6 Application, 2015.

SUMMARY OF GROWTH INDICATORS

Development projections for the Town are summarized in Figure A13. These projections will be used to estimate development fee revenue and to indicate the anticipated need for growth-related infrastructure. However, development fees methodologies are designed to reduce sensitivity to accurate development projections in the determination of the proportionate-share fee amounts. If actual development is slower than projected, development fees revenues will decline, but so will the need for growth-related infrastructure. In contrast, if development is faster than anticipated, the Town will receive an increase in development fee revenue but will also need to accelerate capital improvements to keep pace with development.

Figure A13: Municipal Planning Area Projections and Growth Rates

		Multi Year Increments>>>						
	2018	*2019*	*2020*	*2021*	*2022*	*2023*	*2028*	*10-Year*
Cumulative Increase	***Base Yr***	***1***	***2***	***3***	***4***	***5***	***10***	***Increase***
Population	**45,184**	**45,857**	**46,536**	**47,192**	**47,820**	**48,413**	**51,175**	**5,991**
Housing Units	**22,636**	**22,973**	**23,312**	**23,640**	**23,954**	**24,250**	**25,632**	**2,996**
Jobs								
Industrial	1,008	1,024	1,040	1,057	1,074	1,091	1,181	**173**
Commercial / Retail	3,296	3,349	3,403	3,457	3,513	3,569	3,864	**568**
Institutional	507	515	523	531	540	549	594	**87**
Office & Other Services	5,831	5,924	6,019	6,115	6,213	6,313	6,834	**1,003**
Total Jobs	**10,642**	**10,812**	**10,985**	**11,160**	**11,340**	**11,522**	**12,473**	**1,831**
Nonresidential Floor Area (x 1,000)								
Industrial KSF	620	630	640	650	661	671	726	**106**
Commercial / Retail KSF	1,407	1,430	1,453	1,476	1,500	1,524	1,650	**243**
Institutional KSF	545	554	563	571	581	591	639	**94**
Office & Other Services KSF	1,965	1,996	2,028	2,061	2,094	2,127	2,303	**338**
Total Nonresidential KSF	**4,538**	**4,610**	**4,684**	**4,758**	**4,835**	**4,913**	**5,318**	**781**

Development projections are based on U.S. Census OnTheMap 2015 employment estimates with 2016-2028 AOEO industry growth rates applied by sector for 2019 through 2028. TischlerBise used historical Town building permit data to estimate 2018 housing unit totals and AOEO 2016-2050 growth rates to project future population growth. Population data were converted to housing units utilizing Oro Valley's PPHU size of 2.00 and job data were converted to nonresidential floor area using the methods described in this Land Use Assumptions document.

APPENDIX B: FORECAST OF REVENUES

SB 1525 requires that the infrastructure improvements plan include (Section 9-463.05.E.7):

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

Only revenue generated by new development that is dedicated to growth-related capital improvements needs to be considered in determining the extent of the burden imposed by new development. As discussed in greater detail in the Legal Framework section, offsets against impact fees are warranted in the following cases: (a) new development will be paying taxes or fees used to retire debt on existing facilities serving existing development; (b) new development will be paying taxes or fees used to fund an existing deficiency, (c) new development will be paying taxes or fees that are dedicated to be used for growth-related improvements, or (d) excess construction sales tax.

The analyses provided in the legal framework, street facilities, parks and recreational facilities, police facilities and water facilities sections of this report have identified that the only need for offsets is against the street facilities development fees for a portion of the "excess" construction sales tax and the police facilities development fees for future debt payments used to elevate the existing level-of service. The reasons for this conclusion are, in the order listed above, as follows.

(a) The Town has no debt for past capacity-expanding street facilities and parks and recreational facilities included in the development fee calculations. The Town does have debt as part of the Municipal Operations Center and for the Aquatics Center, but neither facility is included in the development fee calculations.

(b) The street facilities and parks and recreational facilities are all calculated on the basis of the existing, system-wide level-of-service (actually, a lower level-of-service in the case of transportation impact fees). Consequently, there are no existing deficiencies, and no offsets for deficiencies are warranted. As discussed above, the police facilities development fees have an offset for the portion of future debt used to elevate the existing level-of-service.

(c) The only funding the Town has that is dedicated to capacity-expanding capital improvements is future regional funding for major road improvements. Since only the Town's share of anticipated costs is used to determine the cost per service unit, so an offset for anticipated regional funding is not required.

(d) An offset is provided for excess construction sales tax as defined by State law, and the offset is provided against the transportation impact fee.

APPENDIX C: ARTERIAL STREET SEGMENTS INVENTORY

Street	Location	Segment Length (Miles)	Total Lanes	Lane Miles	Total AADT	Vehicle Miles of Travel
1st Ave	Oracle Rd to Lambert Ln	0.414	4.0	1.7	24,340	10,077
1st Ave	Lambert Ln to Naranja Dr	0.365	4.0	1.5	15,746	5,747
1st Ave	Naranja Dr to Tangerine Rd	0.997	4.0	4.0	15,746	15,699
Calle Buena Vista	Calle Concordia to Hardy	1.000	2.0	2.0	3,533	3,533
Calle Concordia	Calle Loma Linda to Calle Buena Vista	0.499	2.0	1.0	4,300	2,146
Calle Concordia	Calle Buena Vista to Overlook	0.708	2.0	1.4	4,300	3,044
Calle Concordia	Overlook to Hwy 77	0.708	2.0	1.4	4,300	3,044
Hardy Rd	Calle Loma Linda to Calle Buena Vista	0.501	2.0	1.0	5,384	2,697
Hardy Rd	Calle Buena Vista to Oracle Rd	0.534	2.0	1.1	5,384	2,875
Innovation Park	SR -989 to Rancho Vistoso	1.248	2.0	2.5	6,000	7,488
La Canada Dr	Oro Valley TB to Calle Concordia	0.505	4.0	2.0	11,749	5,933
La Canada Dr	Oro Valley TB to Rancho Sonora	0.647	4.0	2.6	11,750	7,602
La Canada Dr	Rancho Sonora Dr to Lambert lane	0.414	4.0	1.7	11,750	4,865
La Canada Dr	Lambert Ln to Naranja Dr	0.997	4.0	4.0	14,658	14,614
La Canada Dr	Naranja Dr to Tangerine Rd	0.971	4.0	3.9	10,382	10,081
La Canada Dr	Tangerine Rd to Moore Rd	1.000	4.0	4.0	5,058	5,058
La Cholla Blvd	0.5 mi. S of Lambert to Lambert Ln	0.500	2.0	1.0	14,246	7,123
La Cholla Blvd	Lambert Ln to Naranja Dr	1.007	2.0	2.0	10,669	10,744
La Cholla Blvd	Naranja Dr to Tangerine Rd	0.966	2.0	1.9	9,870	9,534
La Cholla Blvd	Tangerine Rd to Oro Valley TB	0.258	2.0	0.5	2,798	722
Lambert Ln	La Cholla Blvd to Rancho Sonora	0.625	2.0	1.3	9,437	5,898
Lambert Ln	Rancho Sonora Dr to La Canada Dr	0.369	2.0	0.7	9,437	3,482
Lambert Ln	La Canada Dr to Highlands Dr	1.290	2.0	2.6	11,938	15,400
Lambert Ln	Pusch View to 1st Ave	1.017	2.0	2.0	11,931	12,134
Linda Vista	Linda Vista Widening E of Oracle Rd	0.100	2.0	0.2	2,798	280
Magee Road	Northern Ave to Oracle Rd	0.219	2.0	0.4	14,146	3,098
Magee Road	Oracle Rd to Town Limits	0.787	2.0	1.6	1,888	1,486
Moore Road	La Cholla Blvd to Copper Spring Trl	1.558	2.0	3.1	3,621	5,642
Moore Road	Moore Rd, Yellow Orchard -Mystic View	0.300	2.0	0.6	3,620	1,086
Moore Road	Copper Spring Trl to Woodburne Ave.	0.804	2.0	1.6	3,621	2,911
Moore Road	Woodburne Ave. to Rancho Vistoso	0.286	2.0	0.6	3,621	1,036
Naranja Dr	Naranja Two-Way Left Turn Lane	1.000	3.0	3.0	2,000	5,432
Naranja Dr	Shannon Road to La Cholla Blvd	1.000	2.0	2.0	2,000	2,000
Naranja Dr	La Cholla Blvd to La Canada Dr	0.998	2.0	2.0	7,883	7,867
Naranja Dr	La Canada Dr to 1st Ave	2.020	2.0	4.0	3,977	8,034
Northern Ave.	Magee Road to Camino Cortaro	0.496	2.0	1.0	8,440	4,186
Northern Ave.	Camino Cortaro to Hardy Road	0.507	2.0	1.0	8,440	4,279
Pusch View Lane	Lambert Lane to Oracle Road	0.644	4.0	2.6	5,926	3,816
Rancho Vistoso	Tangerine Rd to Moore Rd	1.466	4.0	5.9	18,566	27,218
Rancho Vistoso	Moore Rd to Sun City Blvd	2.447	4.0	9.8	3,481	8,518
Rancho Vistoso	Sun City Blvd to Del webb Blvd	1.117	4.0	4.5	8,209	9,169
Rancho Vistoso	Del webb Blvd to Innovation Park	0.815	4.0	3.3	12,938	10,544
Rancho Vistoso	Innovation Park Dr to SR-77	0.414	4.0	1.7	12,932	5,354
Shannon Rd	Lambert Ln to Naranja	0.985	2.0	2.0	2,582	2,543
Tangerine Rd	Tangerine Rd, Shannon Rd-La Canada Dr	2.000	4.0	8.0	11,241	44,968
Tangerine Rd	Shannon Rd to La Cholla Blvd	0.981	2.0	2.0	11,242	11,028
Tangerine Rd	La Cholla Blvd to La Canada Dr	1.007	2.0	2.0	13,316	13,409
Tangerine Rd	La Canada Dr to Mandarin Ln	1.580	4.0	6.3	18,640	29,451
Vistoso Comm Lp	Rancho Vistoso Bd to Oracle Road	0.444	4.0	1.8	1,538	683
	TOTAL	**41.5**		**118.5**		**383,580**