

**Roads of Regional Significance
Development Fee Study**

Prepared for:

City of Surprise, Arizona

December 4, 2006



Prepared by:

TischlerBise
Fiscal, Economic & Planning Consultants

Table of Contents

ROADS OF REGIONAL SIGNIFICANCE	3
METHODOLOGY	3
<i>Figure 1: Roads of Regional Significance Development Fee Methodology Chart</i>	<i>4</i>
COLLECTION & EXPENDITURE ZONES	4
<i>Figure 2: Roads of Regional Significance Development Fee Areas.....</i>	<i>5</i>
ROADS OF REGIONAL SIGNIFICANCE	6
<i>Figure 3: Circulation Element of General Plan 2030.....</i>	<i>6</i>
<i>Figure 4: Summary 20 Year Roads of Regional Significance Plan.....</i>	<i>7</i>
SPA 1	8
SPA'S 2, 4, 6.....	8
<i>Figure 5: Planned Roads of Regional Significance SPA's 2, 4, 6.....</i>	<i>8</i>
<i>Figure 6: Shopping Center/Retail Trip Rates and Adjustment Factors.....</i>	<i>9</i>
VEHICLE MILES OF TRAVEL ON PLANNED ROADS OF REGIONAL SIGNIFICANCE SPA'S 2, 4, 6.....	10
<i>Figure 7: SPA's 2, 4, 6 Roads of Regional Significance Capacity Analysis.....</i>	<i>10</i>
COST PER VMT FOR PLANNED ROADS OF REGIONAL SIGNIFICANCE SPA'S 2, 4, 6.....	11
SPA'S 3, 5.....	11
<i>Figure 8: Planned Roads of Regional Significance SPA's 3, 5.....</i>	<i>11</i>
VEHICLE MILES OF TRAVEL ON PLANNED ROADS OF REGIONAL SIGNIFICANCE SPA'S 3, 5.....	11
<i>Figure 9: SPA's 3, 5 Roads of Regional Significance Capacity Analysis.....</i>	<i>12</i>
COST PER VMT FOR PLANNED ROADS OF REGIONAL SIGNIFICANCE SPA'S 3, 5.....	12
DEVELOPMENT FEE STUDY.....	12
ROADS OF REGIONAL SIGNIFICANCE DEVELOPMENT FEE.....	13
<i>Figure 10: Roads of Regional Significance Development Fee Cost Summary – SPA's 2, 4, 6.....</i>	<i>14</i>
<i>Figure 11: Roads of Regional Significance Development Fee Cost Summary – SPA's 3, 5.....</i>	<i>15</i>
<i>Figure 12: Roads of Regional Significance Development Fee Schedule – SPA's 2, 4, 6.....</i>	<i>16</i>
<i>Figure 13: Roads of Regional Significance Development Fee Schedule – SPA's 3, 5.....</i>	<i>16</i>

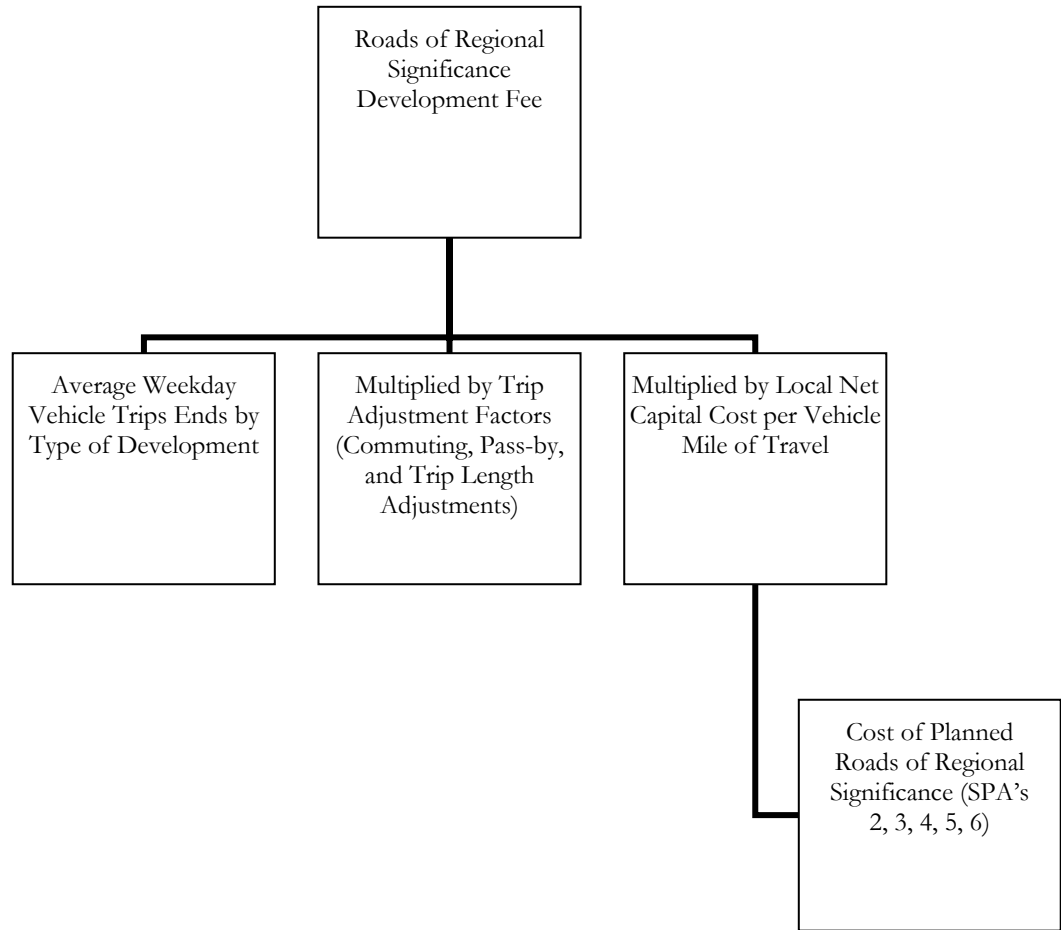
Roads of Regional Significance

METHODOLOGY

As shown in Figure 1, trip generation rates by type of development are multiplied by the capital cost per vehicle miles of travel (VMT) to yield the Roads of Regional Significance Development Fees. The demand for these roads is the result of residential and nonresidential development. The demand is a function of both the number of vehicle trips and the distance traveled on these roads. Multiplying the number of vehicle trips by the average trip length (in miles) yields vehicle miles of travel (VMT). Trip generation rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* are used to measure and differentiate the demand between residential and nonresidential land uses. The VMT methodology is a better measure of the demand for additional road infrastructure in that it includes adjustment factors for commuting patterns, pass-by trips and average trip length variation by type of land use.

The plan-based methodology is used for these roads. Since these projects are the result of new growth only, the *marginal approach* is used for these projects. These costs are allocated to the net increase in VMT's provided by the planned capacity improvements.

Figure 1: Roads of Regional Significance Development Fee Methodology Chart



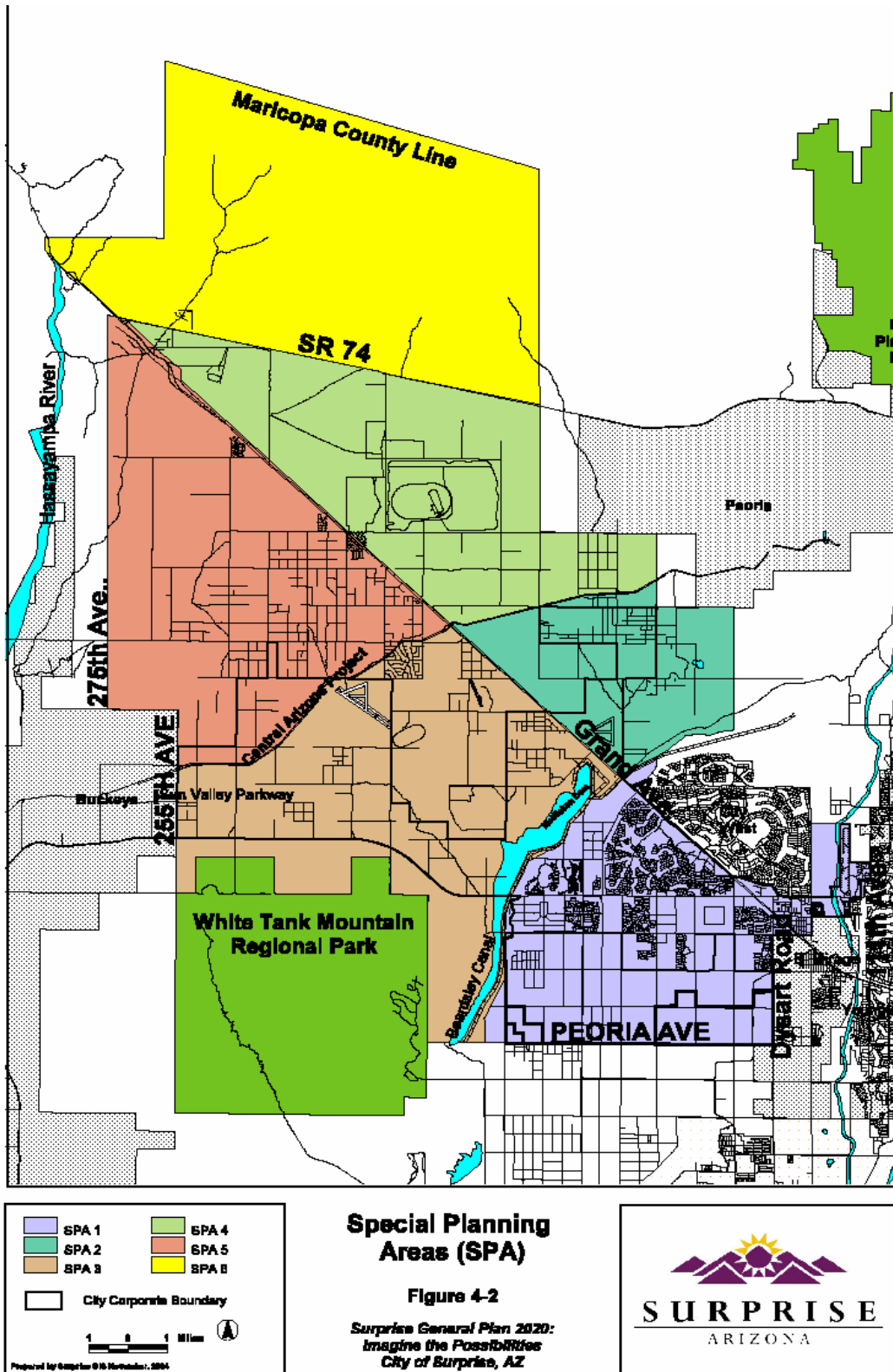
COLLECTION & EXPENDITURE ZONES

To better meet the demand, proportionality, and benefit requirements of the rational nexus test, TischlerBise recommends the City collect and expend the Roads of Regional Significance Development Fee as follows:

- SPA 1 – No Roads of Regional Significance component.
- SPA 2, 4, 6 (areas east of US 60)
- SPA 3, 5 (areas west of US 60)

These zones are used to document where in the City the development fee revenues are coming from and where capital projects for new growth will be provided. The collection and expenditures zone map in Figure 2 is provided to give the reader a general indication of the SPA boundaries. Larger, detailed maps will be maintained by the City.

Figure 2: Roads of Regional Significance Development Fee Areas



ROADS OF REGIONAL SIGNIFICANCE

The new circulation element of the *General Plan 2030* outlines the Roads of Regional Significance the City plans to construct in the future. The City's current plans envision beginning implementation of this network of roads by constructing 327 lane miles of capacity in SPA's 2, 3, 4, 5, and 6 (see Figure 4). These 321 lane miles represent only the beginning of the implementing this network of roads and additional capacity may be needed in the future. Note this plan does not include any state road projects.

Figure 3: Circulation Element of *General Plan 2030*

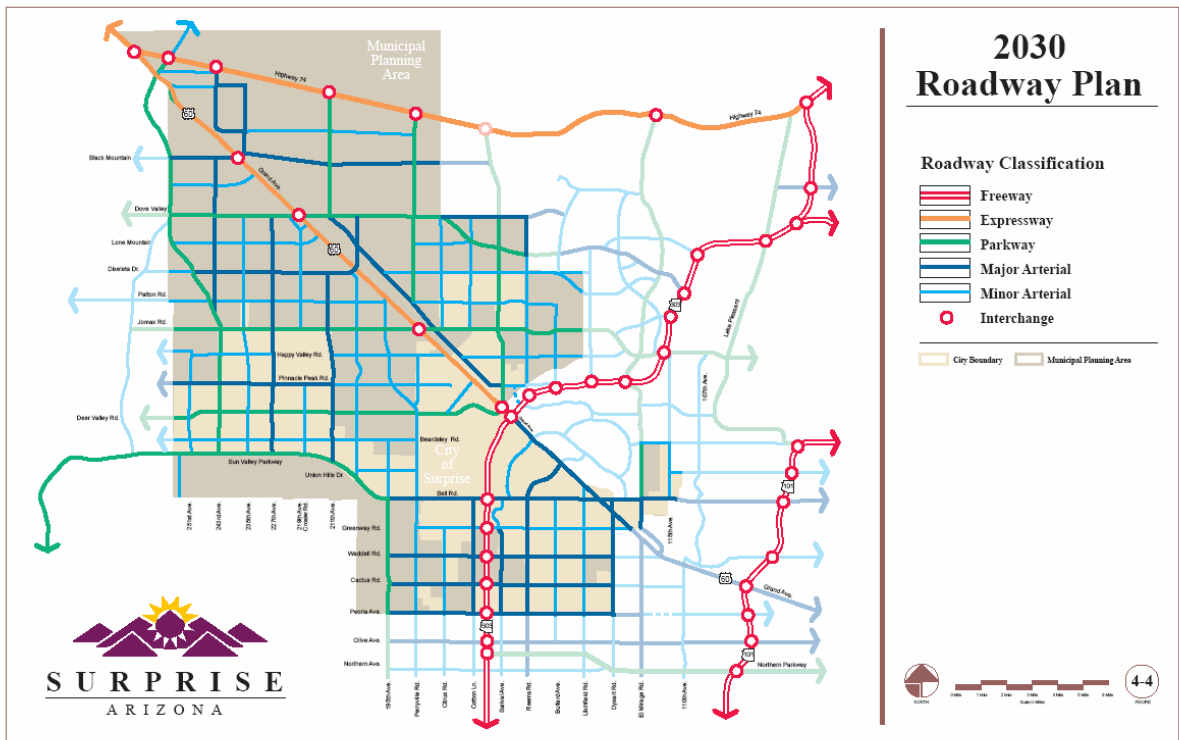


Figure 4: Summary 20 Year Roads of Regional Significance Plan

Project	Lane Miles	City Cost	% Pass Through Trips	Cost Attributable To Development in SPA	Total Cost	Planned Construction		
						0-5 Years	5-10 Years	10-20 Years
No projects.								
TOTAL	0	\$0		\$0	\$0			

SPA 2, 4, 6

Project	Lane Miles	City Cost	% Pass Through Trips	Cost Attributable To Development in SPA	Total Cost	Planned Construction		
						0-5 Years	5-10 Years	10-20 Years
Jomax	36	\$50,400,000	30%	\$35,280,000	\$50,400,000	X		
Jomax/Grand Avenue Interchange		\$10,000,000	30%	\$7,000,000	\$10,000,000	X		
163rd Avenue	24	\$33,000,000	10%	\$29,700,000	\$33,000,000	X	X	
CAP Bridges		\$13,750,000		\$13,750,000	\$13,750,000	X	X	X
203rd Ave Interchange		\$16,000,000		\$16,000,000	\$16,000,000	X		
Dove Valley	24	\$33,579,000	20%	\$26,863,200	\$33,579,000		X	
Dove Valley Interchange		\$20,000,000	20%	\$16,000,000	\$20,000,000		X	
211th Avenue	24	\$33,600,000	10%	\$30,240,000	\$33,600,000	X		
187th Avenue	21	\$29,400,000	10%	\$26,460,000	\$29,400,000	X		
Black Mountain/Broadstone Interchange		\$10,000,000	0%	\$10,000,000	\$10,000,000			X
163rd Avenue Interchanges (inc. SR303)		\$21,000,000	10%	\$18,900,000	\$21,000,000		X	
TOTAL	129	\$270,729,000		\$230,193,200	\$270,729,000			

SPA 3, 5

Project	Lane Miles	City Cost	% Pass Through Trips	Cost Attributable To Development in SPA	Total Cost	Planned Construction		
						0-5 Years	5-10 Years	10-20 Years
Jomax	54	\$75,600,000	30%	\$52,920,000	\$75,600,000			X
Jomax/Grand Avenue Interchange		\$10,000,000	30%	\$7,000,000	\$10,000,000	X		
Deer Valley	66	\$92,400,000	25%	\$69,300,000	\$92,400,000	X		
Jackrabbit Trail	18	\$47,250,000	45%	\$25,987,500	\$47,250,000		X	
163rd Avenue Interchanges (inc. SR303)		\$9,000,000	10%	\$8,100,000	\$9,000,000		X	
203rd Ave Interchange		\$4,000,000		\$4,000,000	\$4,000,000	X		
CAP Bridges		\$13,750,000		\$13,750,000	\$13,750,000	X	X	X
Dove Valley	6	\$21,021,000	20%	\$16,816,800	\$21,021,000		X	
Dove Valley Interchange		\$5,000,000	20%	\$4,000,000	\$5,000,000		X	
243rd Avenue	48	\$53,760,000	35%	\$34,944,000	\$67,200,000	X		X
Black Mountain/Broadstone Interchange		\$10,000,000	0%	\$10,000,000	\$10,000,000			X
TOTAL	192	\$341,781,000		\$246,818,300	\$355,221,000			

Sources: City of Surprise, *General Plan 2030*, Surprise Transportation Commission, and Department of Community Development.
 Note: Costs include ROW acquisition costs in addition to construction costs.

Section 4.2.4 of the Circulation Element (“Transportation Goals, Objectives, and Policies”) identifies the role of development fees in implementing the 2030 Roadways Plan:

Value Based Goals

The Surprise transportation system needs to be based on values inherent to the community, such as the following:

Fair and Adequate Funding.

Transportation funding should be fair and adequate to meet transportation needs.

Dedicated funding sources should be pursued when feasible, such as dedicated sales tax revenues for transit, **developer fees for new roads**, highway user revenues to maintain roads, and aviation user fees for airports (emphasis added).

The roads listed in Figure 4 are the result of demand from new residential and nonresidential development in SPA’s 2 through 6. Given the classification of the Roads of Regional Significance, these roads are designed to carry trips throughout the region around Surprise, including trips which are not attributable to development within City (also known as pass-through trips). Development fees cannot be used to fund the capacity requirements for these pass-through trips. The City’s development fees account for these trips as the total cost of each project has been reduced by the estimated percentage of pass-through trips that are projected to travel on the project. The development fees are based on the cost of the projects attributed to development within the SPA’s. Thus, development fees will not fund

100% of the total cost of the projects in Figure 4. In addition to development fees, the City will have to fund approximately \$135 million from non-development fee sources.

SPA 1

There are no planned Roads of Regional Significance for SPA 1. Thus, the Roads of Regional Significance Development Fees for SPA 1 do not contain this component.

SPA’S 2, 4, 6

Figure 5 lists the planned 129 lane miles of roads of regional significance in SPA’s 2, 4, 6 to be built in the next twenty years. The total cost attributable to development in these SPA’s is \$230,193,200. These cost estimates include ROW acquisition costs as well as construction costs.

Figure 5: Planned Roads of Regional Significance SPA’s 2, 4, 6

Project	Lane Miles	City Cost	% Pass Through Trips	Cost Attributable To Development in SPA	Total Cost	Planned Construction		
						0-5 Years	5-10 Years	10-20 Years
Jomax	36	\$50,400,000	30%	\$35,280,000	\$50,400,000	X		
Jomax/Grand Avenue Interchange		\$10,000,000	30%	\$7,000,000	\$10,000,000	X		
163rd Avenue	24	\$33,000,000	10%	\$29,700,000	\$33,000,000	X	X	
CAP Bridges		\$13,750,000		\$13,750,000	\$13,750,000	X	X	X
203rd Ave Interchange		\$16,000,000		\$16,000,000	\$16,000,000	X		
Dove Valley	24	\$33,579,000	20%	\$26,863,200	\$33,579,000		X	
Dove Valley Interchange		\$20,000,000	20%	\$16,000,000	\$20,000,000		X	
211th Avenue	24	\$33,600,000	10%	\$30,240,000	\$33,600,000	X		
187th Avenue	21	\$29,400,000	10%	\$26,460,000	\$29,400,000	X		
Black Mountain/Broadstone Interchange		\$10,000,000	0%	\$10,000,000	\$10,000,000			X
163rd Avenue Interchanges (inc. SR303)		\$21,000,000	10%	\$18,900,000	\$21,000,000		X	
TOTAL	129	\$270,729,000		\$230,193,200	\$270,729,000			

TRIP GENERATION RATES

Trip generation rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual*. The Transportation Development Fees are based on average weekday vehicle trip ends. 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 the development fees, trip generation rates are adjusted 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 more proportionate to the infrastructure demand for particular types of development.

ADJUSTMENT FOR JOURNEY-TO-WORK COMMUTING

Residential development has a higher trip adjustment factor of 63% to account for commuters leaving Surprise for work. According to the *National Household Transportation Survey* (see Table 6, Federal Highway Administration, 2001) home-based work trips are typically 31% of production trips (i.e., all out-bound trips, which are 50% of all trip ends). Also, Census 2000 data from Table P26 in Summary File 3 indicates that 84% of Surprise’s workers travel outside the City for work. In combination, these factors (0.31 x 0.50 x 0.84 = 0.13) account for 13% of production trips. The total adjustment factor for residential includes attraction trips (50% of trip ends) plus the journey-to-work commuting adjustment (13% of production trips) for a total of 63%.

ADJUSTMENT FOR PASS-BY TRIPS

Data contained in the book *Trip Generation Manual* indicates there is an inverse relationship between the size of shopping centers and pass-by trips. Therefore, appropriate trip adjustment factors have been calculated according to shopping center size (see Figure 6 below). For shopping center/retail development, the trip adjustment factor is less than 50% because these land uses attract vehicles as they pass by on arterial streets. For example, when someone stops at a convenience store on the way home from work, the convenience store is not the primary destination. For a small-size shopping center of 50,000 square feet of floor area, the *Trip Generation Manual* indicates that on average 39% of the vehicles that enter are passing by on their way to some other primary destination. The remaining 61% of attraction trips have the shopping center as their primary destination. Because attraction trips are half of all trips, the trip adjustment factor is 61% multiplied by 50%, or approximately 31% of the trip ends.

Figure 6: Shopping Center/Retail Trip Rates and Adjustment Factors

Floor Area in thousands (KSF)	Commercial Pass-by Trips*	Commercial Trip Adj Factor**	Shopping Centers (ITE 820)		General Office (ITE 710)		Shopping Centers (ITE 820)		General Office (ITE 710)	
			Trip Ends	Rate/KSF	Trip Ends	Rate/KSF	Trip Ends	Rate/KSF	Trip Ends	Rate/KSF
10	52%	24%	1,520	152.03	227	22.66	137	13.70	90	9.00
25	45%	28%	2,758	110.32	459	18.35	251	10.03	107	4.27
50	39%	31%	4,328	86.56	782	15.65	396	7.92	135	2.70
100	34%	33%	6,791	67.91	1,334	13.34	626	6.26	191	1.91
200	29%	36%	10,656	53.28	2,275	11.37	989	4.95	303	1.51
400	23%	39%	16,722	41.80	3,879	9.70	1,563	3.91	527	1.32
800	18%	41%	26,239	32.80	6,615	8.27	2,470	3.09	975	1.22

Source: *Trip Generation*, Institute of Transportation Engineers, 2003.

* Based on data published by ITE in *Trip Generation Handbook* (2004), the best trendline correlation between pass-by trips and floor area is a logarithmic curve with the equation $(-7.6812 * \ln(\text{KSF})) + 69.293$.

** To convert trip ends to vehicle trips, the standard adjustment factor is 50%. Due to pass-by trips, commercial trip adjustment factors are lower, as derived from the following formula $(0.50 * (1 - \text{passby pct}))$.

AVERAGE TRIP LENGTH ADJUSTMENT BY LAND USE

The demand for road infrastructure is a function of both the number of vehicle trips and the distance traveled. Multiplying the number of vehicle trips by the average trip length (in miles) yields vehicle miles of travel (VMT). The Roads of Regional Significance Development Fee methodology includes a percentage adjustment to account for trip length variation by type of land use. As documented in Table 6 of the *National Household Travel Survey* (FHWA, 2001), vehicle trips from residential development are approximately 122% of the average trip length. Trips associated with residential development include home-based work trips plus social and recreational purposes. Conversely, shopping trips associated with commercial development are roughly 68% of the average trip length, while other nonresidential development typically accounts for trips that are 75% of the average trip length.

VEHICLE MILES OF TRAVEL ON PLANNED ROADS OF REGIONAL SIGNIFICANCE SPA'S 2, 4, 6

VMT is the product of the number of vehicle trips multiplied by the average trip length. Intermediate steps in deriving the average trip length include identification of the need for additional lane miles and defining lane capacity. These factors are discussed below.

Planned Lane Miles of Roads of Regional Significance Being Demanded by SPA's 2, 4, 6

As shown in Figure 5 above, there are 129 lane miles of planned roads of regional significance that are the result of new development in SPA's 2, 4, 6.

Vehicle Trips from Development in Entire SPA's 2, 4, 6

Figure 7 below documents projected vehicle trips and VMT on the 129 lane miles of planned roads associated with development SPA's 2, 4, 6 over the next twenty years. The demographic data shown in the boxes at the top of the table are from Appendix A.

Lane Capacity

The roads of regional significance component are based on an average lane capacity standard of 8,000 vehicles per lane.

Average Trip Length

Knowing the increase in vehicle trips, lane miles needed to accommodate future travel, and lane capacity, it is possible to derive the average trip length on the planned roads by the projected new residential and nonresidential growth in SPA's 2, 4, 6 over the next twenty years. Because the VMT calculations include the same adjustment factors used in the development fee calculations (i.e., residential commuting adjustment, commercial pass-by adjustment and average trip length adjustment by type of land use), the average trip length is determined through a series of iterations using spreadsheet software. As shown in Figure 7, the average trip length on the planned roads by future residential and nonresidential development in SPA's 2, 4, 6 is 3.48 miles.

Figure 7: SPA's 2, 4, 6 Roads of Regional Significance Capacity Analysis

INPUT VARIABLES	Year->	Base	5 Year Intervals				
			2007	2012	2017	2022	2027
Surprise, Arizona							
DEMAND DATA							
Single Family Detached Weekday VTE per Unit	9.57	SINGLE FAMILY DETACHED	3,232	7,457	14,027	31,292	38,638
Single Family Attached/Multi-family Weekday VTE per Unit	6.72	SINGLE FAMILY ATTACHED/MULTI-FAMILY	0	0	0	0	0
All Other Housing Weekday VTE per Unit	4.99	ALL OTHER TYPES OF HOUSING	0	0	0	0	0
Commercial Weekday VTE/KSF	53.28	COMMERCIAL KSF	14	52	97	389	659
Employment Weekday VTE/KSF	15.65	EMPLOYMENT KSF	158	291	498	1,584	2,219
Public Facilities Weekday VTE/KSF	68.93	PUBLIC FACILITIES KSF	16	33	87	419	608
Residential Trip Adj Factor	63%	SINGLE FAMILY DETACHED TRIPS	19,490	44,973	84,599	188,722	233,029
Commercial Trip Adj Factor	36%	SINGLE FAMILY ATTACHED/MULTI-FAMILY	0	0	0	0	0
Other Nonresidential Trip Adj Factor	50%	ALL OTHER TYPES OF HOUSING TRIPS	0	0	0	0	0
County Road Trips	100%	COMMERCIAL TRIPS	259	990	1,858	7,461	12,631
Average Miles/Trip SPA	3.48	EMPLOYMENT TRIPS	1,236	2,274	3,895	12,397	17,361
Residential Trip Length	122%	PUBLIC FACILITIES TRIPS	535	1,135	3,012	14,427	20,944
Commercial Trip Length	68%	TOTAL SPA ARTERIAL TRIPS	21,520	49,372	93,364	223,006	283,966
Other Nonresidential Trip Length	75%	SPA VMT	88,071	202,380	381,980	889,797	1,120,342
Capacity Per Lane	8,000	SPA LANE MILES	11.0	25.3	47.7	111.2	140.0
		ANNUAL LANE MILES NEEDED	2.9	8.9	11.1	11.1	2.0
		CUMULATIVE LANE MILES NEEDED		14.3	36.7	100.2	129.0

COST PER VMT FOR PLANNED ROADS OF REGIONAL SIGNIFICANCE SPA’S 2, 4, 6

The cost attributable to development in SPA’s 2, 4, 6 for planned roads of regional significance is allocated to the net increase of VMT’s over the next twenty years (1,120,342 VMT’s in 2027 – 88,071 VMT’s in 2007 = 1,032,271). This results in a capacity cost of \$223.00 (\$230193,200 /1,032,271 VMT = \$223.00/VMT) to accommodate additional vehicle miles of travel from new development in SPA’s 2, 4, 6 on the planned 129 lane miles of planned roads of regional significance.

SPA’S 3, 5

Figure 8 lists the planned 192 lane miles of roads of regional significance in SPA 3, 5 to be built in the next twenty years. The total cost attributable to development in these SPA’s is \$246,818,300. These cost estimates include ROW acquisition costs as well as construction costs.

Figure 8: Planned Roads of Regional Significance SPA’s 3, 5

SPA 3, 5

Project	Lane Miles	City Cost	% Pass Through Trips	Cost Attributable To Development in SPA	Total Cost	Planned Construction		
						0-5 Years	5-10 Years	10-20 Years
Jomax	54	\$75,600,000	30%	\$52,920,000	\$75,600,000			X
Jomax/Grand Avenue Interchange		\$10,000,000	30%	\$7,000,000	\$10,000,000	X		
Deer Valley	66	\$92,400,000	25%	\$69,300,000	\$92,400,000	X		
Jackrabbit Trail	18	\$47,250,000	45%	\$25,987,500	\$47,250,000		X	
163rd Avenue Interchanges (inc. SR303)		\$9,000,000	10%	\$8,100,000	\$9,000,000		X	
203rd Ave Interchange		\$4,000,000		\$4,000,000	\$4,000,000	X		
CAP Bridges		\$13,750,000		\$13,750,000	\$13,750,000	X	X	X
Dove Valley	6	\$21,021,000	20%	\$16,816,800	\$21,021,000		X	
Dove Valley Interchange		\$5,000,000	20%	\$4,000,000	\$5,000,000		X	
243rd Avenue	48	\$53,760,000	35%	\$34,944,000	\$67,200,000	X		X
Black Mountain/Broadstone Interchange		\$10,000,000	0%	\$10,000,000	\$10,000,000			X
TOTAL	192	\$341,781,000		\$246,818,300	\$355,221,000			

VEHICLE MILES OF TRAVEL ON PLANNED ROADS OF REGIONAL SIGNIFICANCE SPA’S 3, 5

VMT is the product of the number of vehicle trips multiplied by the average trip length. Intermediate steps in deriving the average trip length include identification of the need for additional lane miles and defining lane capacity. These factors are discussed below.

Planned Lane Miles of Roads of Regional Significance Being Demanded by SPA’s 3, 5

As shown in Figure 8 above, there are 192 lane miles of planned roads of regional significance that are the result of new development in SPA’s 3, 5.

Vehicle Trips from Development in SPA’s 3, 5

Figure 9 below documents projected vehicle trips and VMT on the 192 lane miles of planned roads associated with development SPA’s 3, 5 over the next twenty years. The demographic data shown in the boxes at the top of the table are from Appendix A at the back of this report.

Lane Capacity

The roads of regional significance component are based on an average lane capacity standard of 8,000 vehicles per lane.

Average Trip Length

Knowing the increase in vehicle trips, lane miles needed to accommodate future travel, and lane capacity, it is possible to derive the average trip length on the planned roads by the projected new residential and nonresidential growth in SPA’s 3, 5 over the next twenty years. Because the VMT calculations include the same adjustment factors used in the development fee calculations (i.e., residential commuting adjustment, commercial pass-by adjustment and average trip length adjustment by type of land use), the average trip length is determined through a series of iterations using spreadsheet software. As shown in Figure 9, the average trip length on the planned roads by future residential and nonresidential development in SPA’s 3, 5 are 4.56 miles.

Figure 9: SPA’s 3, 5 Roads of Regional Significance Capacity Analysis

INPUT VARIABLES	Year->	5 Year Intervals				
		Base 2007	5 2012	10 2017	15 2022	20 2027
Surprise, Arizona						
DEMAND DATA						
Single Family Detached Weekday VTE per Unit	9.57	890	4,112	7,414	11,321	16,413
Single Family Attached/Multi-family Weekday VTE per Unit	6.72	1,282	4,963	8,743	14,856	15,652
All Other Housing Weekday VTE per Unit	4.99	0	0	0	0	0
Commercial Weekday VTE/KSF	53.28	204	641	1,055	1,678	2,630
Employment Weekday VTE/KSF	15.65	107	845	3,643	5,792	9,129
Public Facilities Weekday VTE/KSF	68.93	1,514	2,558	3,411	3,645	3,970
Residential Trip Adj Factor	63%	SINGLE FAMILY DETACHED TRIPS				
Commercial Trip Adj Factor	36%	5,370	24,801	44,712	68,276	98,984
Other Nonresidential Trip Adj Factor	50%	5,429	21,018	37,027	62,913	66,284
County Road Trips	100%	0	0	0	0	0
Average Miles/Trip SPA	4.56	3,917	12,288	20,243	32,182	50,443
Residential Trip Length	122%	SINGLE FAMILY ATTACHED/MULTI-FAMILY				
Commercial Trip Length	68%	834	6,611	28,510	45,323	71,438
Other Nonresidential Trip Length	75%	52,174	88,174	117,564	125,608	136,814
Capacity Per Lane	8,000	67,724	152,892	248,056	334,302	423,963
		TOTAL SPA ARTERIAL TRIPS				
		253,676	617,576	1,017,741	1,415,136	1,789,231
		SPA LANE MILES				
		31.7	77.2	127.2	176.9	223.7
		ANNUAL LANE MILES NEEDED				
			11.1	7.9	11.4	7.0
		CUMULATIVE LANE MILES NEEDED				
			45.5	95.5	145.2	192.0

COST PER VMT FOR PLANNED ROADS OF REGIONAL SIGNIFICANCE SPA’S 3, 5

The cost attributable to development in SPA’s 3, 5 for planned roads of regional significance is allocated to the net increase of VMT’s over the next twenty years (1,789,231 VMT’s in 2027 – 253,676 VMT’s in 2007 = 1,535,555). This results in a capacity cost of \$160.74 (\$246,818,300 /1,535,555 VMT = \$160.74VMT) to accommodate additional vehicle miles of travel from new development in SPA’s 3, 5 on the planned 192 lane miles of planned roads of regional significance.

DEVELOPMENT FEE STUDY

The City should update its development fees every three years to ensure the methodologies, assumptions, and cost factors used in the calculations are still valid and accurate. As we do with many of our Arizona development fee clients, TischlerBise has included the cost of preparing the current Roads of Regional Significance Development Fee in the fee calculations in order to create a source of funding to conduct this regular update. This cost

(\$19,000) is allocated to the projected increase in citywide vehicle trips over the next three years. A three year period is used since this is the period of time at which the development fee methodology should be revisited in a growing community. This results in a development fee study cost per demand unit of \$0.17 per trip (\$19,000/109,201 trips).

ROADS OF REGIONAL SIGNIFICANCE DEVELOPMENT FEE

Factors used to derive the Roads of Regional Significance Development Fees are shown in Figure 10 for SPA's 2, 4, 6; and Figure 11 for SPA's 3, 5.

Future revenue credits have been considered to avoid potential double payment for capital facilities and no such credits are needed. Developers may be eligible for site-specific credits or reimbursements only if they provide system improvements that have been included in the Roads of Regional Significance Development Fee calculation schedule. Specific policies and procedures related to site-specific credits for system improvements are addressed in the ordinance that establishes the City's fees. Project improvements normally required as part of the development approval process are not eligible for credits against development fees.

The capital cost for the average length trip on the planned roads of regional significance is the product of the average trip length multiplied by the trip length adjustment factor and the capital cost per vehicle mile of travel. Using residential development in SPA 2, 4, 6 as an example (Figure 10), the capital cost for planned roads of regional significance for the average length trip from residential development is 3.48 miles, times 1.22 times \$223.00, or \$947.71 per trip. This is repeated for commercial and other nonresidential land uses.

Costs for the development fee study are then added to the planned costs for roads of regional significance.

Figure 10: Roads of Regional Significance Development Fee Cost Summary – SPA’s 2, 4, 6

<i>ITE Code</i>	Residential	Commercial/ Shopping Ctrs	Other Nonres
<i>Weekday Vehicle Trip Ends</i>			
<i>Residential (per Housing Unit)</i>			
210 Single Family	9.57		
220 Single Family Attached/Multi-Family	6.72		
240 All Other Types of Housing	4.99		
<i>Nonresidential (per 1,000 Square Feet of Floor Area)</i>			
820 Com / Shop Ctr 25,000 SF or less		110.32	
820 Com / Shop Ctr 25,001-50,000 SF		86.56	
820 Com / Shop Ctr 50,001-100,000 SF		67.91	
820 Com / Shop Ctr 100,001-200,000 SF		53.28	
820 Com / Shop Ctr over 200,000 SF		41.80	
710 Office / Inst 10,000 SF or less			22.66
710 Office / Inst 10,001-25,000 SF			18.35
710 Office / Inst 25,001-50,000 SF			15.65
710 Office / Inst 50,001-100,000 SF			13.34
710 Office / Inst over 100,000 SF			11.37
770 Business Park			12.76
110 Light Industrial			6.97
150 Warehousing			4.96
140 Manufacturing			3.82
310 Hotel (per room)			5.63
<i>Trip Adjustment Factors</i>	63%		50%
Com / Shop Ctr 25,000 SF or less		28%	
Com / Shop Ctr 25,001-50,000 SF		31%	
Com / Shop Ctr 50,001-100,000 SF		33%	
Com / Shop Ctr 100,001-200,000 SF		36%	
Com / Shop Ctr over 200,000 SF		39%	
<i>Planned Cost Summary</i>			
Planned Roads of Regional Significance - Ave. Trip Length (miles)	3.48	3.48	3.48
Average Trip Length Adjustment	122%	68%	75%
Planned Roads of Regional Significance - Cost Per VMT	\$223.00	\$223.00	\$223.00
Planned Roads of Regional Significance - Cost for Ave. Length Trip	\$947.71	\$528.23	\$582.61
Development Fee Study Cost Per Trip	\$0.17	\$0.17	\$0.17
Net Capital Cost Per Trip	\$947.88	\$528.40	\$582.78

Figure 11: Roads of Regional Significance Development Fee Cost Summary – SPA’s 3, 5

<i>ITE Code</i>	Residential	Commercial / Shopping Ctrs	Other Nonres
Weekday Vehicle Trip Ends			
<i>Residential (per Housing Unit)</i>			
210 Single Family	9.57		
220 Single Family Attached/Multi-Family	6.72		
240 All Other Types of Housing	4.99		
<i>Nonresidential (per Square Foot of Floor Area)</i>			
820 Com / Shop Ctr 25,000 SF or less		110.32	
820 Com / Shop Ctr 25,001-50,000 SF		86.56	
820 Com / Shop Ctr 50,001-100,000 SF		67.91	
820 Com / Shop Ctr 100,001-200,000 SF		53.28	
820 Com / Shop Ctr over 200,000 SF		41.80	
710 Office / Inst 10,000 SF or less			22.66
710 Office / Inst 10,001-25,000 SF			18.35
710 Office / Inst 25,001-50,000 SF			15.65
710 Office / Inst 50,001-100,000 SF			13.34
710 Office / Inst over 100,000 SF			11.37
770 Business Park			12.76
110 Light Industrial			6.97
150 Warehousing			4.96
140 Manufacturing			3.82
310 Hotel (per room)			5.63
Trip Adjustment Factors	63%		50%
Com / Shop Ctr 25,000 SF or less		28%	
Com / Shop Ctr 25,001-50,000 SF		31%	
Com / Shop Ctr 50,001-100,000 SF		33%	
Com / Shop Ctr 100,001-200,000 SF		36%	
Com / Shop Ctr over 200,000 SF		39%	
Planned Cost Summary			
Planned Roads of Regional Significance - Ave. Trip Length (miles)	4.56	4.56	4.56
Average Trip Length Adjustment	122%	68%	75%
Planned Roads of Regional Significance - Cost Per VMT	\$160.74	\$160.74	\$160.74
Planned Roads of Regional Significance - Cost for Ave. Length Trip	\$894.79	\$498.74	\$550.08
Development Fee Study Cost Per Trip	\$0.17	\$0.17	\$0.17
Net Capital Cost Per Trip	\$894.97	\$498.91	\$550.25

The input variables from the above figures are used to derive the development fees shown in Figures 12 and 13 below. The development fees are the product of the trip generation rates multiplied by the trip adjustment factors multiplied by the net capital cost per trip. For example, the Roads of Regional Significance Development Fee for a single-family detached house in SPA’s 2, 4, 6 is 9.57 multiplied by 0.63 multiplied by \$947.88, which equals \$5,715 per house.

Figure 12: Roads of Regional Significance Development Fee Schedule – SPA’s 2, 4, 6

<i>Development Fees</i>	Residential	Commercial / Shopping Ctrs	Other Nonres
<i>Residential (per housing unit)</i>			
210 Single Family	\$5,715		
220 Single Family Attached/Multi-Family	\$4,013		
240 All Other Types of Housing	\$2,980		
<i>Nonresidential Per 1,000 Square Feet of Floor Area</i>			
820 Commercial / Shopping Center 25,000 SF or less		\$16,322	
820 Commercial / Shopping Center 25,001-50,000 SF		\$14,179	
820 Commercial/Shopping Center 50,001-100,000 SF		\$11,842	
820 Commercial/Shopping Center 100,001-200,000 SF		\$10,135	
820 Commercial/Shopping Center over 200,000 SF		\$8,614	
710 Office 10,000 SF or less			\$6,603
710 Office 10,001-25,000 SF			\$5,347
710 Office 25,001-50,000 SF			\$4,560
710 Office 50,001-100,000 SF			\$3,887
710 Office 100,000 SF			\$3,313
770 Business Park			\$3,718
110 Light Industrial			\$2,031
150 Warehousing			\$1,445
140 Manufacturing			\$1,113
310 Hotel (per room)			\$1,641

Figure 13: Roads of Regional Significance Development Fee Schedule – SPA’s 3, 5

<i>Development Fees</i>	Residential	Commercial / Shopping Ctrs	Other Nonres
<i>Residential (per housing unit)</i>			
210 Single Family	\$5,396		
220 Single Family Attached/Multi-Family	\$3,789		
240 All Other Types of Housing	\$2,814		
<i>Nonresidential Per Square Foot of Floor Area</i>			
820 Commercial / Shopping Center 25,000 SF or less		\$15,411	
820 Commercial / Shopping Center 25,001-50,000 SF		\$13,388	
820 Commercial/Shopping Center 50,001-100,000 SF		\$11,181	
820 Commercial/Shopping Center 100,001-200,000 SF		\$9,570	
820 Commercial/Shopping Center over 200,000 SF		\$8,133	
710 Office 10,000 SF or less			\$6,234
710 Office 10,001-25,000 SF			\$5,049
710 Office 25,001-50,000 SF			\$4,306
710 Office 50,001-100,000 SF			\$3,670
710 Office 100,000 SF			\$3,128
770 Business Park			\$3,511
110 Light Industrial			\$1,918
150 Warehousing			\$1,365
140 Manufacturing			\$1,051
310 Hotel (per room)			\$1,549