City of Chandler, Arizona
System Development Fee Update:

2013-2023 Land Use Assumptions and Infrastructure Improvements Plan

duncan | associates

November 2013

PUBLIC REVIEW DRAFT

Table of Contents

EXECUTIVE SUMMARY 1
Background 1
Summary of Changes 2
Summary of Findings 2
LEGAL FRAMEWORK 6
Eligible Facilities 6
Pledged Debt 7
Compliance Deadlines 8
Service Areas 8
Service Units 8
Level of Service (LOS) Standards 9
Methodology 9
Land Use Assumptions 10
Infrastructure Improvements Plan 10
Refunds 11
Offsets 12
SERVICE AREAS 14
Arterial Streets 15
Parks 16
Libraries and Public Buildings 17
Fire and Police 17
Water, Wastewater and Reclaimed Water 18
Water Resources 19
LAND USE ASSUMPTIONS 21
ARTERIAL STREETS 25
Service Units 25
Cost per Service Unit 27
Net Cost per Service Unit 33
Potential System Development Fees 33
Capital Plan 34
PARKS 37
Service Units 38
Cost per Service Unit 39
Existing Level of Service 39
Net Cost per Service Unit 45
Potential System Development Fees 47
Capital Plan 47
LIBRARY 50
FIRE 51
Service Units 52
Cost per Service Unit 53
Net Cost per Service Unit 57
Potential System Development Fees 57
Capital Plan 58
POLICE 60
Service Units 60
Cost per Service Unit 60
Net Cost per Service Unit 63

Potential System Development Fees 63
Capital Plan 64
PUBLIC BUILDINGS 66
WATER 68
Service Units 68
Water Resources 70
Cost per Service Unit 72
Net Cost per Service Unit 80
Potential System Development Fees 80
Capital Plan 82
WASTEWATER 85
Service Units 85
Cost per Service Unit 86
Net Cost per Service Unit 90
Potential System Development Fees 91
Capital Plan 92
RECLAIMED WATER 94
Service Units 94
Cost per Service Unit 94
Net Cost per Service Unit 97
Potential System Development Fees 98
Capital Plan 99
APPENDIX A: ARTERIAL STREETS 101
APPENDIX B: EXISTING PARK INVENTORY 107
APPENDIX C: FUNCTIONAL POPULATION 109
Residential Functional Population 109
Nonresidential Functional Population 110
APPENDIX D: FINANCIAL DATA 111
APPENDIX E: REVENUE FORECAST 117

List of Tables

Table 1. Current System Development Fee Schedule 1
Table 2. Updated and Current Non-Utility System Development Fees 3
Table 3. Updated and Current Utility System Development Fees 4
Table 4. Updated and Current Total Single-Family System Development Fees 5
Table 5. Ten-Year Percent of Buildout New Development 22
Table 6. Housing Units and Population by Service Area, 2013-2023 23
Table 7. Nonresidential Square Feet by Service Area, 2013-2023 23
Table 8. Employees per 1,000 Square Feet, 2013 24
Table 9. Arterial Street Service Unit Multipliers 26
Table 10. Comparison of Arterial Street Service Unit Multipliers 26
Table 11. Arterial Street Service Units, 2013-Buildout 27
Table 12. Arterial Street Capacities at Level of Service D 28
Table 13. Arterial Street VMT/VMC Ratios, 2013 and Buildout 28
Table 14. Average Cost per Vehicle-Mile of Capacity, 2013-2023 28
Table 15. Average Cost per Vehicle-Mile of Capacity, 2013-Buildout 29
Table 16. Replacement Cost of Available Arterial Street Capacity 29
Table 17. Arterial Street Existing Cost per Service Unit 30
Table 18. Regional Funding for Arterial Street Improvements, 2013-Buildout 31
Table 19. Arterial Street 10-Year Cost per Service Unit 32

Table 20. Arterial Street Buildout Cost per Service Unit 32
Table 21. Arterial Street Cost per Service Unit 33
Table 22. Arterial Street Net Cost Schedule 34
Table 23. Current and Updated Arterial Street Fees 34
Table 24. Arterial Street Capital Plan, 2013-2023 35
Table 25. Potential Arterial Street Fee Revenue 35
Table 26. Park Service Unit Multipliers 38
Table 27. Park Service Units, 2013-2023 39
Table 28. Park Land Cost per Acre 40
Table 29. Eligible Recreation Center Costs 40
Table 30. Mesquite Groves Pool Cost per Square Foot 41
Table 31. Swimming Pool Replacement Costs 41
Table 32. Existing Park Facility Replacement Costs 42
Table 33. Outstanding Park Debt 43
Table 34. Existing Park Levels of Service 43
Table 35. Park Ten-Year Cost per Service Unit 44
Table 36. Park Buildout Cost per Service Unit 45
Table 37. Park Cost per Service Unit 45
Table 38. Park Pledged Debt Cost per Service Unit 46
Table 39. Park Net Cost per Service Unit 47
Table 40. Park Net Cost Schedule 47
Table 41. Current and Updated Park System Development Fees 47
Table 42. Park Capital Plan, 2013-2023 48
Table 43. Potential Park System Development Fee Revenue 49
Table 44. Updated Library Cost per Service Unit 50
Table 45. Updated and Current Library System Development Fees 50
Table 46. Fire Service Unit Multipliers 52
Table 47. Fire Service Units, 2013-Buildout 53
Table 48. Existing Fire Facilities 54
Table 49. Fire Apparatus 54
Table 50. Fire Existing Level of Service 55
Table 51. Fire Station #1 Relocation Cost 55
Table 52. Fire Ten-Year Cost per Service Unit 56
Table 53. Fire Buildout Cost per Service Unit 56
Table 54. Fire Cost per Service Unit 57
Table 55. Fire Net Cost Schedule 58
Table 56. Current and Updated Fire System Development Fees 58
Table 57. Fire Capital Plan, 2013-2023 59
Table 58. Potential Fire System Development Fee Revenue, 2013-Buildout 59
Table 59. Existing Police Facilities 61
Table 60. Police Existing Level of Service 61
Table 61. Police Ten-Year Cost per Service Unit 62
Table 62. Police Buildout Cost per Service Unit 62
Table 63. Police Cost per Service Unit 62
Table 64. Police Net Cost Schedule 63
Table 65. Current and Updated Police System Development Fees 64
Table 66. Police Capital Plan, 2013-2023 64
Table 67. Potential Police System Development Fee Revenue, 2013-Buildout 64
Table 68. Updated Public Building Cost per Service Unit 67
Table 69. Updated and Current Public Building System Development Fees 67
Table 70. Water Demand per Multi-Family Unit 68
Table 71. Meter Capacity Ratios 69

Table 72. Existing Water Service Units 69
Table 73. Water Demand and Service Units, 2013-Buildout 70
Table 74. Current Water Demand by Area 71
Table 75. Buildout Distribution of Water Demand by Area 71
Table 76. Planned Water Supply Purchases, 2013-Buildout 72
Table 77. Ratios of Water Supplies to Water Demand by Area 72
Table 78. Water Demand and Capacity, 2013-Buildout 73
Table 79. Existing Water Production Capacity 74
Table 80. Existing Water Storage Capacity 75
Table 81. Existing Booster Pump Station Capacity 76
Table 82. Existing Water Transmission Lines 76
Table 83. Percent of Water Supplies Currently Utilized 77
Table 84. Water Supplies Cost per Gallon per Day 77
Table 85. Replacement Cost of Existing Water Facilities 77
Table 86. Water Existing Level of Service 78
Table 87. Existing Water Facility Cost and Outstanding Obligations 78
Table 88. Water Ten-Year Cost per Service Unit 79
Table 89. Water Buildout Cost per Service Unit 79
Table 90. Water Cost per Service Unit 80
Table 91. Water Net Cost Schedule 81
Table 92. Current and Updated Water System Development Fees 82
Table 93. Water Capital Plan, 2013-2023 83
Table 94. Potential Water System Development Fee Revenue, 2013-2023 84
Table 95. Wastewater Demand per Multi-Family Unit 85
Table 96. Existing Wastewater Service Units 85
Table 97. Wastewater Demand and Service Units, 2013-Buildout 86
Table 98. Wastewater Treatment Capacity, 2013-Buildout 86
Table 99. Existing Lift Station Capacity 87
Table 100. Existing Wastewater System Lines 87
Table 101. Replacement Cost of Existing Wastewater Facilities 88
Table 102. Wastewater Existing Level of Service 88
Table 103. Existing Wastewater Facility Cost and Outstanding Obligations 89
Table 104. Wastewater Ten-Year Cost per Service Unit 89
Table 105. Wastewater Buildout Cost per Service Unit 90
Table 106. Wastewater Cost per Service Unit 90
Table 107. Wastewater Net Cost Schedule 91
Table 108. Current and Updated Wastewater System Development Fees 92
Table 109. Wastewater Capital Plan, 2013-2023 92
Table 110. Potential Wastewater System Development Fee Revenue, 2013-2023 93
Table 111. Existing Reclaimed Water Pump Stations 94
Table 112. Existing Reclaimed Water Wells 95
Table 113. Existing Reclaimed Water System Lines 95
Table 114. Reclaimed Water Existing Level of Service 96
Table 115. Reclaimed Water Ten-Year Cost per Service Unit 96
Table 116. Reclaimed Water Buildout Cost per Service Unit 97
Table 117. Reclaimed Water Cost per Service Unit 97
Table 118. Reclaimed Water Net Cost Schedule 98
Table 119. Current and Updated Reclaimed Water System Development Fees 99
Table 120. Reclaimed Water Capital Plan, 2013-2023 99
Table 121. Potential Reclaimed Water System Development Fee Revenue, 2013-2023 100
Table 122. Existing Arterial Street Inventory, Arterial Street Service Area 101
Table 123. Buildout Arterial Street Inventory, Arterial Street Service Area 104

Table 124. Existing Park Inventory....107
Table 125. Average Household Size by Housing Type....109
Table 126. Functional Population per Unit for Residential Uses....110
Table 127. Functional Population per Unit for Nonresidential Uses....110
Table 128. System Development Fee Fund Balances and Obligations....111
Table 129. Outstanding Eligible Debt Summary....112
Table 130. System Development Fee Interfund Loans....114
Table 131. Encumbrances and Carry-Forward Balances....115
Table 132. Update Study Costs....116
Table 133. Revenue Attributable to New Development, 2013-2023....118

List of Figures

Figure 1. City Limits and Municipal Planning Area....14
Figure 2. City-Wide Service Area....15
Figure 3. Arterial Streets Service Area....16
Figure 4. Park Service Areas....17
Figure 5. Planned Water System....18
Figure 6. Planned Wastewater System....19
Figure 7. Current Water Resources Service Area....20
Figure 8. Existing and Planned Parks....37
Figure 9. Location of Existing Fire Facilities....51
Figure 10. Nonresidential Functional Population Formula....110

EXECUTIVE SUMMARY

Impact fees are charges assessed on new development to cover the costs of capital improvements needed to accommodate growth. The City of Chandler calls its impact fees "system development fees." Duncan Associates has been retained by the City of Chandler to update the City's system development fees in compliance with the new State impact fee enabling act. This report provides all of the analysis required by the new State act prior to the adoption of new or updated impact fees, including land use assumptions, infrastructure improvements plans and fee calculations.

Background

In 2011, the legislature passed SB 1525, which was signed by the governor on April 26, 2011. SB 1525 constituted a major overhaul of Arizona's impact fee enabling act for municipalities. Among other things, SB 1525 restricts the types of facilities for which impact fees may be charged and mandates the preparation of land use assumptions and an infrastructure improvements plan. The last comprehensive update of the City's system development fees was based on studies completed in 2008.[1] On January 1, 2012, the City reduced its non-utility fees, other than arterial streets, to remove unauthorized components in compliance with the January 1, 2012 requirements of SB 1525.[2] The current fees that have been effective since January 1, 2012 are summarized in Table 1.

Table 1. Current System Development Fee Schedule

Fee Type	Single-Family* (dwelling)	Multi-Family* (dwelling)	Retail (sq. ft.)	Office (sq. ft.)	Industrial (sq. ft.)	Institutional (sq. ft.)
Arterial Streets**	$3,983	$2,446	$7.39	$5.88	$2.63	$1.66
Parks	$3,740	$2,865	n/a	n/a	n/a	n/a
Library	$75	$58	n/a	n/a	n/a	n/a
Fire	$344	$263	$0.43	$0.33	$0.11	$0.11
Police	$164	$125	$0.20	$0.16	$0.05	$0.05
Public Buildings	$97	$74	$0.12	$0.09	$0.03	$0.03
Subtotal, Non-Utility Fees	$8,403	$5,831	$8.14	$6.46	$2.82	$1.85
Water	$5,019	$1,832	***	***	***	***
Water Resources	$34	$13	***	***	***	***
Wastewater Trunkline	$167	$77	***	***	***	***
Wastewater Treatment	$5,272	$2,413	***	***	***	***
Reclaimed Water	$1,114	$511	***	***	***	***
Total	$20,009	$10,677	***	***	***	***

* single-family defined as a dwelling unit with an individual water meter, multi-family as sharing a meter with other units
** arterial street fee applies only in arterial street service area (see Figure 3); retail fee after general fund subsidy (fee without subsidy is $14.79 per sq. ft.); office fee without rarely-used general fund subsidy for Class A building of at least 50,000 sq. ft. (fee after subsidy is $4.40 per sq. ft.)
*** nonresidential utility fees based on meter size (see Table 3)
Source: City of Chandler, System Development Fees Effective January 1, 2012.

The City must now update its fees to be in full compliance with all provisions of the new enabling act by August 1, 2014. Assisting the City in this endeavor is the purpose of this project.

[1] Duncan Associates, *Non-Utility System Development Fee Update*, June 2008 and Red Oak Consulting, *2007 Utility SDC Update*, February 2008.
[2] See Duncan Associates, *Compliance with SB 1525*, October 11, 2011.

Summary of Changes

For the non-utility fees, the major change in methodology in this update is to include a ten-year cost analysis. In the 2008 update, the fees were based on the existing level of service or on the buildout cost per service unit, whichever was lower. In this update, the fees are based on the lowest of the existing level of service, the ten-year cost per service unit or the buildout cost per service unit. The addition of the ten-year analysis is intended to ensure compliance with SB 1525's requirement that the infrastructure improvements plan may not cover a period longer than ten years.

In this update, the existing level of service determines the fees for fire, police and parks in the northeast service area, the ten-year cost per service unit determines the arterial street fees and the park fees for the southeast service area, and the buildout cost per service unit determines the utility fees and the park fees in the northwest service area.

A major change to the arterial street methodology was to adjust the service unit multipliers to take into account pass by trips and average trip lengths associated with retail and office land uses. The current multipliers are based solely on peak hour trip generation rates. This change resulted in significant reductions in retail and office arterial street fees.

The City has pledged library and public building system development fees for the repayment of bonds and interfund loans. The City has no plans to build another library, and public building fees are no longer authorized except to repay pledged debt. Consequently, updated infrastructure improvement plans are not prepared for libraries and public buildings. The City can retain its current library and public building system development fees and use them to repay pledged debt until the obligations have been retired. However, this study has calculated revised library and public building fees that are more consistent with current land use assumptions and current data. Adoption of the revised library and public building fees is optional.

For the utility fees, the methodology used in this update is the same as for the non-utility fees. The previous methodology used in the 2008 utility fee update was based on buildout costs, with no consideration for the existing level of service. Including an analysis of the existing level of service is necessitated by SB 1525. Water resources (water supply) costs, which are currently covered by a separate fee, are included in the water fee in this update. While currently the City assesses separate wastewater treatment and wastewater trunkline fees, it does not track them separately and they essentially function as a single fee. In this update the two are combined into a single wastewater fee.

Summary of Findings

The updated non-utility system development fees are summarized in Table 2 below, along with a comparison to current fees. The current arterial street fee shown in the table for retail is the subsidized fee. Table 2 shows revised fees calculated in this report for library and public building system development fees. Since these fees are retained solely to retire pledged debt, no update is required (as noted above, the City may choose not to modify these fees).

For residential uses, it is not possible to show a single total updated non-utility fee, because the updated park fees differ between three service areas. The total nonresidential fees do not vary by park service area, since nonresidential uses do not pay park system development fees. Also note that the arterial street fees apply only in the arterial street service area (see Figure 3); total current and

updated fees would be lower than shown in Table 2 outside this area. In general, the updated fees are lower than current fees for arterial streets, parks and libraries, and higher for fire, police and public buildings. Updated arterial street fees are significantly lower than current fees for all land uses, including the current subsidized rate for retail.

Combined updated non-utility fees are lower than current total fees (even after subsidies of arterial street fees for retail uses) for all land use types. The subsidy for Class A office buildings of at least 50,000 square feet in one building is not shown in the table, because virtually no office developments in recent memory have met the size requirement. The fact that the office subsidy is rarely used and the fact that the updated retail fee for arterial streets is lower than the current subsidized fee suggest that the City may no longer need to provide a general fund subsidy for these land uses to provide an incentive to locate within the city limits.

Table 2. Updated and Current Non-Utility System Development Fees

Fee Type	Single-Family (dwelling)	Multi-Family (dwelling)	Retail (sq. ft.)	Office (sq. ft.)	Industrial (sq. ft.)	Institutional (sq. ft.)
Arterial Streets	$3,548	$2,200	$3.76	$3.96	$2.09	$1.31
Parks, NW Service Area	$2,241	$1,602	n/a	n/a	n/a	n/a
Parks, NE Service Area	$3,138	$2,244	n/a	n/a	n/a	n/a
Parks, SE Service Area	$3,246	$2,321	n/a	n/a	n/a	n/a
Library	$61	$44	n/a	n/a	n/a	n/a
Fire	$412	$295	$0.48	$0.32	$0.10	$0.14
Police	$277	$198	$0.32	$0.21	$0.07	$0.09
Public Buildings	$110	$79	$0.12	$0.08	$0.02	$0.03
Total Updated Fees, Parks NW	$6,649	$4,418	$4.68	$4.57	$2.28	$1.57
Total Updated Fees, Parks NE	$7,546	$5,060	$4.68	$4.57	$2.28	$1.57
Total Updated Fees, Parks SE	$7,654	$5,137	$4.68	$4.57	$2.28	$1.57
Arterial Streets	$3,983	$2,446	$7.39	$5.88	$2.63	$1.66
Parks	$3,740	$2,865	$0	$0	$0	$0
Library	$75	$58	$0	$0	$0	$0
Fire	$344	$263	$0.43	$0.33	$0.11	$0.11
Police	$164	$125	$0.20	$0.16	$0.05	$0.05
Public Buildings	$97	$74	$0.12	$0.09	$0.03	$0.03
Total Current Non-Utility Fees	$8,403	$5,831	$8.14	$6.46	$2.82	$1.85
Arterial Streets	-11%	-10%	-49%	-33%	-21%	-21%
Parks, NW Service Area	-40%	-44%	n/a	n/a	n/a	n/a
Parks, NE Service Area	-16%	-22%	n/a	n/a	n/a	n/a
Parks, SE Service Area	-13%	-19%	n/a	n/a	n/a	n/a
Library	-19%	-24%	n/a	n/a	n/a	n/a
Fire	20%	12%	12%	-3%	-9%	27%
Police	69%	58%	60%	31%	40%	80%
Public Buildings	13%	7%	0%	-11%	-33%	0%
Total Change, Parks NW	-21%	-24%	-43%	-29%	-19%	-15%
Total Change, Parks NE	-10%	-13%	-43%	-29%	-19%	-15%
Total Change, Parks SE	-9%	-12%	-43%	-29%	-19%	-15%

Source: Updated fees from Table 22 (arterial streets), Table 40 (parks), Table 45 (library) Table 55 (fire), Table 64 (police) and Table 69 (public buildings); current fees from Table 1 (subsidized arterial street retail fee is shown).

The updated utility system development fees are summarized in Table 3, along with a comparison to current fees. The current water resources fees are not shown in the table because they are being consolidated with the water fees in this update, are very small ($34 per single-family unit), and are not standardized for larger meters. If the updated fees are adopted at 100%, the combined utility fees would be about 12% higher than current fees.

Table 3. Updated and Current Utility System Development Fees

Housing/Meter Type		Water	Waste-Water	Reclaimed Water	Total
Updated Fees					
Single-Family Unit		$5,633	$6,475	$897	$13,005
Multi-Family Unit		$2,129	$3,069	$425	$5,623
3/4"	Disc	$8,450	$9,713	$1,346	$19,509
1"	Disc	$14,083	$16,188	$2,243	$32,514
1 1/2"	Disc	$28,165	$32,375	$4,485	$65,025
2"	Disc/Turbine	$45,064	$51,800	$7,176	$104,040
3"	Compound	$90,128	$103,600	$14,352	$208,080
3"	Turbine	$98,578	$113,313	$15,698	$227,589
4"	Compound	$140,825	$161,875	$22,425	$325,125
6"	Compound	$281,650	$323,750	$44,850	$650,250
6"	Turbine	$352,063	$404,688	$56,063	$812,814
8"	Compound	$450,640	$518,000	$71,760	$1,040,400
8"	Turbine	$506,970	$582,750	$80,730	$1,170,450
Current Fees					
Single-Family Unit		$5,019	$5,439	$1,114	$11,572
Multi-Family Unit		$1,832	$2,490	$511	$4,833
3/4"	Disc	$7,529	$8,157	$1,672	$17,358
1"	Disc	$12,549	$13,594	$2,785	$28,928
1 1/2"	Disc	$25,097	$27,188	$5,570	$57,855
2"	Disc/Turbine	$40,154	$43,500	$8,913	$92,567
3"	Compound	$80,309	$86,999	$17,825	$185,133
3"	Turbine	$87,838	$95,155	$19,496	$202,489
4"	Compound	$125,482	$135,936	$27,850	$289,268
6"	Compound	$250,963	$271,871	$55,700	$578,534
6"	Turbine	$313,704	$329,838	$69,625	$713,167
8"	Compound	$401,541	$434,992	$89,120	$925,653
8"	Turbine	$451,733	$489,368	$100,261	$1,041,362
Percent Change					
Single-Family Unit		12%	19%	-19%	12%
Multi-Family Unit		16%	23%	-17%	16%
3/4"	Disc	12%	19%	-19%	12%
1"	Disc	12%	19%	-19%	12%
1 1/2"	Disc	12%	19%	-19%	12%
2"	Disc/Turbine	12%	19%	-19%	12%
3"	Compound	12%	19%	-19%	12%
3"	Turbine	12%	19%	-19%	12%
4"	Compound	12%	19%	-19%	12%
6"	Compound	12%	19%	-19%	12%
6"	Turbine	12%	23%	-19%	14%
8"	Compound	12%	19%	-19%	12%
8"	Turbine	12%	19%	-19%	12%

Note: Current water resources fees not shown; 5/8" x 3/4" meters no longer used for new customers; ordinance provides that City Engineer will determine fees for meters larger than 8".
Source: Updated fees from Table 91 (water), Table 107 (wastewater) and Table 118 (reclaimed water); current fees from City of Chandler City Code, Chapter 38.

The change in total (utility plus non-utility) system development fees can only be shown for residential uses, because nonresidential utility fees are assessed based on meter size. The change in total single-family fees depends on whether or not the new development is in the arterial streets service area or in the rest of the city, and in what parks service area it is located. Updated total single-family fees range from 2% lower to 6% higher than current total fees, depending on the service area in which the new development is located, as shown in Table 4. Updated total fees for nonresidential developments are likely to be lower than current fees because arterial street fees (which are declining) are generally a larger portion of total nonresidential fees than utility fees (which are increasing).

Table 4. Updated and Current Total Single-Family System Development Fees

	Updated Fees		Current Fees		Percent Change	
Fee Type	Art. Streets Serv. Area	Rest of City	Art. Streets Serv. Area	Rest of City	Art. Streets Serv. Area	Rest of City
Arterial Streets	$3,548	$0	$3,983	0	-11%	n/a
Parks, NW Service Area	$2,241	$2,241	$3,740	$3,740	-40%	-40%
Parks, NE Service Area	$3,138	$3,138	$3,740	$3,740	-16%	-16%
Parks, SE Service Area	$3,246	$3,246	$3,740	$3,740	-13%	-13%
Library	$61	$61	$75	$75	-19%	-19%
Fire	$412	$412	$344	$344	20%	20%
Police	$277	$277	$164	$164	69%	69%
Public Buildings	$110	$110	$97	$97	13%	13%
Water	$5,633	$5,633	$5,019	$5,019	12%	12%
Water Resources	n/a	n/a	$34	$34	n/a	n/a
Wastewater	$6,475	$6,475	$5,439	$5,439	19%	19%
Reclaimed Water	$897	$897	$1,114	$1,114	-19%	-19%
Total, Parks NW	$19,654	$16,106	$20,009	$16,026	-2%	0%
Total, Parks NE	$20,551	$17,003	$20,009	$16,026	3%	6%
Total, Parks SE	$20,659	n/a	$20,009	n/a	3%	n/a

Source: Table 2 and Table 3 ("na" indicates not applicable – all of the southeast parks service area is witihn the arterial streets service area).

LEGAL FRAMEWORK

Impact fees are a way for local governments to require new developments to pay a proportionate share of the infrastructure costs they impose on the community. In contrast to traditional "negotiated" developer exactions, impact fees are charges that are assessed on new development using a standard formula based on objective characteristics, such as the number and type of dwelling units constructed. The fees are one-time, up-front charges, with the payment made at the time of building permit issuance. Impact fees require each new development project to pay its pro-rata share of the cost of new capital facilities required to serve that development.

Arizona's enabling act for municipalities is codified in Sec. 9-463.05, Arizona Revised Statutes (ARS). In 2011, the legislature passed SB 1525, which was signed by the governor on April 26, 2011. SB 1525 constituted a major overhaul of Arizona's enabling act for municipalities. This section summarizes some of the major provisions of the new state act.

Eligible Facilities

Prior to SB 1525, municipalities could assess impact fees for any "necessary public services" (which was not defined) that constituted "costs to the municipality." SB 1525 amended the statute to limit the types of facilities for which impact fees can be assessed. Authorized facilities for which impact fees can be assessed, after January 1, 2012, are limited to the following defined "necessary public services:"

> *"Necessary public service" means any of the following facilities that have a life expectancy of three or more years and that are owned and operated by or on behalf of the municipality:*
>
> *(a) Water facilities, including the supply, transportation, treatment, purification and distribution of water, and any appurtenances for those facilities.*
>
> *(b) Wastewater facilities, including collection, interception, transportation, treatment and disposal of wastewater, and any appurtenances for those facilities.*
>
> *(c) Storm water, drainage and flood control facilities, including any appurtenances for those facilities.*
>
> *(d) Library facilities of up to ten thousand square feet that provide a direct benefit to development, not including equipment, vehicles or appurtenances.*
>
> *(e) 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.*
>
> *(f) 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.*

(g) 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.

(h) Any facility that was financed and that meets all of the requirements prescribed in subsection R *of this section.* (Sec. 9-463.05.S.5, ARS)

No longer authorized are fees for public building facilities, sanitation facilities, library buildings larger than 10,000 square feet and library books or equipment, fire and police administrative and training facilities and aircraft, parks larger than 30 acres and community centers larger than 3,000 square feet. No changes were made to authorized improvements for road, stormwater drainage, water or wastewater facilities, other than the new requirement that eligible facilities must have a life expectancy of at least three years.

Pledged Debt

Municipalities are authorized to continue to charge impact fees that were enacted prior to the January 1, 2012 effective date of SB 1525 without updating them according to the new enabling act if they were pledged to retire debt, pursuant to Section 9-463.05.R, Arizona Revised Statutes:

R. A municipality may continue to assess a development fee adopted before January 1, 2012 for any facility that was financed before June 1, 2011 if:

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 under this subsection 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.

The Arizona League of Cities and Towns is construing the word "pledged" to include the expressed intent to use impact fees to repay interfund loans or more formal debt instruments, such as general obligation or revenue bonds. The City has pledged fee revenue in this sense for all of its system development fees, with the sole exception of the water resources fee. However, whether debt is pledged pursuant to SB 1525 is of real significance only for improvements that are no longer authorized after January 1, 2012. Consequently, pledged debt is of significance only for parks (Chandler has pledged the use of park fees to retire outstanding debt used for improvements to three parks larger than 30 acres), library (the City has pledged debt on the Sunset Branch library, which is larger than 10,000 square feet) and public buildings (public building fees are no longer authorized, but the City has interfund loans for the construction of the City Hall).

Compliance Deadlines

SB 1525 added numerous new requirements related to how impact fees are calculated. Land use assumptions (growth projections) must be prepared for each service area, covering at least a ten-year period. Many new requirements were added for the infrastructure improvements plan (IIP) and the impact fee analysis. However, compliance with these is not required until August 1, 2014:

> *A development fee that was adopted before January 1, 2012 may continue to be assessed only to the extent that it will be used to provide a necessary public service for which development fees can be assessed pursuant to this section and shall be replaced by a development fee imposed under this section on or before August 1, 2014. (9-463.05K, ARS)*

Significant changes were made to the requirements for adopting updated infrastructure improvements plans and fee schedules. These requirements are effective as of January 1, 2012, but only apply to the updated IIP and impact fee schedules that must be in place by August 1, 2014.

Provisions were also added relating to refunds. However, these provisions only apply to fees collected after August 1, 2014.

Other changes, however, are effective as of January 1, 2012. These include new provisions or amendments related to developer credits, the locking-in of fee schedules for 24 months following development approval, and annual reporting requirements. In addition, the expenditure of impact fees collected after January 1 is restricted to facilities authorized by SB 1525 (including repayment of pledged debt for unauthorized facilities).

Service Areas

Service areas are a key requirement for impact fees under SB 1525. A service area is defined as "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." Land use assumptions (growth projections) and an infrastructure improvements plan (list of capital improvements and impact fee analysis) must be prepared for each service area.

It should be noted that multiple service areas are not mandated by SB 1525. As long it can be shown that developments located anywhere within the service area will be served by or benefit from improvements in the service area – which is another way of saying that a "substantial nexus" can be demonstrated – a single service area may be permitted. Service areas for this update are described in the Service Area section (see page 14).

Service Units

In impact fee analysis, demand for facilities must be expressed in terms of a common unit of measurement, called a "service unit." SB 1525 defines a service unit as "a standardized measure of consumption, use, generation or discharge attributable to an individual unit of development calculated pursuant to generally accepted engineering or planning standards for a particular category of necessary public services or facility expansions." The service unit used by the City for all of its

system development fees is the Equivalent Dwelling Unit, or EDU. One EDU represents the average demand for services generated by a single-family dwelling unit.

Level of Service (LOS) Standards

SB 1525 does not define the term "level of service" (LOS), nor does it require the formal adoption of LOS standards. It does require, however, that impact fees be based on the same LOS provided to existing development in the service area. This does not mean that impact fees cannot be based on a higher standard than is currently actually provided to existing development in a service area. If the fees are based on a higher-than-existing LOS, however, there must be a plan to use non-impact fee funds to remedy the existing deficiency.

Methodology

SB 1525 is sometimes misunderstood to dictate a particular methodology for calculating impact fees. Because cities must forecast anticipated growth over a fixed time period and identify improvements over the same time period, some are led to think that a "plan-based" methodology is required, where the cost per service unit is calculated by dividing planned costs by anticipated new service units. In fact, however, SB 1525 does not dictate this methodology, and most impact fees in the state have not been calculated in this way. The reason is that, to support a plan-based methodology, the list of planned improvements must be developed using a rigorous analysis, such as the modeling used to develop a transportation master plan, in order to establish the required nexus between the anticipated growth and the specific list of improvements required to serve that growth. In many cases, such a master plan is not available.

The principal alternative to the plan-based methodology is "standards-based." The key difference is that the plan-based approach is based on a complex level of service (LOS) standard, such as "every road shall function at LOS D or better," or "the average fire response time shall not exceed three minutes," that requires projecting growth by small areas and using sophisticated modeling or analysis to determine the specific improvements needed to maintain the desired LOS. In contrast, a standards-based approach uses a generalized LOS standard, such as the ratio of park acres to population, which does not require an extensive master planning effort in order to determine the improvements and costs that are attributable to a specific quantity of growth.

There are advantages and disadvantages to the two methodologies. The major advantage of a standards-based methodology is that it is more flexible, since the fees are not dependent on the specific projects included in the list of improvements, only on the average cost to construct a unit of capacity. Changing the list of planned projects typically does not require recalculation of standards-based impact fees, since a single project is likely to have an insignificant impact on the average cost of capacity added by all of the improvements. This allows the capital plan to change in response to unforeseen development without triggering the need for an impact fee update. The major disadvantage of the standards-based approach is that it may not be appropriate for cities such as Chandler that are landlocked and approaching buildout. In the case of cities that are near buildout, the standards-based approach could end up collecting more revenue than is actually needed to pay for remaining improvement costs or remaining costs to pay for existing facilities with excess capacity.

In the 2008 update for the non-utility fees, on which the City's current non-utility system development fees are based (although some were subsequently adjusted downward as of January 1, 2012 to comply with SB 1525 mandates), the planned-based approach, based on remaining buildout improvements and other remaining costs, was used to determine the planned cost per service unit. However, an existing level of service was also calculated. The fees were based on either the existing level of service or the planned cost per service unit, whichever was less. Given Chandler's proximity to build-out, this approach was designed to ensure that fees would not exceed the revenue needed to pay for remaining capacity-expanding projects, plus remaining costs for existing facilities with excess capacity to serve future growth.

SB 1525 made three major changes that need to be addressed in the updated impact fee methodology. First, it required that fees not be based on a higher standard than is currently actually provided to existing development in a service area. Second, it limited the infrastructure improvements plan (IIP) to a maximum of ten years. Third and finally, SB 1525 mandates that fees must be spent within ten years from when they are collected (15 years in the case of water and wastewater fees).

The City's current methodology for the non-utility fees addresses the first requirement (don't exceed the existing level of service). The question is whether the second and third new requirements of SB 1525 (IIP cannot exceed ten years and spend fee revenue in 10-15 years) require a change in methodology. The City's 2008 IIP was based on buildout needs, which determined the plan-based cost per service unit. However, the 2008 methodology did not ensure that the fees would not exceed anticipated 10-year costs.

To ensure compliance with SB 1525, three costs per service unit are calculated in this update, and the fees are based on the lowest of the three: existing level of service, buildout cost per service unit, and 10-year cost per service unit. This modified methodology complies with all of the relevant requirements of SB 1525.

Land Use Assumptions

An impact fee update must now include the development of land use assumptions (growth projections) for each service area. SB 1525 defines land use assumptions as "projections of changes in land uses, densities, intensities and population for a specified service area over a period of at least ten years and pursuant to the general plan of the municipality." Since the infrastructure improvements plan (IIP) that must be prepared for each service area must identify improvement needs for a period not to exceed 10 years, a 10-year time-frame would seem to be the most appropriate for both the land use assumptions and the IIP. Land use assumptions are provided in the Land Use Assumptions section of this report (see page 21).

Infrastructure Improvements Plan

SB 1525 requires that an infrastructure improvements plan (IIP) be prepared for each facility type and service area. Impact fees may only be collected to pay for improvements identified in the IIP. By implication, impact fees can only be spent on improvements listed in the IIP. The IIP must identify planned projects over a period of not more than ten years. The updated IIP will cover the ten-year period from 2013-2023.

The IIP is often confused with a list of planned capital improvements. While the IIP must include such a list, it must also contain much more analysis. The IIP is basically the impact fee study. To avoid confusion, this study refers to the list of improvements that must be included in the IIP as the "capital plan." This study provides a single, consolidated document that includes land use assumptions, infrastructure improvement plans and impact fee analyses for all of the City's system development fees.

The IIP must include only new improvements that add capacity to accommodate future growth, or costs attributable to existing improvements that have excess capacity to accommodate future growth. Replacing an existing fire truck or an existing fire station, or remodeling or repairing an existing building, are examples of improvements that do not add capacity. Some projects may be partially eligible. For example, replacing an existing two-bay fire station with a larger three-bay fire station would be partially eligible for impact fee funding.

Refunds

A common and understandable misinterpretation of SB 1525 is that a municipality may be required to refund fees collected if any improvement listed in the IIP is not completed within the timeframe of the IIP. Section 9-463.05.B.7 provides that collection of impact fees is allowed only to pay for a project that is identified in the IIP, "and the municipality plans to complete construction and have the service available within the time period established in the infrastructure improvements plan, but in no event longer than the time period provided in subsection H, paragraph 3 of this section [i.e., 15 years for water and wastewater, and 10 years for other facilities]." The key terms in this section are "plans to complete" and "have the service available." No community has a crystal ball that allows it to know with certainty how much development is going to occur over a 10-15 year period in the future. While the City may plan to complete an improvement in this time period in order to serve anticipated growth, if the anticipated growth does not materialize the improvement may not be needed to serve the growth that does occur.

The refund provisions in the referenced refund subsection (H) reinforce this interpretation. The first two subparagraphs refer to the collection of fees when "service is not provided" (H.1) or when "service is not available" and the municipality has failed to complete construction within the time period identified in the IIP (H.2), a clear echo of the "have the service available" phrase in subsection B.7. In general, impact fees are not collected when services are not available. A clear case would be collecting water and wastewater fees from a development that is not able to connect to the water and wastewater system. However, the City of Chandler does not do this. For other facilities, service is provided immediately upon development, even if a planned facility could provide service from a closer location. Section 9-463.05.B.7 directly references only the final paragraph of subsection H (H.3), which simply requires that the impact fees be spent within a certain time period (15 years for water and wastewater, and 10 years for other facilities) from the date they were collected. It is reasonable to conclude that this is the only refund provision that will likely be applicable, as long as the City does not collect impact fees and deny access to services. However, there is always the possibility that refunds could be required if a construction project comes in significantly lower than its estimated cost, per Section 9-463.05.I.

Offsets

New development should not be required to pay twice for the cost of new facilities – once through impact fees and again through other taxes or fees that are used to fund the same facilities. To avoid such potential double-payment, impact fees may be reduced, and such a reduction is referred to as an "offset." Offsets are incorporated into the impact fee calculation. While this has long been a part of impact fee practice in Arizona, the amended statute contains the following provision:

> *The municipality shall forecast the contribution to be made in the future in cash or by taxes, fees, assessments or other sources of revenue derived from the property owner towards the capital costs of the necessary public service covered by the development fee and shall include these contributions in determining the extent of the burden imposed by the development. Beginning August 1, 2014, for purposes of calculating the required offset to development fees pursuant to this subsection, if a municipality imposes a construction contracting or similar excise tax rate in excess of the percentage amount of the transaction privilege tax rate imposed on the majority of other transaction privilege tax classifications, the entire excess portion of the construction contracting or similar excise tax shall be treated as a contribution to the capital costs of necessary public services provided to development for which development fees are assessed, unless the excess portion was already taken into account for such purpose pursuant to this subsection.* (Section 9-463.05.B.12)

The revenue forecast required by Section 9-463.05.B.12 is provided in Appendix E. In general, offsets are only required for funding that is dedicated for capacity-expanding improvements of the type addressed by the impact fee. A municipality is not required to use general fund revenue to pay for growth-related improvements. If, for example, a municipality decides that the existing level of service on which impact fees are based is insufficient, and opts to use general revenue to raise the level of service for both existing and new development, no offset would be required.

The clearest situation that requires an offset is when there is outstanding debt on the facilities that are providing existing development with the level of service that new development will be expected to pay for through impact fees. In this case, new development will be paying for the facilities that will serve them, while also paying for a portion of the cost of facilities serving existing development through property or other taxes. Consequently, the impact fees should be reduced to avoid this potential double-payment.

Another clear case requiring offsets is when the impact fees for a particular service area have been adopted based on a level of service that is higher than what is currently provided to existing development in the service area. In such a case, the cost of remedying the existing deficiency will almost always be funded by future revenue sources to which new development in the service area will contribute. To the extent that this is the case, an offset is required. Because the updated fees do not exceed the cost of the existing level of service, such an offset is not applicable to this study.

As noted above, an offset will generally be warranted when new development will be contributing toward a funding source that is dedicated to fund the same growth-related improvements addressed by the impact fee. Offsets are also often provided for anticipated grant funding that may be available to help fund growth-related improvements, although the uncertainty of such funding and the fact that it is not generated specifically by new development generally make this type of offset discretionary.

Finally, the new language inserted in the state enabling act by SB 1525, cited above, now requires municipalities to provide offsets for the excess portion of any construction contracting excise tax. Since the City of Chandler does not charge a construction excise tax higher than for other types of business activities, no such offset is required.

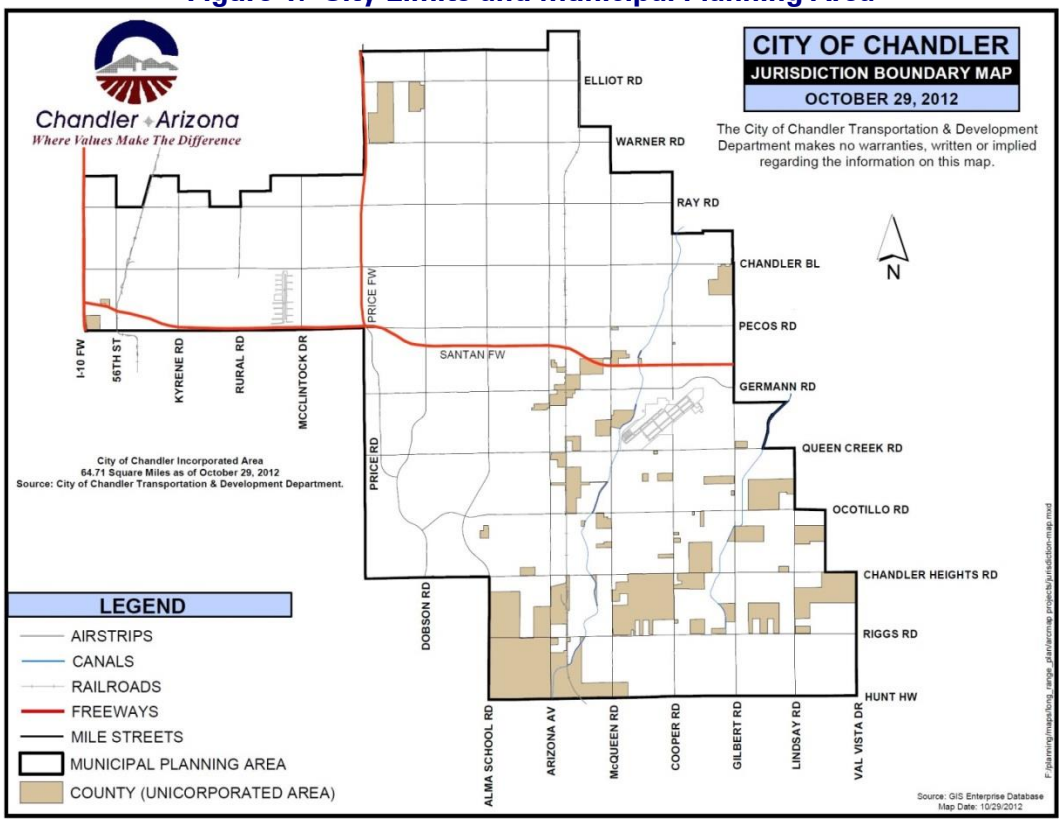
SERVICE AREAS

As noted in the Legal Framework section, service areas are a key requirement for impact fees under SB 1525. Land use assumptions (growth projections) and an infrastructure improvements plan (list of capital improvements and impact fee analysis) must be prepared for each service area. Multiple service areas are not mandated by SB 1525, as long as it can be shown that developments located anywhere within the service area will be served by or benefit from improvements anywhere in the service area – which is another way of saying that a "substantial nexus" can be demonstrated.

Chandler currently charges system development fees for arterial streets, water, water resources, wastewater, reclaimed water, parks, libraries, fire, police and public building facilities. The City currently has a single service area for all fee types. Except for arterial streets and water resources, the current service areas are city-wide.

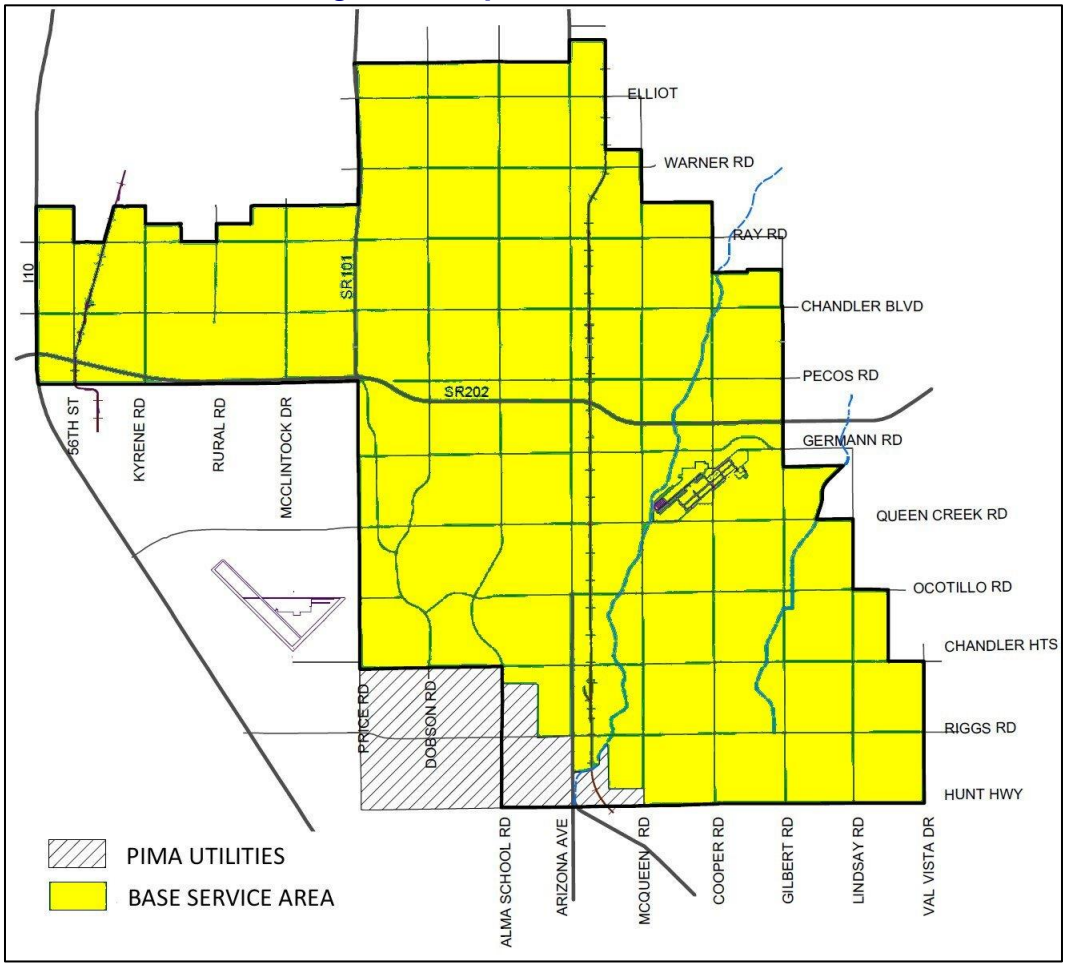
The service areas include unincorporated areas within the City's municipal planning area. Non-utility system development fees are not assessed in the unincorporated areas, unless they annex into the City. Utility system development fees may be assessed on new City utility customers located in unincorporated areas. The municipal planning area and the areas that are currently unincorporated are shown in Figure 1.

Figure 1. City Limits and Municipal Planning Area



The updated city-wide service area excludes the unincorporated area in the southwest corner of the planning area that is served by Pima Utilities, since the City does not anticipate ever annexing or providing services to this area. As discussed below, the city-wide service area continues to be appropriate for the water, wastewater, reclaimed water, fire, police, library and public building system development fees.

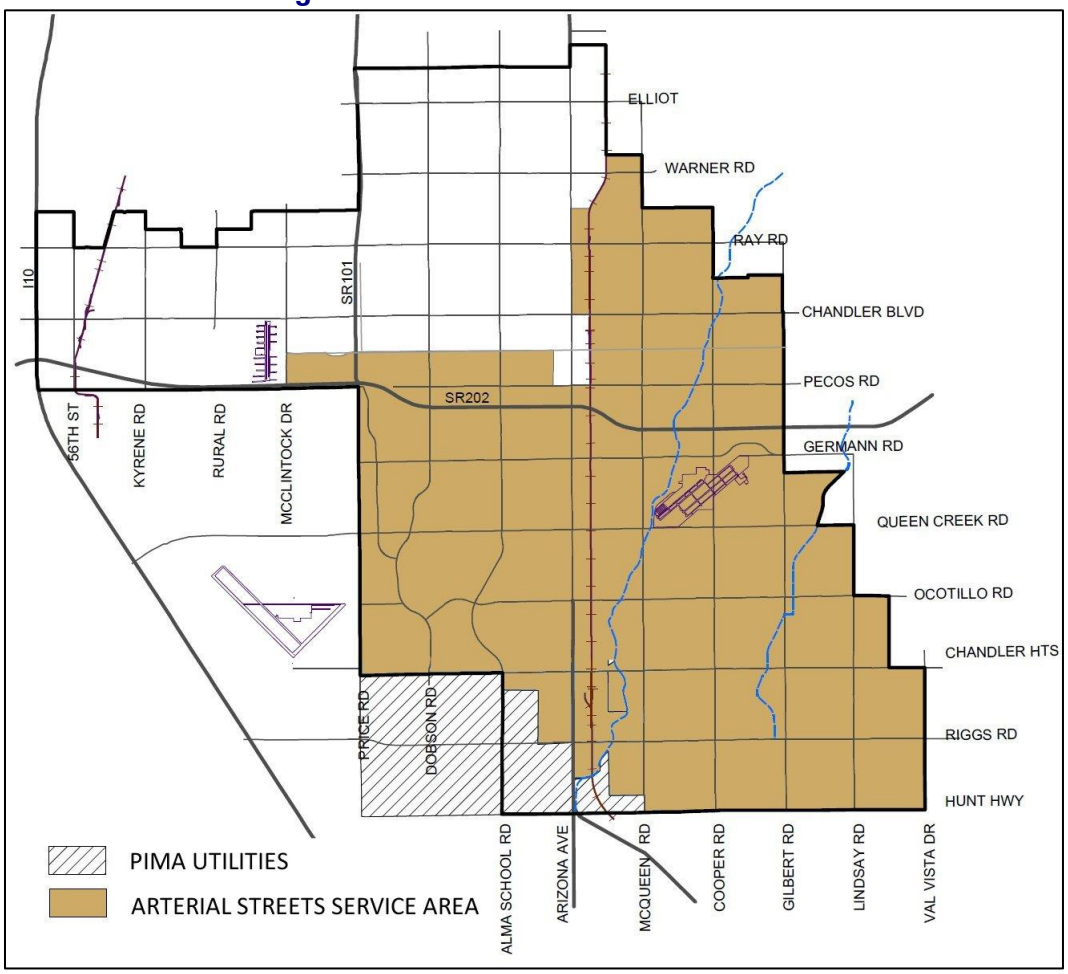
Figure 2. City-Wide Service Area



Arterial Streets

Transportation planners classify roadways according to function. The primary function of arterial streets is to move traffic long distances within a community. Since arterial streets are designed to move traffic throughout the community, a single service area continues to be appropriate. The City's current arterial streets service area excludes an area in the northwest part of the city where arterial streets have been funded with improvement districts. The updated service area differs from the current service area in that it excludes the largely developed downtown portion of the service area, where the arterial street system is in place and the City desires to encourage redevelopment. The areas to be excluded include the area between Arizona Avenue and the railroad tracks north of Pecos Road and south of Chandler Boulevard, and the area between Arizona Avenue and Palm Lane, north of Pecos Road and south of Frye Road. The updated arterial streets service area is shown in Figure 3.

Figure 3. Arterial Streets Service Area



Parks

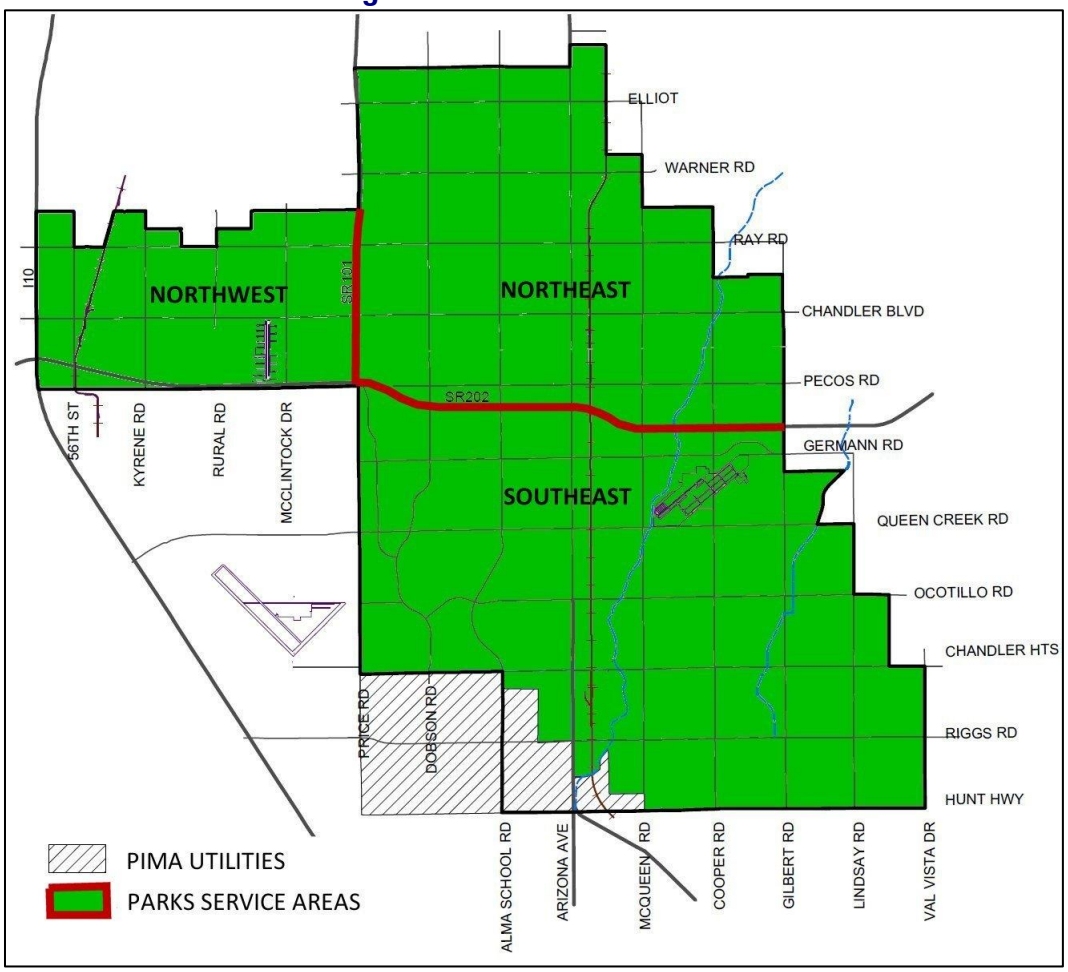
The City currently charges a park system development fee within a city-wide service area. SB 1525 authorizes fees for "neighborhood parks," although the term is undefined except for certain restrictions. The most important restriction is that neighborhood parks cannot not exceed 30 acres, unless a "direct benefit" (another undefined term) can be demonstrated. The updated fees will include, for each service area, a single park fee that includes parks up to 30 acres in size, as well as a 30-acre portion of larger parks that functions similar to parks of the authorized size.

The City's *Parks and Recreation Master Plan Update 2000* contains planning standards for neighborhood and community parks. A neighborhood park should be 5-10 acres and serve an area of about a one-half mile radius, while a community park has a recommended size of 25-50 acres and should serve an area of about a two-mile radius. The 30-acre park size authorized for impact fees falls somewhere between Chandler's neighborhood and community park planning standards.

Park impact fee service areas can reasonably be larger than the area served by a single park. Residents do not always use the park closest to them. A park impact fee system where each existing

or potential park has its own service area would be unworkable. Three park service areas are proposed, as shown in Figure 4. Each is roughly the size of one or two community park areas.

Figure 4. Park Service Areas



Libraries and Public Buildings

The City has no plans to build another library, and public building fees are no longer authorized except to repay pledged debt. Consequently, updated infrastructure improvement plans will not be prepared for libraries and public buildings. The City may retain its current city-wide library and public building system development fees and use them to repay debt service until the pledged debt has been retired. Alternatively, the City may revise the fees based on the analysis provided in this study.

Fire and Police

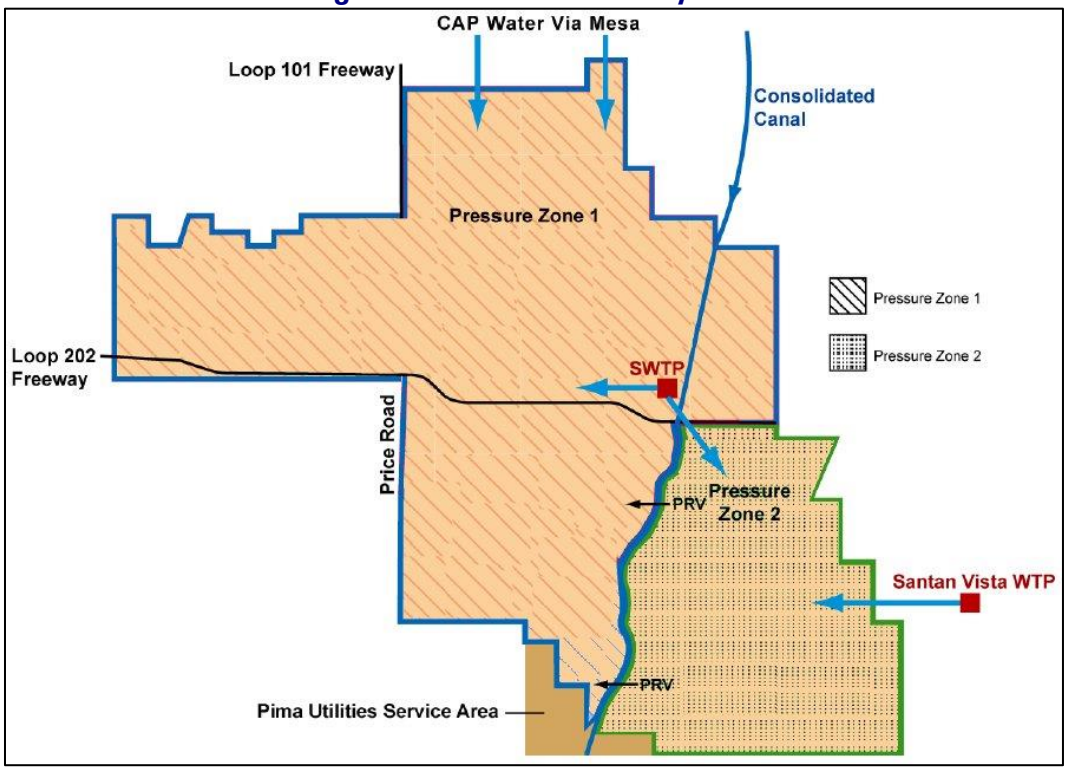
The current and recommended service areas for fire and police system development fees are city-wide. Police services are deployed from the Police Main Station, Desert Breeze Substation and Chandler Heights Substation, and are supported by a Property and Evidence Facility. Police protection and response are provided by patrol officers assigned to a specific geographic area but

available to respond to any incident, as needed. Fire protection and emergency response is provided by response units located in ten stations, supported by administrative facilities. While units are typically dispatched to an incident from the nearest station, units from other stations may respond if the unit from the closest station is responding to another incident. In addition, units from multiple stations may be dispatched to a major incident. Fire and police facilities thus form an integrated system, and the city-wide service area is appropriate.

Water, Wastewater and Reclaimed Water

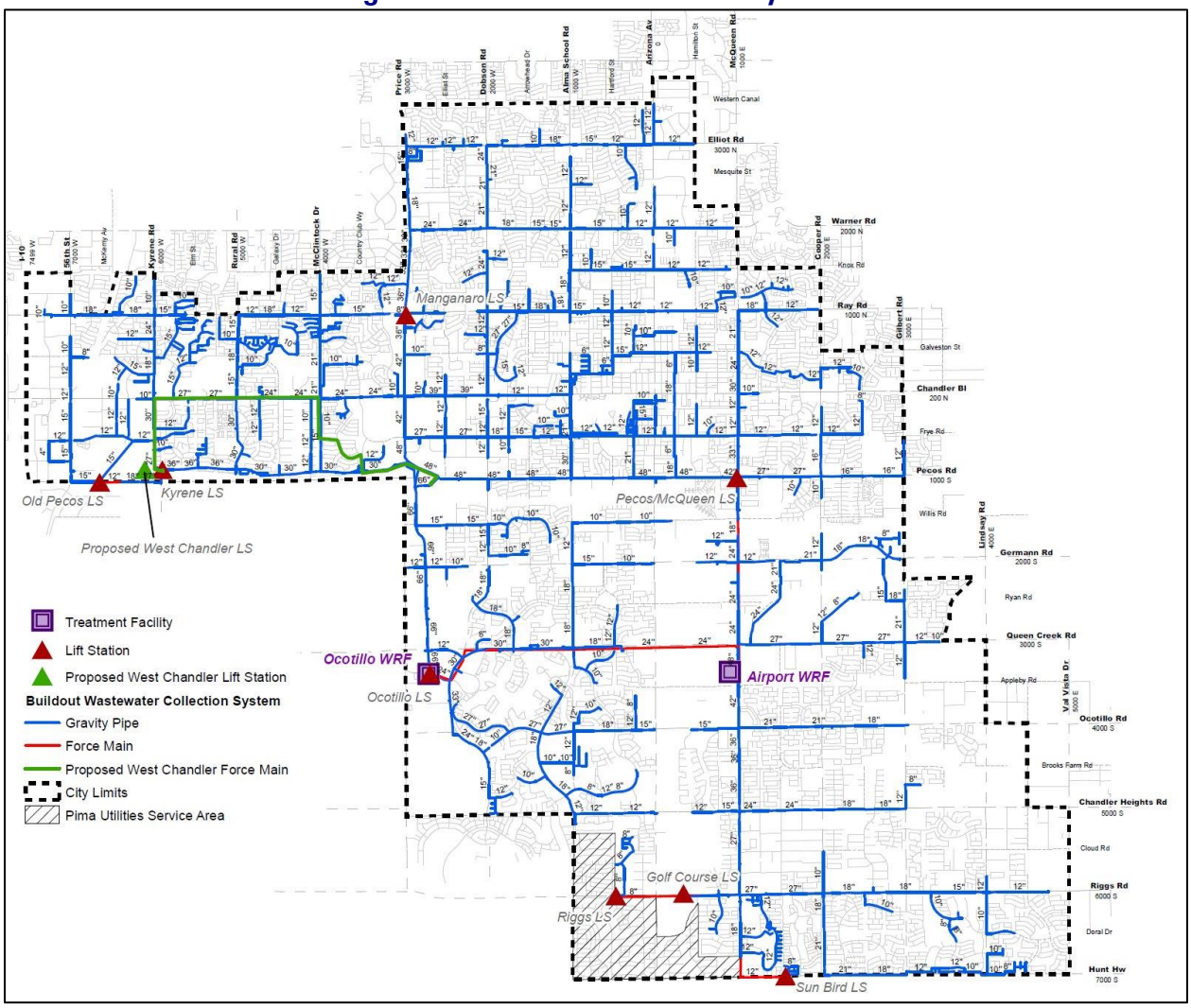
A single city-wide service area continues to be appropriate for water, wastewater and reclaimed water, because of the interconnected nature of the City's water and wastewater systems. The City's surface water supplies include Salt River Project (SRP) water, Roosevelt Water Conservation District (RWCD) water, New Conservation Storage (NCS) water (which was developed by increasing the capacity of Roosevelt Dam), and Colorado River water delivered through the Central Arizona Project (CAP). Groundwater is pumped from wells throughout the City to supplement surface water supplies and to provide additional supply during times of surface water shortage. Surface water treatment facilities include the Surface Water Treatment Plant and the City's share of the new Santan Vista Water Treatment Plant it jointly owns with the Town of Gilbert. There are currently two pressure zones, although the configuration of these zones is planned to change in the future. Pressure reducing valves provide interconnections between the two pressure zones to provide backup water supply. Chandler's buildout water system as recommended by the master plan is conceptually illustrated in Figure 5. No area of the city is served by a separate set of facilities. The City's water system is a pressurized, integrated system suitable for a single service area.

Figure 5. Planned Water System



Chandler's wastewater is currently treated at three facilities: the Ocotillo Water Reclamation Facility, the Airport Water Reclamation Facility and the Lone Butte Wastewater Treatment Plant. The Lone Butte plant will eventually be decommissioned. At buildout, the city will be served by two treatment plants, which are already interconnected with two force mains from the Ocotillo to Airport plant. Chandler's buildout wastewater system as recommended by the master plan is illustrated in Figure 6. The wastewater system is an integrated system appropriate for a single service area.

Figure 6. Planned Wastewater System



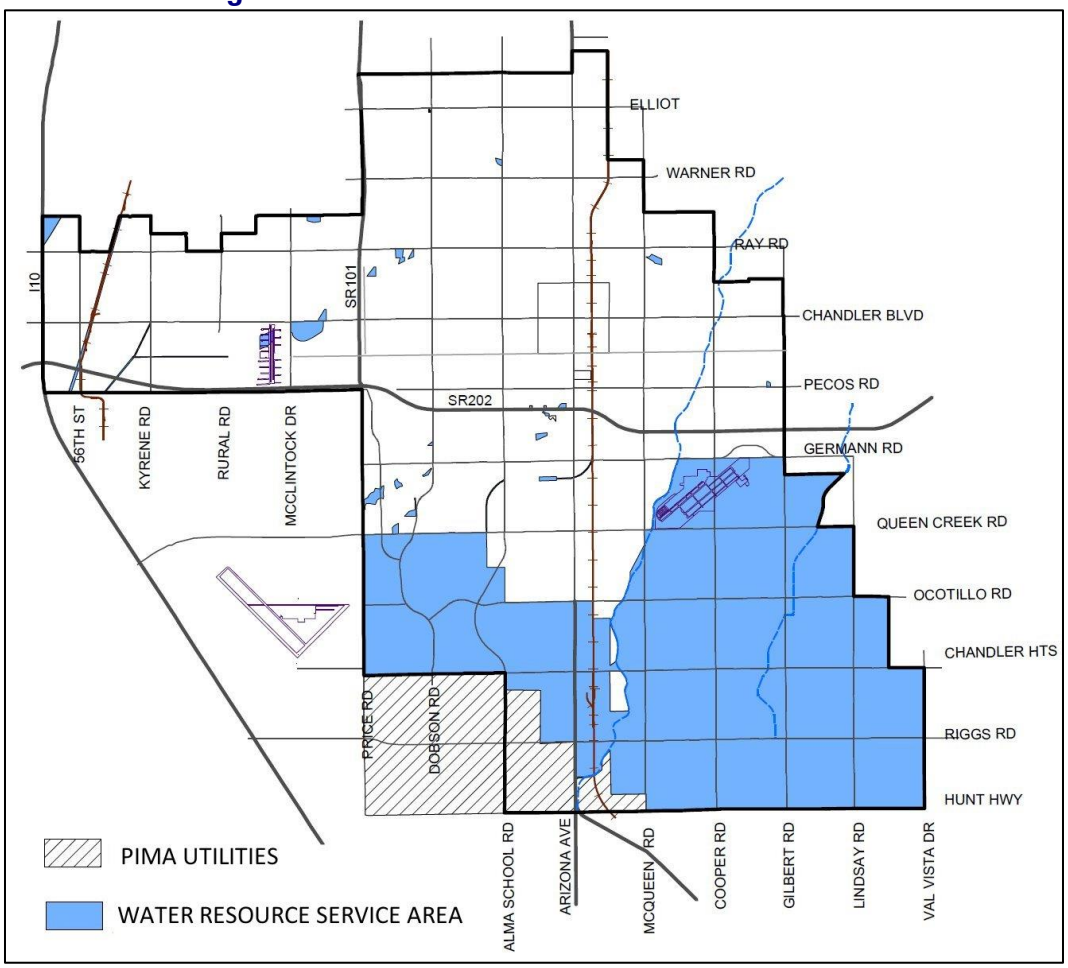
While the City charges a separate reclaimed water system development fee, the reclaimed water system is part of the water and wastewater systems. Reclaimed water provides both an efficient method of disposing of wastewater and a supplemental water supply source. Consequently, the water/wastewater service area is also the appropriate service area for the reclaimed water system development fee.

Water Resources

The water resources system development fee is a charge for the cost of purchasing water supplies. It is currently assessed only on new water customers located on lands lacking water rights that can

be provided to the City as a condition of water service. These include Salt River Project (SRP) Off-Project and Non-Member lands, as well as Roosevelt Water Conservation District (RWCD) lands. Most of these lands are located in a large contiguous area of south Chandler, although there are also some small isolated areas elsewhere in the city. The current service area for the water resources system development fee is shown in Figure 7.

Figure 7. Current Water Resources Service Area



In this update, the cost of water supplies will be included in the water system development fee assessed to all new water customers. This change is based on updated analysis demonstrating that SRP On-Project lands no longer have sufficient water rights to support existing water demand from On-Project lands, much less additional demand from future customers in those areas. This analysis is provided in the Water section.

LAND USE ASSUMPTIONS

This section presents land use assumptions covering a ten-year period (2013-2023) to serve as the basis for the infrastructure improvements plan and impact fee calculations for the City of Chandler's arterial streets, parks, fire, police, water, wastewater and reclaimed water system development fees. While the costs of water resources will be included in the water fee in this update, land use assumptions are also prepared for the current service area for the water resources system development fees.

SB 1525 requires that land use assumptions be developed for each service area. It defines land use assumptions as "projections of changes in land uses, densities, intensities and population for a specified service area over a period of at least ten years and pursuant to the general plan of the municipality."

Chandler's current *General Plan*, last updated in 2008, includes city-wide population and housing projections in five-year increments from 2010 to 2025. The General Plan does not provide a breakdown by housing type, information on existing or future nonresidential uses, or growth by subareas of the city. The City's Transportation & Development Department maintains a database on existing and buildout development that is broken down by small areas and contains information on residential population, dwelling units by housing type and nonresidential building square footage by land use type.

The Land Use Assumptions are based on the City's existing land use data and buildout projections. The City's land use data includes all of the land within the City's municipal planning area, with the exception that they exclude the area served by Pima Utilities. Estimates of existing nonresidential square footage are based on Maricopa County Assessor records. Nonresidential square footage and residential units for future projects that have received zoning approval or are currently under review are included in the build-out estimates. Undeveloped parcels that have not yet received zoning entitlements are assigned a land use that is consistent with the General Plan and any specific area plans that may have been adopted for the area. Building permit data is utilized to update newly constructed homes and nonresidential buildings in a GIS database on a quarterly basis. Density assumptions applied to undeveloped/un-entitled parcels are average densities derived from existing developments in Chandler. Residential population estimates are based on population per housing unit ratios derived from 2006-2010 American Community Survey. The City's Transportation & Development Department can provide a more detailed description of assumptions upon request.

While the City has exceptionally good data on existing (as of March 31, 2013) and buildout development, the City does not have intermediate projections covering the 2013-2023 period required for the Land Use Assumptions. A reasonable estimate of the percent of new development to buildout that will occur over the next ten years can be derived from the Maricopa Association of Governments socioeconomic projections of dwelling units and employment by land use type for small areas prepared in 2012. These projections are available for 2010, 2020, 2030 and 2040. The 2010-2020 projection is a reasonable approximation of the growth likely to occur over the next ten years, and the 2010-2040 projection is a reasonable approximation of the growth likely to occur from 2013 to buildout. Based on this analysis, the percentages of buildout growth anticipated to occur over the next ten years are shown in Table 5.

Table 5. Ten-Year Percent of Buildout New Development

	2010-2020	2010-2040	2010-20% of 2010-40
New Dwelling Units, NW Parks Service Area	521	2,063	25%
New Dwelling Units, NE Parks Service Area	2,061	8,256	25%
New Dwelling Units, SE Parks Service Area	6,941	14,023	49%
New Dwelling Units, City-Wide Service Area	9,523	24,342	39%
New Dwelling Units, Arterial Streets Service Area	8,631	20,569	42%
New Dwelling Units, Water Resources Service Area	4,549	8,796	52%
New Retail Employment, City-Wide Service Area	5,309	7,602	70%
New Retail Employment, Arterial Streets Service Area	2,903	5,989	48%
New Retail Employment, Water Resources Service Area	832	1,965	42%
New Office Employment, City-Wide Service Area	17,393	35,782	49%
New Office Employment, Arterial Streets Service Area	10,431	22,502	46%
New Office Employment, Water Resources Service Area	3,060	6,450	47%
New Industrial Employment, City-Wide Service Area	6,289	17,598	36%
New Industrial Employment, Arterial Streets Service Area	3,517	12,916	27%
New Industrial Employment, Water Resources Service Area	472	4,517	10%
New Public Employment, City-Wide Service Area	1,846	4,309	43%
New Public Employment, Arterial Streets Service Area	1,359	3,315	41%
New Public Employment, Water Resources Service Area	435	1,106	39%

Source: Based on Maricopa Association of Governments (MAG), Socioeconomic Projections, June 2012.

Projections of ten-year (2013-2023) population and housing units are derived from the City's buildout projections, assuming the above percentages of remaining growth that will occur over the next ten years, as shown in Table 6.

Table 6. Housing Units and Population by Service Area, 2013-2023

Service Area	Single-Family	Multi-Family	Total Units	Resid. Pop.
Parks Northwest, 2013	11,930	3,491	15,421	38,146
Parks Northeast, 2013	34,325	14,566	48,891	116,972
Parks Southeast, 2013	29,188	4,427	33,615	86,249
City-Wide, 2013	75,443	22,484	97,927	241,367
Streets, 2013	45,827	9,110	54,937	138,844
Water Resources, 2013	21,899	1,205	23,104	61,177
Parks Northwest, 2023	11,938	3,832	15,770	39,348
Parks Northeast, 2023	34,604	15,660	50,264	122,208
Parks Southeast, 2023	31,511	7,236	38,747	97,522
City-Wide, 2023	78,053	26,728	104,781	259,078
Streets, 2023	48,226	12,603	60,829	153,624
Water Resources, 2023	23,354	4,244	27,598	69,422
Parks Northwest, Buildout	11,962	4,854	16,816	40,550
Parks Northeast, Buildout	35,442	18,940	54,382	127,444
Parks Southeast, Buildout	33,928	10,160	44,088	108,794
City-Wide, Buildout	81,332	33,954	115,286	276,788
Streets, Buildout	51,539	17,426	68,965	168,404
Water Resources, Buildout	26,125	4,895	31,020	78,861

Source: 2013 estimates (as of March 31) and buildout projections from City of Chandler Transportation and Development Department, July 5, 2013; 2023 projections based on ten-year percentages of buildout new development from Table 5,

Projections of ten-year (2013-2023) nonresidential building square footage by land use type are derived from the City's buildout projections, utilizing the percentages of remaining growth that will occur over the next ten years from Table 5 above. Since park fees are not assessed on nonresidential development, it is not necessary to prepare nonresidential projections for the park service areas. The resulting nonresidential projections are shown in Table 7.

Table 7. Nonresidential Square Feet by Service Area, 2013-2023

Service Area	Commercial	Office	Industrial	Public	Total
City-Wide, 2013	17,098,209	6,623,600	29,609,603	9,241,234	62,572,646
Streets, 2013	6,442,274	2,584,170	11,638,142	4,827,349	25,491,935
Water Resources, 2013	1,910,744	398,616	7,942,325	1,370,746	11,622,431
City-Wide, 2023	21,325,232	10,530,283	38,691,554	9,909,782	80,456,851
Streets, 2023	8,516,857	5,304,259	17,576,061	5,194,060	36,591,237
Water Resources, 2023	3,006,068	834,115	8,904,085	1,529,806	14,274,074
City-Wide, Buildout	23,136,813	14,596,422	54,837,245	10,795,996	103,366,476
Streets, Buildout	10,764,321	8,497,408	33,630,436	5,721,767	58,613,932
Water Resources, Buildout	4,017,137	1,325,209	17,559,925	1,778,593	24,680,864

Source: 2013 estimates (as of March 31) and buildout projections from City of Chandler Transportation and Development Department, July 5, 2013; 2023 projections based on ten-year percentages of buildout new development from Table 5,

Employee densities can be derived from the 2013 nonresidential square footage estimates shown above and Maricopa Association of Governments employment estimates, as shown in Table 8.

These are used in the functional population estimates (see Appendix C) used to develop the fire and police service unit multipliers.

Table 8. Employees per 1,000 Square Feet, 2013

Land Use Type	Employees	Bldg. Sq. Ft. (1,000s)	Employees/ 1,000 sq. ft.
Retail Commercial	30,699	17,098	1.80
Office	24,428	6,624	3.69
Industrial/Warehouse	36,389	29,610	1.23
Public	6,042	9,241	0.65

Source: Employees from Maricopa Association of Government, 2013 (interpolation between 2010 estimates and 2020 projections; building square footage from Table 7.

ARTERIAL STREETS

This section updates the City's arterial street system development fees in compliance with the new Arizona impact fee enabling act for municipalities (SB 1525). The City of Chandler currently charges an arterial street system development fee on new development in the arterial street service area. The City's system development fee ordinance defines the arterial street system to be funded with the fees as arterial streets within the service area; the definition excludes collector streets and freeways. An inventory of the existing arterial street system in the service area was compiled for this update and is presented in Table 122 in Appendix A.

As described in the Methodology section of the Legal Framework, the updated fees will be based on the lowest of three costs per service unit: existing level of service, ten-year planned improvements or buildout improvements. In the 2008 study, the arterial street fees were based on the buildout cost per service unit.

Service Units

As described in the Service Unit section of the Legal Framework, the service unit for all of the City's system development fees is the Equivalent Dwelling Unit, or EDU, which represents the demand for facilities of a typical single-family dwelling unit. For the arterial street system development fees, the demand for facilities is based on afternoon peak hour trip generation. Trip generation rates are based on information published in the most recent edition of the Institute of Transportation Engineers' (ITE) *Trip Generation* manual.

In previous studies, trip generation rates have not been adjusted to exclude pass by and diverted-linked trips. However, these adjustments are reasonable and have been made in this update. Pass by trips are those trips that are already on a particular route for a different purpose and simply stop at a development on that route. For example, a stop at a convenience store on the way home from the office is a pass by trip for the convenience store. A pass by trip does not create an additional burden on the street system and therefore should not be counted in the assessment of system development fees. Diverted-linked trips are similar to pass by trips in that an intermediate stop is made on the way to the primary destination, but a short diversion is made from the most direct path to the primary destination. The adjustment is made in this update to include only primary trips generated by the development. Published information on pass by and diverted-linked trips is available only for retail/commercial uses. However, office uses also have some of these kinds of trips. Consequently, professional judgement has been used to develop a new trips factor for office uses.

Previous studies also did not adjust for differences in the average length of trips. A shorter trip imposes a smaller burden on the arterial street system than a longer trip. While published information is available for average trip lengths by trip purpose, the average trip length for peak hour trips of residential, office, industrial/warehouse and public/institutional land uses are dominated by the home-to-work trip, and tend to be relatively similar. The exception is retail/commercial uses, which tend to have shorter trip lengths than the home-to-work commute. In this update, an adjustment is made to the retail/commercial trip rate to account for the shorter-than-average shopping trip.

The result of combining trip generation rates, primary trip factors and the retail trip length adjustment is a schedule that establishes the number of arterial street service units generated by various land use types per unit of development for Chandler. The recommended service unit multipliers are presented in Table 9.

Table 9. Arterial Street Service Unit Multipliers

Land Use	ITE Code	Unit	Pk Hr Trip Rate	New Trips Factor	Trip Length Factor	Adjusted Trip Rate	EDUs/ Unit
Single-Family	210	Dwelling	1.00	100%	100%	1.000	1.000
Multi-Family	220	Dwelling	0.62	100%	100%	0.620	0.620
Retail/Commercial	820	1000 sq. ft.	3.71	42%	68%	1.060	1.060
Office	710	1000 sq. ft.	1.49	75%	100%	1.118	1.118
Industrial/Warehouse	130/150	1000 sq. ft.	0.59	100%	100%	0.590	0.590
Public/Institutional	620	1000 sq. ft.	0.37	100%	100%	0.370	0.370

Source: Trip rates during the p.m. peak hour of adjacent street traffic on a weekday from the Institute of Transportation Engineers (ITE), *Trip Generation*, 9th ed., 2012 (retail/commercial based on shopping center, office based on general office, industrial/warehouse based on average for industrial park and warehousing; public/institutional based on nursing home); new trips factor for retail/commercial based on shopping center data from ITE, *Trip Generation Handbook*, June 2004; new trips factor for office based on professional judgement; trip length factor for retail/commercial based on ratio of average shopping trip length to average trip length for all trips from U.S. Department of Transportation, National Household Travel Survey, 2009; adjusted trip rate is product of trip rate, new trip factor and trip length factor; EDUs per unit is ratio of adjusted trip rate to single-family adjusted trip rate.

The current arterial street service unit multipliers are based solely on peak hour trip generation from the 7th edition of the *Trip Generation* manual published in 2003. In this update, peak hour trip generation rates are based on the 9th edition, published in 2012. In addition, this update adjusts retail/commercial and office trip rates to account for pass by and diverted-linked trips as well as shorter shopping trip lengths. These adjustments account for most of the change to retail/commercial and office service unit multipliers. Changes for other land uses reflect changes in published trip generation rates.

Table 10. Comparison of Arterial Street Service Unit Multipliers

Land Use	Unit	Current EDUs/Unit	Updated EDUs/Unit	Percent Change
Single Family	Dwelling	1.000	1.000	0%
Multi-Family	Dwelling	0.614	0.620	1%
Retail/Commercial	1000 sq. ft.	3.713	1.060	-71%
Office	1000 sq. ft.	1.475	1.118	-24%
Industrial/Warehouse	1000 sq. ft.	0.659	0.590	-10%
Public/Institutional	1000 sq. ft.	0.416	0.370	-11%

Source: Current EDUs per unit from Duncan Associates, *City of Chandler, Arizona Non-Utility System Development Fee Update*, June 2008, Table 9; proposed EDUs per unit from Table 9.

The estimate of existing arterial street service units, the ten-year projection and the buildout projection are based on the service unit multipliers shown above and the Land Use Assumptions. The results are shown in Table 11.

Table 11. Arterial Street Service Units, 2013-Buildout

Land Use	Unit	Units	EDUs/Unit	EDUs
Single Family, 2013	Dwelling	45,827	1.000	45,827
Multi-Family, 2013	Dwelling	9,110	0.620	5,648
Retail/Commercial, 2013	1000 sq. ft.	6,442	1.060	6,829
Office, 2013	1000 sq. ft.	2,584	1.118	2,889
Industrial/Warehouse, 2013	1000 sq. ft.	11,638	0.590	6,866
Public/Institutional, 2013	1000 sq. ft.	4,827	0.370	1,786
Total 2013 EDUs				69,845
Single Family, 2023	Dwelling	48,226	1.000	48,226
Multi-Family, 2023	Dwelling	12,603	0.620	7,814
Retail/Commercial, 2023	1000 sq. ft.	8,517	1.060	9,028
Office, 2023	1000 sq. ft.	5,304	1.118	5,930
Industrial/Warehouse, 2023	1000 sq. ft.	17,576	0.590	10,370
Public/Institutional, 2023	1000 sq. ft.	5,194	0.370	1,922
Total 2023 EDUs				83,290
Single Family, Buildout	Dwelling	51,539	1.000	51,539
Multi-Family, Buildout	Dwelling	17,426	0.620	10,804
Retail/Commercial, Buildout	1000 sq. ft.	10,764	1.060	11,410
Office, Buildout	1000 sq. ft.	8,497	1.118	9,500
Industrial/Warehouse, Buildout	1000 sq. ft.	33,630	0.590	19,842
Public/Institutional, Buildout	1000 sq. ft.	5,722	0.370	2,117
Total Buildout EDUs				105,212
New EDUs, 2013-2023				13,445
New EDUs, 2013-Build-out				35,367

Source: 2013, 2023 and buildout units for arterial street service area from Table 6 and Table 7; EDUs per unit from Table 9; EDUs is product of units and EDUs per unit.

Cost per Service Unit

As described in the Methodology section of the Legal Framework, the updated system development fees will be based on the lowest of three costs per service units: existing level of service, ten-year cost and buildout cost.

Existing Level of Service

One measure of level of service used in road impact fee analysis is the system-wide ratio of demand to capacity. This is similar to the volume/capacity (V/C) ratio used to measure levels of service on individual roadway segments, but it applies to the entire roadway system. The system-wide measure is expressed in vehicle-miles as the ratio of vehicle-miles of travel (VMT) to vehicle-miles of capacity (VMC).

An analysis of the existing level of service was conducted by preparing a detailed inventory of the existing arterial/major collector road network (see Appendix A). For each roadway segment, information was gathered on segment length in miles, number of through lanes, and recent traffic counts. Vehicle-miles of capacity are based on generalized maximum volumes at LOS D from the City's 2010 *Transportation Master Plan Update*, shown in Table 12 below.

Table 12. Arterial Street Capacities at Level of Service D

	2-Lane	4-Lane	5-Lane	6-Lane
Average Daily Capacity at LOS D	15,300	32,200	37,100	48,500
x Peaking Factor	0.085	0.085	0.085	0.085
Peak Hour Capacity at LOS D	1,300	2,700	3,200	4,100

Source: Average daily capacities at LOS D from Parsons Brinckerhoff, *City of Chandler Transportation Master Plan Update*, Final Report, April 2010; peaking factor from City of Chandler Transportation and Development Division.

The inventory data demonstrate that average congestion on the arterial street system will increase from now to buildout, as summarized in Table 13. This reflects the fact that some of the existing capacity in the system has been constructed prior to actual need, and is consistent with the fact that the City has earmarked some outstanding debt and interfund loans attributable to existing improvements with excess capacity to be paid with future arterial street system development fees.

Table 13. Arterial Street VMT/VMC Ratios, 2013 and Buildout

	2013	Buildout
Total Vehicle-Miles of Travel (VMT)	130,345	221,043
÷ Total Vehicle-Miles of Capacity (VMC)	254,151	309,483
VMT/VMC Ratio	0.51	0.71

Source: 2013 VMC and VMT from Table 122 in Appendix A; buildout VMC and VMT from Table 123 in Appendix A.

The existing level of service can also be quantified in terms of dollars per service unit. The first step is to determine the average cost (in today's dollars) to construct a new vehicle-mile of capacity. The average cost per new VMC added by the ten-year planned improvements is $4,319, as shown in Table 14.

Table 14. Average Cost per Vehicle-Mile of Capacity, 2013-2023

				Lanes		10-Year	New	Cost/
Arterial Street	From	To	Miles	Ex	Fut	Cost	VMC	VMC
Alma School Rd	Loop 202	Queen Creek Rd	1.73	4	6	$908,000	n/a	n/a
Chandler Hts Rd	Arizona Ave	McQueen Rd	1.00	2	4	$11,104,950	1,400	$7,932
Cooper Rd	Queen Creek Rd	Riggs Rd	3.00	2	4	$17,983,375	4,200	$4,282
Gilbert Rd	Wood Dr	Hunt Highway	1.70	2	4	$7,662,000	2,380	$3,219
McQueen Rd	Ocotillo Rd	Riggs Rd	2.00	2	4	$9,959,350	2,800	$3,557
Ocotillo Rd	Redwood	148th Street	2.25	2	4	$17,979,000	3,150	$5,708
Queen Creek Rd	Airport	Gilbert Rd	1.80	2	6	$17,234,500	5,040	$3,420
Total						$82,831,175		
Total Excluding Project with Design Costs Only						$81,923,175	18,970	$4,319

Source: Improvements and 10-year costs from City of Chandler, Transportation and Development Division, August 2013 (costs are in 2013 dollars); new VMC based on existing and future lanes and generalized capacities from Table 12; final total row excludes Alma School project, which has 10-year costs for design only.

Alternatively, the average cost per VMC could be based on buildout improvements, rather than on improvements in the 10-year plan. As shown in Table 15 on the following page, the average cost per VMC based on buildout improvements is slightly higher than the ten-year cost, at $4,484 per VMC. The slightly lower average cost per VMC derived from the ten-year plan will be used to quantify the existing level of service.

Table 15. Average Cost per Vehicle-Mile of Capacity, 2013-Buildout

Arterial Street	From	To	Miles	Lanes Ex	Lanes Fut	Buildout Cost	New VMC	Cost/ VMC
Alma School Rd	Frye Rd	Loop 202	0.80	4	6	$5,000,000	1,120	$4,464
Alma School Rd	Loop 202	Queen Creek Rd	1.73	4	6	$5,049,000	2,422	$2,085
Alma School Rd	Queen Creek Rd	Ocotillo Rd	1.12	4	6	$4,700,000	1,568	$2,997
Chandler Blvd	Colorado St	McQueen Rd	0.87	4	6	$14,645,775	1,218	$12,024
Chandler Hts Rd	Arizona Ave	McQueen Rd	1.00	2	4	$11,104,950	1,400	$7,932
Chandler Hts Rd	McQueen Rd	Val Vista Dr	3.96	2	4	$33,718,474	5,544	$6,082
Cooper Rd	Knox Rd	Ray Rd	0.75	4	6	$3,368,160	1,050	$3,208
Cooper Rd	Queen Creek Rd	Riggs Rd	3.00	2	4	$17,983,375	4,200	$4,282
Germann Rd	City Limits	Price Rd	0.25	2	4	$3,000,000	350	$8,571
Germann Rd	Arizona Ave	0.25 mi E of Airport	1.75	4	6	$5,144,434	2,450	$2,100
Gilbert Rd	Wood Dr	Riggs Rd	2.00	2	4	$7,662,000	2,800	$2,736
Lindsay Rd	Ocotillo Rd	Riggs Rd	2.00	2	4	$21,382,896	2,800	$7,637
Lindsay Rd	Riggs Rd	Hunt Highway	1.00	2	4	$4,972,338	1,400	$3,552
McQueen Rd	Warner Rd	Chandler Blvd	2.00	4	6	$5,808,231	2,800	$2,074
McQueen Rd	Chandler Blvd	Pecos Rd	1.00	4	6	$8,690,835	1,400	$6,208
McQueen Rd	Ocotillo Rd	Riggs Rd	2.00	2	4	$9,959,350	2,800	$3,557
McQueen Rd	Riggs Rd	City Limits	0.75	2	4	$3,706,205	1,050	$3,530
Ocotillo Rd	Arizona Ave	McQueen Rd	1.00	2	4	$10,000,000	1,400	$7,143
Ocotillo Rd	Redwood	148th Street	2.25	2	4	$17,979,000	3,150	$5,708
Pecos Rd	Ellis St	Dobson Rd	0.50	2	4	$3,000,000	700	$4,286
Queen Creek Rd	Airport	Gilbert Rd	1.80	2	6	$17,234,500	5,040	$3,420
Ray Rd	Arizona Ave	Cooper Rd	2.00	4	6	$7,658,261	2,800	$2,735
Total						$221,767,784	49,462	$4,484

Source: Buildout improvements and costs from City of Chandler, Transportation and Development Division, August 2013 (costs are in 2013 dollars); new VMC based on existing and future lanes and generalized capacities from Table 12, and is calculated by multiplying the net increase in capacity by the length of the segment in miles.

An additional step is to determine the value of excess capacity available to be utilized by future development. This will allow us to confirm that the approximately $46 million in outstanding debt and interfund loans to be repaid by the arterial street fund is a reasonable representation of the cost of existing excess capacity. As shown in Table 16, the replacement cost of existing capacity available to serve future development amounts to an estimated $305 million. This far exceeds the $46 million in eligible outstanding debt and interfund loans that will be paid by future arterial street system development fees. Consequently, it is reasonable to assume that the existing eligible debt and interfund loans to be paid by future development represent the cost of excess capacity available for future development.

Table 16. Replacement Cost of Available Arterial Street Capacity

Existing Vehicle-Miles of Capacity (VMC)	254,151
– VMC Utilized by Existing Development	-183,585
Existing VMC Available for Future Development	70,566
x Cost per Vehicle-Mile of Capacity (VMC)	$4,319
Replacement Cost of Available Capacity	$304,774,554

Source: Existing VMC from Table 13; VMC utilized by existing development from Table 17; average cost per VMC from Table 14

The calculation of the existing arterial street level of service in terms of the cost per service unit is presented in Table 17. The first step is to compute the existing capacity utilized by existing traffic. This is done by dividing existing VMT by the buildout VMT/VMC ratio. The VMC utilized by

existing traffic is multiplied by the average cost per VMC to determine the cost of existing facilities serving existing traffic. However, not all of the traffic on the City's arterial streets is generated by development in Chandler – approximately 12% of it is estimated to be pass-through traffic. Taking out the share attributable to pass-through traffic gives the cost of existing facilities serving existing development (at the buildout level of service). There is no deduction of outstanding debt and interfund loans related to existing facilities, because this represents the unpaid-for cost of existing facilities with excess capacity to serve future development. The final step is to divide the cost of facilities serving existing development that have been fully paid for by the number of existing service units. This results in the existing cost per service unit of $9,990 per EDU.

Table 17. Arterial Street Existing Cost per Service Unit

Existing Vehicle-Miles of Travel (VMT), 2013	130,345
÷ Buildout VMT/VMC Ratio	0.71
Vehicle-Miles of Capacity (VMC) Utilized by Existing Traffic	183,585
x Cost per Vehicle-Mile of Capacity (VMC)	$4,319
Replacement Cost of Facilities Serving Existing Traffic	$792,903,615
x Percent of Traffic Attributable to Non-Pass-Through Trips	88%
Replacement Cost of Facilities Serving Existing Development	$697,755,181
÷ 2013 Service Units (EDUs)	69,845
Existing Cost per Service Unit	$9,990

Source: Existing VMT and buildout VMT/VMC ratio from Table 13; cost per VMC from Table 14; percent of non-pass-through traffic from Maricopa Association of Governments travel model; 2013 arterial street EDUs from Table 11.

Ten-Year Cost

Some of the City's planned ten-year improvement costs will be paid for by regional transportation funds administered through the Maricopa Association of Governments (MAG). MAG funding sources include Federal and State transportation funds, but primarily consist of Regional Arterial Road Funding, which comes from dedicated county-wide transportation sales tax revenue. Funding from the voter-approved authorization runs out in FY 2026, and the bulk of funding for arterial street improvements in Chandler will occur in the 2013-2023 period, as summarized in Table 18.

Table 18. Regional Funding for Arterial Street Improvements, 2013-Buildout

Improvement	Component	FY	2013-2023 Funding	2013-Buildout Funding
Gilbert, Queen Crk-Hunt Hwy	ROW	2014	$777,000	$777,000
Gilbert, Queen Crk-Ocotillo	Construction	2014	$1,889,000	$1,889,000
Gilbert, Ocotillo- Chandler Hts	Construction	2018	$3,160,000	$3,160,000
Gilbert, Ocotillo- Chandler Hts	Construction	2019	$3,000,000	$3,000,000
Gilbert, Chandler Hts-Hunt Hwy	Construction	2019	$1,000,000	$1,000,000
Gilbert, Chandler Hts-Hunt Hwy	Construction	2020	$2,528,000	$2,528,000
Chandler Hts, Arizona-McQueen	Design, ROW	2022	$1,288,000	$1,288,000
Chandler Hts, Arizona-McQueen	Construction	2023	$3,246,000	$3,246,000
Chandler Hts, Arizona-McQueen	Construction	2024	$0	$2,791,000
Chandler Hts, McQueen-Gilbert	Design	2019	$601,000	$601,000
Chandler Hts, McQueen-Gilbert	ROW	2020	$1,002,000	$1,002,000
Chandler Hts, McQueen-Gilbert	ROW, Const	2021	$3,067,000	$3,067,000
Chandler Hts, McQueen-Gilbert	Construction	2022	$1,865,000	$1,865,000
McQueen, Ocotillo-Riggs	Design, ROW	2017	$1,067,000	$1,067,000
McQueen, Ocotillo-Riggs	ROW	2018	$930,000	$930,000
McQueen, Ocotillo-Riggs	Construction	2019	$3,243,000	$3,243,000
McQueen, Ocotillo-Riggs	Construction	2020	$1,243,000	$1,243,000
Ocotillo, Arizona-McQueen	Design, ROW, Const	2014	$4,357,000	$4,357,000
Ocotillo, Arizona-McQueen	Construction	2018	$939,000	$939,000
Ocotillo, Cooper-Gilbert	Design, ROW	2022	$2,278,000	$2,278,000
Ocotillo, Cooper-Gilbert	Construction	2023	$2,110,000	$2,110,000
Ocotillo, Cooper-Gilbert	Construction	2024	$0	$2,110,000
Queen Crk, McQueen-Gilbert	Design, ROW	2019	$1,371,000	$1,371,000
Queen Crk, McQueen-Gilbert	Construction	2020	$3,213,000	$3,213,000
Queen Crk, McQueen-Gilbert	Construction	2021	$2,864,000	$2,864,000
Total			$47,038,000	$51,939,000

Source: Maricopa Association of Governments, *FY 2014 Arterial Lifecycle Program (ALCP)*, June 19, 2013 (excludes funding for intersection improvements, which are not funded with Chandler's system development fees).

The ten-year cost per service unit represents costs that will be incurred by the City over the next ten years to build new capacity to serve anticipated development in the city, to repay outstanding debt or interfund loans associated with existing capacity available to serve new development, to pay for encumbrances that represent remaining costs associated with projects currently under construction, and to pay for updated studies. The outstanding debt is for the widening of Arizona Avenue from Ray to Elliott and other past arterial street expansions. The interfund loans are for the widenings of Germann Road, Pecos Road, Cooper Road and Riggs Road. The encumbrances are for widening projects on Germann Road, Gilbert Road, McQueen Road and Ocotillo Road, as well as some remaining costs from the current fee update study. The results are shown in Table 19 and indicate a cost per service unit of $3,548 per EDU.

Table 19. Arterial Street 10-Year Cost per Service Unit

Cost of Planned Improvements, 2013-2023	$82,831,175
x Percent of Traffic Attributable to Non-Pass-Through Trips	88%
Cost of Planned Improvements Attributable to Development in Chandler	$72,891,434
– Anticipated Regional Funding for Non-Pass Through Costs, 2013-2023	-$37,098,259
City Cost of Planned Improvements Attributable to Development in City	$35,793,175
Outstanding Debt on Past Capacity Improvements, 2013-2023	$17,225,578
Interfund Loans for Past Capacity Improvements	$2,814,300
Encumbrances for Current Capacity Projects	$16,952,491
Required System Development Fee Studies	$27,256
– Current Fund Balance	-$25,115,396
Needed Revenue, 2013-2023	$47,697,404
÷ New Service Units (EDUs), 2013-2023	13,445
Ten-Year Cost per Service Unit	$3,548

Source: Planned improvement costs from Table 14; percent of non-pass-through traffic from Maricopa Association of Governments travel model; regional funding from Table 18, less the costs of pass-through traffic; outstanding eligible debt from Table 129; interfund loans, encumbrances and current fund balance from Table 128; cost of required studies from Table 132; new service units from Table 11.

Buildout Cost

The buildout cost per service unit represents costs that will be incurred by the City to buildout to build capacity to serve anticipated development in the city, to repay outstanding debt or interfund loans associated with existing capacity to serve new development, to pay for encumbrances that represent remaining costs associated with projects currently under construction and to pay for future study updates. The results are shown in Table 20 and indicate a cost per service unit of $5,109 per EDU.

Table 20. Arterial Street Buildout Cost per Service Unit

Cost of Planned Improvements, 2013-Buildout	$221,767,784
x Percent of Traffic Attributable to Non-Pass-Through Trips	88%
Cost of Planned improvements Attributable to Development in Chandler	$195,155,650
– Anticipated Regional Funding, 2013-Buildout	-$51,939,000
City Cost of Planned improvements Attributable to Development in City	$143,216,650
Outstanding Debt on Past Capacity Improvements, 2013-Buildout	$42,748,643
Interfund Loans for Past Capacity Improvements	$2,814,300
Encumbrances for Current Capacity Projects	$16,952,491
Required System Development Fee Studies	$81,768
– Current Fund Balance	-$25,115,396
Needed Revenue, 2013-Buildout	$180,698,456
÷ New Service Units (EDUs), 2013-Buildout	35,367
Buildout Cost per Service Unit	$5,109

Source: Planned improvement costs from Table 15; percent of non-pass-through traffic from Maricopa Association of Governments travel model; regional funding from Table 18; outstanding eligible debt from Table 129; interfund loans, encumbrances and current fund balance from Table 128; cost of required studies from Table 132; new service units from Table 11.

Cost per Service Unit Summary

The three costs per service unit calculated above are summarized in Table 21. The updated system development fees will be based on the ten-year cost per service unit, which is the lowest of the three.

Table 21. Arterial Street Cost per Service Unit

Existing Cost per Service Unit	$9,990
Ten-Year Cost per Service Unit	$3,548
Buildout Cost per Service Unit	$5,109
Lowest Cost per Service Unit	$3,548

Source: Table 17, Table 19 and Table 20.

Net Cost per Service Unit

As noted in the Legal Framework section of this report, system development fees should be reduced (or "offset") in order to account for other types of revenues that will be generated by new development and used to fund capacity-expanding improvements of the same type as those to be funded by the fees. Cases in which such an offset is warranted include funding of existing deficiencies, outstanding debt payments on existing facilities, and dedicated revenue sources to fund growth-related improvements.

The arterial street system development fees calculated in this report are based on a system-wide ten-year cost per service unit that is lower than the existing level of service. Consequently, there are no existing deficiencies from an impact fee perspective.

As has been demonstrated, all of the outstanding arterial street debt can be attributable to existing excess capacity available for future development. Consequently, the debt amount has been included in the calculation of ten-year and buildout costs per service unit.

The City has funded arterial street capacity improvements with system development fees and general obligation bonds, supplemented with regional transportation funding. Anticipated regional funding has been taken into account in the calculation of the ten-year and buildout costs per service unit.

The City has historically reduced the fees to account for pass-through traffic. In our view, such an adjustment is not required because of the counter-balancing nature of spill-over effects between jurisdictions. While some of Chandler's capacity improvements may be necessitated by traffic that originates and ends in neighboring cities, some of the increased pass-through traffic in neighboring cities can be attributed to growth in Chandler. Nevertheless, this update continues the City's traditional adjustment for pass-through traffic. The costs per service unit have already reduced to account for pass-through traffic. Consequently, no additional offsets are warranted and the net cost per service unit is the same as the cost per service unit calculated above.

Potential System Development Fees

The updated arterial street system development fees that may be adopted by the City based on this study is the product of the number of service units (EDUs) generated by a unit of development and the net cost per service unit calculated above. The resulting fee schedule is presented in Table 22.

Table 22. Arterial Street Net Cost Schedule

Land Use Type	Unit	EDUs/ Unit	Net Cost/ EDU	Net Cost/ Unit
Single-Family	Dwelling	1.000	$3,548	$3,548
Multi-Family	Dwelling	0.620	$3,548	$2,200
Retail/Commercial	Sq. Foot	0.001060	$3,548	$3.76
Office	Sq. Foot	0.001118	$3,548	$3.96
Industrial/Warehouse	Sq. Foot	0.000590	$3,548	$2.09
Public/Institutional	Sq. Foot	0.000370	$3,548	$1.31

Source: EDUs per unit from Table 9 (nonresidential divided by 1,000 to convert from per 1,000 sq. ft. to one square foot); net cost per EDU is lowest cost per EDU from Table 21.

The updated arterial street system development fees are compared to the City's current fees in Table 23. The comparison is somewhat complicated by the fact that the City currently subsidizes retail and office fees for some uses. Retail fees are subsidized for all uses, but the amount of the subsidy depends on the use (a lower subsidized fee applies to retail uses with lower than average trip generation rates). A subsidy for office uses is provided for Class A space with a minimum of 50,000 square feet in one building, but the size criteria is rarely met and the subsidized fee is not shown. In general, the updated fees are lower for all land uses. Given the significantly lower retail and office fees, the City may want to reconsider whether there is a need to continue the general fund subsidy for these uses.

Table 23. Current and Updated Arterial Street Fees

		Current Fee		Updated	% Change From	
Land Use Type	Unit	Full Fee	Subsidized	Fee	Full Fee	Subsidized
Single-Family	Dwelling	$3,983	$3,983	$3,548	-11%	-11%
Multi-Family	Dwelling	$2,446	$2,446	$2,200	-10%	-10%
Retail/Commercial *	Sq. Foot	$14.79	$7.39	$3.76	-75%	-49%
Office	Sq. Foot	$5.88	$5.88	$3.96	-33%	-33%
Industrial/Warehouse	Sq. Foot	$2.63	$2.63	$2.09	-21%	-21%
Public/Institutional	Sq. Foot	$1.66	$1.66	$1.31	-21%	-21%

* a greater general fund subsidy is available for retail uses that generate fewer than 3 peak hour trips per 1,000 sq. ft. to bring fee down to $3.69 per square foot

Source: Current fees from City of Chandler City Code, Chapter 38; updated fees from Table 22.

Capital Plan

Assuming that growth occurs as projected in the land use assumptions, the City plans to fund approximately $72.8 million in growth-related costs related to the major road system over the next ten years, as summarized in Table 24.

It should be noted that the timing of individual improvements will be dependent on the pace and location of development that actually occurs, and not all of the planned improvements will necessarily be needed in the next ten years. Some of the improvements may be constructed by developers in return for credits against their arterial street system development fees.

Table 24. Arterial Street Capital Plan, 2013-2023

Improvement	10-Year Total Cost	Regional Funding	City Cost
Alma School Rd, Loop 202 to Queen Creek	$908,000	$0	$908,000
Chandler Hts Rd, Arizona Ave to McQueen Rd	$11,104,950	-$11,069,000	$35,950
Cooper Rd, Queen Creek Rd to Riggs Rd	$17,983,375	$0	$17,983,375
Gilbert Rd, Wood Dr to Hunt Hwy	$7,662,000	-$12,354,000	-$4,692,000
McQueen Rd, Ocotillo Rd to Riggs Rd	$9,959,350	-$6,483,000	$3,476,350
Ocotillo Rd, Cooper to 148th St	$17,979,000	-$9,684,000	$8,295,000
Queen Creek Rd, Airport to Gilbert Rd	$17,234,500	-$7,448,000	$9,786,500
Subtotal, Planned Improvements, 2013-2023	$82,831,175	-$47,038,000	$35,793,175
2006 GO Debt Principal for Arizona Ave., Ray- Elliot, 2013-2023	$2,818,564	$0	$2,818,564
2009 GO Debt Principal for Arterial Street Widening Projects, 2013-2023	$14,407,014	$0	$14,407,014
FY 2006 Interfund Loan for Germann Rd, Price Rd to Arizona Ave	$1,042,042	$0	$1,042,042
FY 2006 Interfund Loan for Pecos Rd, McQueen Rd to Gilbert Rd	$863,243	$0	$863,243
FY 2006 Interfund Loan for Cooper Rd, Consol. Canal to Germann Rd	$763,830	$0	$763,830
FY 2006 Interfund Loan for Riggs Rd, Gilbert Rd to Val Vista Dr	$145,185	$0	$145,185
Encumbrances for Germann Rd-Price Rd to Arizona Ave	$138	$0	$138
Encumbrances for Gilbert Rd - Germann to Queen Creek	$146	$0	$146
Encumbrances for Gilbert Road -Queen Creek to Hunt Hwy	$11,467,262	$0	$11,467,262
Encumbrances for McQueen Rd - Queen Creek to Riggs	$853,538	$0	$853,538
Encumbrances for Ocotillo Rd -Arizona to McQueen	$4,622,488	$0	$4,622,488
Encumbrances for Traffic Signals	$224	$0	$224
Encumbrances for Current Fee Study Update	$8,696	$0	$8,696
Required System Development Fee Studies, 2013-2023	$27,256	$0	$27,256
Total	$119,850,800	-$47,038,000	$72,812,800

Source: Planned improvements and costs from Table 14; regional funding from Table 18; outstanding eligible debt from Table 129; interfund loans from Table 128; encumbrances from Table 131; study update cost from Table 132.

If the updated fees are adopted at 100%, potential arterial street system development fee revenue over the next ten years, based on new development anticipated by the land use assumptions, plus the current account balance would total $72.8 million in available funds, as shown in Table 25. Anticipated arterial street system development fee revenues plus the current arterial street fund balance should be sufficient to cover virtually all of the future costs (as would be expected, since the updated fees are based on the ten-year cost per service unit). The revenue projection includes the value of any developer contributions toward the cost of planned improvements, for which developers will be given credit against their system development fees.

Table 25. Potential Arterial Street Fee Revenue

	2013-2023	2013-Buildout
New Arterial Street EDUs	13,445	35,367
x Net Cost per EDU	$3,548	$3,548
Potential Revenue	$47,702,711	$125,481,967
Current Fund Balance	$25,115,172	$25,115,172
Total System Development Funds Available	$72,817,883	$150,597,139
÷ Planned Expenditures	$72,812,800	$205,813,852
Percent of Costs Covered by Arterial Street Fees	100%	73%

Source: New EDUs from Table 11; net cost per EDU is lowest cost per EDU from Table 21.

By buildout, however, system development fee revenues plus the current cash balance would be sufficient to cover only 73% of total City costs. The shortfall is due to the fact that the updated fees are based on the ten-year cost per service unit, which is lower than the buildout cost per service unit. This reflects the fact that the City has not programmed enough improvements over the next ten

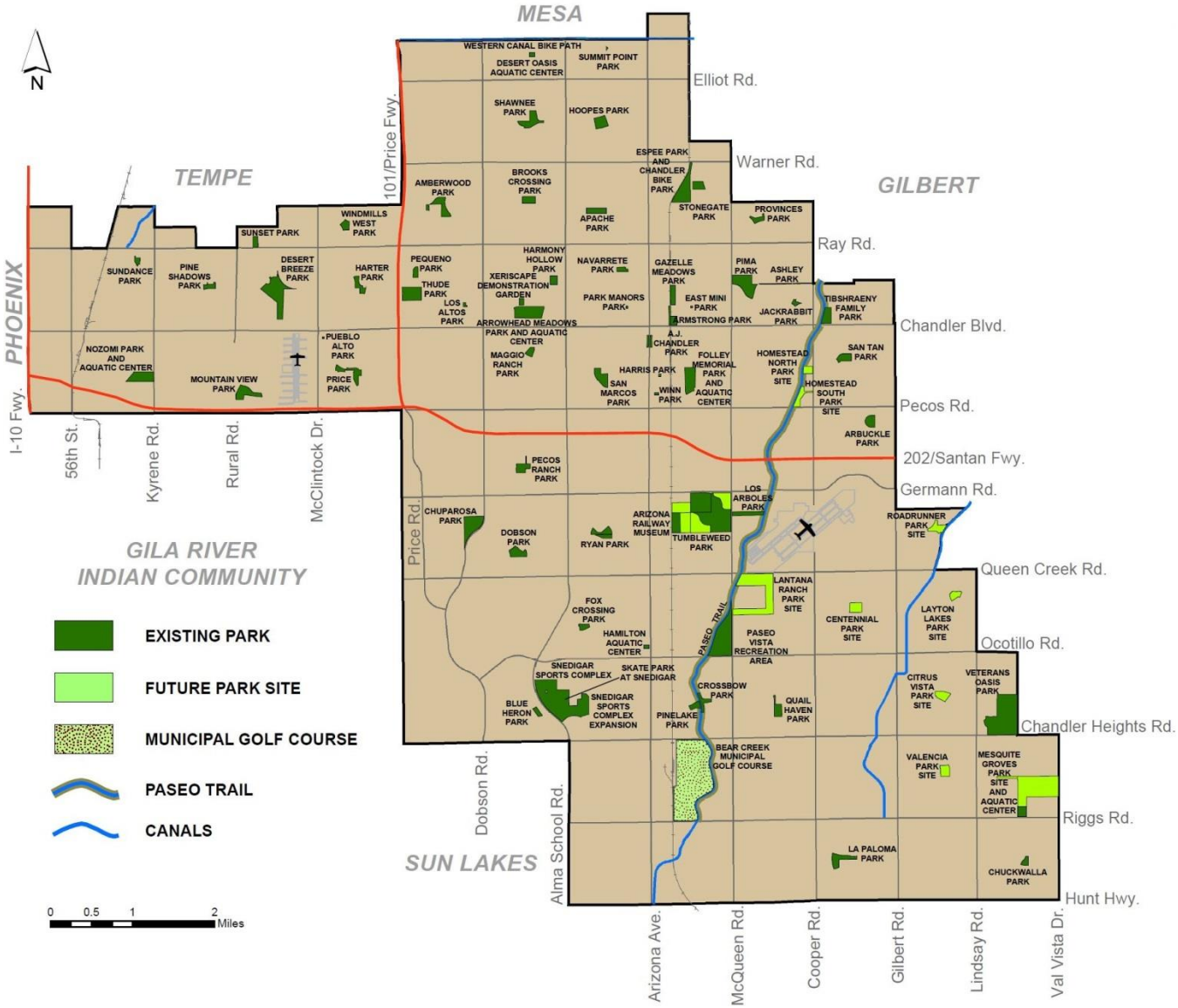
years, proportional to the projected growth to buildout, on which it could spend the revenue that would be generated by the buildout cost per service unit.

PARKS

The City of Chandler adopted a community park system development fee in 1997 and a neighborhood park system development fee in 2005. In 2008, the neighborhood and community park fees were combined into a single park fee. This section updates the City's park system development fees in compliance with the new Arizona impact fee enabling act for municipalities.

The locations of existing and planned parks are illustrated in Figure 8. An inventory of existing parks, including name, park classification, service area and developed and undeveloped acreage, is presented in Table 124 in Appendix B.

Figure 8. Existing and Planned Parks



Service Units

As described in the Service Unit section of the Legal Framework, the service unit for all of updated fees will be the Equivalent Dwelling Unit, or EDU, which represents the demand for facilities of a typical single-family dwelling unit.

SB 1525 provides that "… the fees shall be assessed against commercial, residential and industrial development, except that the municipality may distinguish between different categories of residential, commercial and industrial development in assessing the costs to the municipality of providing necessary public services to new development and in determining the amount of the development fee applicable to the category of development." (9-463.05.C.12, A.R.S.) Park impact fees are traditionally only assessed on residential development, because there is a much clearer nexus between the number of residents and the demand for park facilities than is the case for nonresidential development. Any additional demand on park facilities attributable to nonresidential development would come from nonresidents who work in the city using parks during their lunch breaks or on company-sponsored events, and is likely to be relatively insignificant. Consequently, the park fees will continue to be assessed only on residential development.

A single-family unit is by definition one park service unit (equivalent dwelling unit or EDU). The number of service units associated with other housing types is determined by dividing the average household size by the average household size of a single-family unit. Average household size (the ratio of household population to occupied units) is preferable as the basis of the service unit to persons per unit (the ratio of household population to total units), because it eliminates the volatile factor of occupancy rates. The resulting service unit multipliers are presented in Table 26.

Table 26. Park Service Unit Multipliers

Housing Type	Avg. HH Size	EDUs/ Unit
Single-Family	2.88	1.000
Multi-Family	2.06	0.715

Source: Average household size (AHHS) from Table 125; EDUs per unit is ratio of AHHS to single-family AHHS.

The number of service units in each of the three park service areas can be determined by multiplying the number of housing units by the service unit multipliers for each housing type and summing for the area. Existing and projected service units (EDUs) are calculated in Table 27.

Table 27. Park Service Units, 2013-2023

	Northwest			Northeast			Southeast			City-Wide
	Single-Family	Multi-Family	Total	Single-Family	Multi-Family	Total	Single-Family	Multi-Family	Total	Total
EDUs/Unit	1.000	0.715	na	1.000	0.715	na	1.000	0.715	na	n/a
2013 Units	11,930	3,491	15,421	34,325	14,566	48,891	29,188	4,427	33,615	97,927
2013 EDUs	11,930	2,496	14,426	34,325	10,415	44,740	29,188	3,165	32,353	91,519
2023 Units	11,938	3,832	15,770	34,604	15,660	50,264	31,511	7,236	38,747	104,781
2023 EDUs	11,938	2,740	14,678	34,604	11,197	45,801	31,511	5,174	36,685	97,164
Buildout Units	11,962	4,854	16,816	35,442	18,940	54,382	33,928	10,160	44,088	115,286
Buildout EDUs	11,962	3,471	15,433	35,442	13,542	48,984	33,928	7,264	41,192	105,609
New EDUs, 2013-2023			252			1,061			4,332	5,645
New EDUs, 2013-Buildout			1,007			4,244			8,839	14,090

Source: EDUs per unit from Table 26; units from Table 6; EDUs are product of units and EDUs/unit.

Cost per Service Unit

As described in the Methodology section of the Legal Framework, the updated system development fees will be based on the lowest of three costs per service units: existing level of service, ten-year cost and buildout cost.

Existing Level of Service

SB 1525 limits park impact fees to "neighborhood parks," an undefined term that excludes parks larger than 30 acres in size, unless a larger park can be shown to provide a "direct benefit" to development. SB 1525 also excludes a number of park improvements from being funded with park impact fees, including

> … *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.*

According to SB 1525, impact fees cannot be based on a level of service that exceeds the level of service currently being provided to existing development. For park facilities, the existing level of service will be quantified in terms of the replacement value of existing eligible park facilities per service unit.

A key component of the park level of service is the cost of land. Recent and planned park land acquisitions are all located in the Southeast service area, where land is the cheapest of the three service areas. The City's most recent park land purchase in this area, completed in May 2013, cost $117,545 per acre, as shown in Table 28. This is considerably lower than the $236,694 per acre cost used in the 2008 update, and is the land cost that will be used in this update.

Table 28. Park Land Cost per Acre

Centennial Park Site	$353,433
÷ Acres	3.0068
Cost per Acre	$117,545

Source: City of Chandler, July 15, 2013.

Pursuant to SB 1525, only the first 3,000 square feet of recreation centers are eligible to be funded with impact fees. The City has two recreation centers, both located in the Southeast service area. The total costs of these facilities and the eligible costs are shown in Table 29.

Table 29. Eligible Recreation Center Costs

Recreation Center	Service Area	Sq. Feet	Total Cost	Eligible Cost
Snediger Park Recreation Center	SE	11,300	$986,580	$261,924
Tumbleweed Recreation Center	SE	62,000	$14,443,003	$698,855
Total		73,300	$15,429,583	$960,779

Source: Square feet and costs from City of Chandler, May 29, 2013; eligible cost is pro rata share for 3,000 sq. ft.

SB 1525 prohibits aquatic centers, but allows swimming pools. This poses some problems of interpretation, since aquatic centers include swimming pools. The Arizona League of Cities and Towns proposes the following definition of an excluded aquatic center:

> *A facility primarily designed to host non-recreational competitive functions generally occurring within water, including, but not limited to, water polo games, swimming meets, and diving events. Such facility may be indoors, outdoors, or any combination thereof, and includes all necessary supporting amenities, including but not limited to, locker rooms, offices, snack bars, bleacher seating, and shade structures.*

While some of the City's swimming facilities are called "aquatic centers," they do not meet the League of Cities and Town's definition of an aquatic center, because they are not designed primarily for non-recreational competitive functions. Nevertheless, the approach that will be used is to charge only for the pool itself, without the cost of associated amenities. The replacement cost of existing pools is estimated based on the cost per square foot of water surface area for the City's most recently-constructed pool in the Mesquite Groves Aquatic Center. The cost of a pool itself is estimated to be $322 per square foot of water surface area, as shown in Table 30.

Table 30. Mesquite Groves Pool Cost per Square Foot

Pool Cost (including pumphouse)	$3,439,477
Other Water Features Cost	$778,663
Building Cost (excluding pumphouse)	$1,352,377
Total Building/Pool Costs	$5,570,517
Site Work/Contingency/Indirect Costs	$3,296,901
x Pool Share of Building/Pool Costs	61.7%
Pool-Related Other Cost	$2,034,188
Total Pool Cost	$5,473,665
÷ Water Surface Area (sq. feet)	17,002
Pool Cost per Square Foot of Water Area	$322

Source: City of Chandler, Mesquite Groves' aquatic center cost sheet, June 2, 2008; pumphouse share of total building costs based on 3,625 out of 9,759 total sq. ft., per Chandler Parks and Recreation, October 7, 2011; total pool cost is pool cost plus pool-related other cost; square feet from City of Chandler Park Development and Operations Division, July 22, 2013.

Multiplying the water area of each pool by the recent cost per square foot calculated above yields the following replacement costs for the City's existing swimming pools.

Table 31. Swimming Pool Replacement Costs

Swimming Facility	Service Area	Water Sq. Feet	Cost per Sq. Foot	Pool Cost
Arrowhead Pool	NE	21,064	$322	$6,782,608
Desert Oasis Aquatic Center	NE	8,880	$322	$2,859,360
Folley Pool	NE	5,703	$322	$1,836,366
Hamilton Aquatic Center	SE	12,040	$322	$3,876,880
Mesquite Groves Aquatic Center	SE	17,002	$322	$5,474,644
Nozomi Aquatic Center	NW	12,468	$322	$4,014,696
Total Pool Cost				$24,844,554

Source: Square feet of water surface area from City of Chandler Park Development and Operations Division, July 22, 2013; cost per sq. ft. from Table 30.

The replacement cost of existing facilities in each of the three park service area can be determined based on the existing park inventory in Appendix B, the unit costs for land acquisition and swimming pools, eligible recreation center costs and the average cost per acre to develop neighborhood and community parks. The total replacement values of existing land and facilities serving the three park service areas are shown in Table 32.

Table 32. Existing Park Facility Replacement Costs

	Neighborhood Park	Community Park	Total
NW Total Eligible Acres			110.44
x Land Cost/Acre			$117,545
NW Eligible Land Value			$12,981,670
NW Developed Eligible Acres	60.44	50.00	n/a
x Development Cost/Acre	$184,508	$227,200	n/a
NW Eligible Development Cost	$11,151,664	$11,360,000	$22,511,664
NW Eligible Amenity Cost			$4,014,696
NW Total Eligible Cost			$39,508,030
NE Total Eligible Acres			310.78
x Land Cost/Acre			$117,545
NE Eligible Land Value			$36,530,635
NE Developed Eligible Acres	178.36	113.92	n/a
x Development Cost/Acre	$184,508	$227,200	n/a
NE Eligible Development Cost	$32,908,847	$25,882,624	$58,791,471
NE Eligible Amenity Cost			$11,478,334
NE Total Eligible Cost			$106,800,440
SE Total Eligible Acres			323.51
x Land Cost/Acre			$117,545
SE Eligible Land Value			$38,026,983
SE Developed Eligible Acres	97.19	124.00	n/a
x Development Cost/Acre	$184,508	$227,200	n/a
SE Eligible Development Cost	$17,932,333	$28,172,800	$46,105,133
SE Eligible Amenity Cost			$10,312,303
SE Total Eligible Cost			$94,444,419

Source: Total and developed eligible acres from existing park inventory in Table 124 in the Appendix; land cost per acre from Table 28; neighborhood and community park development costs per acre from City of Chandler Park Development and Operations Division, July 22, 2013; amenity costs are recreation center costs from Table 29 plus pool costs from Table 31.

The existing levels of service in the three park service area can be expressed in terms of current cost per service unit. However, in addition to eligible costs of existing facilities, current fund balances and future fund obligations must also be taken into consideration. Outstanding debt on past park improvements that is eligible for system development fee funding is summarized in Table 33.

Table 33. Outstanding Park Debt

Eligible Capacity Improvements	Issue	Service Area	Outstanding Principal Capacity	Outstanding Principal Eligible	Eligible 2013-2023
Community Park Development	2003 GO	City-Wide	$999,999	$999,999	$999,999
Community Park Development & Continued Dev't	2003 GO Ref.	City-Wide	$493,468	$493,468	$493,468
Community Park Land Acquisition & Development	2003 GO Ref.	City-Wide	$1,059,210	$1,059,210	$1,059,210
Snedigar Sportsplex (90.37 ac.)	2003 GO Ref.	SE	$418,048	$138,779	$138,779
Snedigar Sports Complex (90.37 ac.)	2005 GO	SE	$250,000	$82,992	$82,992
Recreation Center	2006 GO	SE	$12,991,251	$628,609	$628,609
Snedigar Sportsplex (90.37 ac.)	2007 GO	SE	$3,342,184	$1,109,500	$454,397
Paseo Vista Recreational Area (66 ac.)	2007 GO	SE	$12,851,501	$5,841,591	$2,392,429
Desert Breeze Park Expansion (41.37 ac.)	2007 GO	NW	$47,488	$34,437	$14,104
Community Park Development	2007 GO	City-Wide	$92,274	$92,274	$37,790
Lantana Ranch (70 ac.)	2007 GO	SE	$200,000	$85,714	$35,105
Mesquite Groves Park Site (104.4 ac.-pledged)	2007 GO	SE	$8,248,052	$2,370,130	$970,689
Veteran's Oasis Park Site (113 ac.-pledged)	2007 GO	SE	$8,683,697	$2,305,406	$944,181
Lantana Ranch (70 ac.-pledged)	2007 GO	SE	$933,251	$399,965	$163,805
Layton Lakes NH Park Land Acquisition	2007 GO	SE	$531,149	$531,149	$217,531
Chandler Aquatic Facility	2007 GO Ref.	NE	$2,490,000	$2,490,000	$2,490,000
Comm. Park Land Acquistion and Development	2007 GO Ref.	City-Wide	$6,501,851	$6,501,851	$6,501,851
Snedigar Sports Complex Development (90.37 ac.)	2007 GO Ref.	SE	$197,234	$65,475	$65,475
Community Park Development	2007 GO Ref.	City-Wide	$1,743,750	$1,743,750	$1,743,750
Snedigar Sports Complex (90.37 ac.)	2007 GO Ref.	SE	$6,319	$2,098	$2,098
Lantana Ranch (70 ac.)	2009 GO	SE	$147,923	$63,396	$22,872
Ryan & Canal Sites, Roadrunner, Future Park Dev't	2009 GO	SE	$1,961,615	$1,961,615	$707,694
Community Park Development	2011B GO Ref.	City-Wide	$831,526	$831,526	$831,526
Snedigar Sports Complex (90.37 ac.)	2011B GO Ref.	SE	$5,099	$1,693	$1,693
Chandler Aquatic Facility	2011B GO Ref.	NE	$1,115,000	$1,115,000	$1,115,000
Subtotal, Northwest Service Area			$1,895,221	$1,882,170	$1,853,249
Subtotal, Northeast Service Area			$9,335,458	$9,335,458	$9,308,823
Subtotal, Southeast Service Area			$54,911,210	$19,731,999	$10,952,975
Total Parks			$66,141,889	$30,949,627	$22,115,047

Source: Based on outstanding GO debt allocations from City of Chandler Budget Division, outstanding debt as of June 30, 2013, capacity debt is total outstanding debt attributable to the project, eligible debt is the portion of the debt that is eligible after January 1, 2012 according to SB 1525, eligible 2013-2023 is eligible debt principal that will come due in fiscal years 2014 through 2023, city-wide debt allocated by service area proportionate to existing service units from Table 27.

The existing levels of service in the three park service areas are calculated in Table 34. The capital investment represented by existing facilities and current fund balances is reduced to account for outstanding debt that will be paid by future system development fees. The city-wide level of service is shown for reference only.

Table 34. Existing Park Levels of Service

	Northwest	Northeast	Southeast	City-Wide
Existing Eligible Cost	$39,508,030	$106,800,440	$94,444,419	$240,752,889
– Outstanding Eligible Debt	-$1,882,170	-$9,335,458	-$19,731,999	-$30,949,627
Current Fund Balance	$546,191	$2,299,637	$9,389,280	$12,235,108
Net Eligible Cost	$38,172,051	$99,764,619	$84,101,700	$222,038,370
÷ Existing EDUs	14,426	44,740	32,353	91,519
Existing LOS (Cost/EDU)	$2,646	$2,230	$2,600	$2,426

Source: Eligible park costs from Table 32; eligible debt from Table 33; city-wide fund balance from Table 128 allocated by service area based on relative 2013-2023 growth in EDUs; existing EDUs from Table 27.

Ten-Year Cost per Service Unit

The ten-year cost per service unit represents costs that will be incurred by the City over the next ten years to build new capacity to serve anticipated development in the city, to repay outstanding debt associated with existing capacity available to serve new development, to pay encumbrances for projects under construction, and to pay for updated studies. The results are shown in Table 35. The city-wide costs are shown for reference only.

Table 35. Park Ten-Year Cost per Service Unit

	Northwest	Northeast	Southeast	City-Wide
Homestead N Park Development (7.6 ac)	$0	$1,411,692	$0	$1,411,692
Centennial Park Development (10.88 ac.)	$0	$0	$2,294,325	$2,294,325
Valencia Park Development (9.34 ac.)	$0	$0	$1,845,200	$1,845,200
Citrus Vista Park Development (10.02 ac.)	$0	$0	$1,848,694	$1,848,694
Layton Lakes Park Development (7.11 ac.)	$0	$0	$1,323,209	$1,323,209
Subtotal, Planned Improvements	$0	$1,411,692	$7,311,428	$8,723,120
Eligible Debt Principal Payments, 2013-2023	$1,853,249	$9,308,823	$10,952,975	$22,115,047
Interfund Loan Obligations	$0	$0	$0	$0
Encumbrances for Projects Under Construction	$2,683	$8,769	$1,234,116	$1,245,568
Required System Development Fee Studies	$1,217	$5,123	$20,916	$27,256
– Fund Balance	-$546,191	-$2,299,637	-$9,389,280	-$12,235,108
Total Revenue Needs	$1,310,958	$8,434,770	$10,130,155	$19,875,883
÷ New Service Units (EDUs), 2013-2023	252	1,061	4,332	5,645
Ten-Year Cost per Service Unit (EDU)	$5,202	$7,950	$2,338	$3,521

Source: Planned improvement costs (in 2013 dollars) from City of Chandler Park Development and Operations Division, August 2013; debt payments from Table 33; encumbrances from Table 131 (neighborhood park land acquisition allocated by service area based on 2013 EDUs, study cost allocated based on 2013-2023 new EDUs); study cost from Table 132 (allocated by service area based on 2013-2023 new EDUs); fund balance from Table 128 (allocated by service area based on 2013-2023 new EDUs); service units from Table 27.

Buildout Cost per Service Unit

The buildout cost per service unit represents costs that will be incurred by the City to buildout to build capacity to serve anticipated development in the city, to repay outstanding debt associated with existing capacity to serve new development, to pay encumbrances for projects under construction, and to pay for updated studies. The results are shown in Table 36 for each of the three park service areas. The city-wide costs are shown for reference only.

Table 36. Park Buildout Cost per Service Unit

	Northwest	Northeast	Southeast	City-Wide
Homestead N Park Development (7.6 ac)	$0	$1,411,692	$0	$1,411,692
Centennial Park Development (10.88 ac.)	$0	$0	$2,294,325	$2,294,325
Valencia Park Development (9.34 ac.)	$0	$0	$1,845,200	$1,845,200
Citrus Vista Park Development (10.02 ac.)	$0	$0	$1,848,694	$1,848,694
Layton Lakes Park Development (7.11 ac.)	$0	$0	$1,323,209	$1,323,209
Homestead S Park Development (10.9 ac.)	$0	$2,011,137	$0	$2,011,137
Lantana Ranch Park Development (30 ac.)	$0	$0	$6,816,000	$6,816,000
Mesquite Groves Park Development (24 ac.)	$0	$0	$5,452,800	$5,452,800
Subtotal, Planned Improvements	$0	$3,422,829	$19,580,228	$23,003,057
Eligible Debt Principal Payments, 2013-Buildout	$1,882,170	$9,335,458	$19,731,999	$30,949,627
Interfund Loan Obligations	$0	$0	$0	$0
Encumbrances for Projects Under Construction	$2,683	$8,769	$1,234,116	$1,245,568
Required System Development Fee Studies	$3,650	$15,369	$62,749	$81,768
– Fund Balance	-$546,191	-$2,299,637	-$9,389,280	-$12,235,108
Total Revenue Needs	$1,342,312	$10,482,788	$31,219,812	$43,044,912
÷ New Service Units (EDUs), 2013-Buildout	1,007	4,244	8,839	14,090
Buildout Cost per Service Unit (EDU)	$1,333	$2,470	$3,532	$3,055

Source: Planned improvement costs (in 2013 dollars) from City of Chandler Park Development and Operations Division, August 2013; debt payments from Table 33; encumbrances from Table 131 (neighborhood park land acquisition allocated by service area based on 2013 EDUs, park SDF consultant allocated based on 2013-2023 new EDUs); study cost from Table 132 (allocated by service area based on 2013-2023 new EDUs); fund balance from Table 128 (allocated by service area based on 2013-2023 new EDUs); service units from Table 27.

Cost per Service Unit Summary

The three costs per service unit calculated above are summarized in Table 37. The updated system development fees will be based on the buildout cost per service unit for the Northwest service area, the existing cost per service unit for the Northeast service area and the ten-year cost per service unit for the Southeast service area. The city-wide costs per service unit are shown for reference only.

Table 37. Park Cost per Service Unit

	Northwest	Northeast	Southeast	City-Wide
Existing Cost per Service Unit	$2,646	$2,230	$2,600	$2,426
Ten-Year Cost per Service Unit	$5,202	$7,950	$2,338	$3,521
Buildout Cost per Service Unit	$1,333	$2,470	$3,532	$3,055
Lowest Cost per Service Unit	$1,333	$2,230	$2,338	$2,426

Source: Existing from Table 34; ten-year from Table 35; buildout from Table 36.

Net Cost per Service Unit

As noted in the Legal Framework section of this report, impact fees should be reduced (or "offset") in order to account for other types of revenues that will be generated by new development and used to fund capacity-expanding improvements of the same type as those to be funded by the impact fees. Cases in which such an offset is warranted include funding of existing deficiencies, outstanding debt payments on existing facilities, and dedicated revenue sources to fund growth-related improvements.

The parks system development fees calculated in this report are based on the existing level of service (unless the ten-year or buildout cost per service unit is lower), so there are no existing deficiencies.

Other than system development fees, the City has no dedicated source of revenue to fund growth-related parks improvements. The City has not received any grant funding for park improvements in recent years, and does not anticipate any grants over the next ten years.

The City has funded park improvements with system development fees or using general fund revenues, either on a pay-go basis or to retire debt. The updated fees for the Northeast service area are based on the existing level of service, which has been reduced to account for outstanding debt used to build some existing capacity that will serve future development. The updated fees for the Northwest and Southeast service areas are based on the buildout and ten-year costs per service unit, respectively, which appropriately include the payment of outstanding debt on eligible park facilities with capacity to serve growth. Future system development fees can be used to retire that debt without raising double-payment issues. Consequently, no additional offsets are warranted, and the cost per service unit calculated above is the same as the net cost per service unit.

In addition to the costs per service unit calculated thus far, which are only for costs that are eligible to be paid by system development fees on or after January 1, 2012, the City also has pledged system development fees to pay for outstanding debt on three parks, portions of which are no longer eligible for fee funding. SB 1525 allows cities to recover the costs of pledged debt that was issued prior to June 1, 2011 for improvements that became ineligible on January 1, 2012. The City's debt pledges meet this requirement, since the debt for all three improvements was issued in 2007.

All three of the parks for which debt is pledged exceed 30 acres in size, meaning that only a portion of the pledged debt is for eligible facilities. As shown in Table 38 below, about $12.8 million of the pledged debt is for improvement costs that are no longer eligible to be recovered by system development fees updated on or after January 1, 2012. These debt costs have not been included in the costs per service unit calculated above. Because these pledges were made before the City had multiple park service areas, they are appropriately recovered from all new development city-wide. Dividing the outstanding ineligible pledged debt by the city-wide new service units to buildout results in a cost per service unit of $908 per EDU.

Table 38. Park Pledged Debt Cost per Service Unit

	Mesquite Groves	Veteran's Oasis	Lantana Ranch	Total	New EDUs	Cost/ EDU
Eligible Acres	30.00	30.00	30.00	n/a	n/a	n/a
÷ Total Acres	104.40	113.00	70.00	n/a	n/a	n/a
Eligible Percent	28.7%	26.5%	42.9%	n/a	n/a	n/a
Ineligible Percent	71.3%	73.5%	57.1%	n/a	n/a	n/a
x Total Outstanding Debt	$8,248,052	$8,683,697	$933,251	n/a	n/a	n/a
Total Ineligible Pledged Debt	$5,877,922	$6,378,291	$533,286	$12,789,499	14,090	$908

Source: Eligible and total acres from existing park inventory (see Table 124 in Appendix B); outstanding debt from Table 33; new city-wide EDUs from Table 27.

Adding the pledged debt cost per service unit to the cost per service unit for improvements that continue to be eligible under SB 1525 results in the following net costs per service unit shown in Table 39. The city-wide cost per service unit is shown for reference only.

Table 39. Park Net Cost per Service Unit

	Northwest	Northeast	Southeast	City-Wide
Eligible Cost per Service Unit	$1,333	$2,230	$2,338	$2,426
Pledged Debt Cost per Service Unit	$908	$908	$908	$908
Total Cost per Service Unit	$2,241	$3,138	$3,246	$3,334

Source: Eligible cost per service unit from Table 37; pledged debt cost per service unit for improvements no longer eligible under SB 1525 from Table 38.

Potential System Development Fees

The updated parks system development fees that may be adopted by the City based on this study is the product of the number of service units generated by a unit of development and the net cost per service unit calculated above. The resulting fee schedule is presented in Table 40.

Table 40. Park Net Cost Schedule

	Northwest	Northeast	Southeast
Single-Family EDUs per Dwelling Unit	1.000	1.000	1.000
Multi-Family EDUs per Dwelling Unit	0.715	0.715	0.715
x Net Cost per Service Unit	$2,241	$3,138	$3,246
Single-Family Fee per Dwelling Unit	$2,241	$3,138	$3,246
Multi-Family Fee per Dwelling Unit	$1,602	$2,244	$2,321

Source: EDUs per unit from Table 26; net cost per EDU Table 39.

The updated park fees are compared to current fees in Table 41. The updated park fee for a single-family unit is 40% lower than the current city-wide fee for the Northwest service area, 16% lower for the Northeast and 13% lower for the Southeast. The fee changes are similar for multi-family units.

Table 41. Current and Updated Park System Development Fees

	Northwest	Northeast	Southeast
Updated Single-Family Fee per Dwelling Unit	$2,241	$3,138	$3,246
Current Single-Family Fee per Dwelling Unit	$3,740	$3,740	$3,740
Percent Change	-40%	-16%	-13%
Updated Multi-Family Fee per Dwelling Unit	$1,602	$2,244	$2,321
Current Multi-Family Fee per Dwelling Unit	$2,865	$2,865	$2,865
Percent Change	-44%	-22%	-19%

Source: Current fees from City of Chandler, *System Development Fee Schedule*, effective January 1, 2012; updated fees from Table 40.

Capital Plan

Assuming that growth occurs as projected in the land use assumptions, the City plans to complete approximately $8.7 million in growth-related parks improvements over the next ten years, repay $22.1 in outstanding debt on existing improvements with excess capacity, pay $1.2 million in encumbrances on projects currently underway, and pay for a minimum of two update studies required by SB 1525, as summarized in Table 42. It should be noted that the timing of the planned improvements will be dependent on the pace and location of development that actually occurs, and not all of the planned improvements will necessarily be needed in the next ten years.

Table 42. Park Capital Plan, 2013-2023

	Northwest	Northeast	Southeast	City-Wide
Homestead N Park Development (7.6 ac)	$0	$1,411,692	$0	$1,411,692
Centennial Park Development (10.88 ac.)	$0	$0	$2,294,325	$2,294,325
Valencia Park Development (9.34 ac.)	$0	$0	$1,845,200	$1,845,200
Citrus Vista Park Development (10.02 ac.)	$0	$0	$1,848,694	$1,848,694
Layton Lakes Park Development (7.11 ac.)	$0	$0	$1,323,209	$1,323,209
Subtotal, Planned Projects	$0	$1,411,692	$7,311,428	$8,723,120
2003 GO Debt for Comm. Park Development	$157,628	$488,859	$353,511	$999,999
2003 Ref. GO Debt for Comm. Park Land/Dev't	$244,746	$759,043	$548,889	$1,552,678
2003 Ref. GO Debt for Snedigar Sportsplex	$0	$0	$138,779	$138,779
2005 GO Debt for Snedigar Sportsplex	$0	$0	$82,992	$82,992
2006 GO Debt for Recreation Center	$0	$0	$628,609	$628,609
2007 GO Debt, Paseo Vista Recreational Area	$0	$0	$2,392,429	$2,392,429
2007 GO Debt for Desert Breeze Park Expansion	$14,104	$0	$0	$14,104
2007 GO Debt for Lantana Ranch	$0	$0	$198,910	$198,910
2007 GO Debt for Mesquite Groves Park	$0	$0	$970,689	$970,689
2007 GO Debt for Snedigar Sportsplex	$0	$0	$454,397	$454,397
2007 GO Debt for Veteran's Oasis Park	$0	$0	$944,181	$944,181
2007 GO Debt for Layton Lakes Land Acquisition	$0	$0	$217,531	$217,531
2007 GO Debt for Comm. Park Land/Dev't	$5,957	$18,474	$13,359	$37,790
2007 Ref. GO Debt for Chandler Aquatic Facility	$2,490,000	$0	$0	$2,490,000
2007 GO Ref. Debt for Comm. Park Land/Dev't	$1,299,741	$4,030,946	$2,914,913	$8,245,601
2007 Ref. GO Debt for Snedigar Sportsplex	$0	$0	$67,573	$67,573
2009 GO Debt for Lantana Ranch	$0	$0	$22,872	$22,872
2009 GO Debt for Ryan & Canal Sites, Roadrunner	$0	$0	$707,694	$707,694
2011B GO Debt for Chandler Aquatic Facility	$1,115,000	$0	$0	$1,115,000
2011B GO Debt for Comm. Park Land/Dev't	$131,072	$406,500	$293,954	$831,526
2011B GO Debt for Snedigar Sportsplex	$0	$0	$1,693	$1,693
Subtotal, Outstanding Debt	$5,458,248	$5,703,822	$10,952,975	$22,115,047
Encumbrances for Mesquite Groves Park	$0	$0	$1,310	$1,310
Encumbrances for Lantana Ranch Park	$0	$0	$737	$737
Encumbrances for Neighborhood Park Land	$2,278	$7,064	$5,108	$14,450
Encumbrances for Roadrunner Park Site	$0	$0	$1,219,999	$1,219,999
Encumbrances for Park SDF Consultant	$405	$1,705	$6,962	$9,072
Subtotal, Encumbrances	$2,683	$8,769	$1,234,116	$1,245,568
Required System Development Fee Studies	$1,217	$5,123	$20,916	$27,256
Total Planned Expenditures	$5,462,148	$7,129,406	$19,519,435	$32,110,991

Source: Planned improvements from Table 35; debt principal payments due over the next ten years attributable to eligible improvements from Table 33; encumbrances from Table 131 (neighborhood park land acquisition allocated by service area based on 2013 EDUs, park SDF consultant allocated based on 2013-2023 new EDUs); study costs from Table 35 (allocated based on 2013-2023 new EDUs).

If the updated fees are adopted at 100%, projected parks system development fee revenue over the next ten years, based on new development anticipated by the land use assumptions, would be $12.8 million, city-wide. With the inclusion of the current fund balances, the City would have $25.1 million in system development fee funds available over the next ten years to pay for eligible park costs, as shown in Table 43. In addition, the portion of the fee that is earmarked for pledged debt would generate an additional $5.1 million over the next ten years to be used for this purpose. Projected buildout revenues shown in the bottom half of the table are for reference only. Park system development fee funds anticipated to be available over the next ten years for eligible improvements would cover approximately 78% of the total cost of planned ten-year expenditures.

Table 43. Potential Park System Development Fee Revenue

	Northwest	Northeast	Southeast	City-Wide
New Park EDUs, 2013-2023	252	1,061	4,332	5,645
x Eligible Cost per EDU	$1,333	$2,230	$2,338	n/a
Potential Revenue for Eligible Improvements	$335,916	$2,366,030	$10,128,216	$12,830,162
Current Fund Balance	$546,191	$2,299,637	$9,389,280	$12,235,108
Total Available for Eligible Improvements, 2013-2023	$882,107	$4,665,667	$19,517,496	$25,065,270
÷ Planned Expenditures	$5,462,148	$7,129,406	$19,519,435	$32,110,991
Percent of Eligible 10-Year Costs Covered by Park Fees	16%	65%	100%	78%
New Park EDUs, 2013-2023	252	1,061	4,332	5,645
x Pledged Debt Cost per EDU	$908	$908	$908	n/a
Revenue for Pledged Debt Repayment, 2013-2023	$228,816	$963,388	$3,933,456	$5,125,660
Total Park Funding Available, 2013-2023	$1,110,923	$5,629,055	$23,450,952	$30,190,930
New Park EDUs, 2013-Buildout	1,007	4,244	8,839	14,090
x Eligible Cost per EDU	$1,333	$2,230	$2,338	n/a
Potential Revenue for Eligible Improvements	$1,342,331	$9,464,120	$20,665,582	$31,472,033
Current Fund Balance	$546,191	$2,299,637	$9,389,280	$12,235,108
Total Available for Eligible Improvements, 2013-Buildout	$1,888,522	$11,763,757	$30,054,862	$43,707,141
÷ Planned Expenditures	$1,888,503	$12,782,425	$40,609,092	$55,280,020
Percent of Eligible Buildout Costs Covered by Park Fees	100%	92%	74%	79%
New Park EDUs, 2013-Buildout	1,007	4,244	8,839	14,090
x Pledged Debt Cost per EDU	$908	$908	$908	n/a
Revenue for Pledged Debt Repayment, 2013-Buildout	$914,356	$3,853,552	$8,025,812	$12,793,720
Total Park Funding Available, 2013-Buildout	$2,802,878	$15,617,309	$38,080,674	$56,500,861

Source: New service units from Table 27; eligible cost per EDU and pledged debt cost per EDU from Table 39; current fund balance from Table 34; 2013-2023 planned expenditures from Table 42; 2013-buildout expenditures from Table 36 (needed revenues plus fund balance).

LIBRARY

The City has no plans to build another library. The City's library system development fees were updated on January 1, 2012 to cover only the cost of retiring the pledged debt for the acquisition of the Sunset Branch Library. Fees that are used solely to retire debt issued prior to June 1, 2011 and pledged to be paid with future fee revenues are exempt under the terms of SB 1525 from the requirements to prepare infrastructure improvements plans, and may continue to be charged until the debt pledge is satisfied. Because the library fee is being retained solely to retire pledged debt, it would not be appropriate to modify the fee to charge it to nonresidential uses.

The City pledged future library system development fees to retire $1.29 million of the $5.71 million currently outstanding for the portion of the 2011A general obligations bonds used to acquire the Sunset branch. In the revisions to the fees that were adopted effective January 1, 2012, the City reduced its library fees to cover only the cost of this pledged debt. The analysis used to determine the current fee was to divide the amount of the pledged debt by the projected number of new service units to buildout calculated in the 2008 study.

While the City could simply continue to collect its current library fee until the pledged debt is retired, some adjustments to the fee may be warranted. The calculation of the current fee in late 2011 did not account for any existing fund balance (although library fees collected prior to January 1, 2012 could be used for retiring unpledged portions of the debt for the Sunset branch). In addition, the pledged debt was divided by new service units to buildout calculated in the 2008 study, which was the best information that was available at that time.

Updated fee calculations can now be made using information compiled for the other fee updates. Information is now available on current account balances, updated service unit multipliers and updated land use assumptions and buildout service units (the 2008 library methodology used the same multipliers and service unit projections as the park fee). Based on these inputs, the library cost per service unit could be updated as shown in Table 44.

Table 44. Updated Library Cost per Service Unit

Outstanding Pledged Debt	$1,290,000
– Current Fund Balance	-$428,543
Future Revenue Needed	$861,457
÷ New EDUs, 2013-Buildout	14,090
Cost per Service Unit	$61

Source: Outstanding pledged debt and fund balance (less encumbrances) from Table 128; new EDUs from Table 27.

The updated fees are compared to current fees in Table 45.

Table 45. Updated and Current Library System Development Fees

Land Use	EDUs/ Unit	Cost/ EDU	Updated Cost/Unit	Current Fee	Percent Change
Single-Family	1.000	$61	$61	$75	-18.7%
Multi-Family	0.715	$61	$44	$58	-24.1%

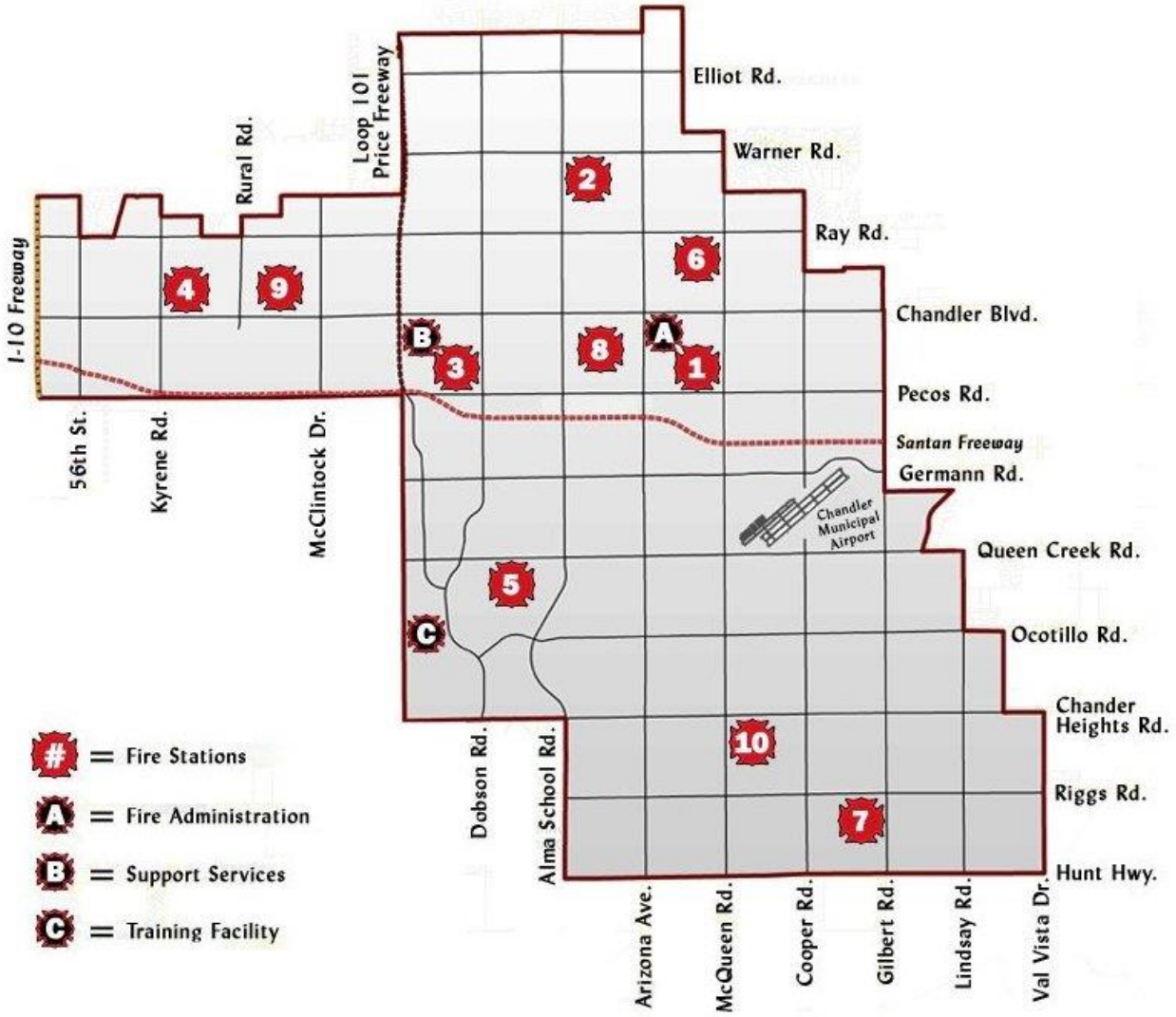
Source: EDUs per unit from Table 26; cost per EDU from Table 44; current fees from Table 1.

FIRE

This section updates the City's fire system development fees in compliance with the new Arizona impact fee enabling act for municipalities.

The Chandler Fire Department operates out of ten fire stations, a fire administration building and a support services facility. The locations of existing fire facilities are shown in Figure 9.

Figure 9. Location of Existing Fire Facilities



Service Units

Disparate types of development must be translated into a common unit of measurement that reflects the impact of new development on the demand for fire facilities. This unit of measurement is called a "service unit."

The two most common methodologies used in calculating public safety service units and impact fees are the "calls-for-service" approach and the "functional population" approach. A major problem with relying on call data is that it tends to be unstable over time. This means that fees often go up or down significantly for individual land uses each time the fees are updated. This update continues to use the "functional population" approach to calculate and assess the fire system development fees. This approach is a generally-accepted methodology for these impact fee types and is based on the observation that demand for public safety facilities tends to be proportional to the presence of people.

Similar to the concept of full-time equivalent employees, functional population represents the number of "full-time equivalent" people present at the site of a land use. Functional population represents the average number of equivalent persons present at the site of a land use for an entire 24-hour day. For residential development, functional population is simply average household size times the percent of time people spend at home. For nonresidential development, functional population is based on a formula that includes square feet per employee ratios, trip generation rates, average vehicle occupancy and average number of hours spent by employees and visitors at a land use. These all tend to be relatively stable characteristics that do not change significantly over short periods of time. Functional population multipliers by land use are calculated in Appendix C. The functional population multipliers are converted into service units (Equivalent Dwelling Units or EDUs), by dividing the functional population per unit for each land use type by the functional population for a single-family unit, as shown in Table 46.

Table 46. Fire Service Unit Multipliers

Land Use	Unit	Func. Pop./ Unit	EDUs/ Unit
Single-Family	Dwelling	1.93	1.000
Multi-Family	Dwelling	1.38	0.715
Retail/Commercial	1,000 sq. ft.	2.27	1.176
Office	1,000 sq. ft.	1.50	0.777
Industrial/Warehouse	1,000 sq. ft.	0.49	0.254
Public/Institutional	1,000 sq. ft.	0.68	0.352

Source: Functional population per unit from Table 126 (residential) and Table 127 (nonresidential) in Appendix C; EDUs per unit is functional population per unit divided by functional population per single-family unit.

The number of service units in the fire service area can be determined by multiplying the amount of development by the service unit multipliers for each land use type and summing for the area. Existing and projected service units (EDUs) are calculated in Table 47 for the 2013-2023 planning horizon and for buildout.

Table 47. Fire Service Units, 2013-Buildout

Land Use	Unit	Units	EDUs per Unit	EDUs
Single-Family	Dwelling	75,443	1.000	75,443
Multi-Family	Dwelling	22,484	0.715	16,076
Retail/Commercial	1,000 sq. ft.	17,098	1.176	20,107
Office	1,000 sq. ft.	6,624	0.777	5,147
Industrial/Warehouse	1,000 sq. ft.	29,610	0.254	7,521
Public/Instititional	1,000 sq. ft.	9,241	0.352	3,253
Total Service Units (EDUs), 2013				127,547
Single-Family	Dwelling	78,053	1.000	78,053
Multi-Family	Dwelling	26,728	0.715	19,111
Retail/Commercial	1,000 sq. ft.	21,325	1.176	25,078
Office	1,000 sq. ft.	10,530	0.777	8,182
Industrial/Warehouse	1,000 sq. ft.	38,692	0.254	9,828
Public/Instititional	1,000 sq. ft.	9,910	0.352	3,488
Total Service Units (EDUs), 2023				143,740
Single-Family	Dwelling	81,332	1.000	81,332
Multi-Family	Dwelling	33,954	0.715	24,277
Retail/Commercial	1,000 sq. ft.	23,137	1.176	27,209
Office	1,000 sq. ft.	14,596	0.777	11,341
Industrial/Warehouse	1,000 sq. ft.	54,837	0.254	13,929
Public/Instititional	1,000 sq. ft.	10,796	0.352	3,800
Total Service Units (EDUs), Buildout				161,888
New EDUs, 2013-2023				16,193
New EDUs, 2013-Buildout				34,341

Source: Units from Table 6 and Table 7; EDUs per unit from Table 46.

Cost per Service Unit

As described in the Methodology section of the Legal Framework, the updated system development fees will be based on the lowest of three costs per service units: existing level of service, ten-year cost and buildout cost.

Existing Level of Service

The cost per service unit to provide fire protection to new development is based on the existing level of service provided to existing development. The level of service is quantified as the ratio of the replacement cost of existing fire capital facilities to existing fire service units. The inventory of the City's existing fire facilities is provided in Table 48. The City's fire training facility has been excluded, as it is no longer eligible for fire impact fees under SB 1525. Replacement costs of existing facilities are estimated based on the construction cost per square foot for the most recent fire station and the land cost per acre of the City's most recent land purchase.

Table 48. Existing Fire Facilities

Facility	Year Built	Bldg. (s.f.)	Land (ac.)
Fire Station #1	1990	10,525	1.74
Fire Station #2	1985	7,228	2.91
Fire Station #3	1999	11,974	1.72
Fire Station #4	1985	7,328	1.85
Fire Station #5	1998	8,200	0.79
Fire Station #6	2002	8,000	1.54
Fire Station #7	2003	8,000	1.66
Fire Station #8	2004	9,434	1.84
Fire Station #9	2006	10,200	1.84
Fire Station #10	2008	10,264	2.81
Fire Administration Building	2009	18,700	1.35
Fire Maintenance Facility	1985	15,010	1.29
Total		124,863	21.34
x Unit Cost		$356	$117,545
Total Value		$44,451,230	$2,508,410

Source: Square feet from City of Chandler, Statement of Values, 2012-2013; acres from City of Chandler, February 12, 2012, cost per building square foot is original cost per square foot for Station #10; cost per acre is park land cost from Table 28.

In addition to land and buildings, fire services require firefighting apparatus. The City's current fire vehicles have a total replacement cost, based on current unit costs, of $10.9 million, as summarized in Table 49.

Table 49. Fire Apparatus

Equipment Type	Quantity	Unit Cost	Replacment Value
Engine	15	$496,642	$7,449,630
Ladder Truck, 95'	2	$1,215,823	$2,431,646
Ladder Truck, 75'	1	$47,000	$47,000
Heavy Rescue	1	$700,000	$700,000
Tanker/Utility	2	$130,000	$260,000
Total			$10,888,276

Source: City of Chandler, Statement of Values, December 5, 2012; unit costs based on insured value of most recently acquired vehicle, adjusted to 2012 dollars using the U.S. Department of Labor, CPI-U Consumer Price Index (All Urban Consumers), annual 2012 index = 229.594.

The existing level of service can be expressed in terms of current cost per service unit. However, in addition to the costs of existing facilities, current fund balances, outstanding debt on existing facilities and interfund loans to the system development fee fund from the general fund to pay for existing facilities must also be taken into consideration. The existing level of service is $412 per EDU, as shown in Table 50.

Table 50. Fire Existing Level of Service

Building Cost	$44,451,230
Land Cost	$2,508,410
Apparatus Cost	$10,888,276
Total Replacement Cost	$57,847,916
– Eligible Outstanding Debt	-$1,929,616
– Interfund Loan Obligations	-$7,123,657
Fund Balance	$3,798,929
Net Replacement Cost	$52,593,572
÷ Existing Service Units (EDUs)	127,547
Existing Level of Service (Cost per EDU)	$412

Source: Building and land cost from Table 48; apparatus cost from Table 49; outstanding debt from Table 129 in Appendix D; interfund loans from Table 130; fund balance from Table 128; existing (2013) EDUs from Table 47.

Ten-Year Cost per Service Unit

The City plans to construct all of the new capital improvements required to serve buildout over the next ten years. These include the relocation of Station #1 and the construction of a new fire station in the southeast part of the city. The City had originally planned to construct two new stations, but has determined that it can provide equivalent response times by relocating Fire Station #1 instead. Since improved response times are difficult to quantify in monetary terms, the eligible cost that will be included in the fee calculations is the net increase in value of the relocated station compared to the existing station, as shown in Table 51.

Table 51. Fire Station #1 Relocation Cost

	Existing Station #1	Relocated Station #1	Net Increase
Acres	1.74	6.39	4.65
x Cost per Acre	$117,545	$117,545	$117,545
Land Value	$204,528	$751,113	$546,585
Building Square Feet	10,525	13,816	3,291
x Cost per Square Foot	n/a	$356	$356
Building Value	$1,200,000	$4,918,496	$3,718,496
Land Value	$204,528	$751,113	$546,585
Building Value	$1,200,000	$4,918,496	$3,718,496
Design Cost	n/a	$463,462	$463,462
Total Value	$1,404,528	$6,133,071	$4,728,543

Source: Acres and square feet for existing station, cost per acre and cost per square foot from Table 48; building value for existing fire station (estimate of current market value if repurposed for non-fire station use), acres and square footage of relocated station and design costs from City of Chandler Fire Department, July 22, 2013.

The ten-year cost per service unit represents costs that will be incurred by the City over the next ten years to build new capacity to serve anticipated development in the city, to repay outstanding debt or interfund loans associated with existing capacity available to serve new development, to pay encumbrances for projects currently underway and to pay for updated studies. The outstanding eligible debt is for the expansion of Station #3, the construction of the administration facility and

the purchase of land for the new southeast fire station. The interfund loans are for the expansion of the Department's maintenance facility, land acquisition for Station #12, the construction of Station #10 and the administration facility. Encumbrances are some remaining costs for Fire Station #10 and the current fee update. In addition, a minimum of two updates of the system development fees will be required over the next ten years. The results are shown in Table 52 and indicate a ten-year cost per service unit of $891 per EDU.

Table 52. Fire Ten-Year Cost per Service Unit

Station #1 Relocation (Eligible Cost)	$4,728,543
New Southeast Fire Station	$5,278,173
Total Planned Improvement Cost	$10,006,716
Eligible Debt Principal Payments, 2013-2023	$822,245
Interfund Loan Obligations	$7,123,657
Encumbrances for Projects Under Construction	$247,432
Required System Development Fee Studies	$27,256
– Fund Balance	-$3,798,929
Total Revenue Needs	$14,428,377
÷ New Service Units (EDUs), 2013-2023	16,193
Ten-Year Cost per Service Unit (EDU)	$891

Source: Station #1 eligible cost from Table 51; cost of new southeast station from City of Chandler Fire Department, July 3, 2013; outstanding debt from Table 129 in Appendix D; interfund loans, encumbrances and fund balance from Table 128; new service units from Table 47.

Buildout Cost per Service Unit

The buildout cost per service unit represents costs that will be incurred by the City to buildout to build capacity to serve anticipated development in the city, to repay outstanding debt principal or interfund loans associated with existing capacity to serve new development, to pay encumbrances for projects currently underway and to pay for updated studies. Since most of these costs will be incurred over the next ten years, the City's buildout revenue needs are the same as its ten-year needs, with the following exceptions: some additional debt principal payments will come due, and additional fee update studies will be required. The results are shown in Table 53 and indicate a buildout cost per service unit of $454 per EDU.

Table 53. Fire Buildout Cost per Service Unit

Station #1 Relocation	$4,728,543
New Southeast Fire Station	$5,278,173
Total Planned Improvement Cost	$10,006,716
Eligible Debt Principal Payments, 2013-Buildout	$1,929,616
Interfund Loan Obligations	$7,123,657
Encumbrances for Projects Under Construction	$247,432
Required System Development Fee Studies	$81,768
– Fund Balance	-$3,798,929
Total Revenue Needs	$15,590,260
÷ New Service Units (EDUs), 2013-2023	34,341
Buildout Cost per Service Unit (EDU)	$454

Source: Station #1 eligible cost from Table 51; cost of new southeast station from City of Chandler Fire Department, July 22, 2013; outstanding debt from Table 129 in Appendix D; interfund loans, encumbrances and fund balance from Table 128; new service units from Table 47.

Cost per Service Unit Summary

The three costs per service unit calculated above are summarized in Table 54. The updated system development fees will be based on the existing cost per service unit, which is the lowest of the three.

Table 54. Fire Cost per Service Unit

Existing Cost per Service Unit	$412
Ten-Year Cost per Service Unit	$891
Buildout Cost per Service Unit	$454
Lowest Cost per Service Unit	$412

Source: Existing from Table 50; ten-year from Table 52; buildout from Table 53.

Net Cost per Service Unit

As noted in the Legal Framework section of this report, impact fees should be reduced (or "offset") in order to account for other types of revenues that will be generated by new development and used to fund capacity-expanding improvements of the same type as those to be funded by the impact fees. Cases in which such an offset is warranted include funding of existing deficiencies, outstanding debt payments on existing facilities, and dedicated revenue sources to fund growth-related improvements.

The fire system development fees calculated in this report are based on the existing level of service, so there are no existing deficiencies. Other than system development fees, the City has no dedicated source of revenue to fund growth-related fire improvements. The City has not received any grant funding for fire improvements in recent years, and does not anticipate any grants over the next ten years.

The City has funded fire improvements with system development fees or using general fund revenues, either on a pay-go basis or to retire debt. The updated fees are based on the existing level of service, which has been reduced to account for outstanding debt and general fund interfund loans used to build some existing capacity that will serve future development. Future system development fees can be used to retire that debt and those interfund loans without raising double-payment issues. The City does have some additional non-eligible debt on the fire training facility, but this can legitimately be retired with future general funds raised from both existing and future development, since the training facility has not been included in determining the existing level of service. Consequently, no additional offsets are warranted, and the cost per service unit calculated above is the same as the net cost per service unit.

Potential System Development Fees

The updated fire system development fees that may be adopted by the City based on this study is the product of the number of service units generated by a unit of development and the net cost per service unit calculated above. The resulting fee schedule is presented in Table 55.

Table 55. Fire Net Cost Schedule

Land Use	Unit	EDUs/ Unit	Net Cost/ EDU	Net Cost/ Unit
Single-Family	Dwelling	1.000	$412	$412
Multi-Family	Dwelling	0.715	$412	$295
Commercial	Sq. Ft.	0.001176	$412	$0.48
Office	Sq. Ft.	0.000777	$412	$0.32
Industrial/Warehouse	Sq. Ft.	0.000254	$412	$0.10
Public/Institutional	Sq. Ft.	0.000352	$412	$0.14

Source: EDUs per unit from Table 46 (nonresidential divided by 1,000 to convert from per 1,000 sq. ft. to one square foot); net cost per EDU is the lowest cost per EDU from Table 54.

The updated fire fees are compared to current fees in Table 56. The updated fees are 20% higher than current fees for single-family homes, about 12% higher for multi-family and commercial uses, and lower for office and industrial uses.

Table 56. Current and Updated Fire System Development Fees

Land Use	Unit	Current Fees	Updated Fees	Percent Change
Single-Family	Dwelling	$344	$412	20%
Multi-Family	Dwelling	$263	$295	12%
Commercial	Sq. Ft.	$0.43	$0.48	12%
Office	Sq. Ft.	$0.33	$0.32	-3%
Industrial/Warehouse	Sq. Ft.	$0.11	$0.10	-9%
Public/Institutional	Sq. Ft.	$0.11	$0.14	27%

Source: Current fees from City of Chandler, *System Development Fee Schedule*, effective January 1, 2012; updated fees from Table 55.

Capital Plan

Assuming that growth occurs as projected in the land use assumptions, the City plans to complete approximately $18.2 million in growth-related fire improvements over the next ten years, as summarized in Table 57. It should be noted that the timing of individual improvements will be dependent on the pace and location of development that actually occurs, and not all of the planned improvements will necessarily be needed in the next ten years.

Table 57. Fire Capital Plan, 2013-2023

Improvement	10-Year Cost
Station #1 Relocation (Eligible Cost)	$4,728,543
New Southeast Fire Station	$5,278,173
2009 GO Debt Principal for Fire Admin/Station #3 Expansion, 2013-2023	$624,952
2011A GO Debt Principal for SE Station Land/Fire Admin, 2013-2023	$197,293
FY 2006 Interfund Loan for Fire Station #10	$4,617,535
FY 2006 Interfund Loan for Fire Administration	$1,127,518
FY 2005/FY 2006 Interfund Loans for Maintenance Facility Expansion	$979,154
FY 2005/FY 2006 Interfund Loans for Land Acquisition for Station #12	$398,950
FY 2007 Interfund Loan for Fire Training Facility Expansion*	$500
Encumbances for Fire Station #10	$238,360
Encumbances for Fire SDF Consultant	$9,072
Required System Development Fee Studies	$27,256
Total	$18,227,306

* no longer eligible on or after January 1, 2012, to be paid with fees collected prior to January 1, 2012

Source: Planned improvements from City of Chandler Fire Department (eligible cost of Station #1 relocation from Table 51); debt principal payments due over the next ten years from Table 129; interfund loan balances from Table 130; study cost from Table 132.

If the updated fees are adopted at 100%, potential fire system development fee revenue over the next ten years, based on new development anticipated by the land use assumptions, would be $6.7 million. With the inclusion of the current fund balance, the City would have $10.5 million in system development fee funds available over the next ten years, as shown in Table 58. Buildout revenues are also shown for reference.

Table 58. Potential Fire System Development Fee Revenue, 2013-Buildout

	2013-2023	2013-Buildout
New Service Units (EDUs)	16,193	34,341
x Net Cost per Service Unit (EDU)	$412	$412
Potential Revenue	$6,671,516	$14,148,492
Current Fund Balance	$3,798,929	$3,798,929
Total System Development Fee Funds Available	$10,470,445	$17,947,421
÷ Planned Expenditures	$18,227,306	$19,389,189
Percent of Costs Covered by Fire Fees	57%	93%

Source: Net cost per service unit is the lowest cost per EDU from Table 54; new service units from Table 47; current fund balance from Table 128; 2013-2023 planned expenditures from Table 57; 2013-buildout expenditures from Table 53 (revenue needs plus fund balance).

Fire system development fee funds anticipated to be available over the next ten years would cover approximately 57% of the total cost of planned improvements. The percentage of ten-year costs that will be covered by system development fees is low because the City plans to incur most of the improvements needed to buildout within the next ten years, whereas buildout will probably not occur for another 20 years. However, assuming the City continues to collect fire system development fees until it reaches buildout, future fees plus the current fund balance would cover approximately 93% of the costs. The shortfall is due to the fact that the updated fees are based on the existing level of service, which is somewhat lower than the buildout cost per service unit.

POLICE

This section updates the City's police system development fees in compliance with the new Arizona impact fee enabling act for municipalities.

Service Units

Disparate types of development must be translated into a common unit of measurement that reflects the impact of new development on the demand for police facilities. This unit of measurement is called a "service unit."

The two most common methodologies used in calculating public safety service units and impact fees are the "calls-for-service" approach and the "functional population" approach. A major problem with relying on call data is that it tends to be unstable over time. This means that fees often go up or down significantly for individual land uses each time the fees are updated. This update continues to use the "functional population" approach to calculate and assess the police system development fees. This approach is a generally-accepted methodology for these impact fee types and is based on the observation that demand for public safety facilities tends to be proportional to the presence of people at a particular site.

Similar to the concept of full-time equivalent employees, functional population represents the number of "full-time equivalent" people present at the site of a land use. Functional population represents the average number of equivalent persons present at the site of a land use for an entire 24-hour day. For residential development, functional population is simply average household size times the percent of time people spend at home. For nonresidential development, functional population is based on a formula that includes square feet per employee ratios, trip generation rates, average vehicle occupancy and average number of hours spent by employees and visitors at a land use. These all tend to be relatively stable characteristics that do not change significantly over short periods of time. Functional population multipliers by land use are calculated in Appendix C.

As with the City's fire system development fees, the police service area is also city-wide. Since the number of fire service units is also calculated using functional population, the existing and projected police service units (Equivalent Dwelling Units or EDUs) for the 2013-2023 planning horizon and to buildout are the same as those calculated earlier for the fire system development fees (see Table 47 in the Fire section).

Cost per Service Unit

As described in the Methodology section of the Legal Framework, the updated system development fees will be based on the lowest of three costs per service units: existing level of service, ten-year cost and buildout cost.

Existing Level of Service

The cost per service unit to provide police protection to new development is based on the existing level of service provided to existing development. The level of service is quantified as the ratio of the replacement cost of existing police capital facilities to existing police service units. The inventory of the City's existing police facilities is provided in Table 59. Replacement costs of

existing facilities are estimated based on the construction cost per square foot for the more recent police station and the land cost per acre based on the City's most recent land purchase.

Table 59. Existing Police Facilities

Facility	Year Built	Bldg. (s.f.)	Land (ac.)
Police Headquarters	1998	67,529	5.85
Police Dispatch	1990	11,243	0.46
Property & Evidence Building	1976/2003	30,430	1.83
Chandler Heights Substation	2008	21,841	4.50
Desert Breeze Substation	2006	21,253	5.00
Total Building Square Feet/Acres		152,296	17.64
x Unit Cost		$280	$117,545
Total Replacement Value		$42,642,880	$2,073,494

Source: Square feet from City of Chandler, Statement of Values, 2012-2013; acres from City of Chandler, February 12, 2013, cost per building square foot is original cost per square foot for West Chandler/Desert Breeze police station; cost per acre is park cost per acre from Table 28.

The existing level of service can be expressed in terms of current cost per service unit. In addition to the costs of existing facilities, current fund balances, outstanding debt on existing facilities and interfund loans to the system development fee fund from the general fund to pay for existing facilities, and the current fund balance must also be taken into consideration. The existing level of service is $277 per EDU, as shown in Table 60.

Table 60. Police Existing Level of Service

Police Buildings	$42,642,880
Land Value	$2,073,494
Total Replacement Cost	$44,716,374
– Eligible Outstanding Debt	-$2,911,681
– Interfund Loan Obligations	-$6,671,049
Fund Balance	$154,642
Total Existing Facility Value	$35,288,286
÷ Existing Service Units (EDUs)	127,547
Existing LOS (Replacement Value per EDU)	$277

Source: Building and land cost from Table 59; outstanding debt from Table 129; interfund loans from Table 130; fund balance from Table 128; existing (2013) EDUs from Table 47.

Ten-Year Cost per Service Unit

The City does not plan to construct any new impact fee-eligible police capital improvements over the next ten years. The City has already constructed all of the improvements it will need to serve buildout development. However, not all of these costs have been paid for. The City will need to repay outstanding debt principal remaining on the Police Headquarters and the south Chandler substation, to repay interfund loans from the general fund to pay for some of the costs of the south and west Chandler substations, to pay encumbrances for projects currently underway and to pay for a minimum of two updates of the system development fees over the next ten years. The results are shown in Table 61 and indicate a ten-year cost per service unit of $584 per EDU.

Table 61. Police Ten-Year Cost per Service Unit

Debt Principal Payments, 2013-2023	$2,911,681
Interfund Loans for Past Projects	$6,671,049
Encumbrances for Current Projects	$9,072
Required System Development Fee Studies	$27,256
– Fund Balance	-$154,642
Total Revenue Needs	$9,464,416
÷ New Service Units (EDUs), 2013-2023	16,193
Ten-Year Cost per Service Unit (EDU)	$584

Source: Debt principal payments from Table 129 that will be made over the next ten years; interfund loans from Table 130; fund balance from Table 128; encumbrances from Table 131; study cost from Table 132; new service units from Table 47.

Buildout Cost per Service Unit

The buildout cost per service unit represents costs that will be incurred by the City to buildout to repay outstanding debt and interfund loans associated with existing capacity to serve new development, to pay encumbrances for projects currently underway and to pay for updated studies. Since most of these costs will be incurred over the next ten years, the City's buildout revenue needs are the same as its ten-year needs, with the exceptions that additional fee update studies will be required. The results are shown in Table 62 and indicate a buildout cost per service unit of $277 per EDU.

Table 62. Police Buildout Cost per Service Unit

Debt Principal Payments, 2013-Buildout	$2,911,681
Interfund Loans for Past Projects	$6,671,049
Encumbrances for Current Projects	$9,072
Required System Development Fee Studies	$81,768
– Fund Balance	-$154,642
Total Revenue Needs	$9,518,928
÷ New Service Units (EDUs), 2013-2023	34,341
Buildout Cost per Service Unit (EDU)	$277

Source: Debt principal payments from Table 129 that will be made over the next ten years; interfund loans from Table 130; fund balance from Table 128; encumbrances from Table 131; new service units from Table 47.

Cost per Service Unit Summary

The three costs per service unit calculated above are summarized in Table 63. The updated system development fees will be based on the existing cost per service unit, which is the lowest of the three.

Table 63. Police Cost per Service Unit

Existing Cost per Service Unit	$277
Ten-Year Cost per Service Unit	$584
Buildout Cost per Service Unit	$277
Lowest Cost per Service Unit	$277

Source: Existing from Table 60; ten-year from Table 61; buildout from Table 62.

Net Cost per Service Unit

As noted in the Legal Framework section of this report, impact fees should be reduced (or "offset") in order to account for other types of revenues that will be generated by new development and used to fund capacity-expanding improvements of the same type as those to be funded by the impact fees. Cases in which such an offset is warranted include funding of existing deficiencies, outstanding debt payments on existing facilities, and dedicated revenue sources to fund growth-related improvements.

The police system development fees calculated in this report are based on the existing level of service, so there are no existing deficiencies. Other than system development fees, the City has no dedicated source of revenue to fund growth-related police improvements. The City has not received any grant funding for police improvements in recent years, and does not anticipate any grants over the next ten years.

The City has funded police improvements with system development fees or using general fund revenues, either on a pay-go basis or to retire debt. The updated fees are based on the existing level of service, which has been reduced to account for outstanding debt and general fund interfund loans used to build some existing capacity that will serve future development. Future system development fees can be used to retire that debt and those interfund loans without raising double-payment issues. The City does have some additional non-eligible debt on the police driver training facility, but this can legitimately be retired with future general funds raised from both existing and future development, since the driver training facility has not been included in determining the existing level of service. Consequently, no additional offsets are warranted, and the cost per service unit calculated above is the same as the net cost per service unit.

Potential System Development Fees

The updated police system development fees that may be adopted by the City based on this study is the product of the number of service units generated by a unit of development and the net cost per service unit calculated above. The resulting updated fee schedule is presented in Table 64.

Table 64. Police Net Cost Schedule

Land Use	Unit	EDUs/ Unit	Net Cost/ EDU	Net Cost/ Unit
Single-Family	Dwelling	1.000	$277	$277
Multi-Family	Dwelling	0.715	$277	$198
Commercial	Sq. Ft.	0.001176	$277	$0.32
Office	Sq. Ft.	0.000777	$277	$0.21
Industrial/Warehouse	Sq. Ft.	0.000254	$277	$0.07
Public/Institutional	Sq. Ft.	0.000352	$277	$0.09

Source: EDUs per unit same as for fire from Table 55; net cost per EDU is the lowest cost per EDU from Table 63.

The updated police fees are compared to current fees in Table 65. The updated fees range from 31% higher than current fees for office uses to 80% higher for public/institutional uses.

Table 65. Current and Updated Police System Development Fees

Land Use	Unit	Current Fees	Updated Fees	Percent Change
Single-Family	Dwelling	$164	$277	69%
Multi-Family	Dwelling	$125	$198	58%
Commercial	Sq. Ft.	$0.20	$0.32	60%
Office	Sq. Ft.	$0.16	$0.21	31%
Industrial/Warehouse	Sq. Ft.	$0.05	$0.07	40%
Public/Institutional	Sq. Ft.	$0.05	$0.09	80%

Source: Current fees from City of Chandler, *System Development Fee Schedule*, effective January 1, 2012; updated fees from Table 64.

Capital Plan

Assuming that growth occurs as projected in the land use assumptions, the City faces approximately $9.6 million in growth-related police capital costs over the next ten years, as summarized in Table 66.

Table 66. Police Capital Plan, 2013-2023

Improvement	10-Year Cost
1996B GO Debt Principal for Public Safety Facility, 2013-2023	$550,000
2003 GO Refunding Debt Principal for Public Safety Facility, 2013-2023	$2,300,000
2007 GO Debt Principal for S Chandler Substation/Comm. Center, 2013-2023	$61,681
FY 2006/2007 Interfund Loan for South Substation	$6,444,783
FY 2006/2007 Interfund Loan for West Substation	$226,266
Encumbrances for Police SDF Consultant	$9,072
Required System Development Fee Studies	$27,256
Total	$9,619,058

Source: Debt principal payments due over the next ten years attributable to eligible improvements from Table 129; interfund loan amounts from Table 130; encumbrances from Table 131; study cost from Table 132.

If the updated fees are adopted at 100%, potential police system development fee revenue over the next ten years, based on new development anticipated by the land use assumptions, would be $4.49 million. With the inclusion of the current fund balance, the City would have $4.64 million in system development fee funds available over the next ten years, as shown in Table 67.

Table 67. Potential Police System Development Fee Revenue, 2013-Buildout

	2013-2023	2013-Buildout
New Service Units (EDUs)	16,193	34,341
x Net Cost per Service Unit (EDU)	$277	$277
Potential Revenue	$4,485,461	$9,512,457
Current Fund Balance	$154,642	$154,642
Total System Development Fee Funds Available	$4,640,103	$9,667,099
÷ Planned Expenditures	$9,619,058	$9,673,570
Percent of Costs Covered by Police Fees	48%	100%

Source: New service units from Table 47; net cost per service unit is the lowest cost per EDU from Table 63; current fund balance from Table 128 in Appendix D; 2013-2023 planned expenditures from Table 66; 2013-buildout planned expenditures from Table 62 (revenue needs plus fund balance).

Police system development fee funds anticipated to be available over the next ten years would cover approximately 48% of the total ten-year costs. The percentage of ten-year costs that will be covered

by system development fees is low because the City will incur most of the costs needed to buildout within the next ten years, whereas buildout will probably not occur for another 20 years. However, the timing of overall costs are flexible, since the City can defer the repayment of interfund loans or make new interfund loans until sufficient system development fees become available. Assuming the City continues to collect police system development fees until it reaches buildout, future fees plus the current fund balance would cover 100% of the costs.

PUBLIC BUILDINGS

Public building fees are no longer authorized by SB 1525 as of January 1, 2012. However, SB 1525 allows cities to continue to collect public building fees to repay debt service obligations for improvement financed before June 1, 2011 that impact fees were pledged to repay.

Attorneys working with the Arizona League of Cities and Towns have interpreted the language of SB 1525 to allow pledges of impact fees to include repayment of interfund loans as well as formal debt instruments. The League's model development impact fee ordinance defines the term "financing or debt" as follows:

> *Any debt, bond, note, loan, interfund loan, fund transfer, or other debt service obligation used to finance the development or expansion of a Capital Facility.*

The City recorded two interfund loans from the general fund to the public building system development fee fund for a portion of the cost of construction of the City Hall complex, which was completed in 2010. The interfund loans were made in fiscal years 2010 and 2011, for a total of $4,369,352. The public building system development fee fund made a repayment of $450,000 to the general fund in March 2013, leaving a current interfund loan balance of $3,919,352. Public building system development fees are clearly pledged to retire this loan by repaying the general fund.

Relying on the League's interpretation of SB 1525, the City reduced its public building fees as of January 1, 2012 to cover only the cost of repaying the pledged debt. However, development interests have filed a lawsuit against the City of Surprise that argues that interfund loans do not qualify as pledged debt. Until that case is resolved, it may be prudent for the City to retain the fees collected since January 1, 2012 in case refunds are ultimately required.

Because public building fees are no longer authorized, SB 1525 update requirements, including preparation of infrastructure improvements plans, do not apply, and the City may continue to charge its current fees until the debt pledge is satisfied.

In the revisions to the fees that were adopted effective January 1, 2012, the City reduced its public building fees to cover only the cost of this pledged debt. The analysis used to determine the current fee was to divide the amount of the pledged debt by the projected number of new service units to buildout calculated in the 2008 study.

While the City could simply continue to collect its current public building fee until the pledged debt is retired, some adjustments to the fee may be warranted. The calculation of the current fee in late 2011 did not account for any existing fund balance. In addition, the pledged debt was divided by new service units to buildout calculated in the 2008 study, which was the best information that was available at that time.

Updated fee calculations can now be made using information compiled for the other fee updates. Information is now available on current account balances, updated service unit multipliers and updated land use assumptions and buildout service units (the 2008 public building methodology used the same multipliers and service unit projections as the fire and police fees). Based on these inputs, the public building cost per service unit could be updated as shown in Table 68.

Table 68. Updated Public Building Cost per Service Unit

Outstanding Pledged Debt	$3,919,352
– Current Fund Balance	-$125,509
Future Revenue Needed	$3,793,843
÷ New EDUs, 2013-Buildout	34,341
Cost per Service Unit	$110

Source: Outstanding pledged debt and fund balance (less encumbrances) from Table 128; new EDUs are same as fire EDUs from Table 47.

The updated fees are compared to current fees in Table 69.

Table 69. Updated and Current Public Building System Development Fees

Land Use	Unit	EDUs/ Unit	Cost/ EDU	Updated Cost/Unit	Current Fee	Percent Change
Single-Family	Dwelling	1.000	$110	$110	$97	13%
Multi-Family	Dwelling	0.715	$110	$79	$74	7%
Commercial	Sq. Ft.	0.001176	$110	$0.12	$0.12	0%
Office	Sq. Ft.	0.000777	$110	$0.08	$0.09	-11%
Industrial/Warehouse	Sq. Ft.	0.000254	$110	$0.02	$0.03	-33%
Public/Institutional	Sq. Ft.	0.000352	$110	$0.03	$0.03	0%

Source: EDUs per unit same as for fire from Table 55; cost per EDU from Table 68; current fees from Table 1.

WATER

This section updates the City's water system development fees in compliance with the new Arizona impact fee enabling act for municipalities.

Service Units

To calculate water and wastewater impact fees, the demand associated with different types of customers must be expressed in a common unit of measurement, called a "service unit." The service unit for the City's water and wastewater system development fees is an "equivalent dwelling unit" (EDU). An EDU is a single-family dwelling unit or its equivalent in terms of water demand.

Residential development is charged per dwelling unit. A single-family unit is, by definition, one EDU. Multi-family development is assessed based on the average water demand of a multi-family unit compared to a single-family unit. Average demand during the summer months is used for this purpose, because water facilities must be sized to accommodate peak usage. Based on average water demand per unit during the summer months for the last five years, a multi-family unit represents 0.378 water EDUs, as shown in Table 70.

Table 70. Water Demand per Multi-Family Unit

Average Daily Summer Water Consumption (gpd) per Multi-Family Unit	173
÷ Average Daily Summer Water Consumption (gpd) per Single-Family Unit	458
Multi-Family EDUs/Unit	0.378

Source: City of Chandler water billing data for the summer months, average of fiscal years 2007/08 through 2011/12, April 26, 2013.

The number of water service units associated with a nonresidential customer is determined by the capacity of the water meter relative to the capacity of the smallest meter size. Table 71 below presents EDU multipliers for various meter sizes based on meter capacities from the American Water Works Association.

Table 71. Meter Capacity Ratios

Meter Size	Type	Capacity (gpm)	EDU Multiplier
5/8"x3/4"	Disc	10	1.0
3/4"	Disc	15	1.5
1"	Disc	25	2.5
1 1/2"	Disc	50	5.0
2"	Disc/Turbine	80	8.0
3"	Compound	160	16.0
3"	Turbine	175	17.5
4"	Compound	250	25.0
4"	Turbine	300	30.0
6"	Compound	500	50.0
6"	Turbine	625	62.5
8"	Compound	800	80.0
8"	Turbine	900	90.0
10"	Turbine	1,450	145.0
12"	Turbine	2,150	215.0

Source: Meter capacities in gallons per minute (gpm) represent the recommended maximum rates for continuing operations from the American Water Works Association for disc meters (AWWA C700), compound meters (AWWA C702) and vertical shaft and low-velocity horizontal turbine meters (AWWA C701).

The number of existing water service units are estimated based on the number of current City water customers and the service unit multipliers described above. As shown in Table 72, the City's current water customer base amounts to 107,525 service units (EDUs).

Table 72. Existing Water Service Units

Meter Size	Type	Units or Meters	EDU Multiplier	EDUs
5/8"x3/4"	Disc	435	1.000	435
3/4"	Disc	285	1.500	428
1"	Disc	1,079	2.500	2,698
1 1/2"	Disc	1,018	5.000	5,090
2"	Disc/Turbine	1,646	8.000	13,168
3"	Comp./Turbine	55	16.750	921
4"	Comp./Turbine	40	27.500	1,100
6"	Turbine	22	62.500	1,375
8"	Turbine	11	90.000	990
10"	Turbine	8	145.000	1,160
12"	Turbine	0	215.000	0
Subtotal, Nonresidential		4,599	5.950	27,365
Single-Family Units		71,751	1.000	71,751
Multi-Family Units		22,246	0.378	8,409
Total Water EDUs				107,525

Source: Residential units and nonresidential meters (excluding hydrant and fire flow meters) from City of Chandler, water billing data for 2011/12 fiscal year, April 26, 2013; multi-family EDU multiplier from Table 70; EDU multipliers by meter size from Table 71 (even compound turbine split assumed for 3" & 4" meters, 6" and 8" assumed to be all turbine meters).

The number of service units should increase proportionately with the increase in water demand. As shown in Table 73, average daily water demand and service units are projected to increase by 29% over the next ten years, and then by another 23% from 2023 to buildout.

Table 73. Water Demand and Service Units, 2013-Buildout

	2013	2023	Buildout
Water Avg. Daily Demand (gpd)	55,230,000	71,465,000	87,700,000
Water EDUs	107,525	139,132	170,739
Increase, 2013-2023		29%	
Increase, 2023-Buildout			23%

Source: 2013 and buildout average day water demand from City of Chandler, May 7, 2013; 2023 based on midpoint from 2013 to buildout; 2013 water EDUs from Table 72; 2023 and buildout EDUs projected to increase proportionately to water demand.

Water Resources

The City currently charges a separate water resources system development fee for the cost of purchasing water supplies. The water resources fee is currently assessed only on new water customers located on lands lacking water rights that can be provided to the City as a condition of water service. These lands are Salt River Project (SRP) Off-Project and Non-Member lands. Most of these lands are located in a large contiguous area of south Chandler, although there are also some small isolated areas elsewhere in the city.

In this update, the cost of water supplies will be included in the water system development fee assessed to all new water customers. This change is based on updated analysis demonstrating that SRP On-Project lands have no additional water rights to firm their existing supply. That analysis is provided below. Because the City does not maintain information on current customers by water resources area versus non-water resources area, and because the City's water master plan does not breakout existing and future water demand by these areas, the analysis below relies on the data provided in the land use assumptions and current system-wide average demand for single-family units, multi-family units and nonresidential square footage. While this approach is somewhat generalized and may result in future demand estimates that are at variance with the future demand projected in the City's master plan, there is no reason to believe that the deviations would be greater for the water resources service area than for the rest of the water service area. Consequently, this approach provides a reasonable basis for assessing the relative future water demands resulting from anticipated future development in the two respective areas.

The number of existing water service units (EDUs) can be estimated for the water resources service area and the non-water resources area based on the land use assumptions, as shown in Table 74. This analysis indicates that the majority of the City water system's current demand comes from customers in the non-water resources area.

Table 74. Current Water Demand by Area

Land Use Type, Year	Total Units	EDU/Unit Ratio	EDUs	Avg. Daily Demand (mgd)
Single-Family Dwelling Units	75,443	0.9511	71,751	
Multi-Family Dwelling Units	22,484	0.3740	8,409	
Nonresidential Building Sq. Ft. (1,000s)	62,573	0.4373	27,365	
Total EDUs, City-Wide			107,525	55.23
Single-Family Dwelling Units	21,899	0.9511	20,828	
Multi-Family Dwelling Units	1,205	0.3740	451	
Nonresidential Building Sq. Ft. (1,000s)	11,622	0.4373	5,082	
Total EDUs, Water Resources Service Area			26,361	13.54
Single-Family Dwelling Units	53,544	0.9511	50,923	
Multi-Family Dwelling Units	21,279	0.3740	7,958	
Nonresidential Building Sq. Ft. (1,000s)	50,951	0.4373	22,283	
Total EDUs, Non-Water Resources Service Area			81,164	41.69

Source: City-wide and water resources service area units from Table 6 and Table 7 (non-water resources area is remainder); city-wide water EDUs from Table 72; EDU/unit ratios based on city-wide EDUs and units; city-wide average daily demand from Table 73; average daily demand for other areas based on city-wide mgd/EDU ratio.

The buildout distribution of water demand can also be estimated based on the land use assumptions, as shown in Table 75.

Table 75. Buildout Distribution of Water Demand by Area

Land Use Type, Year	Total Units	EDU/Unit Ratio	EDUs	% of Buldout Demand
Single-Family Dwelling Units	26,125	0.9511	24,847	
Multi-Family Dwelling Units	4,895	0.3740	1,831	
Nonresidential Building Sq. Ft. (1,000s)	24,681	0.4373	10,793	
Total EDUs, Water Resources Service Area			37,471	27.7%
Single-Family Dwelling Units	55,207	0.9511	52,507	
Multi-Family Dwelling Units	29,059	0.3740	10,868	
Nonresidential Building Sq. Ft. (1,000s)	78,685	0.4373	34,409	
Total EDUs, Non-Water Resources Service Area			97,784	72.3%
Single-Family Dwelling Units	81,332	0.9511	77,354	
Multi-Family Dwelling Units	33,954	0.3740	12,699	
Nonresidential Building Sq. Ft. (1,000s)	103,366	0.4373	45,202	
Total EDUs, City-Wide			135,255	100.0%

Source: City-wide and water resources service area units from Table 6 and Table 7 (non-water resources area is remainder; EDU/unit ratios from Table 74; percent of buildout demand is percent of buildout EDUs.

The City plans to acquire new water supplies to accommodate projected growth in water demand, as summarized in Table 76. The 3.3 mgd being acquired for Intel is needed for the system, but because it will be used exclusively by Intel it will be excluded from the fee calculations.

Table 76. Planned Water Supply Purchases, 2013-Buildout

	2013-2023	2023-Buildout	2013-Buildout
WA672, Water Purchases (mgd)	7.00	8.93	15.93
WA670, Intel Water Purchase (mgd)	3.30	0.00	3.30
Total New Water Supplies (mgd)	10.30	8.93	19.23

Source: City of Chandler Municipal Utilities Department, September 23, 2013.

As summarized in Table 77 below, the non-water resources area has restricted water supplies that account for the majority of the City's total water supplies. However, this area also generates the majority of the water demand, and actually has a ratio of water supplies to demand (1.45) that is lower than the city-wide average (1.62). Assuming that future water supplies the City plans to acquire are distributed based on projected new water demand from the two areas, at buildout the non-water resources service area would still have a lower ratio (1.16) than the city-wide average (1.24). This analysis also shows that the ratio of water supplies to water demand will fall from now to buildout, indicating that the City currently has some excess water supply capacity. This analysis supports charging all new water customers for water supplies through the water system development fees, rather than continuing to charge a water resources system development fee only on new customers in the water resources service area.

Table 77. Ratios of Water Supplies to Water Demand by Area

	Water Resources Area	Non-Water Resources Area	City-Wide
Water Supplies Available (ac-ft/yr)*	30,903	63,624	94,527
Groundwater Safe Yield Pumping (ac-ft/yr)	1,398	4,306	5,704
Total Water Supply Available (ac-ft/yr)	32,301	67,930	100,231
x Conversion Factor	0.0008927	0.0008927	0.0008927
Total Water Supply Available (mgd)	28.84	60.64	89.48
÷ Current Average Day Water Demand (mgd)	13.54	41.69	55.23
Current Ratio of Water Supply to Average Day Demand	2.13	1.45	1.62
New Water Supplies Planned to be Acquired (mgd), 2013-Buildout	6.37	12.86	19.23
÷ New Average Day Water Demand (mgd), 2013-Buildout	10.75	21.72	32.47
Ratio of New Water Supplies to New Average Day Demand	0.59	0.59	0.59
Buildout Water Supplies (mgd)	35.21	73.50	108.71
÷ Buildout Average Day Water Demand (mgd)	24.29	63.41	87.70
Buildout Ratio of Water Supplies to Average Day Demand	1.45	1.16	1.24

* Figures shown represent full surface water allocations. The actual allocation in any given year may be less than the full allocation.

Source: Current water supplies from 2006 Water Resources Master Plan and City of Chandler Municipal Utilities Department, October 8, 2013 (unrestricted water supplies attributed to water resources area; groundwater pumping capacity allocated based on existing EDUs from Table 74); current average day water demand from Table 74; city-wide planned water purchases from Table 76; buildout average daily water demand based on city-wide buildout demand from Table 73 and percentages from Table 75.

Cost per Service Unit

As described earlier in the Methodology section of the Legal Framework, the updated system development fees will be based on the lowest of three costs per service units: existing level of service, ten-year cost and buildout cost.

Existing Level of Service

The existing level of service for the water system development fees is quantified, in large part, by the capacity provided by existing water facilities and the current cost to construct that capacity.

Water production facilities (surface water treatment plants and wells) must be sized for maximum day demand. The system-wide maximum day water demand (in millions of gallons or mgd) and water production capacity are summarized in Table 78 for both existing and buildout conditions.

Table 78. Water Demand and Capacity, 2013-Buildout

	2013	Buildout
Annual Average Day Demand (mgd)	55.23	87.70
x Peaking Factor	1.45	1.45
Maximum Day Demand (mgd)	80.08	127.17
Total Production Capacity (mgd)	125.00	137.00

Source: Average day demand projections from City of Chandler Municipal Utilities Department, May 1, 2013; peaking factor from Carollo Engineers, *Water, Wastewater, Reclaimed Water Master Plan Update*, September 2008, Table 2.12; water production capacity from Table 79.

Chandler's water production capacity consists of the City-owned Surface Water Treatment Plant, the City-owned capacity in the Santan Vista Water Treatment Plant co-owned with the Town of Gilbert, and the firm capacity of the City's groundwater wells (firm capacity is capacity with the largest well in each pressure zone out of service). Existing water production capacities available to meet maximum day demands are detailed in Table 79.

Table 79. Existing Water Production Capacity

Water Production Facility	Current Capacity (mgd)
Surface Water Treatment Plant	60.0
Santan Vista WTP, Phases I & II	12.0
Subtotal, Treatment Plants	72.0
Alamosa Well No. 1	1.8
Amberwood Well	1.5
Arrowhead Well	2.7
Brooks Crossing Well	3.3
Bush Way Well	2.0
Colt Well	2.7
Desert Breeze Well	4.2
East Knox	0.7
Frye Well	2.2
Hahn Well (owned by SRP)	2.3
Hightown Well	2.7
Knox Well	2.2
Lindsay Well	3.2
Monterey Well	5.0
Orchid Lane	1.7
Pennington Well	2.5
Roosevelt Well	2.2
Rural Road Well	4.2
Shawnee Well	1.9
Warner Well (owned by SRP)	3.0
Airport Well	2.3
Alamosa Well No. 2	2.2
Alamosa Well No. 3	1.0
Basha Well No. 2	1.5
Basha Well No. 3	1.6
McQueen Well	2.9
Price South Well No. 2	1.0
Subtotal, Wells	64.5
Subtotal, Well Firm Capacity*	53.0
Total Firm Capacity	125.0

* excludes largest well in each pressure zone and Brooks Crossing, which is dedicated for industrial use

Source: City of Chandler Municipal Utilities Department, May 7, 2013.

A water system must have sufficient storage capacity to meet peak day as well as peak hour requirements. According to the City's most recent water master plan, Chandler currently has sufficient storage capacity to accommodate build-out needs. The existing storage capacity is summarized in Table 80.

Table 80. Existing Water Storage Capacity

	Gallons (millions)
Apache Tank	2.0
Arrowhead Tank	2.0
Brooks Crossing Tank	n/a
Bush Way Tank	2.0
Colt Tank	2.0
Frye Tank	4.0
Hahn Tank	2.0
Monterey Tank	2.0
Price South Tank	3.0
Roosevelt Tank	4.0
Rural Tank	2.0
McQueen Tank	1.0
Dobson South Tank	2.0
CAP Hendrix Tank	2.0
SWTP Finished Water Reservoirs	4.0
Basha Road Tank	2.0
Gilbert Road Tank	2.0
Hunt Highway Tank	2.0
Airport Tank	2.0
Lindsay Road Tank	2.0
Alamosa Tank	2.0
Total	46.0

Source: City of Chandler Municipal Utilities Department, May 2, 2013.

Another essential component of a water system is booster pumps, which are used to inject water from treatment plants, direct-pumping wells and storage tanks into the transmission/distribution system at the appropriate pressure. The City's existing booster pump station capacities are summarized in Table 81.

Table 81. Existing Booster Pump Station Capacity

Booster Pump Station	Existing Firm Capacity (mgd)
Airport	2.1
Alamosa	6.0
Apache	3.7
Arrowhead	4.4
Basha Road	6.1
Brooks Crossing*	n/a
Bush Way	5.1
Colt	3.8
Dobson South	4.5
Frye	3.7
Gilbert Road	5.8
Hahn	3.9
Hunt Highway	3.8
Lindsay Road	5.7
McQueen	1.7
Monterey	3.1
Price South	3.5
Roosevelt	2.7
Rural	7.3
SWTP Pump Station No. 1	54.0
SWTP Pump Station No. 2	0.0
Direct-Pumping Wells	12.4
Total	143.3

* committed for industrial use and not counted in total
Source: City of Chandler Municipal Utilities Department, May 2, 2013.

A final component of a water system is the transmission and distribution lines that convey the potable water to the customer. Water impact fees typically charge only for transmission lines, since distribution lines are often constructed by developers without credit against their water impact fees. The City's water master plan does not clearly distinguish between transmission and distribution lines. In this update, transmission lines are defined as any waterline of 16 inches in diameter or greater. The current inventory of transmission lines is provided in Table 82.

Table 82. Existing Water Transmission Lines

Pipe Size (in.)	Linear Feet
16	490,606
20	4,908
24	110,866
30	19,700
36	22,428
42	11,690
48	13,154

Source: Carollo Engineers, *Water, Wastewater, Reclaimed Water Master Plan Update*, September 2008, Table 3.8.

The City's existing water supplies were summarized in the previous subsection. The percent of existing water supplies that are utilized by current customers, based on that analysis and the projected buildout ratio of water supplies to average day water demand, is estimated in Table 83.

Table 83. Percent of Water Supplies Currently Utilized

Current Average Day Water Demand (mgd)	55.23
x Buildout Ratio of Water Supplies to Daily Demand	1.24
Current Water Supplies Utilized (mgd)	68.46
÷ Existing Water Supplies (mgd)	86.56
Percent of Existing Water Supplies Utilized at Buildout Ratio	79.1%

Source: Current average day water demand from Table 73; buildout ratio and existing water supplies from Table 77.

The current marginal cost of additional water supplies is estimated to be $10 per gallon per day, as shown in Table 84.

Table 84. Water Supplies Cost per Gallon per Day

WA672, Water Purchases, 2013-2023	$70,000,000
÷ Water Supplies Capacity Acquired (gpd)	7,000,000
Water Supplies Cost per Gallon per Day	$10.00

Source: Planned water supply cost and capacity from City of Chandler, Municipal Utilities Department, September 23, 2013.

The replacement cost of Chandler's existing water system is estimated based on current capacities and the current unit costs to construct water facilities, as shown in Table 85.

Table 85. Replacement Cost of Existing Water Facilities

System Component	Unit	Existing Units	Unit Cost	Replacement Cost
Water Supplies	gallons/day	86,560,000	$10.00	$865,600,000
Treatment Plant Capacity	gallons/day	72,000,000	$2.68	$192,960,000
Well Capacity	gallons/day	64,500,000	$1.25	$80,625,000
Storage Capacity	gallons	46,000,000	$1.20	$55,200,000
Booster Pump Station Capacity	gallons/day	143,300,000	$0.50	$71,650,000
16" Transmission Lines	linear feet	490,606	$240	$117,745,440
20" Transmission Lines	linear feet	4,908	$300	$1,472,400
24" Transmission Lines	linear feet	110,866	$360	$39,911,760
30" Transmission Lines	linear feet	19,700	$450	$8,865,000
36" Transmission Lines	linear feet	22,428	$540	$12,111,120
42" Transmission Lines	linear feet	11,690	$630	$7,364,700
48" Transmission Lines	linear feet	13,154	$720	$9,470,880
Total Existing System Replacement Cost				$1,462,976,300

Source: Existing water supplies from Table 77' unit cost for water supplies from Table 84; existing treatment plant and well firm capacity from Table 79; storage capacity from Table 80; booster pump station capacity from Table 81; transmission lines from Table 82; unit costs other than water supplies from Municipal Utilities Department, July 23, 2013.

The existing level of service for water facilities is calculated in Table 86 by dividing the replacement cost of existing facilities utilized by existing customers by the number of existing service units.

Table 86. Water Existing Level of Service

Replacement Cost of Water Supplies	$865,600,000
x Percent of Capacity Currently Utilized	79.10%
Subtotal, Water Supplies	$684,689,600
Replacement Cost of Treatment Plant and Well Facilities	$273,585,000
x Percent of Capacity Currently Utilized	64.06%
Subtotal, Production Facilities	$175,258,551
Replacement Cost of Storage, Pumping, Transmission Facilities	$323,791,300
x Percent of Capacity Currently Utilized	62.98%
Subtotal, Storage, Pumping, Transmission Facilities	$203,923,761
Total Replacement Costs Utilized by Existing Customers	$1,063,871,912
÷ Existing Service Units (EDUs)	107,525
Existing Cost per Service Unit (EDU)	$9,894

Source: Replacement costs from Table 85; percent of water supply from Table 83; percent of treatment plant and well facilities is ratio of existing demand to existing capacity from Table 78; percent of storage, pumping and transmission facilities is ratio of existing to buildout water demand from Table 78; existing service units from Table 73.

A final consideration in the existing level of service calculation is to verify that no deductions for outstanding debt or interfund loans on existing facilities are warranted. This is confirmed by the data presented in Table 87. The cost of existing facilities (in current dollars) that is available for future customers is approximately $399 million. Outstanding debt and interfund loan obligations total about $121 million, which is only about 30% of the cost of facilities available for future customers. Consequently, all of the cost of facilities serving existing customers can reasonably be considered to have been fully paid for.

Table 87. Existing Water Facility Cost and Outstanding Obligations

Total Cost of Existing Facilities	$1,462,976,300
– Cost of Existing Facilities Serving Current Customers	-$1,063,871,912
Cost of Existing Facilities Available for Future Customers	$399,104,388
Outstanding Debt on Existing Facilities	$105,446,903
Interfund Loan Balances on Existing Facilities	$15,929,877
Total Obligations for Existing Facilities	$121,376,780
÷ Cost of Existing Facilities Available for Future Customers	$399,104,388
Future Obligations as Percent of Cost of Available Existing Facilities	30.4%

Source: Total cost of existing facilities from Table 85; cost of facilities serving existing customers from Table 86; outstanding debt from Table 129; interfund loans from Table 130.

Ten-Year Cost per Service Unit

Over the next ten years, the City plans to construct the final phase of the Santan Vista water treatment plant it co-owns with the Town of Gilbert, construct additional wells and acquire additional water supplies. The cost of the Intel water purchase is not included in the fee calculations, because it will be used only by Intel. An update of the City's water master plan will also need to be completed. The City will need to repay outstanding debt principal and interfund loans on several past capacity projects with excess capacity, pay encumbrances on current projects, and

pay for a minimum of two updates of the system development fees that will be required over the next ten years. The results are shown in Table 88 and indicate a ten-year cost per service unit of $6,090 per EDU.

Table 88. Water Ten-Year Cost per Service Unit

WA334, Joint Water Treatment Plant	$40,188,594
WA034, Well Construction	$3,000,000
WA672, Water Purchases (7.0 mgd)	$70,000,000
WA670, Intel Water Purchase (3.3 mgd)	not included
WA029, Water Master Plan	$289,428
Total Planned Improvement Cost	$113,478,022
Eligible Debt Principal Payments, 2013-2023	$73,427,913
Interfund Loan Obligations	$15,929,877
Encumbrances on Current Projects	$4,203,214
Required System Development Fee Studies	$27,256
– Fund Balance	-$14,576,874
Total Revenue Needs	$192,489,408
÷ New Service Units (EDUs), 2013-2023	31,607
Ten-Year Cost per Service Unit (EDU)	$6,090

Source: Planned projects and costs in 2013 dollars from Municipal Utilities Department, July 29, 2013 and September 23, 2013; debt payments from Table 129; interfund loans from Table 130; study cost from Table 132; fund balance from Table 128; new service units from Table 73.

Buildout Cost per Service Unit

The buildout cost per service unit represents costs that will be incurred by the City to buildout to construct planned improvements, repay outstanding debt and interfund loans associated with existing capacity to serve new development, and to pay for updated studies. Dividing buildout costs by new service units to buildout results in a buildout cost per service unit of $5,633 per EDU, as shown in Table 89.

Table 89. Water Buildout Cost per Service Unit

WA334, Joint Water Treatment Plant	$40,188,594
WA034, Well Construction	$3,000,000
WA672, Water Purchases (7.0 mgd)	$70,000,000
WA672, Water Purchases (8.93 mgd)	$131,500,000
WA670, Intel Water Purchase (3.3 mgd)	not included
WA029, Water Master Plan	$289,428
Total Planned Improvement Cost	$244,978,022
Eligible Debt Principal Payments, 2013-Buildout	$105,446,903
Interfund Loan Obligations	$15,929,877
Encumbrances on Current Projects	$4,203,214
Required System Development Fee Studies	$81,768
– Fund Balance	-$14,576,874
Total Revenue Needs	$356,062,910
÷ New Service Units (EDUs), 2013-Buildout	63,214
Buildout Cost per Service Unit (EDU)	$5,633

Source: Planned projects and costs in 2013 dollars from Municipal Utilities Department, July 29, 2013 and September 23, 2013; debt payments from Table 129; interfund loans from Table 130; study cost from Table 132; fund balance from Table 128; new service units from Table 73.

Cost per Service Unit Summary

The three costs per service unit calculated above are summarized in Table 90. The updated system development fees will be based on the buildout cost per service unit, which is the lowest of the three.

Table 90. Water Cost per Service Unit

Existing Cost per Service Unit	$9,894
Ten-Year Cost per Service Unit	$6,090
Buildout Cost per Service Unit	$5,633
Lowest Cost per Service Unit	$5,633

Source: Existing from Table 86; ten-year from Table 88; buildout from Table 89.

Net Cost per Service Unit

As noted in the Legal Framework section of this report, impact fees should be reduced (or "offset") in order to account for other types of revenues that will be generated by new development and used to fund capacity-expanding improvements of the same type as those to be funded by the impact fees. Cases in which such an offset is warranted include funding of existing deficiencies, outstanding debt payments on existing facilities, and dedicated revenue sources to fund growth-related improvements.

The water system development fees calculated in this report are based on the buildout cost per service unit, which is lower than the existing level of service, so there are no existing deficiencies. All of the outstanding debt for capacity improvements has been demonstrated to be for capacity that is available for future customers. Other than system development fees and water utility rates, the City has no dedicated source of revenue to fund growth-related water improvements. The City has not received any grant funding for water improvements in recent years, and does not anticipate any grants over the next ten years. Consequently, no additional offsets are warranted, and the net cost per service unit is the same as the cost per service unit calculated above.

Potential System Development Fees

The updated water system development fees that may be adopted by the City based on this study are determined by multiplying the number of service units generated by a dwelling unit or nonresidential meter by the net cost per service unit calculated above. The resulting updated fee schedule is presented in Table 91.

Table 91. Water Net Cost Schedule

Housing/Meter Type		EDUs per Unit/Meter	Net Cost/ EDU	Net Cost per Unit/Meter
Single-Family Unit		1.000	$5,633	$5,633
Multi-Family Unit		0.378	$5,633	$2,129
Nonresidential Meter:				
3/4"	Disc	1.500	$5,633	$8,450
1"	Disc	2.500	$5,633	$14,083
1 1/2"	Disc	5.000	$5,633	$28,165
2"	Disc/Turbine	8.000	$5,633	$45,064
3"	Compound	16.000	$5,633	$90,128
3"	Turbine	17.500	$5,633	$98,578
4"	Compound	25.000	$5,633	$140,825
4"	Turbine	30.000	$5,633	$168,990
6"	Compound	50.000	$5,633	$281,650
6"	Turbine	62.500	$5,633	$352,063
8"	Compound	80.000	$5,633	$450,640
8"	Turbine	90.000	$5,633	$506,970

Source: Single-family EDUs per unit is by definition one; multi-family EDUs per unit from Table 70; nonresidential EDUs per meter from Table 71; net cost per EDU is the lowest cost per EDU from Table 90.

The updated water fees are compared to current fees in Table 92. The updated fees are generally 12% higher than the current fees. However, since the updated water fee includes the water resources cost that is currently assessed in a separate water resources fee charged only in the water resources service area, the increase in the combined water and water resources fee will be slightly less for new customers in the former water resources service area.

Table 92. Current and Updated Water System Development Fees

Housing/Meter Type		Current Fee	Updated Fee	Percent Change
Single-Family Unit		$5,019	$5,633	12%
Multi-Family Unit		$1,832	$2,129	16%
Nonresidential Meter:				
3/4"	Disc	$7,529	$8,450	12%
1"	Disc	$12,549	$14,083	12%
1 1/2"	Disc	$25,097	$28,165	12%
2"	Disc/Turbine	$40,154	$45,064	12%
3"	Compound	$80,309	$90,128	12%
3"	Turbine	$87,838	$98,578	12%
4"	Compound	$125,482	$140,825	12%
6"	Compound	$250,963	$281,650	12%
6"	Turbine	$313,704	$352,063	12%
8"	Compound	$401,541	$450,640	12%
8"	Turbine	$451,733	$506,970	12%

Source: Current water fees from City of Chandler City Code, Chapter 38 (see Table 3); updated fees from Table 91.

Capital Plan

Assuming that growth occurs as projected in the land use assumptions, the City faces approximately $207 million in growth-related water costs over the next ten years, as summarized in Table 93.

Table 93. Water Capital Plan, 2013-2023

WA334, Joint Water Treatment Plant	$40,188,594
WA034, Well Construction	$3,000,000
WA029, Water Master Plan	$289,428
WA672, Water Purchases	$70,000,000
WA670, Intel Water Purchase	not included
Subtotal, Planned Projects	$113,478,022
1994 RB Debt, New Transmission Mains, WTP Mod., Pumps, Pres. Zones	$1,112,306
1996 RB Debt, New Transmisssion Mains, Well Construction/Modification	$81,290
1997 RB Ref. Debt, New Transmission Mains, WTP Mod., Pumps, Wells, PZs	$34,673
2001 RB Debt, Main Extensions, Water Storage/Recovery Project	$102,480
2002 RB Ref. Debt, Water System Improvements	$3,097,875
2003 RB Ref. Debt, New Transmisssion Mains, Well Construction/Modification	$3,855,971
2003 RB Debt, Well Construction, Backup Well Supply, Transm. Mains	$975,000
2003 GO Ref. Debt, Water System Improvements	$4,067,427
2005 RB Debt, Well Construction	$5,649,456
2005 RB Ref. Debt, Main Extensions, Storage, Land, Valves, Reservoir, Supply	$3,187,186
2007 GO Debt, Joint Water Treatment Plant	$22,500,000
2009 ETRO Debt, New Transmission Mains, WTP Mod., Pumps, Pres. Zones	$2,343,413
2009 GO Debt, Joint Water Treatment Plant, Well Construction	$23,962,169
2011 ETRO Debt, Water Production Facility, WTP Expansion, Wells, Mains	$2,458,667
Subtotal, Debt Principal Payments Due 2013-2023	$73,427,913
Encumbrance for Joint Water Treatment Plant	$243,866
Encumbrance for Transmission Mains	$3,591,877
Encumbrance for Water Treatment Plant Expansion	$2,637
Encumbrance for Well Construction	$356,138
Encumbrance for Water SDF Consultant	$8,696
Subtotal, Encumbrances for Current Projects	$4,203,214
FY 2008 Interfund Loan, Water Capital Improvements	$15,929,877
Required System Development Fee Studies	$27,256
Total Planned Expenditures	$207,066,282

Source: Planned projects and costs in 2013 dollars from Municipal Utilities Department, July 29, 2013; debt principal payments due over the next ten years attributable to eligible improvements from Table 129; interfund loan amounts from Table 130; encumbrances from Table 131; study cost from Table 132.

If the updated fees are adopted at 100%, potential water system development fee revenue over the next ten years, based on new development anticipated by the land use assumptions, would be $178.0 million. With the inclusion of the current fund balance, the City would have $192.6 million in system development fee funds available over the next ten years, as shown in Table 94. Projected buildout revenues are also shown for reference. Projected system development fee funds would cover 93% of the planned ten-year costs and all of the planned buildout costs.

Table 94. Potential Water System Development Fee Revenue, 2013-2023

	2013-2023	2013-Buildout
New Service Units (EDUs), 2013-2023	31,607	63,214
x Net Cost per Service Unit (EDU)	$5,633	$5,633
Potential Revenue, 2013-2023	$178,042,231	$356,084,462
Current Fund Balance	$14,576,874	$14,576,874
Total System Development Fee Funds Available, 2013-2023	$192,619,105	$370,661,336
÷ Planned Expenditures	$207,066,282	$370,639,784
Percent of Costs Covered by Water Fees	93%	100%

Source: New service units from Table 73; net cost per service unit is the lowest cost per EDU from Table 90; current fund balance from Table 128 in Appendix D.

WASTEWATER

This section updates the City's wastewater system development fees in compliance with the new Arizona impact fee enabling act for municipalities. While currently the City assesses separate wastewater treatment and wastewater trunk line fees, it does not track them separately and they essentially function as a single fee. In this update the two are combined into a single wastewater fee.

Service Units

To calculate wastewater impact fees, the demand associated with different types of customers must be expressed in a common unit of measurement, called a "service unit." The service unit for the City's water and wastewater system development fees is an "equivalent dwelling unit" (EDU). An EDU is a single-family dwelling unit or its equivalent in terms of wastewater demand.

Residential development is charged per dwelling unit. A single-family unit is, by definition, one EDU. Multi-family development is assessed based on the average wastewater demand of a multi-family unit compared to a single-family unit. While wastewater flow is not metered directly, it can be estimated based on average water demand per unit during the winter months, when outdoor water use is limited and most water used is returned to the wastewater system. Based on billing date for the last five years, a multi-family unit represents 0.474 of a wastewater EDU, as shown in Table 95.

Table 95. Wastewater Demand per Multi-Family Unit

Average Daily Winter Water Consumption (gpd) per Multi-Family Unit	157
÷ Average Daily Winter Water Consumption (gpd) per Single-Family Unit	331
Multi-Family EDUs/Unit	0.474

Source: City of Chandler water billing data for the summer months, average of fiscal years 2007/08 through 2011/12, April 26, 2013.

The number of wastewater service units associated with a nonresidential customer is determined by the capacity of the water meter relative to the capacity of the smallest meter size. The water meter capacity ratios presented earlier in the Water section (see Table 71) will also be used to determine relative wastewater demand for nonresidential customers. The number of existing wastewater service units are estimated based on the number of current City wastewater customers and the service unit multipliers described above. As shown in Table 96, the City's current wastewater customer base amounts to 93,047 service units (EDUs).

Table 96. Existing Wastewater Service Units

Land Use	Units or Meters	EDU Multiplier	EDUs
Single-Family Units	70,422	1.000	70,422
Multi-Family Units	19,100	0.474	9,059
Nonresidential Accounts	2,280	5.950	13,566
Total Wastewater EDUs			93,047

Source: Residential units and nonresidential accounts (excluding landscape and hydrant accounts) from City of Chandler wastewater billing data for 2011/12 fiscal year, April 26, 2013; multi-family EDU multiplier from Table 95; EDUs per nonresidential account from Table 72 (average for all nonresidential meters).

The number of wastewater service units should increase proportionately with the increase in wastewater demand. As shown in Table 97, average daily wastewater demand and service units are projected to increase by 35% over the next ten years, and then by another 26% from 2023 to buildout.

Table 97. Wastewater Demand and Service Units, 2013-Buildout

	2013	2023	Buildout
Wastewater Avg. Daily Demand (gpd)	25,600,000	34,600,000	43,600,000
Wastewater EDUs	93,047	125,759	158,471
Increase, 2013-2023		35%	
Increase, 2023-Buildout			26%

Source: 2013 and buildout average day wastewater demand from City of Chandler, May 2, 2013; 2023 based on midpoint from 2013 to buildout; 2013 wastewater EDUs from Table 96; 2023 and buildout EDUs projected to increase proportionately to water demand.

Cost per Service Unit

As described earlier in the Methodology section of the Legal Framework, the updated system development fees will be based on the lowest of three costs per service units: existing level of service, ten-year cost and buildout cost.

Existing Level of Service

The existing level of service for the wastewater system development fees is quantified, in large part, by the capacity provided by existing wastewater facilities and the current cost to construct that capacity.

Chandler's wastewater treatment facilities include the Ocotillo and Airport Water Reclamation Facilities and the Lone Butte Wastewater Treatment Plant. The capacity of existing and planned treatment facilities is summarized in Table 98. Because the Lone Butte plant will be decommissioned, it is not included in determining the existing level of service.

Table 98. Wastewater Treatment Capacity, 2013-Buildout

Wastewater Facility	Current	Planned
Ocotillo Water Reclamation Facility Capacity (mgd)	10.0	20.0
Airport Water Reclamation Facility Capacity (mgd)	15.0	22.0
Lone Butte Wastewater Treatment Plant Capacity (mgd)	8.8	0.0
Future Capacity Expansion at either Ocotillo or Airport (mgd)	0.0	5.0
Total Treatment Capacity (mgd)	33.8	47.0
Total Capacity Excluding Lone Butte (mgd)	25.0	47.0

Source: Treatment plant capacity from City of Chandler Municipal Utilities Department, May 2, 2013.

The wastewater collection system consists of lift stations, force mains and gravity lines. Existing lift station capacities are summarized in Table 99.

Table 99. Existing Lift Station Capacity

Lift Station	Firm Capacity (mgd)
Manganaro	10.0
Kyrene	5.8
Pecos/McQueen	9.5
Sunbird	0.7
Old Pecos	2.7
Riggs	3.0
Golf Course	1.6
Ocotillo (to Airport WRF)	28.3
Total	61.6

Source: City of Chandler Municipal Utilities Department, May 2, 2013.

Another component of a wastewater system is the gravity mains and force mains that convey the wastewater to the treatment plants. Wastewater impact fees typically charge only for major system lines, since local lines are often constructed by developers without credit against their wastewater impact fees. The City's wastewater master plan does not clearly distinguish between system lines and local lines. In this update, system lines are defined as gravity mains of 18 inches in diameter or greater, and force mains of 12 inches or greater. These are summarized in Table 100.

Table 100. Existing Wastewater System Lines

Pipe Diameter (inches)	Linear Feet
18	129,518
20	35,904
21	35,851
24	86,803
27	57,499
30	60,403
33	7,286
36	15,998
39	5,333
42	13,728
48	20,698
60	211
66	13,622
Total, Gravity Lines	482,854
12	6,230
16	12,144
18	10,771
20	35,904
24	22,334
Total, Force Mains	87,383

Source: City of Chandler Municipal Utilities Department, May 31, 2013, June 5, 2013 and July 23, 2013.

The replacement cost of Chandler's existing wastewater system is estimated based on current capacities and the current unit costs to construct wastewater facilities, as shown in Table 101.

Table 101. Replacement Cost of Existing Wastewater Facilities

System Component	Unit	Existing Units	Unit Cost	Replacement Cost
Treatment Plants*	gallons/day	25,000,000	$18.00	$450,000,000
Lift Stations	gallons/day	61,600,000	$1.33	$81,928,000
18" Gravity Mains	linear feet	129,518	$360	$46,626,480
20" Gravity Mains	linear feet	35,904	$400	$14,361,600
21" Gravity Mains	linear feet	35,851	$420	$15,057,420
24" Gravity Mains	linear feet	86,803	$480	$41,665,440
27" Gravity Mains	linear feet	57,499	$540	$31,049,460
30" Gravity Mains	linear feet	60,403	$600	$36,241,800
33" Gravity Mains	linear feet	7,286	$660	$4,808,760
36" Gravity Mains	linear feet	15,998	$720	$11,518,560
39" Gravity Mains	linear feet	5,333	$780	$4,159,740
42" Gravity Mains	linear feet	13,728	$840	$11,531,520
48" Gravity Mains	linear feet	20,698	$960	$19,870,080
60" Gravity Mains	linear feet	211	$1,200	$253,200
66" Gravity Mains	linear feet	13,622	$1,320	$17,981,040
12" Force Mains	linear feet	6,230	$216	$1,345,680
16" Force Mains	linear feet	12,144	$288	$3,497,472
18" Force Mains	linear feet	10,771	$324	$3,489,804
20" Force Mains	linear feet	35,904	$360	$12,925,440
24" Force Mains	linear feet	22,334	$432	$9,648,288
Total Replacement Cost of Existing Wastewater Facilities				$817,959,784

* excludes Lone Butte plant, which is planned to be decommissioned

Source: Treatment plant capacity (excluding Lone Butte) from Table 98; lift station capacity from Table 99; linear feet of lines from Table 100; unit costs from City of Chandler Municipal Utilities Department, July 23, 2013.

The existing level of service for wastewater facilities is calculated in Table 102. The replacement cost of existing treatment plants, excluding Lone Butte, can all be attributed to existing development, since without the Lone Butte plant, which will be decommissioned, there is no excess treatment capacity. The cost of the existing collection system is reduced to account for the fact that it is sufficient to serve buildout development, not just current customers. The total cost is divided by the number of existing service units to determine the existing level of service, which amounts to $7,158 per EDU.

Table 102. Wastewater Existing Level of Service

Replacement Cost of Treatment Plants	$450,000,000
x Percent of Capacity Currently Utilized	100.00%
Cost of Treatment Plant Capacity Utilized	$450,000,000
Replacement Cost of Collection System	$367,959,784
x Percent of Capacity Currently Utilized	58.72%
Cost of Collection System Utilized	$216,065,985
Total Replacement Costs Utilized by Existing Customers	$666,065,985
÷ Existing Service Units (EDUs)	93,047
Existing Cost per Service Unit (EDU)	$7,158

Source: Treatment plant and collection system costs from Table 101; percent of collection system currently utilized is ratio of existing to buildout demand from Table 98; existing service units from Table 97.

A final consideration in the existing level of service calculation is to verify that no deductions for outstanding debt or interfund loans on existing facilities are warranted. This is confirmed by the data presented in Table 103. The cost of existing facilities (in current dollars) that is available for future customers is approximately $152 million. Outstanding debt and interfund loan obligations total about $78 million, or only about half of the cost of facilities available for future customers. Consequently, all of the cost of facilities serving existing customers can reasonably be considered to have been fully paid for.

Table 103. Existing Wastewater Facility Cost and Outstanding Obligations

Total Cost of Existing Facilities	$817,959,784
– Cost of Existing Facilities Serving Current Customers	-$666,065,985
Cost of Existing Facilities Available for Future Customers	$151,893,799
Outstanding Debt on Existing Facilities	$70,710,144
Interfund Loan Balances on Existing Facilities	$7,200,000
Total Obligations for Existing Facilities	$77,910,144
÷ Cost of Existing Facilities Available for Future Customers	$151,893,799
Future Obligations as Percent of Cost of Available Existing Facilities	51.3%

Source: Total cost of existing facilities from Table 101; cost of facilities serving existing customers from Table 102; outstanding debt from Table 129 (excludes Lone Butte debt); interfund loans from Table 130.

Ten-Year Cost per Service Unit

Over the next ten years, the City plans to complete a 10 mgd expansion to its wastewater treatment plant capacity and make some collection system improvements. An update of the City's wastewater master plan will need to be completed during this time. The City will also need to repay debt principal and interfund loans on existing facilities with excess capacity, to pay encumbrances on current projects and to pay for a minimum of two updates of the system development fees that will be required over the next ten years. The results are shown in Table 104 and indicate a ten-year cost per service unit of $7,991 per EDU.

Table 104. Wastewater Ten-Year Cost per Service Unit

WW022, Water Reclamation Facility Expansion (two 5 mgd expansions)	$221,450,437
WW196, Collection System Improvements	$8,080,000
WW021, Wastewater Master Plan Update	$522,014
Total Planned Improvement Cost	$230,052,451
Eligible Debt Principal Payments, 2013-2023	$45,540,655
Interfund Loan Obligations	$7,200,000
Encumbrances for Current Projects	$1,807,127
Required System Development Fee Studies	$27,256
– Fund Balance and Accounts Receivable	-$23,221,822
Total Revenue Needs	$261,405,667
÷ New Service Units (EDUs), 2013-2023	32,712
Ten-Year Cost per Service Unit (EDU)	$7,991

Source: Planned projects and costs in 2013 dollars from Municipal Utilities Department, July 29, 2013; debt from Table 129 (excludes Lone Butte debt); interfund loans from Table 130; encumbrances from Table 131; study cost from Table 132; fund balance (including accounts receivable) from Table 128; new service units from Table 97.

Buildout Cost per Service Unit

An additional 10 mgd treatment plant capacity expansion is planned after 2023. The buildout cost includes costs that will be incurred by the City to buildout to construct planned improvements, repay outstanding debt and interfund loans associated with existing capacity to serve new development, and to pay for updated studies. Dividing the total buildout cost by new service units to buildout results in a buildout cost per service unit of $6,475 per EDU, as shown in Table 105.

Table 105. Wastewater Buildout Cost per Service Unit

WW022, Water Reclamation Facility Expansion (two 5 mgd expansions)	$221,450,437
WW196, Collection System Improvements	$8,080,000
WW021, Wastewater Master Plan Update	$522,014
Water Reclamation Facility Expansion (one 10 mgd expansion)	$136,989,143
Total Planned Improvement Cost	$367,041,594
Eligible Debt Principal Payments, 2013-Buildout	$70,710,144
Interfund Loan Obligations	$7,200,000
Encumbrances for Current Projects	$1,807,127
Required System Development Fee Studies	$81,768
– Fund Balance and Accounts Receivable	-$23,221,822
Total Revenue Needs	$423,618,811
÷ New Service Units (EDUs), 2013-Buildout	65,424
Buildout Cost per Service Unit (EDU)	$6,475

Source: Planned projects and costs in 2013 dollars from Municipal Utilities Department, July 29, 2013 and October 11, 2013; debt from Table 129 (excludes Lone Butte debt); interfund loans from Table 130; encumbrances from Table 131; study cost from Table 132; fund balance (including accounts receivable) from Table 128; new service units from Table 97.

Cost per Service Unit Summary

The three costs per service unit calculated above are summarized in Table 106. The updated system development fees will be based on the buildout cost per service unit, which is the lowest of the three.

Table 106. Wastewater Cost per Service Unit

Existing Cost per Service Unit	$7,158
Ten-Year Cost per Service Unit	$7,991
Buildout Cost per Service Unit	$6,475
Lowest Cost per Service Unit	$6,475

Source: Existing from Table 102; ten-year from Table 104; buildout from Table 105.

Net Cost per Service Unit

As noted in the Legal Framework section of this report, impact fees should be reduced (or "offset") in order to account for other types of revenues that will be generated by new development and used to fund capacity-expanding improvements of the same type as those to be funded by the impact fees. Cases in which such an offset is warranted include funding of existing deficiencies, outstanding debt payments on existing facilities, and dedicated revenue sources to fund growth-related improvements.

All of the outstanding debt for past capacity improvements can reasonably be attributed to capacity that is available for future customers. Other than system development fees and wastewater utility rates, the City has no dedicated source of revenue to fund growth-related wastewater improvements. The City has not received any grant funding for wastewater improvements in recent years, and does not anticipate any grants over the next ten years. Consequently, no additional offsets are warranted, and the net cost per service unit is the same as the cost per service unit calculated above.

Potential System Development Fees

The updated wastewater system development fees that may be adopted by the City based on this study is the product of the number of service units generated by a unit of development and the net cost per service unit calculated above. The resulting updated fee schedule is presented in Table 107.

Table 107. Wastewater Net Cost Schedule

Housing/Meter Type		EDUs per Unit/Meter	Net Cost/ EDU	Net Cost per Unit/Meter
Single-Family Unit		1.000	$6,475	$6,475
Multi-Family Unit		0.474	$6,475	$3,069
Nonresidential Meter:				
3/4"	Disc	1.500	$6,475	$9,713
1"	Disc	2.500	$6,475	$16,188
1 1/2"	Disc	5.000	$6,475	$32,375
2"	Disc/Turbine	8.000	$6,475	$51,800
3"	Compound	16.000	$6,475	$103,600
3"	Turbine	17.500	$6,475	$113,313
4"	Compound	25.000	$6,475	$161,875
4"	Turbine	30.000	$6,475	$194,250
6"	Compound	50.000	$6,475	$323,750
6"	Turbine	62.500	$6,475	$404,688
8"	Compound	80.000	$6,475	$518,000
8"	Turbine	90.000	$6,475	$582,750

Source: Single-family EDUs per unit is by definition one; multi-family EDUs per unit from Table 95; nonresidential EDUs per meter from Table 71; net cost per EDU is the lowest cost per EDU from Table 106.

The updated wastewater fees are compared to current fees in Table 108. The updated fees are about 19% higher than current fees.

Table 108. Current and Updated Wastewater System Development Fees

Housing/Meter Type		Current Fee	Updated Fee	Percent Change
Single-Family Unit		$5,439	$6,475	19%
Multi-Family Unit		$2,490	$3,069	23%
Nonresidential Meter:				
3/4"	Disc	$8,157	$9,713	19%
1"	Disc	$13,594	$16,188	19%
1 1/2"	Disc	$27,188	$32,375	19%
2"	Disc/Turbine	$43,500	$51,800	19%
3"	Compound	$86,999	$103,600	19%
3"	Turbine	$95,155	$113,313	19%
4"	Compound	$135,936	$161,875	19%
6"	Compound	$271,871	$323,750	19%
6"	Turbine	$329,838	$404,688	23%
8"	Compound	$434,992	$518,000	19%
8"	Turbine	$489,368	$582,750	19%

Source: Current fees from City of Chandler City Code, Chapter 38; updated fees from Table 107.

Capital Plan

Assuming that growth occurs as projected in the land use assumptions, the City faces approximately $285 million in growth-related wastewater costs over the next ten years, as summarized in Table 109.

Table 109. Wastewater Capital Plan, 2013-2023

WW022, Water Reclamation Facility Expansion (two 5 mgd expansions)	$221,450,437
WW196, Collection System Improvements	$8,080,000
WW021, Wastewater Master Plan Update	$522,014
Subtotal, Planned Projects	$230,052,451
1996 RB Debt, Airport Wastewater Treatment Plant	$285,000
1997 RB Ref. Debt, Airport Wastewater Treatment Plant	$40,000
2002 RB Ref. Debt, Wastewater System Improvements	$657,125
2003 RB Ref. Debt, Airport Wastewater Treatment Plant	$6,160,000
2009 GO Debt, Water Reclamation Facility	$21,069,280
2009 ETRO Debt, Water Reclamation Facilities Expansion	$13,610,000
2009 RB ETRO Debt, Airport Wastewater Treatment Plant	$2,665,000
2011 ETRO Debt, Ocotillo Water Reclamation Facility	$1,054,250
Subtotal, Outstanding Debt Principal, 2013-2023	$45,540,655
Encumbrances for Collection System Facility Improvements	$7,525
Encumbrances for S Chandler Sewer Line Expansion	$764,635
Encumbrances for Wastewater Master Plan Update	$217,256
Encumbrances for Water Reclamation Plant Expansion	$809,016
Encumbrances for Wastewater SDF Consultant	$8,696
Subtotal, Encumbrances for Current Projects	$1,807,127
FY 2003 Interfund Loan from WW Operating Fund, Wastewater Capital Improvements	$7,200,000
Required System Development Fee Studies	$27,256
Total Planned Expenditures	$284,627,489

Source: Planned projects and costs in 2013 dollars from Municipal Utilities Department, July 29, 2013; debt principal payments due over the next ten years attributable to eligible improvements from Table 129; interfund loan amounts from Table 130; encumbrances from Table 131; study cost from Table 132.

If the updated fees are adopted at 100%, potential wastewater system development fee revenue over the next ten years, based on new development anticipated by the land use assumptions, would be about $212 million. With the inclusion of the current fund balance, the City would have about $235 million in system development fee funds available over the next ten years, as shown in Table 110. Projected buildout revenues are also shown for reference.

Table 110. Potential Wastewater System Development Fee Revenue, 2013-2023

	2013-2023	2013-Buildout
New Service Units (EDUs), 2013-2023	32,712	65,424
x Net Cost per Service Unit (EDU)	$6,475	$6,475
Potential Revenue, 2013-2023	$211,810,200	$423,620,400
Current Fund Balance and Accounts Receivable	$23,221,822	$23,221,822
Total System Development Fee Funds Available, 2013-2023	$235,032,022	$446,842,222
÷ Planned Expenditures	$284,627,489	$446,840,633
Percent of Costs Covered by Wastewater Fees	83%	100%

Source: New service units from Table 97; net cost per service unit is the lowest cost per EDU from Table 106; current fund balance from Table 128 in Appendix D (includes current balance and accounts receivable); 2013-2023 planned expenditures from Table 109; 2013 buildout expenditures from Table 105 (revenue needs plus fund balance/accounts receivables).

Wastewater system development fee funds anticipated to be available over the next ten years would cover approximately 83% of the total ten-year costs. The percentage of ten-year costs that will be covered by system development fees is low because the City will incur most of the costs needed to buildout within the next ten years, whereas buildout will probably not occur for another 20 years. However, the timing of overall costs are flexible, since the City can make interfund loans until sufficient system development fees become available. Assuming the City continues to collect wastewater system development fees until it reaches buildout, future fees plus the current fund balance should be sufficient to cover all of the costs.

RECLAIMED WATER

This section updates the City's reclaimed water system development fees in compliance with the new Arizona impact fee enabling act for municipalities. Reclaimed water is wastewater that is treated and purified to be safely used for irrigating golf courses, common areas, and roadside landscaping. Chandler's water reclamation facilities use a state-of-the-art treatment process that cleans and disinfects the wastewater before it is added to the reclaimed water distribution system. The reclaimed water system benefits all City water and wastewater utility customers by providing an efficient method of disposing of wastewater and conserving limited water resources. The ability to expand the City's wastewater treatment capacity is limited by the ability to reuse or recharge the effluent. Because the reclaimed water system is most closely linked to the wastewater system, reclaimed water system development fees are assessed on new wastewater customers.

Service Units

To calculate system development fees, the demand associated with different types of development must be expressed in a common unit of measurement, called a "service unit." The service unit for the reclaimed water fee is an "equivalent dwelling unit" (EDU). An EDU is a single-family dwelling unit or its equivalent in terms of reclaimed water demand. Because the reclaimed water system development fees are assessed on new wastewater customers, the wastewater service unit multipliers and projections calculated in the previous wastewater section are appropriate for the reclaimed water fees as well.

Cost per Service Unit

As described earlier in the Methodology section of the Legal Framework, the updated system development fees will be based on the lowest of three costs per service units: existing level of service, ten-year cost and buildout cost.

Existing Level of Service

The existing level of service for the reclaimed water system development fees is quantified, in large part, by the capacity provided by existing reclaimed water facilities and the current cost to construct that capacity. Chandler's reclaimed water facilities include pump stations, recharge and recovery wells and reclaimed water transmission lines. The City's existing pump station capacities are summarized in Table 111.

Table 111. Existing Reclaimed Water Pump Stations

Reclaimed Water Pump Station	Capacity (mgd)
GRIC Pump Station at Ocotillo WRF	5.0
Effluent Pump Station at Ocotillo WRF	20.0
Intel Effluent Pump Station	2.0
Recharge Pump Station at Ocotillo WRF	10.0
Reclaimed Water Pump Station at Airport WRF	30.0
Reclaimed Water Pump Station at Airport WRF Reservoirs	10.0
Total, Pump Stations	77.0

Source: City of Chandler Municipal Utilities Department, May 2, 2013.

A key component of the reclaimed water system is the system of aquifer storage and recovery (ASR) wells. The City's existing reclaimed well capacities are summarized in Table 112.

Table 112. Existing Reclaimed Water Wells

Recharge Well	Recharge Capacity (mgd)
Tumbleweed Park ASR Well No. 1	2.3
Tumbleweed Park ASR Well No. 2	1.7
Tumbleweed Park ASR Well No. 3	1.7
Tumbleweed Park ASR Well No. 4	1.9
Tumbleweed Park ASR Well No. 5	0.9
Tumbleweed Park ASR Well No. 6	1.3
Tumbleweed Park ASR Well No. 7	1.6
Tumbleweed Park ASR Well No. 8	1.4
Tumbleweed Park ASR Well No. 9	1.4
Tumbleweed Park ASR Well No. 10	1.4
Total Capacity, Tumbleweed Park	15.6
Ocotillo ASR Well No. 1	1.2
Ocotillo ASR Well No. 2	1.2
Ocotillo ASR Well No. 3	1.2
Ocotillo ASR Well No. 4	1.2
Ocotillo ASR Well No. 5	1.4
Ocotillo ASR Well No. 6	1.4
Total Capacity, Ocotillo	7.6
Veterans Oasis Recharge Basin	2.0
Total System Capacity	25.2

Source: City of Chandler Municipal Utilities Department, May 2, 2013 and September 26, 2013.

Another component of a reclaimed water system is the network of transmission mains that distribute the reclaimed water to reclaimed water users. The existing major lines are summarized in Table 113.

Table 113. Existing Reclaimed Water System Lines

Pipe Size (in.)	Linear Feet
12	229,142
16	2,902
18	1,508
24	109,005
36	22,091

Source: City of Chandler Municipal Utilities Department, August 12, 2013.

The total replacement cost of Chandler's existing reclaimed water system is estimated based on current capacities and the current unit costs to construct reclaimed water facilities. Outstanding debt and interfund loans in excess of the current reclaimed water system development fee fund balance are deducted to determine the net replacement cost that has been fully paid for by existing wastewater customers. The net replacement cost is divided by the number of existing wastewater service units to determine the existing cost per service unit of $1,200 per EDU, as shown in Table 114.

Table 114. Reclaimed Water Existing Level of Service

System Component	Unit	Existing Units	Unit Cost	Replacement Cost
Pump Station Capacity	gallons/day	77,000,000	$0.50	$38,500,000
ASR Well Capacity	gallons/day	25,200,000	$2.00	$50,400,000
12" Transmission Lines	linear feet	229,142	$180	$41,245,560
16" Transmission Lines	linear feet	2,902	$240	$696,480
18" Transmission Lines	linear feet	1,508	$270	$407,160
24" Transmission Lines	linear feet	109,005	$360	$39,241,800
36" Transmission Lines	linear feet	22,091	$540	$11,929,140
Total Existing System Replacement Cost				$143,920,140
– Outstanding Debt on Existing Facilities				-$22,527,935
– Interfund Loan Balance				-$11,600,000
Fund Balance				$1,890,398
Net Existing System Replacement Cost				$111,682,603
÷ Existing Service Units (EDUs)				93,047
Existing Cost per Service Unit (EDU)				$1,200

Source: Pump station capacity from Table 111; well capacity from Table 112; transmission lines from Table 113; unit costs from City of Chandler Municipal Utilities Department, July 23, 2013; outstanding debt from Table 129; interfund loans from Table 130; fund balance from Table 128; existing service units from Table 97.

Ten-Year Cost per Service Unit

Over the next ten years, the City plans to construct the remaining ASR wells and reclaimed water transmission mains that will be required by buildout. The City will also need to repay debt principal and interfund loans on existing facilities with excess capacity, pay encumbrances on current projects and pay for a minimum of two updates of the system development fees that will be required over the next ten years. The results are shown in Table 115 and indicate a ten-year cost per service unit of $1,289 per EDU.

Table 115. Reclaimed Water Ten-Year Cost per Service Unit

WW189, Effluent Reuse - Storage & Recovery Wells	$9,839,259
WW192, Effluent Reuse - Transmission Mains	$5,218,045
Total Planned Improvement Cost	$15,057,304
Eligible Debt Principal Payments, 2013-2023	$15,916,863
Interfund Loan Obligations	$11,600,000
Encumbrances for Current Projects	$1,441,813
Required System Development Fee Studies	$27,256
– Fund Balance	-$1,890,398
Total Revenue Needs	$42,152,838
÷ New Service Units (EDUs), 2013-2023	32,712
Ten-Year Cost per Service Unit (EDU)	$1,289

Source: Planned projects and costs in 2013 dollars from Municipal Utilities Department, July 29, 2013; debt from Table 129; interfund loans from Table 130; encumbrances from Table 131; study cost from Table 132; fund balance from Table 128; new service units from Table 97.

Buildout Cost per Service Unit

Beyond the next ten years, the City will need to add additional storage and recovery wells. The total buildout cost includes future costs that will be incurred by the City to construct planned improvements, repay outstanding debt and interfund loans associated with existing capacity to serve new development, and pay for updated studies. Dividing buildout costs by new service units to buildout results in a buildout cost per service unit of $897 per EDU, as shown in Table 116.

Table 116. Reclaimed Water Buildout Cost per Service Unit

WW189, Effluent Reuse - Storage & Recovery Wells	$9,839,259
WW192, Effluent Reuse - Transmission Mains	$5,218,045
Additional Effluent Reuse - Storage & Recovery Wells	$9,839,259
Total Planned Improvement Cost	$24,896,563
Eligible Debt Principal Payments, 2013-Buildout	$22,527,935
Interfund Loan Obligations	$11,600,000
Encumbrances for Current Projects	$1,441,813
Required System Development Fee Studies	$81,768
– Fund Balance	-$1,890,398
Total Revenue Needs	$58,657,681
÷ New Service Units (EDUs), 2013-2023	65,424
Buildout Cost per Service Unit (EDU)	$897

Source: Planned projects and costs in 2013 dollars from Municipal Utilities Department, July 29, 2013 and October 23, 2013; debt from Table 129; interfund loans from Table 130; encumbrances from Table 131; study cost from Table 132; fund balance from Table 128; new service units from Table 97.

Cost per Service Unit Summary

The three costs per service unit calculated above are summarized in Table 117. The updated system development fees will be based on the buildout cost per service unit, which is the lowest of the three.

Table 117. Reclaimed Water Cost per Service Unit

Existing Cost per Service Unit	$1,200
Ten-Year Cost per Service Unit	$1,289
Buildout Cost per Service Unit	$897
Lowest Cost per Service Unit	$897

Source: Existing from Table 114; ten-year from Table 115; buildout from Table 116.

Net Cost per Service Unit

As noted in the Legal Framework section of this report, impact fees should be reduced (or "offset") in order to account for other types of revenues that will be generated by new development and used to fund capacity-expanding improvements of the same type as those to be funded by the impact fees. Cases in which such an offset is warranted include funding of existing deficiencies, outstanding debt payments on existing facilities, and dedicated revenue sources to fund growth-related improvements.

The reclaimed water system development fees calculated in this report are based on the buildout cost per service unit, which is lower than the existing level of service, so there are no existing deficiencies. Outstanding debt and interfund loans on existing facilities have been excluded from the existing level of service calculation. Other than system development fees and utility rates, the City has no dedicated source of revenue to fund growth-related reclaimed water improvements. The City has not received any grant funding for reclaimed water improvements in recent years, and does not anticipate any grants over the next ten years. Consequently, no additional offsets are warranted, and the net cost per service unit is the same as the cost per service unit calculated above.

Potential System Development Fees

The updated reclaimed water system development fees that may be adopted by the City based on this study is the product of the number of service units generated by a unit of development and the net cost per service unit calculated above. The resulting updated fee schedule is presented in Table 118.

Table 118. Reclaimed Water Net Cost Schedule

Housing/Meter Type		EDUs per Unit/Meter	Net Cost/ EDU	Net Cost per Unit/Meter
Single-Family Unit		1.000	$897	$897
Multi-Family Unit		0.474	$897	$425
Nonresidential Meter:				
3/4"	Disc	1.500	$897	$1,346
1"	Disc	2.500	$897	$2,243
1 1/2"	Disc	5.000	$897	$4,485
2"	Disc/Turbine	8.000	$897	$7,176
3"	Compound	16.000	$897	$14,352
3"	Turbine	17.500	$897	$15,698
4"	Compound	25.000	$897	$22,425
4"	Turbine	30.000	$897	$26,910
6"	Compound	50.000	$897	$44,850
6"	Turbine	62.500	$897	$56,063
8"	Compound	80.000	$897	$71,760
8"	Turbine	90.000	$897	$80,730

Source: EDUs per unit or meter are the same as for wastewater from Table 107; net cost per EDU is the lowest cost per EDU from Table 117.

The updated reclaimed water fees are compared to current fees in Table 119. The updated fees are about 19% lower than current fees.

Table 119. Current and Updated Reclaimed Water System Development Fees

Housing/Meter Type		Current Fee	Updated Fee	Percent Change
Single-Family Unit		$1,114	$897	-19%
Multi-Family Unit		$511	$425	-17%
Nonresidential Meter:				
3/4"	Disc	$1,672	$1,346	-19%
1"	Disc	$2,785	$2,243	-19%
1 1/2"	Disc	$5,570	$4,485	-19%
2"	Disc/Turbine	$8,913	$7,176	-19%
3"	Compound	$17,825	$14,352	-19%
3"	Turbine	$19,496	$15,698	-19%
4"	Compound	$27,850	$22,425	-19%
6"	Compound	$55,700	$44,850	-19%
6"	Turbine	$69,625	$56,063	-19%
8"	Compound	$89,120	$71,760	-19%
8"	Turbine	$100,261	$80,730	-19%

Source: Current fees from City of Chandler City Code, Chapter 38; updated fees from Table 118.

Capital Plan

Assuming that growth occurs as projected in the land use assumptions, the City faces approximately $44 million in growth-related reclaimed water costs over the next ten years, as summarized in Table 120.

Table 120. Reclaimed Water Capital Plan, 2013-2023

WW189, Effluent Reuse - Storage & Recovery Wells	$9,839,259
WW192, Effluent Reuse - Transmission Mains	$5,218,045
Subtotal, Planned Projects	$15,057,304
2001 RB Debt, Storage/Recovery, Effluent Reuse Transmission Mains	$732,000
2003 GO Ref. Debt, Design/Install Reclaimed Water Recharge & Recovery	$580,000
2005 RB Ref. Debt, Water Storage Recovery Project, Effluent Reuse Transmission	$4,271,779
2009 GO Debt, Effluent Reuse Storage/Transmission/Recovery	$9,278,834
2011 ETRO Debt, Effluent Reuse - Storage & Recovery	$1,054,250
Subtotal, Outstanding Debt Principal, 2013-2023	$15,916,863
FY 2001 Loan from Water Operating Fund, Reclaimed Water Improvements	$3,900,000
FY 2007 Loan from Wastewater SDF Fund	$7,700,000
Subtotal, Outstanding Interfund Loan Amounts	$11,600,000
Encumbrances for Effluent Reuse-Storage and Recovery Wells	$774,872
Encumbrances for Effluent Reuse-Transmission Mains	$658,245
Encumbrances for Reclaimed Water SDF Consultant	$8,696
Subtotal, Encumbrances for Current Projects	$1,441,813
Required System Development Fee Studies	$27,256
Total Planned Expenditures	$44,043,236

Source: Planned projects and costs in 2013 dollars from Municipal Utilities Department, July 29, 2013; debt principal payments due over the next ten years attributable to eligible improvements from Table 129; interfund loan amounts from Table 130; encumbrances from Table 131; study cost from Table 132.

If the updated fees are adopted at 100%, potential reclaimed water system development fee revenue over the next ten years, based on new development anticipated by the land use assumptions, would

be about $29.3 million. With the inclusion of the current fund balance, the City would have about $31.2 million in system development fee funds available over the next ten years, as shown in Table 121. Projected buildout revenues are also shown for reference.

The percentage of ten-year costs that will be covered by system development fees is low because the City will incur most of the costs needed to buildout within the next ten years, whereas buildout will probably not occur for another 20 years. However, the timing of overall costs are flexible, since the City can make interfund loans until sufficient system development fees become available. Assuming the City continues to collect reclaimed water system development fees until it reaches buildout, future fees plus the current fund balance should be sufficient to cover all of the costs.

Table 121. Potential Reclaimed Water System Development Fee Revenue, 2013-2023

	2013-2023	2013-Buildout
New Service Units (EDUs), 2013-2023	32,712	65,424
x Net Cost per Service Unit (EDU)	$897	$897
Potential Revenue, 2013-2023	$29,342,664	$58,685,328
Current Fund Balance	$1,890,398	$1,890,398
Total System Development Fee Funds Available, 2013-2023	$31,233,062	$60,575,726
÷ Planned Expenditures	$44,043,236	$60,548,079
Percent of Costs Covered by Reclaimed Water Fees	71%	100%

Source: New service units from Table 97; net cost per service unit is the lowest cost per EDU from Table 117; current fund balance from Table 128 in Appendix D.

APPENDIX A: ARTERIAL STREETS

Table 122. Existing Arterial Street Inventory, Arterial Street Service Area

Street	From	To	Miles	Lns	Lane-Miles	Pk Hr Count	Capa-city	VMT	VMC
McClintock Rd	Frye	Loop 202	0.50	4	2.00	561	2,700	281	1,350
Price	Loop 202	Germann	1.15	4	4.60	2,040	2,700	2,346	3,105
Price	Germann	Queen Creek	1.00	6	6.00	1,947	4,100	1,947	4,100
Price	Queen Creek	Dobson	0.50	6	3.00	1,539	4,100	770	2,050
Dobson	Frye	Pecos	0.50	6	3.00	2,448	4,100	1,224	2,050
Dobson	Pecos	Germann	1.06	6	6.36	1,913	4,100	2,028	4,346
Dobson	Germann	Queen Creek	1.10	6	6.60	1,547	4,100	1,702	4,510
Dobson	Queen Creek	Price	0.42	4	1.68	918	2,700	386	1,134
Dobson	Price	Ocotillo	1.00	4	4.00	1,505	2,700	1,505	2,700
Dobson	Ocotillo	End	0.80	4	3.20	1,505	2,700	1,204	2,160
Alma School	Frye	Pecos	0.50	4	2.00	2,142	2,700	1,071	1,350
Alma School	Pecos	Loop 202	0.30	4	1.20	3,290	2,700	987	810
Alma School	Loop 202	Willis	0.25	6	1.50	3,290	4,100	823	1,025
Alma School	Willis	Germann	0.50	4	2.00	3,290	2,700	1,645	1,350
Alma School	Germann	Queen Creek	0.98	4	3.92	3,103	2,700	3,041	2,646
Alma School	Queen Creek	Ocotillo	1.12	4	4.48	2,465	2,700	2,761	3,024
Alma School	Ocotillo	Chandler Heights	1.13	4	4.52	1,972	2,700	2,228	3,051
Arizona	Knox	Ray	0.50	6	3.00	3,409	4,100	1,705	2,050
Arizona	Ray	Galveston	0.50	6	3.00	3,069	4,100	1,535	2,050
Arizona	Galveston	Chandler	0.50	4	2.00	3,069	2,700	1,535	1,350
Arizona	Pecos	Loop 202	0.30	6	1.80	3,137	4,100	941	1,230
Arizona	Loop 202	Germann	0.73	6	4.38	3,137	4,100	2,290	2,993
Arizona	Germann	Queen Creek	1.00	6	6.00	2,941	4,100	2,941	4,100
Arizona	Queen Creek	Ocotillo	1.00	6	6.00	2,788	4,100	2,788	4,100
Arizona	Ocotillo	Chandler Heights	1.00	5	5.00	2,550	3,200	2,550	3,200
Arizona	Chandler Heights	Riggs	1.00	4	4.00	1,683	2,700	1,683	2,700
McQueen	Warner	Ray	1.00	4	4.00	2,159	2,700	2,159	2,700
McQueen	Ray	Chandler	1.00	4	4.00	2,083	2,700	2,083	2,700
McQueen	Chandler	Pecos	1.00	4	4.00	1,904	2,700	1,904	2,700
McQueen	Pecos	Loop 202	0.62	6	3.72	2,219	4,100	1,376	2,542
McQueen	Loop 202	Germann	0.40	6	2.40	2,219	4,100	888	1,640
McQueen	Germann	Queen Creek	1.00	6	6.00	2,414	4,100	2,414	4,100
McQueen	Queen Creek	Ocotillo	1.00	6	6.00	1,887	4,100	1,887	4,100
McQueen	Ocotillo	Chandler Heights	1.00	2	2.00	1,326	1,300	1,326	1,300
McQueen	Chandler Heights	Riggs	1.00	2	2.00	1,020	1,300	1,020	1,300
McQueen	Riggs	City Limit	0.75	2	1.50	315	1,300	236	975
Cooper	Knox	Ray	0.75	4	3.00	1,972	2,700	1,479	2,025
Cooper	Ray	Chandler	1.00	6	6.00	1,972	4,100	1,972	4,100
Cooper	Chandler	Pecos	0.98	6	5.88	1,547	4,100	1,516	4,018
Cooper	Pecos	Loop 202	0.62	6	3.72	1,437	4,100	891	2,542
Cooper	Loop 202	Germann	0.40	6	2.40	1,437	4,100	575	1,640
Cooper	Queen Creek	Ocotillo	1.00	2	2.00	893	1,300	893	1,300
Cooper	Ocotillo	Chandler Heights	1.00	2	2.00	646	1,300	646	1,300
Cooper	Chandler Heights	Riggs	1.00	2	2.00	536	1,300	536	1,300
Cooper	Riggs	Hunt Highway	1.00	4	4.00	238	2,700	238	2,700
Gilbert	Pecos	Loop 202	0.60	6	3.60	3,171	4,100	1,903	2,460
Gilbert	Loop 202	Germann	0.40	6	2.40	3,171	4,100	1,268	1,640

Table 122. Continued

Street	From	To	Miles	Lns	Lane-Miles	Pk Hr Count	Capa-city	VMT	VMC
Gilbert	Germann	Queen Creek	1.00	6	6.00	3,298	4,100	3,298	4,100
Gilbert	Queen Creek	Ocotillo	1.00	6	6.00	1,921	4,100	1,921	4,100
Gilbert	Ocotillo	Chandler Heights	1.00	2	2.00	1,598	1,300	1,598	1,300
Gilbert	Chandler Heights	Riggs	1.00	2	2.00	1,207	1,300	1,207	1,300
Gilbert	Riggs	Hunt Highway	1.00	4	4.00	689	2,700	689	2,700
Lindsay	Ocotillo	Chandler Heights	1.00	2	2.00	927	1,300	927	1,300
Lindsay	Chandler Heights	Riggs	1.00	2	2.00	714	1,300	714	1,300
Lindsay	Riggs	Hunt Highway	1.00	2	2.00	306	1,300	306	1,300
Warner	RR Tracks	McQueen	0.50	4	2.00	2,440	2,700	1,220	1,350
Ray	Arizona	McQueen	1.00	4	4.00	1,785	2,700	1,785	2,700
Ray	McQueen	Cooper	1.00	4	4.00	1,675	2,700	1,675	2,700
Chandler	Arizona	Colorado	0.15	6	0.90	1,938	4,100	291	615
Chandler	Colorado	McQueen	0.87	4	3.48	1,938	2,700	1,686	2,349
Chandler	McQueen	Cooper	0.99	6	5.94	1,598	4,100	1,582	4,059
Chandler	Cooper	Gilbert	1.00	6	6.00	1,190	4,100	1,190	4,100
Pecos	Ellis	Dobson	0.50	2	1.00	927	1,300	464	650
Pecos	Dobson	Alma School	1.00	6	6.00	927	4,100	927	4,100
Pecos	Alma School	Arizona	1.00	6	6.00	1,156	4,100	1,156	4,100
Pecos	Arizona	McQueen	1.02	6	6.12	1,318	4,100	1,344	4,182
Pecos	McQueen	Cooper	1.00	6	6.00	1,156	4,100	1,156	4,100
Pecos	Cooper	Gilbert	1.00	6	6.00	1,369	4,100	1,369	4,100
Germann	City Limits	Price	0.25	2	0.50	740	1,300	185	325
Germann	Price	Dobson	0.75	4	3.00	740	2,700	555	2,025
Germann	Dobson	Alma School	1.00	6	6.00	1,029	4,100	1,029	4,100
Germann	Alma School	Arizona	1.00	6	6.00	1,233	4,100	1,233	4,100
Germann	Arizona	McQueen	1.00	4	4.00	910	2,700	910	2,700
Germann	McQueen	Cooper	1.00	4	4.00	952	2,700	952	2,700
Germann	Cooper	Gilbert	1.10	6	6.60	1,394	4,100	1,533	4,510
Queen Creek	City Limits	Price	0.27	6	1.62	500	4,100	135	1,107
Queen Creek	Price	Dobson	0.45	6	2.70	1,156	4,100	520	1,845
Queen Creek	Dobson	Alma School	1.30	6	7.80	1,335	4,100	1,736	5,330
Queen Creek	Alma School	Arizona	1.00	6	6.00	1,437	4,100	1,437	4,100
Queen Creek	Arizona	McQueen	1.00	6	6.00	952	4,100	952	4,100
Queen Creek	McQueen	Cooper	1.00	2	2.00	1,318	1,300	1,318	1,300
Queen Creek	Cooper	Gilbert	1.00	2	2.00	1,114	1,300	1,114	1,300
Queen Creek	Gilbert	Lindsay	1.00	2	2.00	1,131	1,300	1,131	1,300
Ocotillo	Dobson	Alma School	0.80	4	3.20	1,335	2,700	1,068	2,160
Ocotillo	Alma School	Arizona	1.40	4	5.60	1,148	2,700	1,607	3,780
Ocotillo	Arizona	McQueen	1.00	2	2.00	1,012	1,300	1,012	1,300
Ocotillo	McQueen	Cooper	1.00	4	4.00	927	2,700	927	2,700
Ocotillo	Cooper	Redwood	0.25	4	1.00	612	2,700	153	675
Ocotillo	Redwood	Gilbert	0.75	2	1.50	612	1,300	459	975
Ocotillo	Gilbert	Lindsay	1.00	2	2.00	502	1,300	502	1,300
Ocotillo	Lindsay	148th St.	0.50	2	1.00	502	1,300	251	650
Chandler Heights	Alma School	Arizona	1.00	4	4.00	833	2,700	833	2,700
Chandler Heights	Arizona	McQueen	1.00	2	2.00	867	1,300	867	1,300
Chandler Heights	McQueen	Cooper	1.00	2	2.00	799	1,300	799	1,300
Chandler Heights	Cooper	Gilbert	0.96	2	1.92	910	1,300	874	1,248
Chandler Heights	Gilbert	Lindsay	1.00	2	2.00	816	1,300	816	1,300
Chandler Heights	Lindsay	Val Vista	1.00	2	2.00	791	1,300	791	1,300

Table 122. Continued

Street	From	To	Miles	Lns	Lane-Miles	Pk Hr Count	Capa-city	VMT	VMC
Riggs	Arizona	McQueen	1.00	6	6.00	1,573	4,100	1,573	4,100
Riggs	McQueen	Cooper	1.00	6	6.00	1,530	4,100	1,530	4,100
Riggs	Cooper	Gilbert	1.00	6	6.00	1,275	4,100	1,275	4,100
Riggs	Gilbert	Lindsay	1.00	6	6.00	1,437	4,100	1,437	4,100
Riggs	Lindsay	Val Vista	1.00	6	6.00	1,199	4,100	1,199	4,100
Total			86.67		375.74			130,345	254,151

Source: Street descriptions, miles, number of lanes and counts from City of Chandler Transportation and Development Division, August 2013; capacity is maximum hourly volumes at LOS D from Table 12; VMT is vehicle-miles of travel, which is product of segment miles and peak hour volume; VMC is vehicle-miles of capacity, which is product of miles and capacity.

Table 123. Buildout Arterial Street Inventory, Arterial Street Service Area

Street	From	To	Miles	Lns	Lane-Miles	Pk Hr Count	Capa-city	VMT	VMC
McClintock Rd	Frye	Loop 202	0.50	4	2.00	2,040	2,700	1,020	1,350
Price	Loop 202	Germann	1.15	6	6.90	4,590	4,100	5,279	4,715
Price	Germann	Queen Creek	1.00	6	6.00	4,080	4,100	4,080	4,100
Price	Queen Creek	Dobson	0.50	6	3.00	2,635	4,100	1,318	2,050
Dobson	Frye	Pecos	0.50	6	3.00	3,060	4,100	1,530	2,050
Dobson	Pecos	Germann	1.06	6	6.36	2,975	4,100	3,154	4,346
Dobson	Germann	Queen Creek	1.10	6	6.60	1,955	4,100	2,151	4,510
Dobson	Queen Creek	Price	0.42	4	1.68	1,615	2,700	678	1,134
Dobson	Price	Ocotillo	1.00	4	4.00	2,295	2,700	2,295	2,700
Dobson	Ocotillo	End	0.80	4	3.20	1,870	2,700	1,496	2,160
Alma School	Frye	Pecos	0.50	6	3.00	3,740	4,100	1,870	2,050
Alma School	Pecos	Loop 202	0.30	6	1.80	4,420	4,100	1,326	1,230
Alma School	Loop 202	Willis	0.25	6	1.50	4,590	4,100	1,148	1,025
Alma School	Willis	Germann	0.50	6	3.00	4,590	4,100	2,295	2,050
Alma School	Germann	Queen Creek	0.98	6	5.88	5,100	4,100	4,998	4,018
Alma School	Queen Creek	Ocotillo	1.12	6	6.72	2,890	4,100	3,237	4,592
Alma School	Ocotillo	Chandler Heights	1.13	4	4.52	2,040	2,700	2,305	3,051
Arizona	Knox	Ray	0.50	6	3.00	3,570	4,100	1,785	2,050
Arizona	Ray	Galveston	0.50	6	3.00	3,485	4,100	1,743	2,050
Arizona	Galveston	Chandler	0.50	4	2.00	3,485	2,700	1,743	1,350
Arizona	Pecos	Loop 202	0.30	6	1.80	2,975	4,100	893	1,230
Arizona	Loop 202	Germann	0.73	6	4.38	3,230	4,100	2,358	2,993
Arizona	Germann	Queen Creek	1.00	6	6.00	2,805	4,100	2,805	4,100
Arizona	Queen Creek	Ocotillo	1.00	6	6.00	2,465	4,100	2,465	4,100
Arizona	Ocotillo	Chandler Heights	1.00	6	6.00	1,785	4,100	1,785	4,100
Arizona	Chandler Heights	Riggs	1.00	4	4.00	1,700	2,700	1,700	2,700
McQueen	Warner	Ray	1.00	6	6.00	3,400	4,100	3,400	4,100
McQueen	Ray	Chandler	1.00	6	6.00	3,570	4,100	3,570	4,100
McQueen	Chandler	Pecos	1.00	6	6.00	3,315	4,100	3,315	4,100
McQueen	Pecos	Loop 202	0.62	6	3.72	3,060	4,100	1,897	2,542
McQueen	Loop 202	Germann	0.40	6	2.40	3,230	4,100	1,292	1,640
McQueen	Germann	Queen Creek	1.00	6	6.00	3,485	4,100	3,485	4,100
McQueen	Queen Creek	Ocotillo	1.00	6	6.00	3,485	4,100	3,485	4,100
McQueen	Ocotillo	Chandler Heights	1.00	4	4.00	3,060	2,700	3,060	2,700
McQueen	Chandler Heights	Riggs	1.00	4	4.00	2,040	2,700	2,040	2,700
McQueen	Riggs	City Limit	0.75	4	3.00	765	2,700	574	2,025
Cooper	Knox	Ray	0.75	6	4.50	2,720	4,100	2,040	3,075
Cooper	Ray	Chandler	1.00	6	6.00	2,720	4,100	2,720	4,100
Cooper	Chandler	Pecos	0.98	6	5.88	2,805	4,100	2,749	4,018
Cooper	Pecos	Loop 202	0.62	6	3.72	2,210	4,100	1,370	2,542
Cooper	Loop 202	Germann	0.40	6	2.40	3,825	4,100	1,530	1,640
Cooper	Queen Creek	Ocotillo	1.00	4	4.00	935	2,700	935	2,700
Cooper	Ocotillo	Chandler Heights	1.00	4	4.00	850	2,700	850	2,700
Cooper	Chandler Heights	Riggs	1.00	4	4.00	935	2,700	935	2,700
Cooper	Riggs	Hunt Highway	1.00	4	4.00	510	2,700	510	2,700
Gilbert	Pecos	Loop 202	0.60	6	3.60	3,570	4,100	2,142	2,460
Gilbert	Loop 202	Germann	0.40	6	2.40	4,590	4,100	1,836	1,640

Table 123. Continued

Street	From	To	Miles	Lns	Lane-Miles	Pk Hr Count	Capa-city	VMT	VMC
Gilbert	Germann	Queen Creek	1.00	6	6.00	5,015	4,100	5,015	4,100
Gilbert	Queen Creek	Ocotillo	1.00	6	6.00	3,400	4,100	3,400	4,100
Gilbert	Ocotillo	Chandler Heights	1.00	4	4.00	3,145	2,700	3,145	2,700
Gilbert	Chandler Heights	Riggs	1.00	4	4.00	2,210	2,700	2,210	2,700
Gilbert	Riggs	Hunt Highway	1.00	4	4.00	850	2,700	850	2,700
Lindsay	Ocotillo	Chandler Heights	1.00	4	4.00	850	2,700	850	2,700
Lindsay	Chandler Heights	Riggs	1.00	4	4.00	850	2,700	850	2,700
Lindsay	Riggs	Hunt Highway	1.00	4	4.00	765	2,700	765	2,700
Warner	RR Tracks	McQueen	0.50	4	2.00	2,635	2,700	1,318	1,350
Ray	Arizona	McQueen	1.00	6	6.00	3,655	4,100	3,655	4,100
Ray	McQueen	Cooper	1.00	6	6.00	2,975	4,100	2,975	4,100
Chandler	Arizona	Colorado	0.15	6	0.90	2,805	4,100	421	615
Chandler	Colorado	McQueen	0.87	6	5.22	2,805	4,100	2,440	3,567
Chandler	McQueen	Cooper	0.99	6	5.94	3,145	4,100	3,114	4,059
Chandler	Cooper	Gilbert	1.00	6	6.00	3,315	4,100	3,315	4,100
Pecos	Ellis	Dobson	0.50	4	2.00	1,615	2,700	808	1,350
Pecos	Dobson	Alma School	1.00	6	6.00	2,380	4,100	2,380	4,100
Pecos	Alma School	Arizona	1.00	6	6.00	2,210	4,100	2,210	4,100
Pecos	Arizona	McQueen	1.02	6	6.12	1,955	4,100	1,994	4,182
Pecos	McQueen	Cooper	1.00	6	6.00	2,635	4,100	2,635	4,100
Pecos	Cooper	Gilbert	1.00	6	6.00	2,635	4,100	2,635	4,100
Germann	City Limits	Price	0.25	4	1.00	1,700	2,700	425	675
Germann	Price	Dobson	0.75	4	3.00	1,700	2,700	1,275	2,025
Germann	Dobson	Alma School	1.00	6	6.00	2,550	4,100	2,550	4,100
Germann	Alma School	Arizona	1.00	6	6.00	2,550	4,100	2,550	4,100
Germann	Arizona	McQueen	1.00	6	6.00	1,700	4,100	1,700	4,100
Germann	McQueen	Cooper	1.00	6	6.00	2,125	4,100	2,125	4,100
Germann	Cooper	Gilbert	1.10	6	6.60	3,655	4,100	4,021	4,510
Queen Creek	City Limits	Price	0.27	6	1.62	1,785	4,100	482	1,107
Queen Creek	Price	Dobson	0.45	6	2.70	1,785	4,100	803	1,845
Queen Creek	Dobson	Alma School	1.30	6	7.80	2,295	4,100	2,984	5,330
Queen Creek	Alma School	Arizona	1.00	6	6.00	2,975	4,100	2,975	4,100
Queen Creek	Arizona	McQueen	1.00	6	6.00	2,720	4,100	2,720	4,100
Queen Creek	McQueen	Cooper	1.00	6	6.00	2,975	4,100	2,975	4,100
Queen Creek	Cooper	Gilbert	1.00	6	6.00	2,295	4,100	2,295	4,100
Queen Creek	Gilbert	Lindsay	1.00	6	6.00	2,890	4,100	2,890	4,100
Ocotillo	Dobson	Alma School	0.80	4	3.20	1,785	2,700	1,428	2,160
Ocotillo	Alma School	Arizona	1.40	4	5.60	1,700	2,700	2,380	3,780
Ocotillo	Arizona	McQueen	1.00	4	4.00	1,530	2,700	1,530	2,700
Ocotillo	McQueen	Cooper	1.00	4	4.00	1,785	2,700	1,785	2,700
Ocotillo	Cooper	Redwood	0.25	4	1.00	1,700	2,700	425	675
Ocotillo	Redwood	Gilbert	0.75	4	3.00	1,700	2,700	1,275	2,025
Ocotillo	Gilbert	Lindsay	1.00	4	4.00	1,700	2,700	1,700	2,700
Ocotillo	Lindsay	148th St.	0.50	4	2.00	1,700	2,700	850	1,350
Chandler Heights	Alma School	Arizona	1.00	4	4.00	1,275	2,700	1,275	2,700
Chandler Heights	Arizona	McQueen	1.00	4	4.00	1,955	2,700	1,955	2,700
Chandler Heights	McQueen	Cooper	1.00	4	4.00	2,550	2,700	2,550	2,700
Chandler Heights	Cooper	Gilbert	0.96	4	3.84	2,295	2,700	2,203	2,592
Chandler Heights	Gilbert	Lindsay	1.00	4	4.00	1,870	2,700	1,870	2,700
Chandler Heights	Lindsay	Val Vista	1.00	4	4.00	1,955	2,700	1,955	2,700

Table 123. Continued

Street	From	To	Miles	Lns	Lane-Miles	Pk Hr Count	Capa-city	VMT	VMC
Riggs	Arizona	McQueen	1.00	6	6.00	3,060	4,100	3,060	4,100
Riggs	McQueen	Cooper	1.00	6	6.00	3,060	4,100	3,060	4,100
Riggs	Cooper	Gilbert	1.00	6	6.00	3,060	4,100	3,060	4,100
Riggs	Gilbert	Lindsay	1.00	6	6.00	3,740	4,100	3,740	4,100
Riggs	Lindsay	Val Vista	1.00	6	6.00	3,995	4,100	3,995	4,100
Total			86.67		454.50			221,043	309,483

Source: Street descriptions, miles, number of lanes and projected volumes from City of Chandler Transportation and Development Division, August 2013; capacity is maximum hourly volumes at LOS D from Table 12; VMT is vehicle-miles of travel, which is product of segment miles and peak hour volume; VMC is vehicle-miles of capacity, which is product of miles and capacity.

APPENDIX B: EXISTING PARK INVENTORY

Table 124. Existing Park Inventory

		Service	Total Acres		Eligible Acres		Eligible Dev'd Ac	
Park Name	Park Type	Area	Dev'd	Undev.	Dev'd	Undev.	Nhood	Comm
Desert Breeze	Comm	NW	49.84	0.00	30.00	0.00	0.00	30.00
Harter	Nhood	NW	8.60	0.00	8.60	0.00	8.60	0.00
Mountain View	Nhood	NW	19.00	0.00	19.00	0.00	19.00	0.00
Nozomi Park	Comm	NW	20.00	0.00	20.00	0.00	0.00	20.00
Pine Shadows	Nhood	NW	5.42	0.00	5.42	0.00	5.42	0.00
Price	Nhood	NW	12.10	0.00	12.10	0.00	12.10	0.00
Pueblo Alto	Nhood	NW	0.25	0.00	0.25	0.00	0.25	0.00
Sundance	Nhood	NW	3.51	0.00	3.51	0.00	3.51	0.00
Sunset	Nhood	NW	5.06	0.00	5.06	0.00	5.06	0.00
Windmills West	Nhood	NW	6.50	0.00	6.50	0.00	6.50	0.00
Subtotal, Northwest			130.28	0.00	110.44	0.00	60.44	50.00
Amberwood	Nhood	NE	18.60	0.00	18.60	0.00	18.60	0.00
Apache	Nhood	NE	9.47	0.00	9.47	0.00	9.47	0.00
Arbuckle	Nhood	NE	9.51	0.00	9.51	0.00	9.51	0.00
Armstrong	Nhood	NE	3.21	0.00	3.21	0.00	3.21	0.00
Arrowhead Meadows	Comm	NE	30.81	0.00	30.00	0.00	0.00	30.00
Boys & Girls Club	Nhood	NE	2.18	0.00	2.18	0.00	2.18	0.00
Brooks Crossing	Nhood	NE	8.10	0.00	8.10	0.00	8.10	0.00
Desert Oasis Aquatic	Nhood	NE	0.72	0.00	0.72	0.00	0.72	0.00
East Mini	Nhood	NE	0.25	0.00	0.25	0.00	0.25	0.00
Espee	Comm	NE	33.00	0.00	30.00	0.00	0.00	30.00
Folley	Comm	NE	23.92	0.00	23.92	0.00	0.00	23.92
Gazelle Meadows	Nhood	NE	8.99	0.00	8.99	0.00	8.99	0.00
Harmony Hollow	Nhood	NE	6.92	0.00	6.92	0.00	6.92	0.00
Harris	Nhood	NE	0.81	0.00	0.81	0.00	0.81	0.00
Homestead N Park Site	Nhood	NE	0.00	7.60	0.00	7.60	0.00	0.00
Homestead S Park Site	Nhood	NE	0.00	10.90	0.00	10.90	0.00	0.00
Hoopes	Nhood	NE	12.80	0.00	12.80	0.00	12.80	0.00
Jackrabbit	Nhood	NE	4.57	0.00	4.57	0.00	4.57	0.00
Los Altos	Nhood	NE	0.75	0.00	0.75	0.00	0.75	0.00
Maggio Ranch	Nhood	NE	5.60	0.00	5.60	0.00	5.60	0.00
Navarrete	Nhood	NE	5.00	0.00	5.00	0.00	5.00	0.00
Park Manors	Nhood	NE	0.25	0.00	0.25	0.00	0.25	0.00
Pequeno	Nhood	NE	4.73	0.00	4.73	0.00	4.73	0.00
Pima	Comm	NE	31.75	0.00	30.00	0.00	0.00	30.00
Provinces	Nhood	NE	6.25	0.00	6.25	0.00	6.25	0.00
San Marcos	Nhood	NE	14.74	0.00	14.74	0.00	14.74	0.00
San Tan	Nhood	NE	14.74	0.00	14.74	0.00	14.74	0.00
Shawnee	Nhood	NE	17.51	0.00	17.51	0.00	17.51	0.00
Stonegate	Nhood	NE	8.37	0.00	8.37	0.00	8.37	0.00
Summit Point	Nhood	NE	0.29	0.00	0.29	0.00	0.29	0.00
Tibshraeny Family	Nhood	NE	13.00	0.00	13.00	0.00	13.00	0.00
Winn	Nhood	NE	1.00	0.00	1.00	0.00	1.00	0.00
Subtotal, Northeast			297.84	18.50	292.28	18.50	178.36	113.92

Table 124. Continued

Park Name	Park Type	Service Area	Total Acres Dev'd	Total Acres Undev.	Eligible Acres Dev'd	Eligible Acres Undev.	Eligible Dev'd Ac Nhood	Eligible Dev'd Ac Comm
Blue Heron Park Site	Nhood	SE	3.91	0.00	3.91	0.00	3.91	0.00
Centennial Park Site	Nhood	SE	0.00	10.88	0.00	10.88	0.00	0.00
Chuckwalla	Nhood	SE	4.45	0.00	4.45	0.00	4.45	0.00
Chuparosa	Comm	SE	28.00	0.00	28.00	0.00	0.00	28.00
Citrus Vista Park Site	Nhood	SE	0.00	10.02	0.00	10.02	0.00	0.00
Crossbow Park	Nhood	SE	7.94	0.00	7.94	0.00	7.94	0.00
Dobson	Nhood	SE	12.44	0.00	12.44	0.00	12.44	0.00
Fox Crossing	Nhood	SE	4.95	0.00	4.95	0.00	4.95	0.00
La Paloma	Nhood	SE	13.07	0.00	13.07	0.00	13.07	0.00
Lantana Ranch Park Site	Comm	SE	0.00	70.00	0.00	30.00	0.00	0.00
Layton Lakes Park Site	Nhood	SE	0.00	7.11	0.00	7.11	0.00	0.00
Los Arboles	Nhood	SE	11.35	0.00	11.35	0.00	11.35	0.00
Mesquite Groves Park Site	Comm	SE	6.00	98.40	6.00	24.00	0.00	6.00
Pecos Ranch	Nhood	SE	10.23	0.00	10.23	0.00	10.23	0.00
Pinelake	Nhood	SE	5.21	0.00	5.21	0.00	5.21	0.00
Quail Haven	Nhood	SE	9.75	0.00	9.75	0.00	9.75	0.00
Roadrunner Park Site	Nhood	SE	0.00	10.97	0.00	10.97	0.00	0.00
Ryan	Nhood	SE	13.89	0.00	13.89	0.00	13.89	0.00
Snedigar Sportsplex	Comm	SE	90.83	0.00	30.00	0.00	0.00	30.00
Tumbleweed	Comm	SE	101.00	105.19	30.00	0.00	0.00	30.00
Valencia Park Site	Nhood	SE	0.00	9.34	0.00	9.34	0.00	0.00
Veterans Oasis	Comm	SE	113.00	0.00	30.00	0.00	0.00	30.00
Subtotal, Southeast			436.02	321.91	221.19	102.32	97.19	124.00
City-Wide Total			864.14	340.41	623.91	120.82	335.99	287.92

Source: City of Chandler Community Services Department, September 25, 2013.

APPENDIX C: FUNCTIONAL POPULATION

The two most common methodologies used in calculating public safety service units and impact fees are the "calls-for-service" approach and the "functional population" approach. This update continues to use the "functional population" approach to calculate and assess the fire and police system development fees. This approach is a generally-accepted methodology for these impact fee types and is based on the observation that demand for public safety facilities tends to be proportional to the presence of people at a particular site.

Functional population is analogous to the concept of "full-time equivalent" employees. It represents the number of "full-time equivalent" people present at the site of a land use, and it is used for the purpose of determining the impact of a particular development on the need for facilities. For residential development, functional population is simply average household size times the percent of time people spend at home. For nonresidential development, functional population is based on a formula that factors in trip generation rates, average vehicle occupancy, employee density and average number of hours spent by employees and visitors at a land use.

Residential Functional Population

For residential land uses, the impact of a dwelling unit on the need for capital facilities is generally proportional to the number of persons residing in the dwelling unit. This can be measured for different housing types in terms of either average household size (average number of persons per occupied dwelling unit) or persons per unit (average number of persons per dwelling unit, including vacant as well as occupied units). In this analysis, average household size is used to develop the functional population multipliers, as it avoids the need to make assumptions about occupancy rates. Information on current average household size by housing type in Chandler is available from the U.S. Census Bureau's American Community Survey, as shown in Table 125.

Table 125. Average Household Size by Housing Type

Housing Type	Household Population	Occupied Units	Avg. HH Size
Single-Family*	194,390	67,490	2.88
Multi-Family	38,374	18,586	2.06
Total	232,764	86,076	2.70

* includes single-family attached and mobile home/RV units

Source: U.S. Census Bureau, American Community Survey 5% sample data based on 1% samples taken in 2007 through 2011 for the City of Chandler.

Determining residential functional population multipliers is considerably simpler than the nonresidential component. It is estimated that people, on average, spend 16 hours, or 67 percent, of each 24-hour day at their place of residence and the other 33 percent away from home. A similar approach is used for the hotel/motel category. The functional population per unit for these uses is shown in Table 126.

Table 126. Functional Population per Unit for Residential Uses

Housing Type	Unit	Average HH Size	Occupancy Factor	Func. Pop. per Unit
Single-Family	Dwelling	2.88	0.67	1.93
Multi-Family	Dwelling	2.06	0.67	1.38

Source: Average household size from Table 125.

Nonresidential Functional Population

The functional population methodology for nonresidential land uses is based on trip generation data utilized in developing the transportation demand schedule prepared for the updated arterial street system development fees. Functional population per 1,000 square feet is derived by dividing the total number of hours spent by employees and visitors during a weekday by 24 hours. Employees are estimated to spend 8 hours per day at their place of employment, and visitors are estimated to spend one hour per visit. The formula used to derive the nonresidential functional population estimates is summarized in Figure 10.

Figure 10. Nonresidential Functional Population Formula

FUNCPOP/UNIT = (employee hours/1000 sf + visitor hours/1000 sf) ÷ 24 hours/day

Where:

Employee hours/1000 sf = employees/1000 sf x 8 hours/day

Visitor hours/1000 sf = visitors/1000 sf x 1 hour/visit

Visitors/1000 sf = weekday ADT/1000 sf x avg. vehicle occupancy – employees/1000 sf

Weekday ADT/1000 sf = one-way avg. daily trips (total trip ends ÷ 2)

Using this formula and information on trip generation rates, vehicle occupancy rates from the National Household Travel Survey and other sources and assumptions, nonresidential functional population estimates per 1,000 square feet of gross floor area are calculated in Table 127.

Table 127. Functional Population per Unit for Nonresidential Uses

Land Use	Unit	Trip Rate	Persons/ Trip	Employee/ Unit	Visitors/ Unit	Func. Pop./ Unit
Retail/Commercial	1,000 sq. ft.	21.35	1.96	1.80	40.05	2.27
Office	1,000 sq. ft.	5.52	1.86	3.69	6.58	1.50
Industrial/Warehouse	1,000 sq. ft.	2.60	1.24	1.23	1.99	0.49
Public/Institutional	1,000 sq. ft.	4.56	2.59	0.65	11.15	0.68

Source: Trip rates are one-half of daily trip ends on a weekday from Institute of Transportation Engineers, Trip Generation, 9th edition, 2012 (retail/commercial based on shopping center, office based on general office, industrial/warehouse based on average for industrial park and warehousing; public/institutional based on church); persons/trip is average vehicle occupancy from Federal Highway Administration, Nationwide Household Travel Survey, 2009; employees/unit from Table 8; visitors/unit is trips times persons/trip minus employees/unit; functional population/unit calculated based on formula in Figure 10.

APPENDIX D: FINANCIAL DATA

This appendix provides financial data on the City's system development fees used in the fee calculations. Table 128 shows current cash balances in the system development fee accounts as of June 30, 2013, along with current obligations for the system development fund to repay outstanding debt or interfund loans associated with the construction of existing facilities with excess capacity to serve future development. The "net balance" column represents the surplus or deficit of the current cash balance once future obligations are satisfied and accounts receivable are received.

Table 128. System Development Fee Fund Balances and Obligations

Fee Type	Cash Balance	Debt Pledges	Interfund Loans	Encumbrances/ Carry Forward	Accounts Receivable	Net Balance
Arterial Streets	$25,115,396	-$37,756,132	-$2,814,300	-$16,952,491	$0	-$15,455,036
Parks	$12,235,108	-$14,350,198	$0	-$1,245,568	$0	-$2,115,090
Library	$437,615	-$1,290,000	$0	-$9,072	$0	-$852,385
Fire	$3,798,929	$0	-$7,123,657	-$247,432	$0	-$3,324,728
Police	$154,642	$0	-$6,671,049	-$9,072	$0	-$6,516,407
Public Buildings	$134,581	$0	-$3,919,352	-$9,072	$0	-$3,784,771
Water	$14,576,874	-$92,880,602	-$15,929,877	-$4,203,214	$0	-$94,233,605
Water Resources	$4,066,766	$0	$0	-$8,696	$0	$4,066,766
Wastewater	$15,521,822	-$65,618,873	-$7,200,000	-$1,807,127	$7,700,000	-$57,297,051
Reclaimed Water	$1,890,398	-$13,655,543	-$11,600,000	-$1,441,813	$0	-$23,365,145
Total	$77,932,131	-$225,551,348	-$55,258,235	-$25,933,557	$7,700,000	-$202,877,452

Note: Data other than encumbrances as of June 30, 2013, encumbrances as of July 5, 2013
Source: Cash balances and debt pledges from City of Chandler Budget Division, August 19, 2013; interfund loans from Table 130; outstanding debt from Table 129; encumbrances/carry-forwards and accounts receivable from Table 131; accounts receivable represents balance of loan from wastewater fund to reclaimed water fund (see Table 130).

The amount of outstanding debt principal (system development fee funds are not used to pay interest costs on bonds) that has been pledged to be repaid is relevant for the purposes of this study only for past park, library and public building improvements that became ineligible for impact fees on January 1, 2012. Details on the projects funded by the debt pledges are provided in the Parks, Library and Public Building sections.

For eligible facilities, all outstanding debt for past capacity-expanding improvements will be included in the fee calculations, not just outstanding pledged debt. This "eligible" debt represents future costs to be incurred for improvements already constructed. Because it has been excluded from the calculation of the existing level of service, it represents the future cost of existing excess capacity available for use by future development. Outstanding eligible debt for past capacity-expanding improvements is summarized in Table 129.

Table 129. Outstanding Eligible Debt Summary

Eligible Capacity Improvements	Outstanding Issue	Principal Payments Due: 2013-2023	2013-Buildout
Arizona Avenue (Ray-Elliot)	2006 GO	$2,818,564	$2,818,564
Arterial Street Expansions	2009 GO	$14,407,014	$39,930,079
Total, Arterial Streets		$17,225,578	$42,748,643
Community Park Development	2003 GO	$999,999	$999,999
Community Park Development & Continued Dev't	2003 GO Ref.	$493,468	$493,468
Community Park Land Acquisition & Development	2003 GO Ref.	$1,059,210	$1,059,210
Snedigar Sportsplex (90.37 ac.)	2003 GO Ref.	$138,779	$138,779
Snedigar Sports Complex (90.37 ac.)	2005 GO	$82,992	$82,992
Recreation Center	2006 GO	$628,609	$628,609
Snedigar Sportsplex (90.37 ac.)	2007 GO	$454,397	$1,109,500
Paseo Vista Recreational Area (66 ac.)	2007 GO	$2,392,429	$5,841,591
Desert Breeze Park Expansion (41.37 ac.)	2007 GO	$14,104	$34,437
Community Park Development	2007 GO	$37,790	$92,274
Lantana Ranch (70 ac.)	2007 GO	$35,105	$85,714
Mesquite Groves Park Site (104.4 ac.-pledged)	2007 GO	$970,689	$2,370,130
Veteran's Oasis Park Site (113 ac.-pledged)	2007 GO	$944,181	$2,305,406
Lantana Ranch (70 ac.-pledged)	2007 GO	$163,805	$399,965
Layton Lakes NH Park Land Acquisition	2007 GO	$217,531	$531,149
Chandler Aquatic Facility	2007 GO Ref.	$2,490,000	$2,490,000
Comm. Park Land Acquistion and Development	2007 GO Ref.	$6,501,851	$6,501,851
Snedigar Sports Complex Development (90.37 ac.)	2007 GO Ref.	$65,475	$65,475
Community Park Development	2007 GO Ref.	$1,743,750	$1,743,750
Snedigar Sports Complex (90.37 ac.)	2007 GO Ref.	$2,098	$2,098
Lantana Ranch (70 ac.)	2009 GO	$22,872	$63,396
Ryan & Canal Sites, Roadrunner, Future Park Dev't	2009 GO	$707,694	$1,961,615
Community Park Development	2011B GO Ref.	$831,526	$831,526
Snedigar Sports Complex (90.37 ac.)	2011B GO Ref.	$1,693	$1,693
Chandler Aquatic Facility	2011B GO Ref.	$1,115,000	$1,115,000
Total Parks		$22,115,047	$30,949,627
Library Construction	1996 GO	$226,752	$226,752
Acquisition of Sunset Library (partial pledge of $1.29 M)	2011A GO	$5,710,000	$5,710,000
Total, Library*		$5,936,752	$5,936,752
Fire Admin Construction/Station #3 Expansion	2009 GO	$624,952	$1,732,323
SE Station Land and Fire Admin Construction	2011A GO	$197,293	$197,293
Total, Fire		$822,245	$1,929,616
Construction of Public Safety Facility	1996B GO	$550,000	$550,000
Construction of Public Safety Facility	2003 GO Ref.	$2,300,000	$2,300,000
S Chandler Station and Communications Center	2007 GO	$61,681	$61,681
Total, Police		$2,911,681	$2,911,681

Table 129. Continued

Eligible Capacity Improvements	Outstanding Issue	Principal Payments Due: 2013-2023	2013-Buildout
New Transmission Mains, WTP Mod., Pumps, Pres. Zones	1994 RB	$1,112,306	$1,112,306
New Transmisssion Mains, Well Construction/Modification	1996 RB	$81,290	$81,290
New Transmission Mains, WTP Mod., Pumps, Wells, PZs	1997 RB Ref.	$34,673	$34,673
Main Extensions, Water Storage/Recovery Project	2001 RB	$102,480	$102,480
Water System Improvements	2002 RB Ref.	$3,097,875	$3,097,875
New Transmisssion Mains, Well Construction/Modification	2003 RB Ref.	$3,855,971	$3,855,971
Well Construction, Backup Well Supply, Transm. Mains	2003 RB	$975,000	$975,000
Water System Improvements	2003 GO Ref.	$4,067,427	$4,067,427
Well Construction	2005 RB	$5,649,456	$5,649,456
Main Extensions, Storage, Land, Valves, Reservoir, Supply	2005 RB Ref.	$3,187,186	$3,187,186
Joint Water Treatment Plant	2007 GO	$22,500,000	$34,750,000
New Transmission Mains, WTP Mod., Pumps, Pres. Zones	2009 ETRO	$2,343,413	$2,343,413
Joint Water Treatment Plant, Well Construction	2009 GO	$23,962,169	$41,723,158
Water Production Facility, WTP Expansion, Wells, Mains	2011 ETRO	$2,458,667	$4,466,668
Total, Water		$73,427,913	$105,446,903
Airport Wastewater Treatment Plant	1996 RB	$285,000	$285,000
Airport Wastewater Treatment Plant	1997 RB Ref.	$40,000	$40,000
Lone Butte Process Upgrade	2001 RB	$336,720	$336,720
Wastewater System Improvements	2002 RB Ref.	$657,125	$657,125
Airport Wastewater Treatment Plant	2003 RB Ref.	$6,160,000	$6,160,000
Lone Butte Process Upgrade, Lift Stations	2005 RB Ref.	$2,135,475	$2,135,475
Water Reclamation Facility	2009 GO	$21,069,280	$34,129,269
Water Reclamation Facilities Expansion	2009 ETRO	$13,610,000	$24,860,000
Airport Wastewater Treatment Plant	2009 ETRO	$2,665,000	$2,665,000
Ocotillo Water Reclamation Facility	2011 ETRO	$1,054,250	$1,913,750
Total Wastewater		$48,012,850	$73,182,339
Storage/Recovery, Effluent Reuse Transmission Mains	2001 RB	$732,000	$732,000
Design/Install Reclaimed Water Recharge & Recovery	2003 GO Ref.	$580,000	$580,000
Water Storage Recovery Project, Effluent Reuse Transmission	2005 RB Ref.	$4,271,779	$4,271,779
Effluent Reuse Storage/Transmission/Recovery	2009 GO	$9,278,834	$15,030,406
Effluent Reuse - Storage & Recovery	2011 ETRO	$1,054,250	$1,913,750
Total, Reclaimed Water		$15,916,863	$22,527,935

* while all of the debt may not be currently eligible, future library fee revenues will be used solely to retire pledged debt

Source: City of Chandler Budget Division; 2013-buildout represents total outstanding principal as of June 30, 2013; 2013-2023 represents principal payments due in FY 2014 through FY 2023.

Interfund loans to the system development fee accounts represent money advanced by the general fund or the water or wastewater operating fund to advance-fund certain fee-eligible projects when sufficient system development fee funds had not been accumulated. These interfund loans need to be repaid with either current system development fee cash balances or future fee revenues. The costs to repay these loans is appropriately included in calculating the ten-year and buildout costs per service unit, but are not included in the determination of the existing level of service, because the portion of the capacity created by these improvements represented by the outstanding loan obligation represents the cost of capacity intended to benefit future development.

In one case, the interfund loan was from another system development fee account. The $7.7 million loan from the wastewater system development fee fund to the reclaimed water system development

fee fund represents an accounts receivable for the wastewater fund and is deducted when calculating the ten-year and buildout costs per service unit for wastewater.

Table 130. System Development Fee Interfund Loans

Improvement Project	Year	Loan From	Orig. Loan	Outstanding
Germann Rd (Price Rd to Arizona Ave)	FY 2006	General Fund	$2,914,000	$1,042,042
Pecos Rd (McQueen Rd to Gilbert Rd)	FY 2006	General Fund	$2,414,000	$863,243
Cooper Rd (Consol. Canal to Germann Rd)	FY 2006	General Fund	$2,136,000	$763,830
Riggs Rd (Gilbert Rd to Val Vista Dr)	FY 2006	General Fund	$406,000	$145,185
Total, Arterial Streets			$7,870,000	$2,814,300
Mechanical Maintenance Facility Expansion	FY 2006	General Fund	$874,201	$874,201
Land Acquisition for Station #12	FY 2006	General Fund	$361,449	$361,449
Subtotal, Fire Loan #1			$1,235,650	$1,235,650
Fire Station #10	FY 2007	General Fund	$4,617,535	$4,617,535
Fire Administration	FY 2007	General Fund	$1,127,518	$1,127,518
Mechanical Maintenance Facility Expansion	FY 2007	General Fund	$104,953	$104,953
Land Acquisition for Station #12	FY 2007	General Fund	$37,501	$37,501
Fire Training Facility Expansion*	FY 2007	General Fund	$500	$500
Subtotal, Fire Loan #2			$5,888,007	$5,888,007
Total, Fire			$7,123,657	$7,123,657
South Substation, PD243	FY 2006	General Fund	$463,845	$302,448
West Substation, PD215	FY 2006	General Fund	$326,155	$210,176
Subtotal, Police Loan #3			$790,000	$512,624
South Substation, PD243	FY 2007	General Fund	$6,142,335	$6,142,335
West Substation, PD215	FY 2007	General Fund	$16,090	$16,090
Subtotal, Police Loan #4			$6,158,425	$6,158,425
Total, Police			$6,948,425	$6,671,049
City Hall	FY 2010	General Fund	$4,204,427	$3,754,427
City Hall	FY 2011	General Fund	$164,925	$164,925
Total, Public Buildings			$4,369,352	$3,919,352
Water Capital Improvements	FY 2008	Water Oper. Fund	$15,929,877	$15,929,877
Total, Water			$15,929,877	$15,929,877
Wastewater Capital Improvements	FY 2003	WW Oper. Fund	$9,000,000	$7,200,000
Total, Wastewater			$9,000,000	$7,200,000
Reclaimed Water Improvements	FY 2001	Water Oper. Fund	$6,500,000	$3,900,000
Reclaimed Water Improvements**	FY 2007	Wastewater SDF	$7,700,000	$7,700,000
Total, Reclaimed Water			$14,200,000	$11,600,000
Grand Total			$65,441,311	$55,258,235

* not currently eligible – will be paid with fire fees collected prior to January 1, 2012
** included in wastewater SDF fund balance for the purpose of calculating the wastewater fees
Source: City of Chandler Budget Division, August 19, 2013 (data as of June 30, 2013).

In addition to debt and interfund loans, another future cost to be paid from system development fees are the costs of encumbrances and capital carry-forward balances, which represents unpaid costs of improvements currently underway for fee-eligible improvements. These are detailed for each fee fund in Table 131.

Table 131. Encumbrances and Carry-Forward Balances

Improvement Project	Encumbrances	Carry-Forwards	Total
Germann Rd-Price Rd to Arizona Ave	$0	$138	$138
Gilbert Rd - Germann to Queen Creek	$0	$146	$146
Gilbert Road -Queen Creek to Hunt Hwy	$11,467,261	$1	$11,467,262
McQueen Rd - Queen Creek to Riggs	$5,500	$848,038	$853,538
Ocotillo Rd -Arizona to McQueen	$1,108,349	$3,514,139	$4,622,488
Traffic Signals	$0	$224	$224
Arterial Street SDF Consultant	$8,696	$0	$8,696
Total, Arterial Street	$12,589,806	$4,362,685	$16,952,491
Mesquite Groves Park Site	$1,310	$0	$1,310
Lantana Ranch Park	$0	$737	$737
Neighborhood Park Land Acquisition	$1,387	$13,063	$14,450
Roadrunner Park Site	$1,061,168	$158,831	$1,219,999
Park SDF Consultant	$9,072	$0	$9,072
Total, Parks	$1,072,938	$172,631	$1,245,568
Library SDF Consultant	$9,072	$0	$9,072
Southeast Fire Station	$0	$238,360	$238,360
Fire SDF Consultant	$9,072	$0	$9,072
Total, Fire	$9,072	$238,360	$247,432
Police SDF Consultant	$9,072	$0	$9,072
Public Building SDF Consultant	$9,072	$0	$9,072
Joint Water Treatment Plant	$0	$243,866	$243,866
Transmission Mains	$2,442,525	$1,149,352	$3,591,877
Water Treatment Plant Expansion	$0	$2,637	$2,637
Well Construction	$0	$356,138	$356,138
Water SDF Consultant	$8,696	$0	$8,696
Total, Water	$2,451,221	$1,751,993	$4,203,214
Water Resources SDF Consultant	$8,696	$0	$8,696
Collection System Facility Improvements	$0	$7,525	$7,525
S Chandler Sewer Line Expansion	$6,952	$757,683	$764,635
Wastewater Master Plan Update	$215,394	$1,862	$217,256
Water Reclamation Plant Expansion	$0	$809,016	$809,016
Wastewater SDF Consultant	$8,696	$0	$8,696
Total, Wastewater	$231,042	$1,576,086	$1,807,127
Effluent Reuse-Storage and Recovery Wells	$0	$774,872	$774,872
Effluent Reuse-Transmission Mains	$496,398	$161,847	$658,245
Reclaimed Water SDF Consultant	$8,696	$0	$8,696
Total, Reclaimed Water	$505,094	$936,719	$1,441,813
Grand Total	$16,895,084	$9,038,473	$25,933,557

Source: City of Chandler Budget Division, July 9, 2013 (data as of July 5, 2013).

The cost of studies to update the fees every five years, as required by SB 1525, is a cost that is attributable entirely to new development. The future update costs are based on the actual cost of the current update. Given SB 1525's requirement that the fees be updated at least every five years, a minimum of two updates will be required over the next ten years. While the timing of buildout is uncertain, it is likely to occur in the next 30 years, indicating a need for six update studies. The update study costs are summarized in Table 132.

Table 132. Update Study Costs

Fee Type	2013 Study Cost	Cost of 2 Studies, 2013-2023	Cost of 6 Studies, 2013-Buildout
Arterial Streets	$13,628	$27,256	$81,768
Parks	$13,628	$27,256	$81,768
Library	$13,628	$27,256	$81,768
Fire	$13,628	$27,256	$81,768
Police	$13,628	$27,256	$81,768
Public Buildings	$13,628	$27,256	$81,768
Water	$13,628	$27,256	$81,768
Water Resources	$13,628	$27,256	$81,768
Wastewater Trunkline/Treatment	$13,628	$27,256	$81,768
Reclaimed Water	$13,628	$27,256	$81,768
Total	$136,280	$272,560	$817,680

Source: Total 2013 study cost is consultant cost for this update, allocated evenly among fee types; cost of the two studies required over the next ten year is twice the 2013 study cost; cost of 6 studies needed 2013-buildout is six times 2013 study cost.

APPENDIX E: REVENUE FORECAST

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.*

The maximum revenues from these sources that may be attributed to new development over the next ten years are summarized in Table 133 on the following page. In general, the forecasts are based on the total of new revenue projected to be received, some of which is growth-related and the remainder of which is due to inflation, increases from existing development or increases in cost recovery fees. However, with the City's practice of using ongoing revenues for ongoing expenditures, most of this revenue will be used for ongoing operations and maintenance purposes. None of the City's General Fund or Highway User Revenue Funds are used for growth-related capital improvements.

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: (1) new development will be paying taxes or fees used to retire debt on existing facilities serving existing development; (2) new development will be paying taxes or fees used to fund an existing deficiency, or (3) new development will be paying taxes or fees that are dedicated to be used for growth-related improvements.

In this study, offsets against the fees have been accounted for in the following manner:

(1) **Outstanding debt**. Only "eligible" debt for past capacity-expanding improvements that are currently authorized to be funded with impact fees needs to be considered. For all the facility types, the eligible debt is attributable to existing excess capacity available for future development. Consequently, the eligible debt amount has been excluded from the calculation of the existing level of service, and has been included in the calculation of ten-year and buildout costs per service unit.

(2) **Existing deficiencies**. Impact fees are typically calculated based on a system-wide analysis. Consequently, existing deficiencies from an impact fee perspective are different from those that might be identified using a facility-specific standard. For example, road impact fees are typically based on ratio of capacity to demand in the major road system as a whole, rather than on levels of congestion on individual road segments. As long as a road fee not based on the cost to ensure that every road segment functions at a desired level of service, individual road segments can be currently deficient with respect to that standard without constituting existing deficiencies from an impact fee perspective. In this study, the existing level of service is calculated as the replacement cost per service unit of existing, fully-paid for facilities serving existing development. The updated fees are, in every case, based on a cost per service unit that is equal to or lower than the existing level of service. Consequently, the

requirement of SB 1525 that fees be based on the existing level of service has been met, and there are no existing deficiencies that need to be addressed.

(3) **Dedicated future funding.** The only dedicated source of revenue for capital funding of growth-related capacity improvements that has been identified in this study is regional transportation funds that are programmed for capacity-expanding arterial street improvements in Chandler over the next ten years. This has been addressed by subtracting the regional funding the City will receive from the calculation of the ten-year cost per service unit on which the updated arterial street fees are based (see Table 19 in the Arterial Streets section).

Table 133. Revenue Attributable to New Development, 2013-2023

Description	2013-14	2014-15	2015-16	2016-17	2017-18
Construction Contracting TPT	$282,532	$263,791	$206,873	$212,948	$219,023
Other Transaction/Privilege Tax	$3,390,383	$3,165,487	$2,482,470	$2,555,370	$2,628,270
Franchise Fees	$43,000	$57,500	$58,800	$60,000	$61,300
State Shared Sales Tax	$0	$0	$0	$0	$0
Vehicle License Tax	$125,800	$234,000	$250,000	$250,000	$260,000
Urban Revenue Sharing	$0	$0	$0	$0	$0
Engineering Fees	$0	$21,500	$21,800	$22,000	$22,200
Building Division Fees	$91,600	$163,200	$96,000	$98,800	$101,800
Planning Fees	$11,000	$4,800	$5,000	$5,000	$5,200
Primary Property Tax	$0	$0	$290,000	$300,000	$310,000
Subtotal, General Fund	$3,944,315	$3,910,278	$3,410,943	$3,504,118	$3,607,793
Secondary Property Tax	$0	$0	$819,856	$852,650	$886,756
Arterial Street Lifecycle Funds	$50,367	$0	$237,846	$76,270	$441,445
Highway User Revenue Funds	$0	$0	$0	$0	$0
Total	$3,994,682	$3,910,278	$4,468,645	$4,433,038	$4,935,994

Description	2018-19	2019-20	2020-21	2021-22	2022-23	Total
Construction Contracting TPT	$151,523	$154,673	$157,748	$160,823	$164,723	$1,974,657
Other Transaction/Privilege Tax	$1,818,270	$1,856,070	$1,892,970	$1,929,870	$1,976,670	$23,695,830
Franchise Fees	$62,500	$63,700	$65,000	$66,300	$67,500	$605,600
State Shared Sales Tax	$0	$0	$0	$680,000	$700,000	$1,380,000
Vehicle License Tax	$270,000	$280,000	$290,000	$290,000	$300,000	$2,549,800
Urban Revenue Sharing	$0	$0	$0	$1,290,000	$1,340,000	$2,630,000
Engineering Fees	$22,400	$22,800	$23,000	$23,200	$23,500	$202,400
Building Division Fees	$70,400	$71,800	$73,200	$74,700	$76,200	$917,700
Planning Fees	$3,900	$4,100	$4,100	$4,200	$4,200	$51,500
Primary Property Tax	$330,000	$340,000	$350,000	$370,000	$380,000	$2,670,000
Subtotal, General Fund	$2,728,993	$2,793,143	$2,856,018	$4,889,093	$5,032,793	$36,677,487
Secondary Property Tax	$922,226	$959,116	$997,480	$1,037,379	$1,078,875	$7,554,339
Arterial Street Lifecycle Funds	$953,903	$948,090	$791,283	$801,769	$864,584	$5,165,557
Highway User Revenue Funds	$0	$0	$0	$1,919,168	$2,098,505	$4,017,673
Total	$4,605,122	$4,700,349	$4,644,781	$8,647,409	$9,074,757	$53,415,056

Source: Based on overall revenue forecasts from City of Chandler Finance Department, June 25, 2013 (all but secondary property tax and HURF), June 26, 2013 (secondary property tax) and September 19, 2013 (HURF); 75% construction contracting TPT attributed to new development (rest is remodeling); no State-shared revenues or HURF attributable to new development in FY 2014-2021 because the population-based distribution formula will not change until after the 2020 census; arterial street lifecycle funds attributed to new development proportional to growth in arterial streets EDUs from Table 11 using straight-line interpolation; other revenues attributed to new development based on assumption that all revenue growth is attributable.