

*Estrella*  
*Ahwatukee Foothills*  
Deer Valley  
*Desert View*      *North Gate*  
Black Canyon Corridor  
*Estrella*      **Laveen**  
*Ahwatukee Foothills*  
Deer Valley  
*Desert View*      *North Gate*  
Black Canyon Corridor  
*Estrella*      **Laveen**  
*Ahwatukee Foothills*  
Deer Valley

# **Infrastructure Financing Plan**

for the Development Impact Fee Areas of Phoenix

November 15, 2006



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Infrastructure Finance Plan Update  
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## Chapter 1 Introduction

The City of Phoenix is required by state statute to adopt an Infrastructure Financing Plan for all geographic areas in which impact fees will be charged. The plan must project the extent of capital facilities and infrastructure needed to serve anticipated future development of the impact fee areas, the estimated cost of their development (including land acquisition), and how to allocate the estimated costs to said future development.

Only capital facilities and related equipment inventories that directly benefit future residential and nonresidential development are included in the Infrastructure Financing Plan. The Infrastructure Financing Plan provides the best information available on future population growth, land use development and capital facility requirements.

The City of Phoenix first adopted an Infrastructure Finance Plan when the Impact Fee Program was initiated in 1988. The plans must be updated a minimum of every three (3) years. This document, adopted by the Phoenix City Council on November 15, 2006 amends all previously approved Infrastructure Financing Plans and complies with the statutory requirements for a triennial review addressed in Section 29-14 of the City Code.

This document is intended to provide a summary of information for the public, the development community, and other entities connected to the Impact Fee Program. The general information is supplemented by Appendices in which topics are discussed in greater depth with additional tables and figures. Because updates to this plan occur frequently, **facts and figures may change through changes to the ordinance or other processes**. Up-to-date information can be obtained from the Planning and Development Services Departments.

### 1.1 The Supporting Legislation for Development Impact Fees

Chapter 29 of the Phoenix City Code requires that new development pay its fair share of the costs associated with the provision of public facilities necessary to support the new development. Before assessing development impact fees, the City of Phoenix must adopt a Specific Infrastructure Financing Plan for the planning area in which the development impact fees will be applied. An Infrastructure Financing Plan must be adopted and amended as a specific plan in accordance with Section 9-461.09, Arizona Revised Statutes, and the City's Impact Fee Program policies and procedures must be consistent with Section 9-463.05, Arizona Revised Statutes.

Within the guidelines provided by the City of Phoenix's General Plan, the Specific Infrastructure Financing Plan determines the capital facilities that will be needed to serve future growth. The anticipated level of service needed is based upon the same standard of service being provided in comparable areas of the City.

### 1.2 What is Covered in this Document

The City of Phoenix calculates the development impact fees associated with the provision of new or expanded facilities to serve new development in the specific infrastructure financing plans. Included in these plans are:

- (1) the projection of future growth and the demands that growth will put on new and existing infrastructure facilities,
- (2) the description and costs associated with providing facilities in the following categories:
  - Equipment Repair
  - Fire

- Libraries
- Open Space
- Parks and Trails
- Police
- Solid Waste Management
- Storm Drainage
- Streets
- Wastewater
- Water

- (3) an explanation of how future alternative revenue streams offset the cost of providing capital facilities, and
- (4) the calculation of gross facility costs per Equivalent Dwelling Unit (EDU).

### **1.3 Planning Areas Covered by this Document**

Many municipalities have one standardized impact fee schedule that covers the entire community or specific growth area. Although this type of impact fee structure has many advantages, including simplicity of calculation and ease of collection, it does lead to a relatively unfair distribution of infrastructure costs. This imbalance promotes development in areas that have better access to existing facilities.

The city acknowledges that because of the large size of Phoenix, several fee areas are needed to more fairly allocate future capital facility costs. The Infrastructure Financing Plan covers the six village areas of the city where impact fees are charged. These six areas are categorized into what is termed the Northern and Southern Growth Areas of Phoenix, selected because of a need for extensive infrastructure improvements. These village areas are defined as follows:

<u>Northern Growth Area</u>	<u>Southern Growth Area</u>
Deer Valley	Ahwatukee Foothills
Desert View	Estrella (west of 43 <sup>rd</sup> Avenue)
North Gateway	Laveen (east and west)

Some of the village areas have been subdivided to better allocate specific types of facility costs. By assessing the fees on the basis of a specific fee area, or even sub-fee area, the city can better ensure that new development is only paying for capital facilities that it needs and will benefit from. The fee areas (or sub-fee areas) are described in greater detail in Chapters 3 and 4.

## Chapter 2

# How the City of Phoenix Impact Fee Program Works

Many aspects of growth can place heavy demands on a community's resources. The Impact Fee Program was established by the City of Phoenix in 1988 to help pay for the cost of developing needed infrastructure in our rapidly growing areas. The funds generated by the program can also be used for expanding existing facilities and providing the equipment necessary to supply the needed level of services.

When Phoenix initiated the use of impact fees, a decision was made to charge the cost of infrastructure directly to new developments instead of sharing them through an increase in citywide taxes. By collecting impact fees that take into account the future tax-generating capabilities of the new developments, the City can assist with generating growth. At the same time, the City can ensure current residents that improvement needs in other parts of Phoenix will not be ignored because the funds are being used in the growth areas.

Impact fees are not a tax imposed on property owners. They are part of the development approval process. Requiring an impact fee from a developer before granting approval to build a structure is similar to requiring that the developer meet the site planning or zoning stipulations on the property.

### 2.1 Derivation of Equivalent Dwelling Units for Facilities

The city uses Equivalent Dwelling Units (EDUs) to standardize the amount of new service that each land use type demands. This document places the City's several land use types into seven categories:

- Single-family Housing
- Multi-family Housing
- Retail
- Industrial
- Institutional/Public
- Office
- Other

Residential EDUs are converted based on how similar various land uses are to the standard single family house. For example, in the case of water facilities, one EDU is equivalent to the amount of water (gallons per day) provided to the average single-family, detached home. A small business designed to use three times as much water as an average single-detached dwelling would have a demand of three EDUs in terms of a water facility; a large industrial complex that requires a thousand times as much water each day would have a demand of 1,000 EDUs. The derivation of the EDU conversion factors for each land use type is explained in Chapters 3 and 4. A wider range of land use types and associated EDU factors are used when calculating actual fees for specific projects.

### 2.2 Equivalent Dwelling Unit Projections

Equivalent Dwelling Units are used to standardize the amount of new service that each land use type demands. There were three studies undertaken by the City of Phoenix prior to determining the EDUs for each facility category listed in the Northern and Southern Growth Areas: projections on new development, construction cost analysis, and a land cost analysis.

#### 2.2.1 New Development Projections

The first study required the City to project the amount of new development that will occur in each impact fee area so the City could proportionally distribute the estimated cost of any new facilities over all new development in that area. These projections are based on new development proposals and the land-use plan in the City's adopted General Plan, which includes bulk and zoning density targets. This document projects growth to 2030, as that is the longest-range date toward which most departments can reasonably plan their infrastructure needs (see tables at the beginning of Chapters 3 and 4).

Once these projections were made, the City calculated the number of EDUs for each facility category by using the EDU factors listed in Table 2.1. The end product of this calculation appears in Tables 2.2.North and 2.2.South below.

**Table 2.1. EDU Factors for Facility Categories. These factors are subject to change.**

	Single-Family	Multi-Family	Retail	Office	Industrial	Institutional / Public	Other
<b>Per Unit</b>	Unit	Unit	1000 sf	1000 sf	1000 sf	1000 sf	1000 sf
<b>Equipment Repair</b>	1.00	0.42	1.02	0.88	0.40	0.30	0.57
<b>Fire Protection</b>	1.00	0.68	0.59	0.59	0.59	0.59	0.59
<b>Libraries</b>	0.95	0.45	0.18	0.25	0.14	0.11	0.17
<b>Open Space</b>	1.00	0.77	0.0	0.0	0.0	0.0	0.49
<b>Parks and Trails</b>	0.95	0.38	0.0	0.0	0.0	0.08	0.13
<b>Police</b>	1.00	0.42	0.65	0.65	0.65	0.65	0.65
<b>Solid Waste</b>	1.00	0.02	0.0	0.0	0.0	0.0	0.0
<b>Streets</b>	0.97	0.64	2.30	2.18	0.86	0.54	1.37
<b>Wastewater</b>	1.00	0.76	0.58	0.19	0.28	0.15	0.15
<b>Water</b>	1.00	0.49	0.49	0.22	0.20	0.19	0.19
<b>Storm Drainage*</b>	1.00	4.00	4.00	4.00	4.00	4.00	4.00

\*Unit is EDU per acre.

All Factors are from Chapter 29 of the city ordinance.

**Table 2.2.north EDUs for each Facility Category by Fee Area and Land Use Type (2030)**

<b>Facility/Area</b>	<b>Single-family</b>	<b>Multi-family</b>	<b>Commercial</b>	<b>Office</b>	<b>Industrial</b>	<b>Institutional</b>	<b>Total</b>
<b>Equipment Repair</b>							
Northern	105,800	22,696	39,787	10,775	3,704	2,060	184,823
<b>Fire Protection</b>							
Northern	105,800	36,746	23,014	7,224	5,463	4,052	182,299
<b>Libraries</b>							
North Gateway+Deer Valley 1-4	47,030	6,772	4,699	1,951	967	412	61,831
Desert View+Deer Valley 5	53,480	17,546	2,323	1,110	329	344	75,132
<b>Open Space</b>							
Northern	105,800	41,609	0.0	0.0	0.0	0.0	147,409
<b>Parks and Trails</b>							
North Gateway+Deer Valley 1-4	47,029	5,718	3,655	1,480	761	269	58,946
Desert View+Deer Valley 5	53,481	14,816	1,806	844	258	250	71,454
<b>Police</b>							
Northern	105,800	22,696	25,355	7,959	6,019	4,464	172,292
<b>Solid Waste</b>							
Northern	105,800	1,081	0.0	0.0	0.0	0.0	106,881
<b>Streets</b>							
North Gateway West	30,673	4,527	35,001	8,296	3,038	850	82,386
NBCC	11,594	4,956	24,604	8,712	2,870	904	53,639
Desert View	53,802	24,954	29,508	9,670	1,831	1,676	121,441
<b>Wastewater</b>							
North Gateway	43,575	11,261	15,030	1,482	1,923	487	73,760
Desert View	55,466	29,632	7,441	843	596	466	94,444
Deer Valley 1	1,236	0.0	47	1	0.0	23	1,306
Deer Valley 2	1,485	0.0	17	0.0	0.0	18	1,520
Deer Valley 3	1,336	0.0	0.0	0.0	3	0.0	1,339
Deer Valley 4	1,873	176	45	0.0	8	33	2,136
Deer Valley 5	829	0	43	1	62	3	937
<b>Water</b>							
Northern	105,800	26,479	19,114	2,694	1,852	1,305	157,243

**Table 2.2.south EDUs for each Facility Category by Fee Area and Land Use Type (2030)**

<b>Facility/Area</b>	<b>Single-family</b>	<b>Multi-family</b>	<b>Commercial</b>	<b>Office</b>	<b>Industrial</b>	<b>Institutional</b>	<b>Total</b>
<b>Equipment Repair</b>							
Southern	94,551	15,114	19,148	7,788	12,369	3,023	151,992
<b>Fire Protection</b>							
Estrella/Laveen	67,794	18,587	6,108	4,008	17,765	5,281	119,543
Ahwatukee	26,757	5,883	4,968	1,214	479	664	39,965
<b>Libraries</b>							
Estrella/Laveen	64,404	12,300	1,864	1,698	4,215	984	85,465
Ahwatukee	25,419	3,893	1,515	514	114	124	31,579
<b>Parks and Trails</b>							
Estrella/Laveen	64,404	10,387	1,450	1,290	3,312	716	81,559
Ahwatukee	25,419	3,288	1,178	391	89	90	30,455
<b>Police</b>							
Estrella/Laveen	67,794	11,480	6,730	4,416	19,572	5,817	115,808
Ahwatukee	26,757	3,634	5,472	1,337	527	732	38,459
<b>Solid Waste</b>							
Southern	94,551	720	0.0	0.0	0.0	0.0	95,271
<b>Storm Drainage</b>							
Estrella	30,781	2,300	1,896	172	6,798	2,323	44,270
Laveen	37,013	1,844	2,065	140	1,102	720	42,884
<b>Streets</b>							
Estrella North	3,638	2,956	2,443	2,264	17,926	588	29,814
Estrella South	26,219	6,754	8,960	5,880	4,356	3,102	55,270
Laveen	35,903	7,784	12,409	6,664	3,613	1,143	67,517
Ahwatukee West	1,579	0.0	763	0.0	0.0	16	2,357
<b>Wastewater</b>							
Estrella North	3,751	3,510	616	197	5,836	163	14,074
Estrella South	27,030	8,020	2,259	512	1,418	862	40,102
Laveen West	29,942	7,583	2,807	580	1,084	180	42,176
Laveen East	7,071	1,661	322	1	92	137	9,248
Ahwatukee	26,757	6,576	4,883	391	227	169	39,003
<b>Water</b>							
Southern	94,551	17,633	9,198	1,947	6,184	1,914	131,428

### **2.3 Costs Per Equivalent Dwelling Unit Projections**

The costs associated with providing new infrastructure varies according to the type of improvement needed, the land area necessary to construct the infrastructure and the Growth Area or sub-area it will serve. Once the EDU projections were determined (as described in Section 2.2), there were several studies undertaken by the City of Phoenix, with the assistance of private consultants, to help determine the cost per EDU for each facility category listed in the Northern and Southern Growth Areas. Below is a description of those studies and their relevance to the Infrastructure Financing Plan.

#### **2.3.1 Construction Cost Analysis**

The City of Phoenix retained 3D/I to update the cost models used to reflect the escalating cost of constructing the infrastructure needed in the Northern and Southern Growth Areas. 3D/I specializes in this type of estimating service, as well as all aspects of public sector project and construction management.

The COSMOS cost model system was developed by 3D/I to update comprehensive databases for the Arizona construction market. The system was used to perform the supporting construction cost studies provided for the city's Infrastructure Financing Plan. Specifically, the company evaluated the most recent construction costs based upon bid data that the City of Phoenix maintains in its EAST Bid Tabulation system. The data compiled was then compared to the Building Cost Index (BCI) reported by the Engineering News Record for 2003 through 2005.

The updated cost models were used to determine the infrastructure component costs for constructing or expanding equipment repair facilities, fire and police stations, libraries, parks and other associated recreational facilities, trails, and streets. This methodology was adopted to provide an acceptable index for determining the impact fees contained in this document. This approach will also be valuable to the city and the development community when determining the rate of escalation (index) for future impact fees. It will allow the cost models to be recalibrated as future bid tabulations and schedules of value cost information are accumulated in the city's databases. All future changes in the impact fees will need to be approved by the Phoenix City Council.

A summary of the findings is contained in the Appendix. A complete copy of the construction cost analysis prepared by 3D/I is available to the public by contacting the City of Phoenix Planning Department. Future updates may use appropriate cost indices to make adjustments to the construction costs.

#### **2.3.2 Land Cost Study**

A critical component in calculating the cost of constructing infrastructure improvements, and therefore what the specific impact fees should be, is the value of land. Brekan-Nava Group was hired by the City of Phoenix to prepare a study of the land costs within the Northern and Southern Growth Areas. The study evaluated the land cost per acre, based on such factors as the acreage requirements for different types of city facilities; the probable zoning designation of the site(s); and other land pricing factors. The study also provided an index for the city to use to recognize future changes in land values and a method for modifying the Infrastructure Financing Plan to change impact fees and credits for escalating land costs. A copy of the land cost analysis prepared by Brekan-Nava Group is available to the public by contacting the City of Phoenix Planning Department.

Land costs for this infrastructure financing plan are based on actual land purchases by operating departments, and the reports prepared by Brekan-Nava Group. Because some infrastructure types do not use the same geographic delineations that are used in the reports, weighted average land costs based on the actual land in each of the sub-areas were calculated and used in the plan. The results of these reports were reviewed by staff from each of the operating departments and reviewed by a certified appraiser. Future updates may use appropriate cost indices to make adjustments to the land costs.

#### **2.3.3 Water and Wastewater Impact Fee Structure Study on Equivalent Dwelling Units (EDUs)**

This study analyzed the methods the City of Phoenix uses to allocate the cost of providing water and wastewater systems infrastructure for new development. The analysis included a review of the existing system, a

comparison of methods used in other communities, and an analysis of water consumption and land use data from selected nonresidential land uses within particular areas of Phoenix. The report provided recommendations for revised planning EDU factors for water and wastewater for office and retail land uses, as well as suggestions about methods for the assessment of fees. The study was prepared by MuniFinancial in 2004 and is available to the public by contacting the City of Phoenix Water Services Department.

#### **2.3.4 Water Master Plan**

A study was prepared of Phoenix's water system to identify future facility attributes such as capacities, sizes, locations and costs. The study utilized projections of possible land use changes under various scenarios to develop future demands for potable water in the numerous water zones found in Phoenix and then translated them into infrastructure requirements that must be provided through the capital improvement program over the next fifty years. All large system facilities, from water treatment plants down to reservoirs, pressure reducing valves, booster stations and large water mains, were modeled using a series of programs to ensure that the final master plan met future demands, while taking into account the city's operational and financial requirements. This study was prepared by Malcolm Pirnie, with assistance from subcontractors CH2MHILL and Optimatics and is available to the public by contacting the City of Phoenix Water Services Department.

#### **2.3.5 Wastewater Master Plan**

The City of Phoenix hired Wilson & Associates to prepare a study that models the city's wastewater system to identify future facility attributes such as capacities, sizes, locations and costs. The study utilized projections of possible land use changes under different scenarios to develop future wastewater flows in various drainage basins across the City and then to translate these flows into infrastructure requirements that must be provided through the capital improvement program over the next fifty years. All large system facilities, from large sewers, lift stations and force mains to the wastewater treatment and water reclamation plants, were modeled to develop a master plan that meets the city's operational and financial requirements. A copy of this study is available to the public by contacting the City of Phoenix Water Services Department.

#### **2.3.6 Water and Wastewater Infrastructure Unit Cost Study**

A study was performed to update the water and wastewater unit cost study previously revised in 2003. The study provides descriptions of the attributes and associated costs of the types of large water and wastewater facilities that are included in both the water and wastewater master plans that guide the provision of infrastructure in Phoenix and assist in calculating the impact fees in the City's growth areas. While much of the facility attribute data and basic costing models developed during the 2003 Infrastructure Financing Plan update remain valid, the basic cost inputs (e.g. concrete, steel, labor, etc.) had to be revised to reflect recent major changes in the market. Both the 2003 study and the recent update were prepared by Black & Veatch and are available to the public by contacting the Water Services Department.

### **2.4 Explanation of Determining the Level of Service**

The goal of funding infrastructure through development impact fees is to ensure that City standards for services are met and that new development pays its fair share of new infrastructure costs. Therefore, the new capital facility needs for each infrastructure category are based on the same standard of service required in existing areas of the city.

To calculate the standard of service for a certain facility category, the City defines a unit of measure for that fee category (number of circulating item for libraries, number of precincts for police, etc.) and divides that either into the total population or EDUs of the City. Following are the units used to measure the standard of service for each fee category.

**Table 2.3 Units and Measures by Category**

<b>Fee Category</b>	<b>Category's Basic Unit</b>	<b>Measure</b>
Equipment Repair	Service Centers	EDUs
Fire Protection	Fire Stations	Response Time
Libraries	Libraries	EDUs
Parks and Trails	Park Types & Trail	EDUs
Police	Precincts	EDUs
Solid Waste	Central Facilities	Housing Units
Storm Water	<i>Adequate capacity to deal with 100-year flood</i>	
Streets	Level of Service	PM Peak Speeds
Wastewater	<i>Adequate capacity for collection and treatment</i>	
Water	<i>Adequate capacity for transmission and treatment</i>	

## 2.5 Offsets

Phoenix is required by state statute to allow the use of Offsets as an alternative funding source for paying for infrastructure funding. What property owners will pay in taxes towards infrastructure improvements can not also be assessed in impact fees – this assures that a new development is not paying twice for the same facilities. It also reduces the amount of impact fees needed from a new development.

Offsets are available to new developments from:

- Development occupation fees
- Secondary property taxes used to pay off bond debt on the facility (principle and interest)
- Highway User Revenue Funds (taxes on fuel and vehicle sales)
- Funds collected for water, sewer or solid waste for capital improvement facilities
- Sales taxes collected specifically for providing infrastructure or purchasing land

The City of Phoenix produces an Offset Report for use in conjunction with the Infrastructure Financing Plan for the Northern and Southern Growth Areas. The method for calculating offsets requires establishing the present value of funds paid in any of the above listed funding alternatives and deducting that from the total impact fee liability for each land use category. Refer to the Offset Reports for the Northern and Southern Growth Areas for an explanation of how to calculate offset values for specific uses.

## 2.6 Development Agreements

The amount of impact fees to be charged to a project can be adjusted when needed infrastructure is constructed by the developer and dedicated to the city. As an alternative, the developer can be paid from the revenues collected from impact fees as reimbursement for constructing needed infrastructure. The city and the master developer must enter into a Development Agreement in order for these payments to be made. Section 29-11 of the Phoenix City Code outlines what provisions must be contained within each Development Agreement.

## 2.7 Credit Agreements

Developers can obtain a credit against the impact fees they must pay in return for the donation of needed infrastructure, improvement to existing facilities and/or financial contributions for improvements listed in the Infrastructure Financing Plan. Credits are generally based on the cost of the improvements as identified in the Infrastructure Financing Plan for either the Northern or Southern Growth Areas.

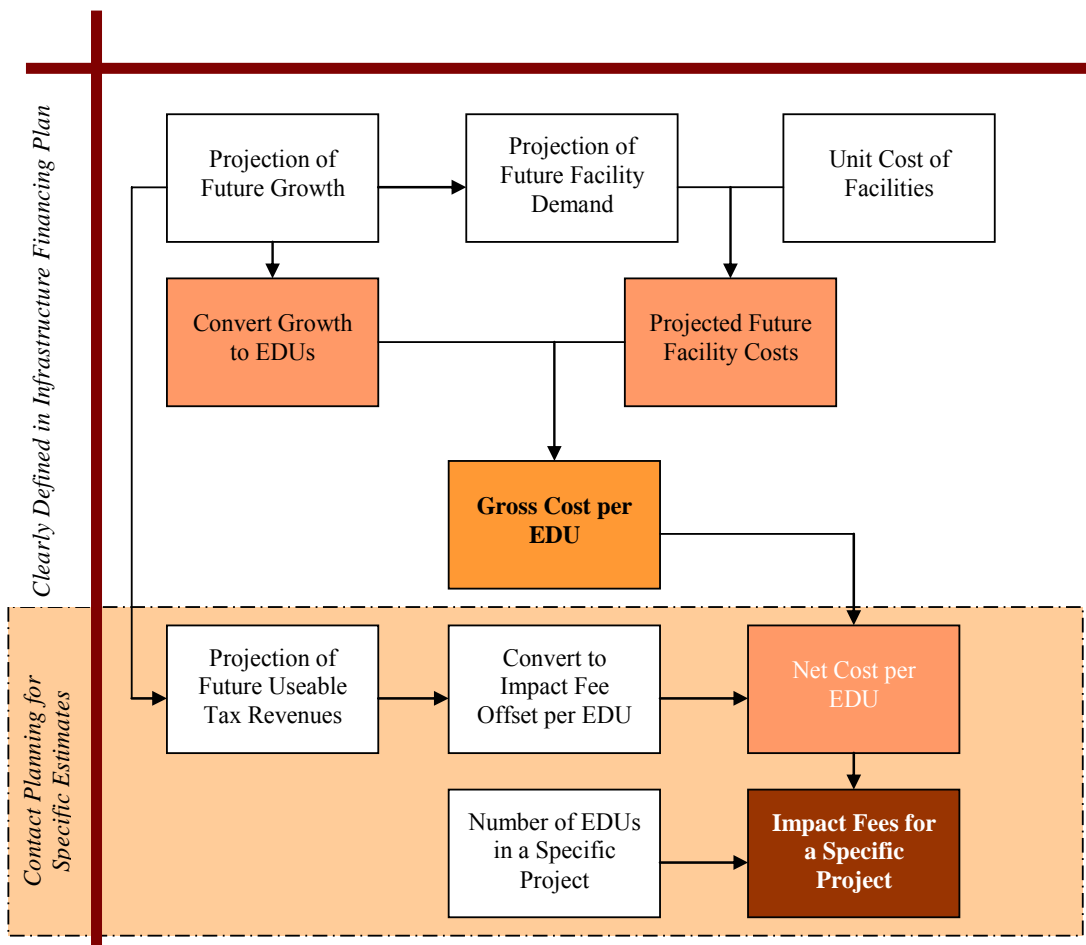
Credits for a specific type of facility can only be used to reduce impact fees for that type of facility - credits for the construction of arterial streets can only be used to reduce the street impact fees owed, not to reduce the police, solid waste, or water fees owed. Street, water and wastewater credits are the most common types of

credits claimed by developers because they often require significant expansions to the city's existing infrastructure networks.

A Credit Agreement is required for a master developer to assign the credits they are eligible to receive to a contiguous development that benefits from the improvement for which the credit has been given. Section 29-10 of the Phoenix City Code outlines what provisions must be contained within each Credit Agreement.

## 2.8 How Impact Fees Originate

The Fee Calculation Flow Chart below illustrates the derivation of gross fees per EDU which are published in the Infrastructure Financing Plan. Future growth projections in the Northern and Southern Growth Areas determine how many homes and businesses must be served by new infrastructure. EDUs are calculated and future costs of facilities are determined. A gross cost per EDU is determined for each type of service. This process is illustrated in the upper portion of the flow chart. The lower part of the flow chart indicates that for specific projects, the master developer contacts the Planning Department for a fee estimate. The estimate process starts with the gross fee, applies specific project data, and subtracts offsets for a final fee estimate.



*Fee Calculation Flow Chart.*

## 2.9 Example of Calculating Impact Fees

The example presented below is based on an entirely hypothetical development proposal, and is meant to promote an understanding of how impact fees are calculated for specific development proposals. The example below applies to how impact fees are calculated for Libraries. Other fee categories may have different calculation methods or may vary according to densities.

### Retail center calculation for libraries.

Assumption: the Master Developer proposes a 135,000 square foot retail center.

#### Step 1. Calculate gross impact fee

If gross fee per residence for Libraries = \$380 and the EDU factor for retail uses is 0.18/1000sf.

The number of EDUs =  $(135,000 / 1,000) \times 0.18 = 24$  EDUs.

Gross fee for Libraries is  $\$380 \times 24$  EDUs = \$9,120.

(A 1% administrative fee would be added to this amount, but is not shown in this calculation.)

#### Step 2. Calculate offset value

If offset value per EDU = \$250.

The offset value =  $\$250 \times 24$  EDUs = \$6,000.

#### Step 3. Allocate credits

Since the developer will not dedicate land or facilities for the nearby library, we assume no credits will be generated.

#### Step 4. Subtract offsets and credits to arrive at a net impact fee figure

<b>Gross Fee</b>	<b>\$9,120</b>
Minus Offset Value	\$6,000
Minus Credits	\$0
Remaining Fee	\$3,120

The amount of \$3,120 represents the amount due in impact fees for Libraries.

## Chapter 3

### The Northern Growth Area

Because of the large size of Phoenix, several fee areas were created to more fairly allocate future capital facility costs. As a result, there are two areas in which impact fees are assessed for infrastructure development: the Southern and Northern Growth Areas. The Northern Growth Area, containing approximately 79,130 acres, includes the Deer Valley, Desert View and North Gateway fee areas. Some of these areas have been subdivided to better allocate specific types of facility costs (see map below). By assessing the fees on the basis of a specific fee area, or even sub-fee area, the City can better ensure that new development is only paying for capital facilities that it needs and from which it will benefit.

#### Deer Valley

Deer Valley containing approximately 6,050 acres may be broken into multiple parts for the purpose of describing its boundaries. The boundaries of the first part are 67<sup>th</sup> Avenue on the west, the Central Arizona Project on the north and east, and Jomax Road (extended) on the south. The boundary of the second part is the Central Arizona Project on the west and south, Jomax Road (extended) on the north, and approximately 16<sup>th</sup> Street on the east. About 2,000 acres of land in Deer Valley is made up of washes and other non-developable land, leaving approximately 4,050 acres of potentially developable land (including land needed for streets and open space areas). By and large, the area is comprised mostly of State Trust Lands that have been sold to private parties or are pending future sales. Existing development in the area includes the Dynamite Mountain Ranch and Stetson Hills master-planned communities and some smaller developments. It is anticipated that there will be 6,990 dwelling units and 150 acres of commercial and industrial development occurring in Deer Valley through 2030. Impact fees are assessed and credit is available for infrastructure development in five different sub-areas named Deer Valley 1-5.

#### Desert View

The 43,100 acres of Desert View are generally bounded by the Central Arizona Canal on the south (extending from Scottsdale Road to about the 16<sup>th</sup> Street alignment), Carefree Highway on the north, the city's municipal boundary on the east and the 16<sup>th</sup> Street and 7<sup>th</sup> Avenue alignments on the west (depending on latitude). Approximately 15,800 acres of land in Desert View is made up of washes and other non-developable land, leaving approximately 27,300 acres of potentially developable land (including land needed for streets and open space areas). By and large, the area is comprised mostly of State Trust Lands that have been sold to private parties or are pending future sales. Existing development in the area includes the master planned communities of Tatum Ranch, Dove Valley Ranch, Desert Ridge, and Paradise Ridge. Also included are some commercial and industrial developments such as the Marriott Resort, Sumitomo Sitix chip manufacturing plant, the Mayo Clinic, and the American Express corporate campus. It is anticipated that there will be 94,456 dwelling units and 5,400 acres of commercial and industrial development occurring in Desert View through 2030.



## North Gateway

The North Gateway area is generally bounded by the Central Arizona Project on the south and the city boundaries on the north and west. The eastern boundary meanders along 19<sup>th</sup> Avenue to 7<sup>th</sup> Avenue (depending on latitude). The area is comprised mostly of State Trust Lands that have been sold to private parties or are pending future sales. Existing development in the area includes the master planned communities of Tramonto, Dynamite Mountain Ranch and Sonoran Foothills. Additional residential, commercial and industrial development is expected to grow dramatically in the near future, particularly east of Interstate 17. It is anticipated that there will be 58,392 dwelling units and 11,390 acres of commercial and industrial development occurring in North Gateway through 2030. Impact fees are assessed and credit is available for infrastructure development in two sub-areas located within North Gateway: North Gateway West and North Gateway – Black Canyon Corridor.

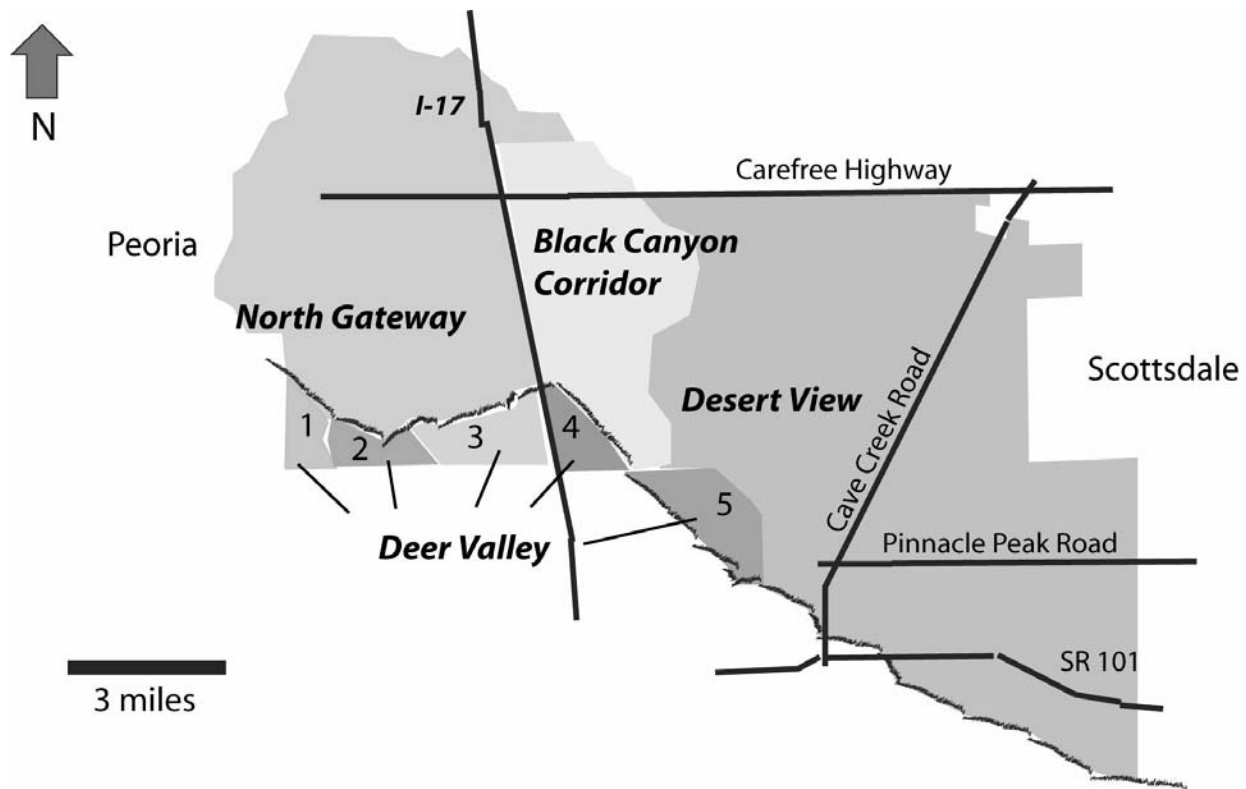


Figure 3.1 Northern Growth Area Map

**Table 3.1 Summary of the Northern Growth Area Gross Impact Fees per EDU**

<b>Fee Category and Area</b>	<b>Desert View</b>	<b>North Gateway</b>	<b>NBCC</b>	<b>Deer Valley 1</b>	<b>Deer Valley 2-3</b>	<b>Deer Valley 4</b>	<b>Deer Valley 5</b>
Equipment	\$87	\$87	\$87	\$87	\$87	\$87	\$87
Fire	\$439	\$439	\$439	\$439	\$439	\$439	\$439
Library	\$424	\$479	\$479	\$479	\$479	\$479	\$424
Open Space	\$1,789	\$1,789	\$1,789	\$1,789	\$1,789	\$1,789	\$1,789
Parks & Trails	\$4,560	\$6,489	\$6,489	\$6,489	\$6,489	\$6,489	\$4,560
Police	\$391	\$391	\$391	\$391	\$391	\$391	\$391
Solid Waste	\$407	\$407	\$407	\$407	\$407	\$407	\$407
Streets	\$8,128	\$8,029	\$4,793	\$8,029	\$8,029	\$4,793	\$8,128
Wastewater	\$4,376	\$6,637	\$6,637	\$2,880	\$2,265	\$2,620	\$7,310
Water	\$5,921	\$5,921	\$5,921	\$5,921	\$5,921	\$5,921	\$5,921
<b>Total</b>	<b>\$26,522</b>	<b>\$30,668</b>	<b>\$27,432</b>	<b>\$26,911</b>	<b>\$26,296</b>	<b>\$23,415</b>	<b>\$29,456</b>

**Table 3.2 Year 2030 Projection of Housing Units and Employees for the Northern Growth Area**

<b>Northern Growth Area</b>	<b>Dwelling Units</b>		<b>Employees</b>			
	<b>Single-Family</b>	<b>Multi-Family</b>	<b>Comm'l</b>	<b>Office</b>	<b>Industrial</b>	<b>Public</b>
North Gateway	31,622	7,074	16,892	11,797	9,468	4,093
North Black Canyon Corridor	11,953	7,743	11,874	12,388	8,944	4,352
Desert View	55,466	38,990	14,241	13,751	5,707	8,069
Deer Valley 1	1,236	0	90	12	0	391
Deer Valley 2	1,485	0	32	0	0	316
Deer Valley 3	1,336	0	0	0	27	0
Deer Valley 4	1,873	231	87	0	81	580
Deer Valley 5	829	0	82	11	589	54
<b>Total</b>	<b>105,800</b>	<b>54,038</b>	<b>43,298</b>	<b>37,959</b>	<b>24,816</b>	<b>17,855</b>
Employees per 1,000 square feet.			1.11	3.11	2.68	2.60

### **3.1 EQUIPMENT REPAIR FACILITIES**

#### **Description**

City service centers are regional bases for equipment repair and for the delivery of city services requiring field operations. There are currently four satellite service centers, in addition to the main service center. These centers provide facilities for equipment management, solid waste collection, street maintenance, and water services. A city fleet of 6,690 vehicles for these services is stored, maintained, and repaired at equipment maintenance stations. The centers also provide shop facilities, storage space, and administrative offices supporting these and other city activities.

To ensure quality service to its citizens, the City of Phoenix would like to maintain the standard of one equipment repair facility for every 140,000 EDU in the quickly growing impact fee areas. Currently there are plans to construct one equipment repair facility in the Northern Growth Area. It is estimated that there will be 184,823 EDUs in the Northern Growth Area by the year 2030. Based upon this estimate, 1.14 equipment repair facilities will be needed in the Northern Growth Area by 2030 to sustain the standard of one service center per 140,000 EDUs.

#### **Costs**

The cost associated with each service center includes land acquisition, building and facility construction, and the purchase, installation or upgrading of capital equipment for activities such as, but not limited to, truck washing, refueling, and hazardous waste disposal. Table 3.1.1 itemizes the general costs associated with service centers, which is \$14,377,293 per center (excluding land). It is estimated that no land will need to be acquired and the cost per EDU below has been calculated with that in mind. If land is needed prior to that time, land cost will be limited to \$179,915 per acre.

#### **Impact Fee for Equipment Repair Facilities**

The following impact fee will be charged for all development occurring in the Northern Growth Area (North Gateway and Desert View) for service centers providing equipment repair:

<b>Northern Growth Area:</b>	<b>\$87 per EDU</b>
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**Table 3.1.1 Equipment Repair Cost Summary for the Northern Growth Area**

Item	Cost	Facilities Needed	Total Cost
Building Construction	\$13,146,293	1.14	\$14,986,774
Service Equipment	\$1,231,000	1.14	\$1,403,340
<b>Subtotal</b>			<b>\$16,390,114</b>
Existing Facilities Remaining Costs			\$0
Less Existing Balance			-\$355,710
<b>Total</b>			<b>\$16,034,404</b>
EDUs			184,823
<b>Cost per EDU</b>			<b>\$ 87</b>

## **3.2 FIRE PROTECTION FACILITIES**

### **Description**

Phoenix strives to provide fire stations that are geographically located to allow for rapid response to fire and emergency medical incidents for its citizens. The city's standard is to provide fire coverage based on a four minute emergency travel time, which roughly equates to a grid of five square miles. The coverage area of each fire station serves approximately 10,000 to 25,000 people.

There is one impact fee area in the Northern Growth Area for fire facilities and the City of Phoenix owns three fire stations within its boundaries. It is estimated that there will be 182,299 EDUs in the Northern Growth Area by 2030. Based upon this estimate, ten additional fire stations are planned to meet travel times.

### **Costs**

The cost associated with each fire station includes land acquisition, facility construction and furnishings, and the purchase of necessary equipment and fire protection vehicles, often comprised of an ambulance, brush truck, and fire truck. Standard fire stations in Phoenix are approximately 14,000 square feet in area and located on two and one-half acre sites. They are generally designed to provide four truck bays, thirteen overnight rooms, two offices, restrooms, and a kitchen. Every fifth station also includes a battalion station that contains fifteen sleeping bays. The fire station with district headquarters is a more publicly trafficked facility office requiring another 5,000 square feet for the station's structure and an additional half acre for the site. Table 3.2.1 itemizes the general costs associated with fire stations, which is \$5,861,660 to construct and purchase equipment for a fire station, and \$7,730,110 for a fire station with a district headquarters. Land acquisition cost is \$688,248 per acre for the Northern Growth Area.

### **Impact Fee for Fire Facilities**

The following impact fees will be charged for fire facilities throughout the Northern Growth Area:

<b>Northern Growth Area:</b>	<b>\$439 per EDU</b>
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**Table 3.2.1 Summary of Fire Facilities Costs in the Northern Area**

Facility	Unit Cost	Units Needed	Total Cost
Fire Stations Construction	\$5,861,660	8.0	\$46,893,280
Fire Station Land Acquisition (acres)	\$688,248	20.0	\$13,764,960
Fire Station with District Headquarters Construction	\$7,730,110	2.0	\$15,460,220
Fire Station with District Headquarters Land Acquisition (acres)	\$688,248	6.0	\$4,129,488
<b>Subtotal</b>			<b>\$80,247,948</b>
Existing Facilities Remaining Costs			<b>\$0</b>
Less Existing Balance			-\$209,343
<b>Total</b>			<b>\$80,038,605</b>
EDUs			182,299
<b>Cost per EDU</b>			<b>\$ 439</b>

### 3.3 LIBRARY FACILITIES

#### Description

The first library in Phoenix was dedicated in 1908. Since then, the City of Phoenix has worked to make its library system one of the finest in the country. The Burton Barr Central Library and 13 branch libraries contain 2.3 million circulating items and resource materials to assist the community. The Burton Barr Central Library also houses the administrative and technical services function for the Library Department.

The number of libraries needed in a planning area is based on a standard of 6.9 collection items per household (or EDU) and a maximum of 163,000 items per branch library. There is currently one library located in the Desert View fee area of the Northern Growth Area. For purposes of impact fees for libraries, Desert View includes the Desert View and Deer Valley 5 fee areas. This facility, the Desert Broom Library, contains 95,000 collection items.

It is estimated that there will be 75,132 EDUs in the Desert View library fee area by 2030. Based upon this estimate, 2.2 additional libraries (approximately 50,000 square feet of library space) will be needed in this fee area to sustain the goal of 6.9 collection items per household. Limited funding was allocated in the 2001 Citizens' Bond Program for acquisition of land for another library in this area.

There is one library planned for development to serve the North Gateway fee area of the Northern Growth Area. For purposes of impact fees for libraries, North Gateway includes the North Gateway, Black Canyon Corridor and Deer Valley 1-4 fee areas. The Agave Library has been planned to house 150,000 collection items. It is estimated that there will be 61,831 EDUs in the North Gateway fee area by 2030. Based upon this estimate, 2.6 additional libraries, including Agave, will be needed to serve this fee area to sustain the goal of 6.9 collection items per household. Limited funding was allocated in the 2001 Citizens' Bond Program for acquisition of land for another library in this area.

#### Costs

The cost associated with providing new library facilities includes land acquisition, design, construction, procurement of the opening day collection, furniture and appropriate computer, circulation and security equipment. Tables 3.3.1 and 3.3.2 itemize the general costs associated with a library, which total \$10,735,000 per 20,000 square foot facility excluding land, and summarize the calculation of the cost per EDU in each fee area. The Appendix contains a table that summarizes the general costs associated with a library. Land acquisition cost is \$505,813 per acre.

#### Impact Fee for Libraries

The following impact fees will be charged in the Northern Growth Area for libraries:

<b>Desert View and Deer Valley 5 Fee Area:</b>	<b>\$424 per EDU</b>
<b>North Gateway and Deer Valley 1-4 Fee Area:</b>	<b>\$479 per EDU</b>

**Table 3.3.1 Cost Summary for Libraries in Desert View and Deer Valley 5**

Item	Cost per Library	Libraries Needed	Cost
Building Construction	\$6,290,400	2.2	\$13,838,880
Equipment and Furniture	\$1,184,600	2.2	\$2,606,120
Collection Items	\$3,260,000	2.2	\$7,172,000
Land Acquisition (3 acres)	\$1,517,439	2.2	\$3,338,366
<b>Subtotal</b>			\$26,955,366
Existing Facilities Remaining Costs			<b>\$5,452,812</b>
Less Existing Balance			-\$577,838
<b>Total</b>			<b>\$31,830,340</b>
EDUs			75,132
<b>Cost per EDU</b>			<b>\$ 424</b>

**Table 3.3.2 Cost Summary for Libraries in North Gateway and Deer Valley 1-4**

Item	Cost per Library	Libraries Needed	Cost
Building Construction	\$6,290,400	2.6	\$16,355,040
Equipment and Furniture	\$1,184,600	2.6	\$3,079,960
Collection Items	\$3,260,000	2.6	\$8,476,000
Land Acquisition (3 acres)	\$1,517,439	2.6	\$3,945,341
Subtotal			\$31,856,341
Existing Facilities Remaining Costs			\$0
Less Existing Balance			-\$2,266,758
<b>Total</b>			<b>\$29,589,583</b>
EDUs			61,831
<b>Cost per EDU</b>			<b>\$ 479</b>

### **3.4 OPEN SPACE**

#### **Description**

Phoenix recognizes the need to preserve significant mountain and other natural areas for future generations. In 1999, the Sonoran Preserve Master Plan was created. Large portions of the land contained within the Sonoran Preserve were designated as open space because development was severely restricted by topographical and code constraints. Some areas like the Cave Creek Wash and Skunk Creek Wash are also designated for preservation as open space because of the possibility of flooding occurring.

#### **Costs**

The cost of acquiring additional land that has been designated for open space will depend on its location and the ability for development to have occurred on it. Land with steep slopes or located in wash corridors will have lower acquisition costs for open space than those without these constraints. It is estimated that there will be 147,409 EDUs in the Northern Growth Area by 2030. A standard of 15.86 EDUs per acre for open space was established in 2003.

The tax fund established to purchase land for open space in the Sonoran Preserve only affects lands held by the State. As a result, the City will use impact fees only to acquire the remaining acres of privately owned land in the Northern Fee Area for use as open space, though all of the improvements such as trails, trail heads, and streets are funded through impact fees for the entire area. Improvement costs are estimated for the open spaces located in the Northern Fee Area to be \$3,821 per acre. Land acquisition cost is \$197,560 per acre.

#### **Impact Fees for Open Space**

The cost for providing Open Space for the entire Northern Growth Area is the same and is calculated at the rate of:

**Northern Growth Area:                      \$1,789 per EDU**

**Effective February 19, 2007 the Open Space fee for the Northern Growth Area will be \$1,137**

**Table 3.4.1 Summary of Open Space Costs**

Open Space Std	EDUs per Acre		
Northern Area	15.86		
	<b>Available Land</b>	<b>Private Land Std.</b>	<b>Land for Purchase</b>
Land Purchase (acres)	9,294	21.9%	2,035
Less Existing Acquisitions			708
Total Private Land to be Purchased			1,327
<b>Access Improvements</b>			
Local Access			\$5,093,310
Secondary Access			\$15,802,054
Major Access			\$9,979,323
Comprehensive			\$51,279,106
Total			\$82,153,793
Acres in Preserve			21,500
Per Acre Cost			\$3,821
<b>Summary</b>			
	<b>Unit Cost</b>	<b>Acres</b>	<b>Cost</b>
Land	\$197,560	1,327	\$262,162,120
Improvements	\$3,821	1,327	\$5,070,467
<b>Subtotal</b>			<b>\$267,232,587</b>
Existing Facilities Remaining Costs			0
Less Existing Balance			-\$3,518,130
<b>Total</b>			<b>\$263,714,457</b>
EDUs			147,409
<b>Cost per EDU</b>			<b>\$1,789</b>

### 3.5 PARK FACILITIES

#### Description

The Phoenix parks system has been developed to meet the recreational needs of the city's resident and visitor population. They have been designed to be conveniently located and easily accessible and provide diverse programs.

*Neighborhood Parks* are planned to serve an area within a one-half mile radius and a population of up to 7,000 people. They are typically 10 to 15 acres in size and provide passive and active recreation improvements such as lighted basketball and volleyball courts, playgrounds, picnic areas, open space for informal play and restrooms.

*Community Parks* accommodate multiple neighborhoods within an area of a one and one-half mile radius and serve a population of up to 50,000 people. They are typically 40 acres in size. Most community parks include the elements of a neighborhood park, as well as swimming pool facilities, lighted tennis courts and picnic ramadas, and community recreation centers which offer a wide range of programs and classes, daily lunches and may provide services to assist adults, seniors or youth. The centers often contain a gymnasium, classrooms, a lounge, a game room, a kitchen and staff offices.

*District Parks* provide larger recreational outlets for the community, containing at least 100 acres and serving up to 200,000 people. This type of park provides all of the recreational amenities available at neighborhood and community parks, but also offers specialized improvements such as golf courses, sports complexes, or full service community centers. Community centers offer city services such as meal programs, counseling and referrals to outside agencies. Community centers may also provide improvements such as a gymnasium, exercise rooms, classrooms, craft rooms, a lounge, multi-purpose rooms, a portable stage, a library, staff offices and conference rooms.

#### Costs

The cost of providing new park facilities varies according to the type of park planned. Tables 3.5.1 and 3.5.2 itemize the general costs associated with each type of park in the Northern Growth Area. Land acquisition cost in the Northern Growth Area is limited to \$370,424 per acre. The Parks and Trails are shown as separate fees in this report to provide detail on each system. The two systems are combined into a single fee when collected.

#### Impact Fees for Parks

The following fees were calculated in the Northern Growth Area for parks:

<b>North Gateway and Deer Valley 1-4:</b>	<b>\$6,160 per EDU</b>
<b>Desert View and Deer Valley 5:</b>	<b>\$4,253 per EDU</b>

**Effective February 19, 2007 the Parks fee for North Gateway and Deer Valley 1-4 will be: \$4,210 per EDU**

**Effective February 19, 2007 the Parks fee for Desert View and Deer Valley 5: \$3,070 per EDU**

**Table 3.5.1 Cost per EDU for Parks in North Gateway and Deer Valley 1-4**

Item	Unit Cost	Units (Acres)	Cost
Neighborhood Park	\$467,219	308	\$143,903,452
Community Park	\$520,887	160	\$83,341,920
District Park	\$475,769	227	\$107,999,563
Community Center	\$2,403,666	11	\$26,440,326
Aquatic Center	\$1,363,052	12	\$16,356,624
<b>Subtotal</b>			<b>\$378,041,885</b>
Existing Facilities Remaining Costs			\$0
Less Existing Balance			-\$14,956,240
<b>Total</b>			<b>\$363,085,645</b>
EDUs			58,945
<b>Cost per EDU</b>			<b>\$6,160</b>

**Table 3.5.2 Cost per EDU for Parks in Desert View and Deer Valley 5**

Item	Unit Cost	Units (Acres)	Cost
Neighborhood Park	\$784,490	253	\$198,475,970
Community Park	\$700,545	157	\$109,985,565
District Park	\$655,427	0	\$0
Community Center	\$2,403,666	0	\$0
Aquatic Center	\$1,363,052	0	\$0
<b>Subtotal</b>			<b>\$308,461,535</b>
Existing Facilities Remaining Costs			\$0
Less Existing Balance			-\$4,569,469
<b>Total</b>			<b>\$303,892,066</b>
EDUs			71,454
<b>Cost per EDU</b>			<b>\$4,253</b>

## 3.6 TRAILS

### Description

Integrated with the park system is an extensive network of trails that is designed to be easily accessible and convenient, and connects parks, major open spaces and village cores. The City of Phoenix has two categories of trails: Multi-Use Trails and Shared-Use Paths.

The trails located within the city's park system are intended to accommodate a variety of non-motorized uses. However, the location of the trail, the topography of the area and the surface used to construct the trail will dictate the primary use. Two different types of construction materials are used in developing trails. Multi-use trails typically have a 10 foot wide surface that is constructed of decomposed granite. This type of trail is typically located within a 30 foot wide alignment. The shared-use paths are constructed of concrete. They are typically 10 feet wide, but are located within a 20 foot alignment. The trail widths and the easement they are located within can vary outside of these norms based on surrounding land variations or obstacles and their location in proximity to existing roadways and sidewalks.

### Cost

The cost to construct one mile of multi-use trail is \$164,917. One mile of a shared-use path costs \$416,681 to construct. It is hoped that trails will be developed as often as possible in existing easements or required to be dedicated as development stipulations, which would result in no cost for acquiring land for this use. In the event that is not possible, the land acquisition costs for both types of trails will be \$370,424 per acre for the Northern Growth Area. The Parks and Trails are shown as separate fees in this report to provide detail on each system. The two systems are combined into a single fee when collected.

### Impact Fees for Trails

The amount of impact fees charged for the city's trail network is based upon a standard of one mile of trail for every 760 EDUs. Impact Fees were calculated in the Northern Growth Area for trails as follows:

<b>North Gateway and Deer Valley 1-4:</b>	<b>\$329 per EDU</b>
<b>Desert View and Deer Valley 5:</b>	<b>\$307 per EDU</b>

**Trails fees are shown separately for information purposes and are combined with Parks fees when collected. The phasing of the fee is contained within the Parks section.**

**Table 3.6.1 Trails Costs in North Gateway and Deer Valley 1-4**

Item	Unit Cost	Units (Miles)	Cost
Multi-Use Decomposed Granite Trail	\$164,917	57	\$9,400,269
Shared Use Concrete Trail	\$416,681	7	\$2,916,767
Trail Crossings	\$469,800	15	\$7,047,000
<b>Total</b>			<b>\$19,364,036</b>
EDUs			58,945
<b>Cost per EDU</b>			<b>\$329</b>

**Table 3.6.2 Trails Costs in Desert View and Deer Valley 5**

Item	Unit Cost	Units (Miles)	Cost
Multi-Use Decomposed Granite Trail	\$164,917	62	\$10,224,854
Shared Use Concrete Trail	\$416,681	10	\$4,166,810
Trail Crossings	\$469,800	16	\$7,516,800
<b>Total</b>			<b>\$21,908,464.00</b>
EDUs			71,454
<b>Cost per EDU</b>			<b>\$ 307</b>

## 3.7 POLICE FACILITIES

### Description

The goal of the Phoenix Police Department is to ensure the safety and security of each of the city's residents. To accomplish this, the department is budgeted to employ approximately 3,000 police officers and detectives and approximately 1,000 civilian support staff personnel.

The Police Department utilizes both precinct and neighborhood stations. Precinct stations are the primary geographic unit for the allocation of police services. The standard precinct station currently houses approximately 282 sworn employees. In addition, the precinct stations currently house a number of non-sworn administrative positions. They typically include a briefing room, lobby, holding cells, secretarial and supervisory offices, PACE workstations, restrooms, space for support staff, and locker space. The average size of a new precinct station is approximately 20,000 square feet. The average precinct station maintains a fleet of about 130 vehicles. The current precinct facilities are not sufficient for existing staffing levels and the addition of new precincts will help alleviate the current overcrowding.

There is one fee area for police stations in the Northern Growth Area. Currently the Northern Growth Area is served by the Cactus Park and Desert Horizon precincts. It is estimated that there will be 172,293 EDUs in the Northern Growth Area by 2030. Based upon this estimate, there are three new police precinct stations planned to support new development in the Northern Growth Area. No neighborhood stations are currently planned.

### Costs

The cost associated with each police station includes land acquisition, facility construction and furnishings, and the purchase necessary equipment and vehicles. Table 3.7.1 itemizes the projected costs associated with police facilities determined to be required in the Northern Growth Area based on projected growth, which are estimated at \$67,448,850. Land acquisition cost is limited to \$688,248 per acre for the Northern Growth Area. The additional facility item that is not included in the most recent CIP is a new communications center. This central facility will be required based on projected growth, to provide equivalent levels of service throughout the city, and the costs are distributed equally among the precincts.

### Impact Fee for Police Facilities

The following impact fee will be charged for all development occurring in the Northern Growth Area for police stations and related capital facilities:

**Northern Growth Area:        \$391 per EDU**

**Table 3.7.1 Summary of Police Facilities in the Northern Growth Area**

Precincts	Station Construction	Land	Vehicles	Total
Far Northwest	\$9,258,499	\$20	\$4,481,100	\$13,739,619
Northwest	\$9,258,499	\$6,882,480	\$4,481,100	\$20,622,079
Northeast	\$9,258,499	\$6,882,480	\$4,481,100	\$20,622,079
<b>Subtotal</b>	<b>\$27,775,497</b>	<b>\$13,764,980</b>	<b>\$13,443,300</b>	<b>\$54,983,777</b>
<b>Non-Precinct Facility Costs</b>				
Communications Facility				\$15,180,000
<b>Subtotal</b>				<b>\$15,180,000</b>
<b>Northern Growth Area Costs</b>				<b>\$70,163,777</b>
Less Payments Made				-\$7,269
Less Existing Impact Fee Balance				-\$2,707,658
<b>Total</b>				<b>\$67,448,850</b>
EDUs				172,293
<b>Cost per EDU</b>				<b>\$391</b>

## **3.8 SOLID WASTE MANAGEMENT**

### **Description**

The Skunk Creek Landfill on Happy Valley Road closed in 2005, and the North Gateway Transfer Station opened in 2006, three and one-half miles north of the old landfill. The new transfer facility accommodates recycling, water reclamation, and a maintenance service center. A new city landfill is operating south of the Town of Buckeye on State Route 85.

The Public Works Department collects solid waste and recyclables weekly, and bulk trash quarterly. The department serves approximately 364,000 households in Phoenix (as of March 2006) that produce over 700,000 tons of solid waste material annually. Currently the City of Phoenix recycles over 126,000 tons of solid material every year. The Public Works Department estimates that for each additional housing unit, the City needs to provide an extra three tons of waste-disposal capacity annually, and an additional 760 pounds of recycling capacity. This need for increased service is shown in the Appendix. It is estimated that there will be 106,881 EDUs requiring these services in the Northern Growth Area by 2030.

### **Costs**

Costs associated with collection vehicles and containers are based on current bid tabulations received by the Public Works Department. If current bid tabulations are not available, the most recent bid tabulations are used with a three-percent increase per year to estimate current costs. Cost for trash containers are contract prices.

The cost of providing new solid waste facilities is shown in Table 3.8.1. It is estimated that no land will need to be acquired prior to 2010 and the cost per EDU below has been calculated with that in mind.

### **Impact Fee for Solid Waste**

The following fees will be charged in the Northern Growth Area for solid waste management:

**Northern Growth Area:        \$407 per EDU**

**Table 3.8.1 Solid Waste Cost Summary for the Northern Growth Area**

Item	Total Cost
<b>Transfer Station Building Costs</b>	\$55,125,448
<b>Material Recover Facility</b>	
Building Construction	\$16,884,000
Soft Costs	\$3,351,474
<b>Subtotal</b>	<b>\$20,235,474</b>
<b>Transfer Station Costs (x)</b>	<b>0.15</b>
<b>Material Recovery Facility Costs (x)</b>	<b>0.49</b>
Equipment	\$25,659,403
<b>Subtotal</b>	<b>\$43,843,603</b>
Existing Facilities Remaining Costs	\$0
Less Existing Balance	-\$376,685
<b>Total</b>	<b>\$43,466,918</b>
EDUs	106,881
<b>Cost per EDU</b>	<b>\$ 407</b>

### **3.9 STREETS AND TRANSPORTATION STRUCTURES**

NOTE: Streets and Transportation Structures shown below have not been adopted. For information on these fees refer to the previous Infrastructure Finance Plan adopted in 2003.

#### **Description**

The City of Phoenix uses impact fees to provide a system of arterial streets in the Northern Growth Area designed to meet projected traffic demands, while supporting land use and environmental goals. Arterial streets form the backbone of the Phoenix street system. These four- to six-lane streets provide the most efficient flow of traffic throughout the city, excepting the limited access highways that are funded by federal and state governments.

An arterial street provides long distance travel with access to abutting land uses and is generally characterized as a four- or six-lane roadway with the opposing traffic separated by a landscaped median or center left turn lane. Traffic signals on arterial streets are typically located at the intersections with other arterial streets and at collector street intersections. In addition to pavement, curbs, and gutters, arterial streets generally include landscaped medians, sidewalks, landscaping, street lights, and traffic signals as part of the street infrastructure. Bridges, culverts, and drainage facilities are necessary for the crossing of rivers and washes. Traffic interchanges are necessary to connect new arterial streets to the freeway system. Arterial streets vary in cross-section and right-of-way, but all arterial streets include four or six traffic lanes, curb and gutter, landscaped medians or a center turn lane, sidewalks, traffic signals, landscaping, and street lights.

The City of Phoenix has an approved Street Classification Map that defines the arterial street network and the street cross-section. Impact fee funding is used for construction of arterial streets within the impact fee planning areas, which includes bridges, culverts and drainage facilities, and traffic interchanges that are appurtenant to the arterial street.

There are three fee areas for streets in the Northern Growth Area: North Gateway, North Black Canyon Corridor, and Desert View. It is estimated that there will be 265,292 EDUs in the Northern Growth Area by 2030. Information contained in the Appendix depicts the planned street network for the Northern Growth Area. It includes those streets that are existing, partially complete, and planned. The characteristics of each arterial street segment are defined in the Appendix which would include right-of-way width, pavement width, number of lanes, and the presence of features such as medians, sidewalks, and landscaping. Some of the more significant arterial street elements of the Northern Area are the 19<sup>th</sup> Avenue / CAP Bridge, Sonoran Parkway, and three bridges built to cross the Skunk Creek Wash. The street inventory for the Northern Growth Area is included in the Appendix.

#### **Costs**

The costs associated with the construction of streets, land acquisition, interchanges, bridges, culverts, and drainage facilities in the Northern Growth Area are detailed in the Appendix. Land acquisition costs in the Northern Growth Area are limited to \$179,915 per acre.

#### **Impact Fee for Streets, Transportation Structures, and Drainage Structures**

<b>Desert View and Deer Valley 5:</b>	<b>\$8,128 per EDU</b>
<b>NBCC and Deer Valley 4:</b>	<b>\$4,793 per EDU</b>
<b>North Gateway and Deer Valley 1-3:</b>	<b>\$8,029 per EDU</b>

NOTE: Streets and Transportation Structures shown have not been adopted. For information on these fees refer to the previous Infrastructure Finance Plan adopted in 2003.

**Table 3.9.1 Summary of Street Costs and Cost per EDU in the Northern Growth Area**

Item	Desert View/Deer Valley 5	NBCC/Deer Valley 4	North Gateway/Deer Valley 1-3
<b>Major Streets, Traffic Signals, Interchanges, Culverts, Storm Drains, and Tiling</b>			
Major Streets Roadway Construction	\$472,679,544	\$78,532,858	\$258,669,072
Major Streets Construction Administration	\$137,673,650	\$22,873,646	\$75,340,501
Major Streets Right-of-Way Acquisition	\$157,311,370	\$24,506,032	\$106,875,347
Major Streets Right-of-Way Administration	\$15,731,137	\$2,450,603	\$10,687,535
Major Streets Credit Agreements	\$11,598,739	\$16,518,180	\$3,403,855
Traffic Signals	\$4,810,000	\$390,000	\$1,560,000
Interchanges, Parkways and Frontage Roads Design and Construction	\$143,812,500	\$11,039,217	\$11,039,217
Interchanges, Parkways, and Frontage Roads Right-of-Way	\$36,801,500	\$11,015,136	\$8,011,872
Culverts / Storm Drains Construction	\$113,428,944	\$23,183,371	\$99,502,646
Culverts / Storm Drains Construction Administration	\$34,028,683	\$6,955,011	\$29,850,794
Tiling Construction	\$0	\$0	\$0
Tiling Construction Administration	\$0	\$0	\$0
<b>Subtotal</b>	<b>\$1,127,876,067</b>	<b>\$197,464,054</b>	<b>\$604,940,839</b>
Percent to Local Use	78%	78%	78%
<b>Corrected Subtotal</b>	<b>\$879,743,332</b>	<b>\$154,021,962</b>	<b>\$471,853,854</b>
<b>Major Bridges</b>			
Major Bridges Construction	\$94,035,527	\$89,019,621	\$175,982,276
Major Bridges Construction Administration	\$28,210,658	\$26,705,886	\$52,794,683
<b>Subtotal</b>	<b>\$122,246,185</b>	<b>\$115,725,507</b>	<b>\$228,776,959</b>
<b>Totals</b>			
Less Existing Account Balances	-\$5,324,254	-\$1,663,356	-\$4,168,207
<b>Total Cost to Area</b>	<b>\$996,665,263</b>	<b>\$268,084,113</b>	<b>\$696,462,606</b>
EDUs	122,623	55,930	86,738
<b>Cost per EDU</b>	<b>\$8,128</b>	<b>\$4,793</b>	<b>\$8,029</b>

NOTE: Streets and Transportation Structures shown have not been adopted. For information on these fees refer to the previous Infrastructure Finance Plan adopted in 2003.

### **3.10 WASTEWATER SERVICE**

#### **Description**

The City of Phoenix is responsible for the reliable collection and treatment of wastewater within the Northern Fee Area. The infrastructure built to implement this service for which impact fees can be charged include sewer lines (gravity sewers and dual force mains), wastewater lift stations (submersible and wet and dry wells), wastewater treatment facilities, and water reclamation facilities. Reclaimed water distribution systems are not included in the wastewater infrastructure development fee.

The infrastructure built to provide wastewater services must have adequate capacity to collect all sewage discharged in the Northern Fee Area, transport it to treatment facilities, and to discharge plant effluent in accordance with county, state, and federal rules and regulations. The system must be reliable, secure, and efficiently operated.

There are seven subareas in the Northern Fee Area among which wastewater facility costs are shared: North Gateway, Desert View, Deer Valley 1, Deer Valley 2, Deer Valley 3, Deer Valley 4, and Deer Valley 5. The construction and expansion of centralized facilities such as wastewater treatment plants and reclamation plants make up a large portion of the costs charged for each subarea. The City apportions the cost of those facilities by determining the proportion of those facilities necessary to serve the EDUs in the specific subarea.

#### **Costs**

The cost associated with providing new wastewater facilities varies according to the type of infrastructure needed and the subarea it will serve in the Northern Fee Area. Tables 3.10.1 and 3.10.2 itemize the general costs associated with wastewater facilities in each subarea. Land acquisition costs in the Northern Fee Area are estimated at \$179,915 per acre. Inventories of Planned Wastewater Facilities, their costs and EDU calculations can be found in the Appendix.

#### **Impact Fee for Wastewater Services**

Two of the seven fee subareas, Deer Valley 2 and 3, will have no localized facilities improvements, so the network cost is assumed to be \$0 and the entire fee is based on plant costs. An impact fee of \$2,265 per EDU will be collected in those subareas for the expansion of the 91<sup>st</sup> Avenue Wastewater Treatment Plant. The following impact fees were calculated in the Northern Fee Area for wastewater facilities:

**Effective February 19, 2007 the Wasterwater fee for Desert View: \$3,644 per EDU**  
**Effective February 19, 2007 the Wastewater fee for North Gateway: \$5,138 per EDU**  
**Effective February 19, 2007 the Wastewater fee for Deer Valley 1: \$2,631 per EDU**  
**Effective February 19, 2007 the Wastewater fee for Deer Valley 2: \$1,670 per EDU**  
**Effective February 19, 2007 the Wastewater fee for Deer Valley 3: \$1,581 per EDU**  
**Effective February 19, 2007 the Wastewater fee for Deer Valley 4: \$1,716 per EDU**  
**Effective February 19, 2007 the Wastewater fee for Deer Valley 5: \$5,303 per EDU**

**Effective August 21, 2007 the Wasterwater fee for Desert View: \$4,376 per EDU**  
**Effective August 21, 2007 the Wasterwater fee for North Gateway: \$6,637 per EDU**  
**Effective August 21, 2007 the Wasterwater fee for Deer Valley 1: \$2,880 per EDU**  
**Effective August 21, 2007 the Wasterwater fee for Deer Valley 2: \$2,265 per EDU**  
**Effective August 21, 2007 the Wasterwater fee for Deer Valley 3: \$2,265 per EDU**  
**Effective August 21, 2007 the Wasterwater fee for Deer Valley 4: \$2,620 per EDU**  
**Effective August 21, 2007 the Wasterwater fee for Deer Valley 5: \$7,310 per EDU**

**Table 3.10.1 Summary of Network Costs in the Northern Area for Wastewater**

Fee Area	Network Subtotal	Less Existing Balance	Network Cost Total
Desert View	\$63,833,817	-\$2,144,105	<b>\$61,689,712</b>
North Gateway	\$160,010,742	-\$3,795,152	<b>\$156,215,590</b>
Deer Valley 1	\$1,667,006	-\$864,323	<b>\$802,683</b>
Deer Valley 2	\$0	-\$0	<b>\$ 0</b>
Deer Valley 3	\$0	-\$0	<b>\$ 0</b>
Deer Valley 4	\$1,517,605	-\$5,991	<b>\$6,031</b>
Deer Valley 5	\$3,633,223	-\$250,345	<b>\$3,382,878</b>

**Table 3.10.2 Summary of Costs per EDU for Northern Area Wastewater**

Fee Area	Plant Cost / EDU*	Network Cost / EDU	EDUs	Total Cost per EDU
Desert View	\$3,723	\$ 653	94,444	<b>\$4,376</b>
North Gateway	\$4,519	\$2,118	73,760	<b>\$6,637</b>
Deer Valley 1	\$2,265	\$ 615	1,306	<b>\$2,880</b>
Deer Valley 2	\$2,265	\$ 0	1,520	<b>\$2,265</b>
Deer Valley 3	\$2,265	\$ 0	1,339	<b>\$2,265</b>
Deer Valley 4	\$2,265	\$ 355	2,137	<b>\$2,620</b>
Deer Valley 5	\$3,723	\$3,587	943	<b>\$7,310</b>

\*Plant cost is based on 307 average wastewater gallons per day for single family.

### **3.11 WATER SYSTEM FACILITIES**

#### **Description**

The ability to provide a reliable source of cost effective, high quality water to new developments is the key to ensuring growth. The City of Phoenix works with the development community to plan for the water needs of projects in the Northern Growth Area. The types of facilities being planned include transmission pipelines, pressure-reducing or flow-control valve stations, well facilities, booster-pump stations, storage reservoirs, and water treatment facilities. The system must be reliable, secure, and efficiently operated.

There is one impact fee area in the Northern Growth Area but the water system is subdivided into six (6) pressure zones because of the variations in topographical elevations. The service standard for water system facilities is to have sufficient capacity to meet projected demand, in accordance with state and federal water-quality standards. System pressure must be maintained between 50 and 100 pounds per square inch at all times in each pressure zone. Infrastructure for water systems are generally designed to accommodate the pressure zones they serve. However, imposing a pressure zone structure over a land use structure often results in water facilities needed to serve a specific area being located in a different pressure zone and at some distance away. For example, a storage reservoir may be located several miles from the area it serves, which requires additional transmission mains to connect the reservoir with the service area.

#### **Costs**

The cost associated with providing new water system facilities varies according to the type of infrastructure needed and the area it will serve (because of pressure zones) in the Northern Growth Area. Table 3.11.1 provides the general costs associated with each type of water facility and the unit cost of pipes, pressure reducing valves, and other facilities. Land acquisition costs in the Northern Growth Area are limited to \$179,915 per acre.

#### **Impact Fee for Water System Facilities**

The following impact fee was calculated for water system facilities throughout the Northern Growth Area:

**Northern Growth Area:        \$5,921 per EDU**

**Effective February 19, 2007 the Water system fee for the Northern Growth Area: \$4,866**

**Effective August 21, 2007 the Water system fee for the Northern Growth Area: \$5,921**

**Table 3.11.1 Summary of Costs in the Northern Area for Water**

<b>Network Facilities</b>	<b>Cost</b>
Water Mains	\$273,035,487
Reservoir	\$128,056,000
Booster Stations	\$81,630,586
Pressure Reducing Valve Stations	\$12,294,630
Subtotal	<b>\$495,016,703</b>
Existing Facilities Remaining Interest and Principal	\$114,879,730
<b>Subtotal Network Costs</b>	<b>\$609,896,433</b>
Less Existing Balance	-\$16,068,893
<b>Total</b>	<b>\$593,827,540</b>
EDUs	157,249
Cost per EDU Network	\$3,776
Cost per EDU Treatment Plant	\$2,145
<b>Total Cost per EDU</b>	<b>\$5,921</b>



## Chapter 4

### The Southern Growth Area

Because of the large size of Phoenix, several fee areas were created to more fairly allocate future capital facility costs. As a result, there are two areas in which impact fees are assessed for infrastructure development: the Southern and Northern Growth Areas. The Southern Growth Area is comprised of Ahwatukee Foothills, Estrella (west of 43<sup>rd</sup> Avenue) and Laveen. Some of these areas have been subdivided to better allocate specific types of facility costs (see map below). By assessing the fees on the basis of a specific fee area, or even sub-fee area, the City can better ensure that new development is only paying for capital facilities that it needs and from which it will benefit.

#### Ahwatukee Foothills

Ahwatukee Foothills is generally bounded by the Gila River Indian Community on the south and west (the South Mountain Freeway – Loop 202), the Phoenix South Mountain Preserve on the north, and Interstate 10 on the east. The area is dominated by residential development with established commercial uses at major arterial intersections. However, the only significant areas remaining for new development are in what has been referred to as the Foothills Reserve and the South Mountain 620, which are located in the Ahwatukee West sub-area). It is anticipated that there will be 35,410 dwelling units and 3,437 acres of commercial and industrial development occurring in Ahwatukee Foothills through 2030. Impact fees are assessed and credit is available for infrastructure development in two areas of Ahwatukee Foothills: Ahwatukee East and Ahwatukee West.

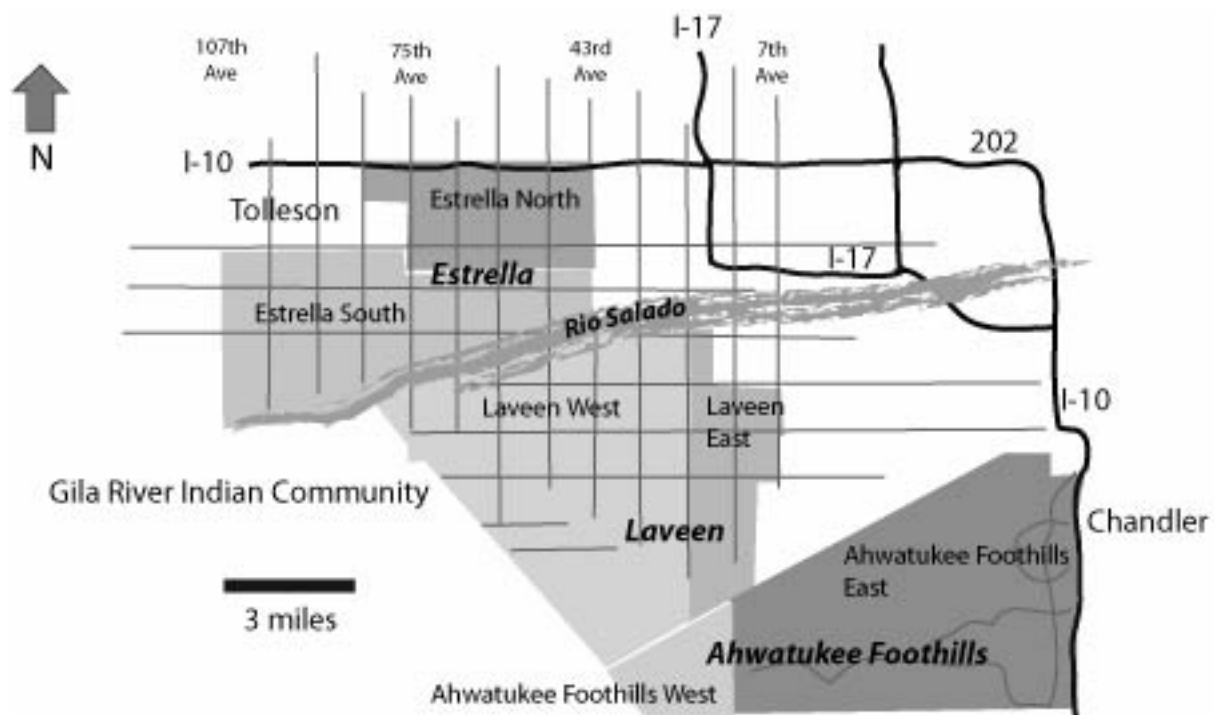


#### Estrella

The 20,160 acres that comprise Estrella are generally bounded by the Salt River on the south, Interstate 10 on the north, 43<sup>rd</sup> Avenue on the east and 83<sup>rd</sup>, 75<sup>th</sup> and 107<sup>th</sup> Avenues on the west (depending on latitude). Land uses in Estrella were historically dominated by agricultural uses and limited commercial and industrial development. In recent years, a number of residential units have been built, with some additional industrial and commercial construction. It is anticipated that there will be 45,952 dwelling units and 6,723 acres of commercial and industrial development occurring in Estrella through 2030. Impact fees are assessed and credit is available for infrastructure development in two sub-areas located within Estrella: Estrella North and Estrella South.

#### Laveen

The Laveen area is generally bounded by the Salt River to the north, the Gila River Indian Community to the southwest, Phoenix South Mountain Park to the southeast, and 23<sup>rd</sup> Avenue, 7<sup>th</sup> Avenue or 15<sup>th</sup> Avenue to the east (depending on latitude). Laveen has historically supported agricultural uses and, more recently, new single family residential development. Residential and commercial development is expected to grow dramatically in the near future. It is anticipated that there will be 49,175 dwelling units and 2,883 acres of commercial and industrial development occurring in Laveen through 2030. Impact fees are assessed and credit is available for infrastructure development in two sub-areas located within Laveen: Laveen East and Laveen West.



**Figure 4.1 The Southern Growth Area Map**

**Table 4.1 Summary of the Southern Growth Area Gross Impact Fees per EDU**

<b>Fee Category and Area</b>	<b>Estrella North</b>	<b>Estrella South</b>	<b>Laveen West</b>	<b>Laveen East</b>	<b>Ahwatukee East</b>	<b>Ahwatukee West</b>
Equipment	\$74	\$74	\$74	\$74	\$74	\$74
Fire	\$279	\$279	\$279	\$279	\$177	\$177
Library	\$250	\$250	\$250	\$250	\$106	\$106
Parks & Trails	\$3,327	\$3,327	\$3,327	\$3,327	\$4,647	\$4,647
Police	\$137	\$137	\$137	\$137	\$24	\$24
Solid Waste	\$357	\$357	\$357	\$357	\$357	\$357
Stormwater/ Drainage	\$1,221	\$1,221	\$986	\$986	\$0	\$0
Streets	\$1,509	\$4,827	\$6,178	\$6,178	\$0	\$9,560
Wastewater	\$2,265	\$4,555	\$3,555	\$2,265	\$2,927	\$2,927
Water	\$3,537	\$3,537	\$3,537	\$3,537	\$3,537	\$3,537
<b>Total</b>	<b>\$12,956</b>	<b>\$18,564</b>	<b>\$18,680</b>	<b>\$17,390</b>	<b>\$11,849</b>	<b>\$21,409</b>

**Table 4.2 Year 2030 Projection of Housing Units and Employees for the Southern Growth Area**

Southern Growth Area	Dwelling Units		Employees			
	Single-Family	Multi-Family	Comm'l	Office	Industrial	Public
Estrella North	3,751	4,618	1,179	3,219	55,863	2,829
Estrella South	27,030	10,553	4,324	8,361	13,573	14,934
Laveen East	7,071	2,185	617	10	882	2,379
Laveen West	29,942	9,977	5,372	9,467	10,378	3,127
Ahwatukee East	25,129	8,652	8,977	6,378	2,174	2,852
Ahwatukee West	1,628	0	368	0	0	76
<b>Total</b>	<b>94,551</b>	<b>35,985</b>	<b>20,837</b>	<b>27,435</b>	<b>82,870</b>	<b>26,197</b>

## **4.1 EQUIPMENT REPAIR FACILITIES**

### **Description**

City service centers are regional bases for equipment repair and for the delivery of city services requiring field operations. There are currently four satellite service centers, in addition to the main service center. These centers provide facilities for equipment management, solid waste collection, street maintenance, and water services. A city fleet of 6,690 vehicles for these services is stored, maintained, and repaired at equipment maintenance stations. The centers also provide shop facilities, storage space, and administrative offices supporting these and other city activities.

To ensure quality service to its citizens, the City of Phoenix would like to maintain one equipment repair facility for every 140,000 EDUs in the quickly growing impact fee areas. There are currently three equipment repair facilities in the Southern Growth Area (Estrella, Laveen, and Ahwatukee Foothills). It is estimated that there will be 151,992 EDUs in the Southern Growth Area by the year 2030. Based upon this estimate, 0.88 additional equipment repair facilities will be needed in the Southern Growth Area to sustain the goal of one service center per 140,000 EDUs.

### **Costs**

The cost associated with each service center includes land acquisition, building and facility construction, and the purchase, installation or upgrading of capital equipment for activities such as, but not limited to, truck washing, refueling, and hazardous waste disposal. Table 4.1.1 itemizes the general costs associated with service centers, which is \$14,377,293 per center (excluding land). It is estimated that no new facilities will need to be acquired prior to 2010 and the cost per EDU below has been calculated with that in mind. If land is needed prior to that time, land cost will be limited to \$75,916 per acre in Estrella and Laveen, and \$153,986 in Ahwatukee.

### **Impact Fee for Equipment Repair Facilities**

The following impact fee will be charged for all development occurring in the Southern Growth Area (Estrella, Laveen, and Ahwatukee Foothills) for service centers providing equipment repair:

**Southern Growth Area:        \$74 per EDU**

**Table 4.1.1 Equipment Repair Cost Summary for the Southern Growth Area**

Item	Cost	Facilities Needed	Total Cost
Building Construction	\$13,146,293	0.88	\$11,568,738
Service Equipment	\$1,231,000	0.88	\$1,083,280
<b>Subtotal</b>			<b>\$12,652,018</b>
Existing Facilities Remaining Costs			\$0
Less Existing Balance			\$1,450,949
<b>Total</b>			<b>\$11,201,069</b>
EDUs			151,992
<b>Cost per EDU</b>			<b>\$74</b>

## 4.2 FIRE PROTECTION FACILITIES

### Description

Phoenix strives to provide fire stations that are geographically located to allow for rapid response to fire and emergency medical incidents for its citizens. The city's goal is to provide fire coverage based on a four minute emergency travel time, which roughly equates to a grid of five square miles. The coverage area of each fire station serves approximately 10,000 to 25,000 people (approximately 8,600 EDUs).

The City of Phoenix owns four fire stations in the Estrella/Laveen area of the Southern Growth Area. It is estimated that there will be 119,543 EDUs in the Estrella/Laveen area by 2030. Based upon this estimate, nine additional fire stations are planned to meet travel times. There are also three fire stations located within the Ahwatukee Foothills area. It is estimated that there will be 39,964 EDUs in the Ahwatukee Foothills area by 2030. Based upon this estimate, one additional fire station is planned to meet travel times.

### Costs

The cost associated with each fire station includes land acquisition, facility construction and furnishings, and the purchase of necessary equipment and fire protection vehicles, often comprised of an ambulance, brush truck, and fire truck. Standard fire stations in Phoenix are approximately 14,000 square feet in area and located on two and one-half acre sites. They are generally designed to provide four truck bays, thirteen overnight rooms, two offices, restrooms, and a kitchen. Every fifth station also includes a battalion station that contains fifteen sleeping bays. The battalion station is a more publicly trafficked facility office requiring another 5,000 square feet for the station's structure and an additional half acre for the site. Tables 4.2.1 and 4.2.2 itemize the general costs which are \$5,861,660 to construct and purchase equipment for a fire station. Land acquisition cost is limited to \$339,768 per acre for the Laveen/Estrella area and \$550,598 per acre for Ahwatukee Foothills.

### Impact Fee for Fire Facilities

The following impact fees will be charged for all development occurring in the Southern Growth Area (Estrella/Laveen, and Ahwatukee Foothills) for fire facilities:

<b>Estrella/Laveen:</b>	<b>\$279 per EDU</b>
<b>Ahwatukee Foothills:</b>	<b>\$177 per EDU</b>

**Table 4.2.1 Summary of Fire Facilities Costs in Estrella and Laveen**

Facility	Unit Cost	Units Needed	Total Cost
Fire Stations Construction	\$5,861,660	4.0	\$23,446,640
Fire Stations Land Acquisition (acres)	\$339,768	10.0	\$3,397,680
Fire Station with District Headquarters Construction	\$7,730,110	1.0	\$7,730,110
Fire Station with District Headquarters Land Acquisition (acres)	\$339,768	3.0	\$1,019,304
<b>Subtotal</b>			<b>\$35,593,734</b>
Existing Facilities Remaining Costs			\$0
Less Existing Balance			-\$2,207,341
<b>Total</b>			<b>\$33,386,393</b>
EDUs			119,543
<b>Cost per EDU</b>			<b>\$ 279</b>

**Table 4.2.2 Summary of Fire Facilities Costs in Ahwatukee**

Facility	Unit Cost	Units Needed	Total Cost
Fire Stations Construction	\$5,861,660	1.0	\$5,861,660
Fire Station Land Acquisition (acres)	\$550,598	2.50	\$1,376,495
Fire Station with District Headquarters Construction	\$7,730,110	0.0	\$0.0
Fire Station with District Headquarters Land Acquisition (acres)	\$550,598	0.0	\$0.0
<b>Subtotal</b>			<b>\$7,238,155</b>
Existing Facilities Remaining Costs			\$0
Less Existing Balance			-\$147,727
<b>Total</b>			<b>\$7,090,428</b>
EDUs			39,964
<b>Cost per EDU</b>			<b>\$ 177</b>

## 4.3 LIBRARY FACILITIES

### Description

The first library in Phoenix was dedicated in 1908. Since then, the City of Phoenix has worked to make its library system one of the finest in the country. The Burton Barr Central Library and 13 branch libraries contain 2.3 million circulating items and resource materials to assist the community. The Burton Barr Central Library also houses the administrative and technical services function for the Library Department.

The number of libraries needed in a planning area is based on a standard of 6.9 collection items per household (or EDU) and a maximum of 163,000 items per library. There is currently one library which serves the Estrella/Laveen regions of the Southern Growth Area and one library under construction (scheduled to open in 2006). The new library will house 150,000 collection items. It is estimated that there will be 85,465 EDUs in the Estrella/Laveen area by 2030. Based upon this estimate, 1.6 additional libraries (approximately 38,000 square feet of library space) will be needed in this fee area to sustain the goal of 6.9 collection items per household.

There is one existing library in the Ahwatukee Foothills fee area. Ironwood Library houses 124,000 items. It is estimated that there will be 31,579 EDUs in the Ahwatukee Foothills area by 2030. Based on that estimate, 0.3 additional libraries, equivalent to a 10,000 square foot library, will be needed to sustain the goal of 6.9 collection items per household.

### Costs

The cost associated with providing new library facilities includes land acquisition, design, construction, procurement of the opening day collection, furniture and appropriate computer, circulation and security equipment. Tables 4.3.1 and 4.3.2 itemize the general costs associated with a library, which total \$10,735,000 per 20,000 square foot facility excluding land. Tables 4.3.1 and 4.3.2 summarize the calculation of the cost per EDU in each fee area. The Appendix contains a table that summarizes the general costs associated with a library. Land acquisition cost is limited to \$339,768 per acre for Estrella/Laveen and \$550,598 per acre for Ahwatukee Foothills.

### Impact Fee for Libraries

The following impact fees will be charged in the Southern Growth area for libraries:

**Estrella/Laveen:           \$250 per EDU**  
**Ahwatukee Foothills:   \$106 per EDU**

**Table 4.3.1 Cost Summary for Libraries in Estrella/Laveen**

Item	Cost per Library	Libraries Needed	Cost
Building Construction	\$6,290,400	1.6	\$10,064,640
Equipment and Furniture	\$1,184,600	1.6	\$1,895,360
Collection Items	\$3,260,000	1.6	\$5,216,000
Land Acquisition (3 acres)	\$1,019,304	1.6	\$1,630,886
<b>Subtotal</b>			<b>\$18,806,886</b>
Existing Facilities Remaining Costs			\$7,199,305
Less Existing Balance			-\$4,642,022
<b>Total</b>			<b>\$21,364,169</b>
EDUs			85,465
<b>Cost per EDU</b>			<b>\$ 250</b>

**Table 4.3.2 Cost Summary for Libraries in Ahwatukee Foothills**

Item	Cost per Library	Libraries Needed	Cost
Building Construction	\$6,290,400	0.3	\$1,887,120
Equipment and Furniture	\$1,184,600	0.3	\$355,380
Collection Items	\$3,260,000	0.3	\$978,000
Land Acquisition (3 acres)	\$1,651,794	0.3	\$495,538
<b>Subtotal</b>			<b>\$3,716,038</b>
Existing Facilities Remaining Costs			\$0
Less Existing Balance			-\$384,171
<b>Total</b>			<b>\$3,331,867</b>
EDUs			31,579
<b>Cost per EDU</b>			<b>\$ 106</b>

## 4.4 PARK FACILITIES

### Description

The Phoenix parks system has been developed to meet the recreational needs of the city's resident and visitor population. They have been designed to be conveniently located and easily accessible and provide diverse programs.

*Neighborhood Parks* are planned to serve an area within a one-half mile radius and a population of up to 7,000 people. They are typically 10-15 acres in size and provide passive and active recreation improvements such as lighted basketball and volleyball courts, playgrounds, picnic areas, open space for informal play and restrooms.

*Community Parks* accommodate multiple neighborhoods within an area of a one and one-half mile radius and serve a population of up to 50,000 people. They are typically 40 acres in size. Most community parks include the elements of a neighborhood park, as well as swimming pool facilities, lighted tennis courts and picnic ramadas, and community recreation centers, which offer a wide range of programs and classes, daily lunches and may provide services to assist adults, seniors or youth. The centers often contain a gymnasium, classrooms, a lounge, a game room, a kitchen and staff offices.

*District Parks* provide larger recreational outlets for the community, containing at least 100 acres and serving up to 200,000 people. This type of park provides all of the recreational amenities available at neighborhood and community parks, but also offers specialized improvements such as golf courses, sports complexes, or full service community centers. Community centers are used to offer city services such as meal programs, counseling and referrals to outside agencies. Community centers may also provide improvements such as a gymnasium, exercise rooms, classrooms, craft rooms, a lounge, multi-purpose rooms, a portable stage, a library, staff offices and conference rooms.

### Costs

The cost of providing new park facilities varies according to the type of park planned. Tables 4.4.1 and 4.4.2 itemize the general costs associated with each type of park in the Southern Growth Area. Land acquisition cost in the Southern Growth Area is estimated at \$113,874 per acre in Estrella/Laveen and \$230,979 in Ahwatukee Foothills. The Parks and Trails are shown as separate fees in this report to provide detail on each system. The two systems are combined into a single fee when collected.

### Impact Fees for Parks

The following fees were calculated in the Southern Growth Area for parks:

<b>Estrella/Laveen:</b>	<b>\$2,960 per EDU</b>
<b>Ahwatukee Foothills:</b>	<b>\$4,418 per EDU</b>

**Effective February 19, 2007 the Parks fee for Estrella/Laveen: \$2,135 per EDU**

**Effective February 19, 2007 the Parks fee for Ahwatukee Foothills: \$2,748 per EDU**

**Table 4.4.1 Cost per EDU for Parks in Estrella and Laveen**

Item	Unit Cost	Units (Acres)	Cost
Neighborhood Park	\$527,940	323	\$170,524,620
Community Park	\$443,995	165	\$73,259,175
District Park	\$398,877	42	\$16,752,834
Community Center	\$2,403,666	2	\$4,807,332
Aquatic Center	\$1,363,052	2	\$2,726,104
<b>Subtotal</b>			<b>\$268,070,065</b>
Existing Facilities Remaining Costs			\$0
Less Existing Balance			-\$26,654,135
<b>Total</b>			<b>\$241,415,930</b>
EDUs			81,559
<b>Cost per EDU</b>			<b>\$2,960</b>

**Table 4.4.2 Cost per EDU for Parks in Ahwatukee Foothills**

Item	Unit Cost	Units (Acres)	Cost
Neighborhood Park	\$645,045	148	\$95,466,660
Community Park	\$561,100	0	\$0
District Park	\$515,982	57	\$29,410,974
Community Center	\$2,403,666	3	\$7,210,998
Aquatic Center	\$1,363,052	3	\$4,089,156
<b>Subtotal</b>			<b>\$136,177,788</b>
Existing Facilities Remaining Costs			\$0
Less Existing Balance			-\$1,622,127
<b>Total</b>			<b>\$134,555,661</b>
EDUs			30,456
<b>Cost per EDU</b>			<b>\$4,418</b>

## 4.5 TRAILS

### Description

Integrated in with the park system is an extensive network of trails that is designed to be easily accessible and convenient, and connects parks, major open spaces and village cores. The City of Phoenix has two categories of trails: multi-use trails and shared-use paths. It is estimated that there will be 81,559 EDUs in the Estrella/Laveen area by 2030. Based on that estimate, 93.75 miles of trails and 6 trail crossings are planned for the Estrella/Laveen area. It is estimated that there will be 30,455 EDUs in the Ahwatukee Foothills area by 2030. Based on this, 23.8 miles of trails are planned

The trails located within the city's park system are intended to accommodate a variety of non-motorized uses. However, the location of the trail, the topography of the area and the surface used to construct the trail will dictate the primary use. Two different types of construction materials are used in developing trails. Multi-use trails typically have a 10 foot wide surface that is constructed of decomposed granite. This type of trail is typically located within a 30 foot wide alignment. The shared-use paths are constructed of concrete. They are typically 10 feet wide, but are located within a 20 foot alignment. The trail widths and the easement they are located within can vary outside of these norms based on surrounding land variations or obstacles and their location in proximity to existing roadways and sidewalks.

### Cost

The cost to construct one mile of multi-use trails is \$164,917. One mile of a shared-use path costs \$416,681 to construct. It is hoped that trails will be developed as often as possible in existing easements or required to be dedicated as development stipulations, which would result in no cost for acquiring land for this use. Trails development for the Laveen Area Conveyance Channel includes landscaping of the easement, and a limit on land cost of \$42,700 per acre. The Parks and Trails are shown as separate fees in this report to provide detail on each system. The two systems are combined into a single fee when collected.

### Impact Fees for Trails

The amount of impact fees charged for the city's trail network is based upon a standard of one mile of trail for every 760 EDUs. Impact Fees will be charged in the Southern Growth Area for trails as follows:

<b>Estrella/Laveen:</b>	<b>\$367 per EDU</b>
<b>Ahwatukee Foothills:</b>	<b>\$229 per EDU</b>

**Trails fees are shown separately for information purposes and are combined with Parks fees when collected. The phasing of the fee is contained within the Parks section.**

**Table 4.5.1 Trails Costs in Estrella/Laveen**

Item	Unit Cost	Units (Miles)	Cost
Multi-Use Decomposed Granite Trail	\$164,917	55.5	\$9,152,894
Shared Use Concrete Trail	\$416,681	27.5	\$11,458,728
Trail Crossings	\$469,800	6	\$2,818,800
<b>Subtotal</b>			<b>\$23,430,422</b>
<b>Laveen Area Conveyance Channel</b>			
Multi-Use Decomposed Granite Trail	\$464,817	5.5	\$2,556,494
Shared Use Concrete Trail	\$716,581	5.5	\$3,941,196
<b>Subtotal</b>			<b>\$6,497,690</b>
<b>Total</b>			<b>\$29,928,112</b>
EDUs			81,559
<b>Cost per EDU</b>			<b>\$ 367</b>

**Table 4.5.2 Trails Costs in Ahwatukee Foothills**

Item	Unit Cost	Units (Miles)	Cost
Multi-Use Decomposed Granite Trail	\$164,917	12	\$1,979,004
Shared Use Concrete Trail	\$416,681	12	\$5,000,172
Trail Crossings	\$469,800	0	\$0
<b>Total</b>			<b>\$6,979,176</b>
EDUs			30,456
<b>Cost per EDU</b>			<b>\$ 229</b>

## 4.6 POLICE FACILITIES

### Description

The goal of the Phoenix Police Department is to ensure the safety and security of each of the city's residents. To accomplish this, the department is budgeted to employ approximately 3,000 sworn police officers and detectives and approximately 1,000 civilian support staff personnel.

The Police Department utilizes both precinct and neighborhood stations. Precinct stations are the primary geographic unit for the allocation of police services. Precinct stations generally house approximately 282 sworn employees and a number of non-sworn administrative positions. They typically include a briefing room, lobby, holding cells, secretarial and supervisory offices, PACE workstations, restrooms, space for support staff, and locker space. The size of a new precinct station is approximately 20,000 square feet. The average precinct station maintains a fleet of about 130 vehicles. The current precinct facilities are not sufficient for existing staffing levels and the addition of new precincts will help alleviate the current overcrowding.

A number of neighborhood stations have been added in recent years to support growing service demands. Neighborhood stations are less consistent in their size than precinct stations. The allocation of neighborhood stations is influenced by the geography of the precinct and how that geography affects service delivery. With the exception of the Ahwatukee Neighborhood Station now under construction at 4055 East Mountain Sky Avenue, no neighborhood stations are currently planned for the Southern Growth Area, so this plan focuses on precinct facilities and [other capital needs](#).

[There are two fee areas](#) for police stations in the Southern Growth Area: the Estrella/Laveen and Ahwatukee Foothills areas. Estrella/Laveen is served by the South Mountain and Maryvale precincts. It is estimated that there will be 115,808 EDUs in the Estrella/Laveen area by 2030. Based upon this estimate, there is one precinct station planned for this area. The Ahwatukee Foothills area will be served by two police facilities: the South Mountain Precinct Station located at 400 West Southern Avenue and the Ahwatukee Neighborhood Station (mentioned above). It is estimated that there will be [38,459](#) EDUs in Ahwatukee Foothills by 2030.

### Costs

The cost associated with each police station includes land acquisition, facility construction and furnishings, and the purchase necessary equipment and vehicles. Tables 4.6.1 and 4.6.2 itemize the projected costs associated with police facilities required in the Southern Growth Area based on projected growth, which are estimated at [\\$16,826,733](#) for construction and purchasing equipment. Land acquisition cost is limited to [the value paid at \\$31,600](#) per acre for the Southwest Growth Area. The additional facility item that is not included in the most recent CIP is a new communications center. This central facility will be required based on projected growth, to provide equivalent levels of service throughout the city, and the costs are distributed equally among the precincts.

### Impact Fee for Police Facilities

The following impact fee will be charged for all development occurring in the Southern Growth Area for police stations and related capital facilities:

<b>Estrella/Laveen:</b>	<b>\$137 per EDU</b>
<b>Ahwatukee Foothills:</b>	<b>\$24 per EDU</b>

**Table 4.6.1 Summary of Police Facilities in Estrella/Laveen**

Precincts	Station Construction	Land	Vehicles	Total
Estrella and Laveen	\$9,258,499	\$316,000	\$4,481,100	\$14,055,599
Subtotal				\$14,055,599
<b>Non-Precinct Facility Costs</b>				
Communications Facility				\$5,060,000
Subtotal				\$5,060,000
<b>Southern Growth Area Costs</b>				<b>\$19,115,599</b>
Less Payments Made				-\$533,000
Less Existing Impact Fee Balance				-\$2,675,202
<b>Remaining Balance</b>				<b>\$15,907,397</b>
EDUs				115,808
<b>Cost per EDU</b>				<b>\$137</b>

**Table 4.6.2 Summary of Police Facilities in Ahwatukee Foothills**

Neighborhood Station Costs	Total
Ahwatukee Foothills	\$1,600,000
Subtotal	\$1,600,000
<b>Non-Precinct Facility Costs</b>	
Other Facilities	\$0
<b>Southern Growth Area Costs</b>	<b>\$1,600,000</b>
Less Payments Made	-\$601,610
Less Existing Impact Fee Balance	-\$79,054
<b>Total</b>	<b>\$919,336</b>
EDUs	38,459
<b>Cost per EDU</b>	<b>\$ 24</b>

## **4.7 SOLID WASTE MANAGEMENT**

### **Description**

The 27<sup>th</sup> Avenue Solid Waste Management facility includes a transfer station, a materials recovery facility, and a landfill. Although not located in an impact fee area, this regional facility serves the Southern Fee area.

The Public Works Department collects solid waste and recyclables weekly, and bulk trash quarterly. The department serves approximately 364,000 households in Phoenix (as of March 2006) that produce over 700,000 tons of solid waste material annually. Currently the City recycles over 126,000 tons of solid material every year. The Public Works Department estimates that for each additional housing unit, the City needs to provide an extra three tons of waste-disposal capacity annually, and an additional 760 pounds of recycling capacity annually. This need for increased service is shown in the Appendix. It is estimated that there will be 95,271 EDUs requiring this service in the Southern Growth Area by 2030.

### **Costs**

Costs associated with collection vehicles and containers are based on current bid tabulations received by the Public Works Department. If current bid tabulations are not available, the most recent bid tabulations are used with a three-percent increase per year to estimate current costs. Cost for trash containers are contract prices.

The cost of providing new solid waste facilities is shown in Table 4.7.1. It is estimated that no land will need to be acquired prior to 2010 and the cost per EDU below has been calculated with that in mind.

### **Impact Fee for Solid Waste**

The following fees will be charged in the Southern Growth Area for solid waste management:

**Southern Growth Area:            \$357 per EDU**

**Table 4.7.1 Solid Waste Cost Summary for the Southern Growth Area**

Item	Total Cost
<b>Transfer Station</b>	
All Costs	\$28,304,011
<b>Material Recover Facility</b>	
All Costs	\$20,235,474
<b>Transfer Station Costs (x)</b>	<b>0.13</b>
<b>Material Recovery Facility Costs (x)</b>	<b>0.43</b>
Equipment	\$22,872,138
<b>Subtotal</b>	<b>\$35,252,913</b>
Existing Facilities Remaining Costs	\$0
Less Existing Balance	-\$1,247,518
<b>Total</b>	<b>\$34,005,395</b>
EDUs	95,271
<b>Cost per EDU</b>	<b>\$ 357</b>

## 4.8 STORM DRAINAGE

### Description

Storm drainage fees are required to fund a network of channels, basins, and large storm drains in the Estrella and Laveen areas that will address severe flood events (up to 100-year, 24-hour events). Because of its flat topography and the previous elimination of washes and other natural drainage features by agricultural activities, this area of the city is prone to flooding. Localized protection from limited duration storm events is provided by drainage facilities in streets (2-year events) and onsite retention requirements (100-year, 2-hour events); the costs of these facilities are addressed within the Streets and Transportation section of the Infrastructure Financing Plan.

To determine area-wide anticipated facilities needed to minimize widespread flooding during a severe event, the Flood Control District of Maricopa County (FCDMC) prepares Area Drainage Master Plans (ADMP). An ADMP is typically developed utilizing extensive topographical and hydrological modeling, and involves analyses of numerous options for providing storm drainage protection using a combination of channels, storm drains and basin configurations that ultimately convey intercepted floodwaters to a regional watercourse such as the Salt River. In some cases, amendments to the ADMPs have been prepared to address issues that arose after the issuance of the original ADMP.

The design and construction of the master drainage facilities involves intergovernmental cooperation between the City of Phoenix, the FCDMC, and in some cases adjacent jurisdictions. Although cost-share arrangements have varied in the past, it is anticipated the FCDMC will generally be responsible for half of the costs projected for land and facilities specified in the Estrella and Laveen ADMPs, and that the remainder will be covered by the City of Phoenix. As a result, the costs used in the impact fee calculations are generally significantly less than the actual construction costs of the channels and basins. The exception to this is the revised Durango Conveyance Channel – the City of Phoenix is covering the total cost of the ten-year facility.

### Costs

Total projected storm drainage costs are based on estimates by the Street Transportation Department of the aggregate City of Phoenix contributions to all of the project segments that will provide protection to the areas covered by the Infrastructure Financing Plan. In some cases, such as the land acquisition and construction costs associated with the LACC, the actual costs and breakdown of the cost-sharing are known. In other cases, the facility and land costs are estimated, and the cost-sharing arrangements are assumed.

Land-acquisition cost for storm water channels and basins in both fee areas is \$113,256 per acre for all facilities except the Laveen Area Conveyance Channel (LACC). The LACC project has existing agreements in place for the land acquisition at \$42,500 per acre.

### Impact Fees for Storm Drainage

Impact fees will not be charged for storm drainage facilities in the Ahwatukee fee area. Impact Fees will be charged in Estrella/Laveen fee areas of the Southern Growth Area for storm drainage facilities as follows (see Tables 4.8.1 and 4.8.2):

<b>Estrella:</b>	<b>\$1,221 per EDU</b>
<b>Laveen:</b>	<b>\$986 per EDU</b>
<b>Ahwatukee Foothills:</b>	<b>\$0 per EDU</b>

**Table 4.8.1 Summary of ADMP Costs in Estrella**

Estrella Planning Area				
Facility Description Durango ADMP	Land Acquisition Cost	Improvement Costs	Portion Not Paid by Phoenix	Total Phoenix Costs
Durango Regional Conveyance Channel (75 <sup>th</sup> Ave to 107 <sup>th</sup> Ave)	\$0	\$20,033,936	\$0	\$20,033,936
75 <sup>th</sup> Ave Drain System (DRCC Phase 1)	\$0	\$35,000,000	\$17,500,000	\$17,500,000
Sunland Avenue Channel	\$4,904,305	\$7,310,154	\$6,107,229	\$6,107,229
47 <sup>th</sup> Avenue Channel System	\$9,967,914	\$18,885,403	\$14,426,658	\$14,426,658
Subtotal				\$58,067,824
Less Existing Fund Balance				-\$4,032,378
<b>Total Cost</b>				<b>\$54,035,446</b>
EDUs				44,270
<b>Cost per EDU</b>				<b>\$1,221</b>

**Table 4.8.2 Summary of ADMP Costs in Laveen**

Laveen Planning Area				
ADMP Facility Description	Land Acquisition Cost	Improvement Costs	Portion Not Paid by Phoenix	Total Phoenix Costs
South Phoenix / Laveen	\$3,413,669	\$22,759,750	\$13,086,710	\$13,086,710
Laveen	\$10,457,206	\$34,562,500	\$22,509,853	\$22,509,853
Laveen Area Conveyance Channel	\$5,315,000	\$19,000,000	\$10,000,000	\$14,315,000
Subtotal				\$49,911,563
Less Existing Fund Balance				-\$7,631,418
<b>Total Cost</b>				<b>\$42,280,145</b>
EDUs				42,884
<b>Cost per EDU</b>				<b>\$ 986</b>

## 4.9 STREETS AND TRANSPORTATION STRUCTURES

NOTE: Streets and Transportation Structures shown below have not been adopted. For information on these fees refer to the previous Infrastructure Finance Plan adopted in 2003.

### Description

The City of Phoenix uses impact fees to provide a system of arterial streets in the Southern Growth Area designed to meet projected traffic demands, while supporting land use and environmental goals. Arterial streets form the backbone of the Phoenix street system. These four- to six-lane streets provide the most efficient flow of traffic throughout the city, excepting the limited access highways that are funded by federal and state governments.

An arterial street provides long distance travel with access to abutting land uses and is generally characterized as a four- or six-lane roadway with the opposing traffic separated by a landscaped median or center left turn lane. Traffic signals on arterial streets are typically located at the intersections with other arterial streets and at collector street intersections. In addition to pavement, curbs, and gutters, arterial streets generally include landscaped medians, sidewalks, landscaping, street lights, and traffic signals as part of the street infrastructure. Bridges, culverts, and drainage facilities are necessary for the crossing of rivers and washes. Traffic interchanges are necessary to connect new arterial streets to the freeway system. Arterial streets vary in cross-section and right-of-way, but all arterial streets include four or six traffic lanes, curb and gutter, landscaped medians or a center turn lane, sidewalks, traffic signals, landscaping, and street lights.

The City of Phoenix has an approved Street Classification Map that defines the arterial street network and the street cross-section. Impact fee funding is used for construction of arterial streets within the impact fee planning areas, which includes bridges, culverts and drainage facilities, and traffic interchanges that are appurtenant to the arterial street.

There are four fee areas for streets in the Southern Growth Area: Estrella North, Estrella South, Laveen, and Ahwatukee Foothills. It is estimated that there will be 154,958 EDUs in the Southern Growth Area by 2030. Information contained in the Appendix depicts the planned street network for the Southern Growth Area. It includes those streets that are existing, partially complete, and planned. The characteristics of each arterial street segment are defined in the Appendix which would include right-of-way width, pavement width, number of lanes, and the presence of features such as medians, sidewalks, and landscaping. Four bridges are planned to be built to cross the Salt River in the Estrella South and Laveen fee areas. If the planned Loop 202 is built within city limits, demand for street improvements will intensify in the Southern Growth Area. The street inventory for the Southern Growth Area is included in the Appendix.

### Costs

The costs associated with the construction of streets, land acquisition, interchanges, bridges, culverts, and drainage facilities in the Southern Growth Area are detailed in the Appendix. Land acquisition costs are limited to \$113,256 per acre in the Estrella/Laveen sub area and \$183,533 per acre in the Ahwatukee Foothills fee sub area.

### Impact Fee for Streets, Transportation Structures, and Drainage Structures

<b>Estrella North:</b>	<b>\$1,509 per EDU</b>
<b>Estrella South:</b>	<b>\$4,827 per EDU</b>
<b>Laveen:</b>	<b>\$6,178 per EDU</b>
<b>Ahwatukee West:</b>	<b>\$9,560 per EDU</b>

NOTE: Streets and Transportation Structures shown have not been adopted. For information on these fees refer to the previous Infrastructure Finance Plan adopted in 2003.

**Table 4.9.1 Summary of Street Costs and Cost per EDU in the Southern Growth Area**

Item	Ahwatukee West	Estrella North	Estrella South	Laveen
<b>Major Streets, Traffic Signals, Interchanges, Culverts, Storm Drains, and Tiling</b>				
Major Streets Roadway Construction	\$14,523,397	\$34,710,937	\$193,184,215	\$215,005,137
Major Streets Construction Administration	\$4,230,116	\$10,109,981	\$56,267,250	\$62,622,848
Major Streets Right-of-Way Acquisition	\$4,243,478	\$5,860,483	\$36,723,773	\$42,057,101
Major Streets Right-of-Way Administration	\$424,348	\$586,048	\$3,672,377	\$4,205,710
Major Streets Credit Agreements	\$3,114,185	\$440,609	\$11,107,805	\$12,821,577
Traffic Signals	\$260,000	\$260,000	\$2,470,000	\$2,340,000
Interchanges, Parkways and Frontage Roads Design and Construction	\$0	\$0	\$0	\$117,072,750
Interchanges, Parkways, and Frontage Roads Right-of-Way	\$0	\$0	\$0	\$38,319,000
Culverts Construction	\$4,857,600	\$368,000	\$92,000	\$1,242,000
Culverts Construction Administration	\$1,457,280	\$110,400	\$27,600	\$372,600
Storm Drains Construction	\$446,817	\$4,851,450	\$41,919,371	\$30,065,391
Storm Drains Construction Administration	\$134,045	\$1,455,435	\$12,575,811	\$9,019,617
Tiling Construction	\$0	\$6,425,000	\$19,007,500	\$18,287,500
Tiling Construction Administration	\$0	\$1,927,500	\$5,702,250	\$5,486,250
<b>Subtotal</b>	<b>\$33,691,266</b>	<b>\$67,105,843</b>	<b>\$382,749,952</b>	<b>\$558,917,481</b>
Percent to Local Use	67%	67%	67%	67%
<b>Corrected Subtotal</b>	<b>\$22,573,148</b>	<b>\$44,960,915</b>	<b>\$256,442,468</b>	<b>\$374,474,712</b>
<b>Major Bridges</b>				
Major Bridges Construction	\$0	\$1,023,960	\$11,847,990	\$41,246,188
Major Bridges Construction Administration	\$0	\$307,188	\$3,554,397	\$12,373,856
<b>Subtotal</b>	<b>\$0</b>	<b>\$1,331,148</b>	<b>\$15,402,387</b>	<b>\$53,620,044</b>
<b>Totals</b>				
Less Existing Account Balances	-\$39,969	-\$1,292,029	-\$5,058,813	-\$10,966,164
<b>Total Cost to Area</b>	<b>\$22,533,179</b>	<b>\$45,000,034</b>	<b>\$266,786,042</b>	<b>\$417,128,592</b>
EDUs	2,357	29,814	55,270	67,517
<b>Cost per EDU</b>	<b>\$9,560</b>	<b>\$1,509</b>	<b>\$4,827</b>	<b>\$6,178</b>

NOTE: Streets and Transportation Structures shown have not been adopted. For information on these fees refer to the previous Infrastructure Finance Plan adopted in 2003.

## 4.10 WASTEWATER SERVICE

### Description

The City of Phoenix is responsible for the reliable collection and treatment of wastewater within the Southern Fee Area. The infrastructure built to implement this service for which impact fees can be charged include sewer lines (gravity sewers and dual force mains), wastewater lift stations (submersible and wet and dry wells), wastewater treatment facilities, and water reclamation facilities. Reclaimed water distribution systems are not included in the wastewater infrastructure development fee.

The infrastructure built to provide wastewater services must have adequate capacity to collect all sewage discharged in the Southern Fee Area, transport it to treatment facilities, and to discharge plant effluent in accordance with county, state, and federal rules and regulations. The system must be reliable, secure, and efficiently operated.

There are five subareas in the Southern Fee Area among which wastewater facility costs are shared: Estrella North, Estrella South, Laveen West, Laveen East, and Ahwatukee (see Figure 4.1 outlining the location of these subareas). The construction and expansion of centralized facilities such as wastewater treatment plants and reclamation plants make up a large portion of the costs charged for each subarea. The City apportions the cost of those facilities by determining the proportion of those facilities necessary to serve the EDUs in the specific subarea.

### Costs

The cost associated with providing new wastewater facilities varies according to the type of infrastructure needed and the subarea it will serve in the Southern Fee Area. Tables 4.10.1 and 4.10.2 itemize the general costs associated with wastewater facilities in each subarea. Land acquisition costs in the Southern Fee Area are limited to \$136,681 per acre. Inventories of Planned Wastewater Facilities, their costs and EDU calculations can be found in the Appendix.

### Impact Fee for Wastewater Services

Two of the five fee subareas, Estrella North and Laveen East, will have no localized facilities improvements, so the network cost is assumed to be \$0 and the entire fee is based on the plant costs. An impact fee of \$2,265 per EDU will be collected in those subareas for the expansion of the 91<sup>st</sup> Avenue Wastewater Treatment Plant. The remaining subareas will be charged impact fees based upon needed infrastructure improvements. The following impact fees were calculated in the Southern Fee Area for wastewater facilities:

**Effective February 19, 2007 the Wasterwater fee for Estrella North: \$1,560 per EDU**  
**Effective February 19, 2007 the Wasterwater fee for Estrella South: \$3,607 per EDU**  
**Effective February 19, 2007 the Wasterwater fee for Laveen West: \$2,715 per EDU**  
**Effective February 19, 2007 the Wasterwater fee for Laveen East: \$1,560 per EDU**  
**Effective February 19, 2007 the Wasterwater fee for Ahwatukee Foothills: \$2,190 per EDU**

**Effective August 21, 2007 the Wasterwater fee for Estrella North: \$2,265 per EDU**  
**Effective August 21, 2007 the Wasterwater fee for Estrella South: \$4,555 per EDU**  
**Effective August 21, 2007 the Wasterwater fee for Laveen West: \$3,555 per EDU**  
**Effective August 21, 2007 the Wasterwater fee for Laveen East: \$2,265 per EDU**  
**Effective August 21, 2007 the Wasterwater fee for Ahwatukee Foothills: \$2,927 per EDU**

**Table 4.10.1 Summary of Network Costs in the Southern Area for Wastewater**

Fee Area	Network Subtotal	Existing Facilities Remaining Costs	Less Existing Balance	Network Cost Total
Estrella North	\$0	0	0	<b>\$ 0</b>
Estrella South	\$97,486,786	0	-\$5,662,357	<b>\$91,824,429</b>
Laveen West	\$60,198,257	0	-\$5,803,925	<b>\$54,394,332</b>
Laveen East	\$0	0	0	<b>\$ 0</b>
Ahwatukee	\$0	\$26,199,643	-\$391,851	<b>\$25,807,792</b>

**Table 4.10.2 Summary of Costs per EDU for Southern Area Wastewater**

Fee Area	Plant Cost / EDU*	Network Cost / EDU	EDUs	Total Cost per EDU
Estrella North	\$2,265	\$ 0	14,074	<b>\$2,265</b>
Estrella South	\$2,265	\$2,290	40,102	<b>\$4,555</b>
Laveen West	\$2,265	\$1,290	42,176	<b>\$3,555</b>
Laveen East	\$2,265	\$ 0	9,284	<b>\$2,265</b>
Ahwatukee	\$2,265	\$ 662	39,002	<b>\$2,927</b>

\*Plant cost is based on 307 average wastewater gallons per day for single family.

## 4.11 WATER SYSTEM FACILITIES

### Description

The ability to provide a reliable source of cost effective, high quality water to new developments is the key to ensuring growth. The City of Phoenix works with the development community to plan for the water needs of projects in the Southern Growth Area. The types of facilities being planned include transmission pipelines, pressure-reducing or flow-control valve stations, well facilities, booster-pump stations, storage reservoirs, and water treatment facilities. The system must be reliable, secure, and efficiently operated.

There is one impact fee area in the Southern Growth Area. The service standard for water system facilities is to have sufficient capacity to meet projected demand, in accordance with state and federal water-quality standards. System pressure must be maintained between 50 and 100 pounds per square inch at all times in each pressure zone. Infrastructure for water systems are generally designed to accommodate the pressure zones they serve. However, imposing a pressure zone structure over a land use structure often results in water facilities needed to serve a specific area being located in a different pressure zone and at some distance away. For example, a storage reservoir may be located several miles from the area it serves, which requires additional transmission mains to connect the reservoir with the service area.

### Costs

The cost associated with providing new water system facilities varies according to the type of infrastructure needed and the area it will serve in the Southern Growth Area. Table 4.11.1 itemizes the general costs associated with each type of water facility and the unit cost of pipes, pressure reducing valves, etc. Land acquisition costs in the Southern Growth Area are limited to \$136,681 per acre.

### Impact Fee for Water System Facilities

The following impact fee was calculated for water system facilities throughout the Southern Growth Area:

**Southern Growth Area:           \$3,537 per EDU**

**Effective February 19, 2007 the Water system fee for the Southern Growth Area: \$2,683**

**Effective August 21, 2007 the Water system fee for the Southern Growth Area: \$3,537**

**Table 4.11.1 Summary of Costs in the Southern Area for Water**

<b>Network Facilities</b>	<b>Cost</b>
Water Mains	\$92,244,322
Reservoir	\$21,688,560
Booster Stations	\$6,481,006
Pressure Reducing Valve Stations	\$1,915,455
Existing Facilities Remaining Interest and Principle	\$61,480,437
<b>Subtotal Network Costs</b>	<b>\$183,809,780</b>
Less Existing Balance	-\$18,348,714
<b>Total</b>	<b>\$165,461,066</b>
EDUs	131,428
Cost per EDU Network	\$1,259
Cost per EDU Treatment Plant	\$2,278
<b>Total Cost per EDU</b>	<b>\$3,537</b>

## Chapter 5 Definitions

**Agreement, Credit:** see Credit Agreement.

**Agreement, Development:** An agreement between the City of Phoenix and the master developer for the adjustment of impact fees and/or the disbursement of revenues from impact fee accounts upon the development of needed infrastructure.

**Alternative revenue offset:** The net present value of future revenues obtained from secondary property tax, water and sewer rates, development occupational fees, and other sources used to pay for facilities included in the Infrastructure Financing Plans calculated by the Planning Department and provided on a per EDU basis for different land uses.

**Capital facilities:** Necessary public services that are permanent additions to the City's assets, that are primarily financed by long-term debt instruments and not from the City's annual operating budget, and which include purchase of land, studies leading to design, design and construction, of buildings and facilities. Capital facilities and infrastructure are terms that may be used interchangeably.

**Capital facility category:** A classification of capital facilities corresponding to the capital program area of the most recent City of Phoenix Capital Improvement Program.

**Credit agreement:** An agreement between the City of Phoenix and the master developer permitting the distribution of credits over contiguous developments.

**Credits:** Reductions in development impact fees charged to developments resulting from developer contributions, payments, construction or dedications.

**Dwelling unit or DU:** A house, an apartment, a mobile home or trailer, a group of rooms or a single room occupied as separate living quarters or, if vacant, intended for occupancy as separate living quarters. Dwelling unit and housing unit are terms that may be used interchangeably.

**Equipment repair facilities:** A category of capital facilities including but not limited to service centers for the repair and maintenance of City vehicles and office and storage space serving the planning area in which the development fees will be applied.

**Equivalent dwelling unit or EDU:** A number which represents the demand that a particular land use type places on each capital facility category compared to the demand created by a standard density detached single-family dwelling unit on each category except for the wastewater and water capital facility categories where EDU are determined by water meter size or sewer size. The EDU number will be represented as the ratio determined by dividing an indicator of the use type demand by an indicator of the standard density detached single-family dwelling unit demand.

**Fire protection:** A category of capital facilities including but not limited to fire stations, related equipment and vehicles and other facilities necessary for fire protection.

**Gross fee per EDU:** The total facility costs listed in the specific Infrastructure Financing Plan for a capital facility category divided by the total equivalent dwelling units projected in that area for that facility category.

**Impact Fee:** A charge or assessment imposed by the City of Phoenix against new development in order to generate revenue for funding or recouping costs of capital improvements or facility expansions necessitated by and attributable to the new development. The term does not include: 1) required dedications of land for parks or payments in lieu thereof, 2) dedications of rights-of-way or easements or construction of on-site or off-site

rights-of-way, curbs, gutters, or drainage facilities, if the dedication or construction is required by valid ordinance and is necessitated by the new development unless specified as qualified, or 3) pro rata fees for reimbursement of water or sewer mains or lines extended by the city.

**Land use type:** An inclusive term that includes two generic land uses, namely all residential and all non-residential land uses as a group.

**Libraries:** A category of capital facilities including but not limited to buildings, related equipment, furnishings, books and other circulating items.

**Major streets and bridges:** A category of capital facilities including but not limited to major streets and bridges and culverts that are included in or are a continuation of a major street. This category of capital facility may also include that portion of storm sewers providing drainage for major street projects.

**Multifamily:** A category of residential land uses used in preparing Infrastructure Financing Plans. Mobile homes to which no permanent rooms have been added are counted as multifamily dwelling units only for projections of EDU in Infrastructure Financing Plans.

**Multifamily dwelling unit:** A structure designed or used for living quarters and containing two or more separate living quarters.

**New Development:** The subdivision of land; the construction, reconstruction, redevelopment, conversion, structural alteration, relocation or enlargement of any structure; or any use or extension of the use of land; any of which increases the number of service units or Equivalent Dwelling Units.

**Offset:** An alternative funding source that may be used to pay for capital facilities, thereby reducing the amount of the total costs that needs to be covered through impact fees.

**Retail:** A category of nonresidential land uses used in preparing Infrastructure Financing Plans that includes shopping centers, specialty retail, discount stores, hardware and paint stores, garden nurseries, restaurants, car sales, supermarkets, convenience markets, furniture stores, banks and savings and loans.

**Single-family dwelling unit:** Detached or attached dwelling units including one-unit structures designed or used as separate living quarters including structures detached from any other house and structures with primary ground floor access to the outside and structures with one or more walls extending from ground to roof separating them from adjoining structures. Attached dwelling units with ground-to-roof walls are primarily townhouses.

**Solid waste disposal:** A category of capital facilities including but not limited to landfills, transfer stations with related equipment and vehicles, and materials recycling facilities.

**Standard of service:** The amount and quality of service provided by a capital facility for the population and land uses it serves.

**Storm drainage:** A category of capital facilities including but not limited to storm sewers constructed in sizes needed to provide for stormwater management for areas beyond major street projects and stormwater detention basins and channels necessary to provide for proper stormwater management.

**Wastewater:** A category of capital facilities including but not limited to sewers, lift stations, reclamation plants, wastewater treatment plants and related equipment and facilities.

**Water:** A category of capital facilities including but not limited to those facilities necessary to provide for water use such as water production facilities and equipment including water treatment plants, wells, booster stations

and reservoirs and water distribution facilities and equipment including water mains and valves, but excluding Water Resource Projects as defined in Section 30-3.