FIRE PROTECTION INFRASTRUCTURE IMPROVEMENTS PLAN

Arizona statutes allow cities to charge development impact fees for "fire facilities, including all appurtenances, equipment and vehicles." The City of Phoenix charges the Fire Protection impact fee to help provide new fire stations, vehicles and equipment needed to serve the City's growth areas.

Fire Protection Impact Fee Methodology

The Fire Protection DIF is calculated using a planned based approach which uses facilities identified by the City of Phoenix Fire Department and a study conducted by Matrix Consulting Group, *Report on the North Phoenix Infrastructure Pilot Study* (Matrix Report), to predict how many and the potential locations of fire stations needed to meet demand in the future. Since fire protection service capacity must be expanded in blocks of one or more fire stations, when reviewing potential demand and costs this plan examined three different methods. This approach helps to control for variability in excess service capacity over time and avoids overburdening one development cohort in favor of another. The three methods reviewed are:

- 10-Year – This method only includes the growth and expenditures over the next 10 years (2025-2034). This will be represented as "planned" inventory in the plan.
- Buy-In Plus 10-Year Plan – This method analyzes the impact of existing capacity to the growth assumptions made by the 10-Year development cohort. It includes all "existing" inventory and growth represented by EDUs as well as the "planned" and future 10-year growth.
- Buildout – This method contemplates the total service network construction as well as an estimate of all growth occurring in the region to ensure the plan does not overload fire station construction on any one time period. This approach includes all EDUs listed as buildout EDUs and all potential fire stations listed as "existing", "planned", and "buildout".

FIRE PROTECTION IMPACT FEE AREAS

The cost to provide new fire protection service capacity varies geographically for two major reasons. First, the northern growth area composed of the Northeast / Paradise Ridge and Northwest / Deer Valley has a more limited road network with significant growth projected limiting response times for existing and planned stations. Second, the cost of land increases in the Northeast / Paradise Ridge impact fee area compared to other areas of the city. The Fire Protection Impact Fee Areas are named in the following manner and can be viewed in the *Impact Fee Service Area Maps Report: Map 2: Police, Fire, Parks, and Library Service Areas:*

- Northwest & Deer Valley
- Northeast & Paradise Ridge
- Southwest
- Ahwatukee

LEVEL OF SERVICE (LOS)

The Matrix Report evaluates level of service by analyzing call volume handled by existing stations and comparing that to the amount of development in the area while maintaining a benchmark response time of four minutes. The majority of stations are three bay and employee a fire engine and a rescue apparatus with exceptions where other apparatus is needed to fulfill service requirements or larger four bay stations and more specialized apparatus are needed.

FUNCTIONAL POPULATION

The City of Phoenix Functional Population Equivalent Demand Units Report details the methodology to determine the factor of service impact by varying land uses along with the number of Equivalent Demand Units (EDU) representing the amount of growth in each land use category. For easy reference, the following tables provide the numbers used later in this section.

Table 3.1 – 10-Year Plan EDUs

IF Area	SF	MF	Retail	Office	Industrial	Public	Other	Total
EDU Factor	1.00	0.93	0.49	0.61	0.20	0.24	0.41	
Citywide	32,816	41,173	3,484	6,981	5,077	558	12,161	102,251
Northeast w/PR	14,350	5,430	504	1,947	63	169	884	23,347
Northwest w/DV	2,710	5,454	436	1,098	915	57	169	10,839
Southwest	9,338	5,261	764	227	2,150	175	507	18,423
Ahwatukee	337	0	0	0	0	0	193	530

Table 3.2 – Buy-In Plus 10-Year Plan EDUs

IF Area	SF	MF	Retail	Office	Industrial	Public	Other	Total
EDU Factor	1.00	0.93	0.49	0.61	0.20	0.24	0.41	
Citywide	434,622	293,266	50,712	76,823	42,252	23,999	27,192	948,866
Northeast w/PR	34,706	14,157	2,334	3,636	364	628	1,738	57,564
Northwest w/DV	17,859	11,116	1,446	1,258	1,707	470	275	34,132
Southwest	56,557	8,458	4,103	294	15,333	1,345	640	86,731
Ahwatukee	24,742	9,219	1,477	1,013	240	556	466	37,713

Table 3.3 – Buildout EDUs

IF Area	SF	MF	Retail	Office	Industrial	Public	Other	Total
EDU Factor	1.00	0.93	0.49	0.61	0.20	0.24	0.41	
Citywide	515,877	345,391	66,075	107,162	54,806	25,750	29,583	1,144,643
Northeast w/PR	60,205	22,002	5,290	16,826	714	1,049	2,077	108,163
Northwest w/DV	66,689	32,695	5,713	10,478	8,602	985	637	125,800
Southwest	59,967	10,809	5,332	1,432	16,976	1,408	1,084	97,009
Ahwatukee	26,941	9,219	1,629	1,013	240	556	465	40,063

FIRE STATION & APPARATUS INVENTORY & COSTS

Fire station construction and apparatus costs were derived from the most recent purchases or estimates used by the Fire Department. When possible, actual numbers were used such as station 51 in the Northwest / Deer Valley area which is currently under contract for design and construction. Land costs were analyzed by BBG Real Estate Services as part of an appraisal. The full report can be found online as the *Northern Impact Fee Area Land Use Study* and *Southern Impact Fee Area Land Use Study*. The following table represents costs used in calculations where real time numbers are not available. The tables also provide an abbreviation and description of all apparatus used in calculating the total cost of fire stations in future sections.

Table 3.4 – Fire Apparatus Abbreviations and Costs

Abbreviation	Description	Cost
B	Brush Truck	$452,800
BC	Battalion Chief	$202,350
E	Engine	$1,227,000

HAZ	Hazmat Unit	$500,000
L	Ladder	$2,204,100
LT	Ladder Tender	$732,100
R	Rescue	$576,950
T	Tanker	$1,309,050
U	Utility	$1,076,200

Table 3.5 – Fire Station Costs

Description	Cost
3 Bay Station	$13,500,000
4 Bay Station	$19,000,000
Land	$2,440,000
Northeast / Paradise Ridge Land	$2,800,000
Station 51*	$17,660,000

*Price reflects reduction for $5,000,000 federal grant.

The Fire Station inventory, which includes necessary apparatus, was developed by the Fire Department as part of their service deployment plan. Additional buildout fire stations were analyzed by the Matrix Design in the Matrix Study. Where possible actual station identification and locations are used. Because of shifts in Fire Department Service demand locations and identifications may be subject to change. The following tables display the fire station inventory for each impact fee area along with any necessary apparatus, see abbreviations above for description, their time cohort, and cost which includes any relevant station costs (station and land) along with planned apparatus costs.

Table Notes:

- All existing stations do not include land costs.

Table 3.6 – Northwest / Deer Valley Fire Station Inventory

Station	Address	# of Bays	Equipment	Status	Total Cost
48	5230 W. Happy Valley Rd.	3	E,B	Existing	$15,179,800
55	26639 N. Black Canyon Hwy.	3	E,B,R	Existing	$15,756,750
56	3210 W. Canotia Place	3	E,B,T	Existing	$16,488,850
47	15th Ave & Dove Valley	3	E,R	Planned	$17,743,950
*51	51st Ave & Loop 303	4	E,R,L,LT,BC,HAZ	Planned	$23,102,500
70	51st & Carefree	3	E,R	Buildout	$17,743,950
71	51st & CAP	3	E,R	Buildout	$17,743,950
72	SDD and North Valley	3	E,R	Buildout	$17,743,950
80	43rd Ave & Circle Mountain	3	E,R	Buildout	$17,743,950

*Station 51 uses actual costs reduced by federal grants as stated above

Table 3.7 – Northeast / Paradise Ridge Fire Station Inventory

Station	Address	# of Bays	Equipment	Status	Total Cost
49	3750 E. Dynamite Blvd.	3	E,B,T	Existing	$16,488,850
72	33027 N. Cave Creek Rd.	3	E,B,U	Existing	$16,256,000
14	Pinnacle Peak & Cave Creek	3	E,R	Planned	$18,103,950
71	60th St & Mayo	3	E,R	Planned	$18,103,950
13	Deer Valley & 34th St	3	E,R	Buildout	$18,103,950
74	Sonoran Desert Drive, Verdin	3	E,R	Buildout	$18,103,950
75	NE Cave Creek area	3	E,R	Buildout	$18,103,950
76	Happy Valley Rd North of Azara	3	E,R	Buildout	$18,103,950
77	56th St and Pinnacle Peak	3	E,R	Buildout	$18,103,950
78	64th St and Deer Valley	3	E,R	Buildout	$18,103,950

Table 3.8 – Southwest Fire Station Inventory

Station	Address	# of Bays	Equipment	Status	Total Cost
44	7117 W. McDowell Rd.	3	E,E,R	Existing	$16,530,950
57	1660 W. Dobbins Rd.	3	E,B	Existing	$15,179,800
58	4718 West Dobbins Rd.	3	E,B,T	Existing	$16,488,850
59	1111 S. 65th Ave.	3	E,R,U	Existing	$16,380,150
34	51st Ave & Lower Buckeye	3	E,R	Planned	$17,743,950
62	93rd Ave & Lower Buckeye	3	E,R	Planned	$17,743,950
69	51st Ave & Estrella	3	E,R	Planned	$17,743,950
73	67th Ave & Baseline	4	E,L,LT,R,BC	Planned	$26,382,500
39	2276 W Southern	3	E,R	Buildout	$17,743,950
75	35th Ave & Baseline	3	E,R	Buildout	$17,743,950

Table 3.9 – Ahwatukee Fire Station Inventory

Station	Address	# of Bays	Equipment	Status	Total Cost
38	5002 E. Warner-Elliot Loop	3	E,R,R,U	Existing	$16,957,100
43	4110 E. Chandler Blvd.	4	E,R,BC,L,LT	Existing	$23,942,500
46	15402 S. Marketplace Way	3	E,B	Existing	$15,179,800
*74	19th Ave & Chandler	3	E,R	Planned	$15,303,950

*Land has already been acquired for station 74

10 YEAR, 10 YEAR BUY IN, & BUILDOUT PLAN COST, EDUS AND ESTIMATED GROSS FEE

To analyze all three methods, it helps to summarize the plan costs for each timeframe. The plan costs include just "planned" stations for the '10-Year Plan' method, "existing & planned" for the 'Buy-in Plus 10-Year Plan' method, and all stations for the 'Buildout Plan' method. The tables below summarize the cost per EDU for each method.

Table Calculations:

- Total Cost comes from adding all existing, planned, or buildout station costs (from tables 3.6-3.9) as appropriate to the time cohort.
- EDU comes from the corresponding time horizons from tables 3.1-3.3.
- Cost per EDU is the Total Cost divided by EDU.

Table 3.10 – 10-Year Plan Cost per EDU

IF Area	Total Cost	EDU	Cost per EDU
Northeast	$36,207,900	23,347	$1,551
Northwest	$40,846,450	10,839	$3,768
Southwest	$97,358,300	18,423	$5,285
Ahwatukee	$15,303,950	530	$28,875

Table 3.11 – Buy-In Plus 10-Year Plan Cost per EDU

IF Area	Total Cost	EDU	Cost per EDU
Northeast	$68,952,750	57,564	$1,198
Northwest	$88,271,850	34,132	$2,586
Southwest	$161,938,050	86,731	$1,867
Ahwatukee	$71,383,350	37,713	$1,893

Table 3.12 – Buildout Plan Cost per EDU

IF Area	Total Cost	EDU	Cost per EDU
Northeast	$177,576,450	108,163	$1,642
Northwest	$159,247,650	125,800	$1,266
Southwest	$179,682,000	97,009	$1,852
Ahwatukee	$71,383,350	40,063	$1,782

POTENTIAL GROSS IMPACT FEE

The potential gross impact fee was selected by comparing the results of the three approaches and selected the method with the lowest cost per EDU. The table below displays the potential fee. It also shows the change between the potential fee and the old fee.

Table Calculations:

- 10-Year Plan cost per EDU is from table 3.10
- Buy-In Plus 10-Year Plan cost per EDU is from table 3.11
- Buildout Plan cost per EDU is from table 3.12
- Potential Gross Fee is the lowest fee charged in the impact fee area
- Current Fee comes from the 2020 Infrastructure Improvement Plan table 3.15
- Change is the difference between Potential Gross Fee and Current Gross Fee

Table 3.13 Potential Gross Fee & Change in Fee

IF Area	10-Year Plan	Buy-In Plus 10-Year Plan	Buildout Plan	Potential Gross Fee	Current Gross Fee	Change
Northeast	$1,551	$1,198	$1,642	$1,198	$654	$988
Northwest	$3,768	$2,586	$1,266	$1,266	$619	$647
Southwest	$5,285	$1,867	$1,852	$1,852	$590	$1,262
Ahwatukee	$28,875	$1,893	$1,782	$1,782	$573	$1,209

ALTERNATIVE REVENUE OFFSETS

Offsets for the Fire Department Impact Fee have been described and calculated under the *Alternative Revenue Offsets Report*. The reported offsets include:

Table 4.15 Fire Impact Fee Offsets

Fee Area	Secondary Property Taxes	Excise Taxes (Debt)	Total Offset
Northwest & Deer Valley	$29	$0	$29
Northeast & Paradise Valley	$0	$0	$0
Southwest	$0	$21	$21
Ahwatukee	$0	$22	$22

POTENTIAL NET IMPACT FEES

Potential net impact fees are calculated by subtracting any applicable offsets from the potential gross fee. The table below displays the potential net impact fees.

Table 3.16 Potential Net Impact Fees

IF Area	Gross Fee	Offset	Net Fee
Northwest	$1,266	$29	$1,237
Northeast	$1,198	$0	$1,198
Southwest	$1,867	$21	$1,846
Ahwatukee	$1,782	$22	$1,760

SUMMARY OF PLANNED IMPROVEMENTS

A.R.S. 9-463.05 requires that impact fees collected must be spent on either:

1. New projects that serve new development or
2. To repay debt (interest and principal) incurred to fund the construction of projects that serve new development.

It is anticipated that 100% of impact fee revenue will be used toward new projects that serve new development and no funding will be used to repay debt. It should be noted that A.R.S. 9-463.05 (and impact fee common law) also prohibit impact fee revenues from being spent on operations, maintenance, repair, rehabilitation, environmental or other non-capital expenditures.

For this analysis, the following assumptions have been made:

- That all the projected number of projected EDUs will be developed in the ten-year planning period 2025-2034, and that all EDUs will pay net fees that are consistent with single-family dwellings.

- That all the future fire facilities and equipment identified in this IIP will be built or otherwise acquired within the ten-year planning period 2025-2034.

A summary of the planned improvements and costs for the ten-year planning period 2025-2035 for the impact fee service areas are shown in the following tables. The tables provide a summary of planned facilities that are eligible to be funded by the Fire Protection impact fee collections, as calculated within this section.

Table Calculations:

- Station costs come from tables 3.6-3.9 and only include "planned" stations. Station cost does include all apparatus expected with the station.
- Total cost is the sum of all station costs
- Projected IF Revenue is the net impact fee (table 3.16) multiplied by the total 10-year growth EDUs (table 3.1)
- Anticipated Need for Alternative Funding is the Total Cost subtracted by the Projected IF Revenue.

Table 3.17 Northwest / Deer Valley Planned Improvements and Costs

Planned Improvement	Cost
Station Number	
47	$17,743,950
51	$28,102,500
Total Cost	$45,846,450
Projected IF Revenue	$13,407,843
Anticipated Need for Alternative Funding	$32,438,607

Table 3.18 Northeast / Paradise Ridge Planned Improvements and Costs

Planned Improvement	Cost
Station Number	
14	$18,103,950
71	$18,103,950
Total Cost	$36,207,900
Projected IF Revenue	$27,969,706
Anticipated Need for Alternative Funding	$8,238,194

Table 3.19 Southwest Planned Improvements and Costs

Planned Improvement	Cost
Station Number	
34	$17,743,950
62	$15,303,950
69	$17,743,950
73	$26,382,500
Total Cost	$77,174,350
Projected IF Revenue	$34,008,858
Anticipated Need for Alternative Funding	$43,165,492

Table 3.20 Ahwatukee Planned Improvements and Costs

Planned Improvement	Cost
Station Number	
74	$15,303,950
Total Cost	$15,303,950
Projected IF Revenue	$932,800
Anticipated Need for Alternative Funding	$14,371,150