

5.0 IMPACT FEE ANALYSIS

Table 5-1 summarizes the impact fee eligible costs for projects. **Table 4-1** shows the detail development of the costs and capacities of the eligible facilities.

Table 5-1 2017-2027 Impact Fee Eligible Costs

CIP Category	Total Growth Related Cost	% Allocated to 2017-2027 Impact Fees	2017-2027 Growth Related Cost
TRWD Projects	\$1,276,814,058	25.0%	\$318,776,489
Raw Water/ Treatment Plants	\$126,308,153	32.6%	\$41,225,877
Transmission Lines/ Pump Stations	\$47,750,444	37.8%	\$18,028,053
Storage Tanks	\$32,090,765	39.1%	\$12,533,795
Engineering Studies	\$2,246,541	46.6%	\$1,046,225
IMPACT FEE CIP SUBTOTAL			\$391,610,439
FINANCING COSTS			\$233,431,318
TOTAL IMPACT FEE ELIGIBLE COST			\$625,041,757

5.1 Service Units

The different costs between customer types are allocated through the application of the equivalent meter concept. Since the 5/8" x 3/4" water meter is the most frequently used meter by the residential customer, a factor has been calculated to relate the capacities of other meter sizes to the 5/8" x 3/4" meter capacity. **Table 5-2** presents the factors developed using capacity information from the American Water Works Association (AWWA) Standard C700-02, Cold-Water Meters – Displacement Type, Bronze Main Case and AWWA Standard C701-07, Cold-Water Meters – Turbine Type for Customer Service.

Table 5-2 AWWA Meter Equivalency Factors

Meter Size	5/8" x 3/4" Equivalency Factor
5/8" x 3/4"	1.00
3/4"	1.50
1"	2.50
1-1/2"	5.00
2"	8.00
3"	21.75
4"	37.50
6"	80.00
8"	140.00
10"	210.00

Appendix D contains the number of water meters for residential and non-residential customers by meter size for the City of Fort Worth, as well as for the wholesale customers who provided this information to FNI. The number of equivalent meters was also calculated for the City and wholesale customers.

The next calculation step determines factors for population per residential meter and employment per non-residential meter. **Table 5-3** summarizes this calculation for the City of Fort Worth and wholesale customers using 2017 information.

Table 5-3 Development of Factors of 2017 Population and Employment by Equivalent Meter

Description	Residential	Non-Residential
City of Fort Worth		
Number of Equivalent Meters	299,889	117,005
Population / Employment	825,967	550,117
Population per Equivalent Meter	2.75	--
Employment per Equivalent Meter	--	4.70
Wholesale Customers		
Number of Equivalent Meters	157,108	62,912
Population / Employment	392,163	201,803
Population per Equivalent Meter	2.50	--
Employment per Equivalent Meter	--	3.21

FNI did not receive meter count information from five of Fort Worth’s wholesale water customers; however, their meter counts were estimated based on growth since the previous impact fee study. The number of equivalent meters used to calculate the wholesale customers’ population/employment per equivalent meter in **Table 5-3** is the total number of equivalent meters served by Fort Worth for all

wholesale customers. In order to more accurately estimate the population/employment per equivalent meter, FNI divided the number of equivalent meters by the sum of population or employment served by Fort Worth.

The projected increase in equivalent meters between 2017 and 2027 uses the ratios in **Table 5-3** and the population and employment projections for 2017 and 2027 in *Exhibit A- Water Land Use Assumptions report*. The calculation is shown below.

City of Fort Worth

Residential	= Population Change / Population per Equivalent Meter = (1,026,780 – 825,967) / 2.75 = 73,023
Non- Residential	= Employment Change / Employment per Equivalent Meter = (679,901 – 550,117) / 4.70 = 27,614
Fort Worth Total	= Residential + Non-Residential = 73,023 + 27,614 = 100,637

Wholesale Customers

Residential	= Population Change / Population per Equivalent Meter = (462,435 – 392,163) / 2.50 = 28,109
Non- Residential	= Employment Change / Employment per Equivalent Meter = (245,018 – 201,803) / 3.21 = 13,463
Wholesale Total	= Residential + Non-Residential = 28,109 + 13,463 = 41,572
Grand Total	= Fort Worth Total + Wholesale Total = 100,637 + 41,572 = 142,209

5.2 Maximum Allowable Impact Fee Calculation

This report is based on a credit equal to 50% of the total projected cost of implementing the capital improvements plan, as specified in Chapter 395 of the Texas Local Government Code. Should the City choose to adopt an impact fee of greater than 50% of the total projected cost, a detailed credit calculation analysis is included in **Appendix E**.

Impact fees are the quotient of the total cost of expansion for the study period from **Table 5-1** divided by the increase in equivalent meters from **Section 5.1**. This fee equals the maximum water impact fee for a 5/8" x 3/4" water meter size.

Maximum Water Impact Fee = Cost of Expansion / Increase in Equivalent Meters
 = \$625,041,757 / 142,209
 = \$4,395 per 5/8" x 3/4" equivalent meter

The water impact fees for meters other than 5/8" x 3/4" are the product of the fee per 5/8" x 3/4" equivalent meter multiplied by the respective equivalent meter factor from **Table 5-2**. The maximum allowable water impact fees are provided in **Table 5-4**, as well as the resulting impact fee at a 50% collection rate.

Table 5-4 Water Impact Fees by Meter Size

Meter Size	5/8" x 3/4" Equivalency Factor	Maximum Allowable Impact Fee	Impact Fee (Collected at 50%)
5/8" x 3/4"	1.00	\$4,395	\$2,197
3/4"	1.50	\$6,593	\$3,296
1"	2.50	\$10,988	\$5,493
1-1/2"	5.00	\$21,975	\$10,985
2"	8.00	\$35,160	\$17,576
3"	21.75	\$95,591	\$47,785
4"	37.50	\$164,813	\$82,388
6"	80.00	\$351,600	\$175,760
8"	140.00	\$615,300	\$307,580
10"	210.00	\$922,950	\$461,370