WATER IMPACT FEE ANALYSIS

The following assumptions are made in the Water Impact Fee Analysis:

- The number of connections at ultimate buildout will be 1,879, according to the Water Master Plan. Of the 827 new connections, 388 are expected in Zone 1, 107 in Zone 2, and 332 in Zone 3.
- Ninety percent of "Building and improvements" listed in the General Purpose Financial Statements are allocated to water and ten percent to wastewater in the calculation of the water system asset cost.
- The water zones are the same as in the Water Master Plan.
- Providence will pay off its debts according to the loan schedules.
- A 6% discount rate.
- The growth rate will be 25 new connections per year.
- Providence will build, or is building, the Coomb Flat Tank, a 1,200 gallon per minute well and pump, the 1.0 million gallon tank, the canyon booster pump station, and the transmission line to Grandview Drive.

As outlined in the Impact Fees Act, the following steps are taken to calculate the water impact fee:

Step 1 Identify the impact on system improvements required by the development activity

Step 2 Demonstrate how those impacts on system improvements are reasonably related to the new development activity

Step 3 Estimate the proportionate share of the costs of impacts on system improvements that are reasonably related to the development activity by:

A. Calculating the cost of existing public facilities

B. Determining the manner of financing existing public facilities

C. Assessing the relative extent to which the newly developed properties and the other properties in Providence have already contributed to the cost of existing public facilities

D. Determining the relative extent to which the newly developed properties and the other properties in the municipality will contribute to the cost of existing public facilities in the future

E. Calculating the extent to which the newly developed properties are entitled to a credit

F. Assessing the extraordinary costs in servicing the newly developed properties

G. Calculating the time-price differential inherent in fair comparisons of amounts paid at different times

Step 4 Based on the above steps and the requirements of Utah Code, Title 11 Chapter 36, identify how the impact fee is calculated

The water impact fee is calculated based on a net capital cost per standard connection, which in Providence is a one inch water connection.

Step 1: Impact on System Improvements Required by Development Activity

Providence City's water-related assets include land, buildings and system improvements that are all oversized for the current number of connections. As the number of water connections in Providence increases, the amount of excess capacity will decrease.

The Providence City Water Master Plan describes increases in the water system's capacity that will facilitate growth and provide an adequate amount of water for new development. These system improvements[11] are listed in **Table 22.**

TABLE 22: GROWTH RELATED CAPITAL IMPROVEMENTS
Coomb Flat .6 MG Tank and Piping
New 1,200 GPM Well and Pump
1.0 MG Tank and Piping
Canyon Booster Pump Station
Transmission Line to Grandview

Step 2: Relationship Between System Improvements and Development Activity

The Coomb Flat Tank is necessary to meet storage capacity requirements of new growth. Providence City's current water storage deficit is 27,000 gallons.[12] The Coomb Flat Tank, with a capacity of 600,000 gallons, will remedy the current deficiency and increase capacity by an additional 573,000 gallons. Impact Fees can be used only to finance the portion of the Coomb Flat Tank needed by the new development. The current deficit is 4.5% of the capacity of the tank, and thus new development should pay for 95.5% of the tank and not for the entire price.

The 1,200 GPM Well is needed because growth will cause water supply demand to exceed existing well capacity by the year 2000.[13] This new well is estimated to meet demand until the year 2015.

The 1.0 MG tank is needed to provide adequate storage capacity in Zone 1.[14] Because of new growth, the required storage capacity will be 931,500 gallons in the year 2004, and thus a 1.0 MG tank is needed in Zone 1 to satisfy this need.

The canyon booster pump station will be needed to increase the pumping capacity for Zone 3.[15]

The transmission line to Grandview Drive is needed to increase volume and pressure to serve Grandview.[16]

The Providence City Water Master Plan describes increases in the water system's capacity that will facilitate growth and provide an adequate amount of water for new development. Growth related capital improvements for water will total $1,549,855.

Providence City is divided into three water zones (see **Figure 1**). To avoid confusion, we recommend Providence legally define these zones. Some of the capital improvement projects will benefit all three zones, and other projects will only benefit certain zones. The Coomb Flat .6 million gallon tank and new 1,200 gallon per minute well with pump will benefit every new connection. As previously discussed, new development in Providence should not pay for the entire price of the Coomb Flat Tank of $371,116, but for 95.5% of that price ($354,416). The 1,200 gallon per minute well with pump will cost $378,049. These improvements total $732,465 and will benefit all 827 additional connections, resulting in a cost per connection of $886.

Zone 1 will benefit from a new 1.0 million gallon tank and associated piping. This will cost $540,606, and the tank will be used by 388 additional connections in Zone 1. $540,606 ÷ 388 = $1,393 per connection.

The Water Master Plan describes no improvements that only benefit Zone 2.

Zone 3 will benefit by the canyon booster pump station at a cost of $206,894 and a transmission line to Grandview Drive at a cost of $69,890. These improvements will be

used by 332 additional connections. Cost per connection will be ($206,894 + 69,890) ÷ 332 = $834 per connection.

To calculate the proportionate share per connection, the amount per household for projects needed because of growth anywhere in the city ($886) is added to the per connection price of the different zones. Zone 1 then has a proportionate share for capital improvement projects of $886 + $1,393 which equals $2,279. For connections in Zone 2 the share is $886, and for Zone 3 the share is $886 + $834 which is $1,720 (see **Table 23**).

Figure 1: Water Zones

City of Providence

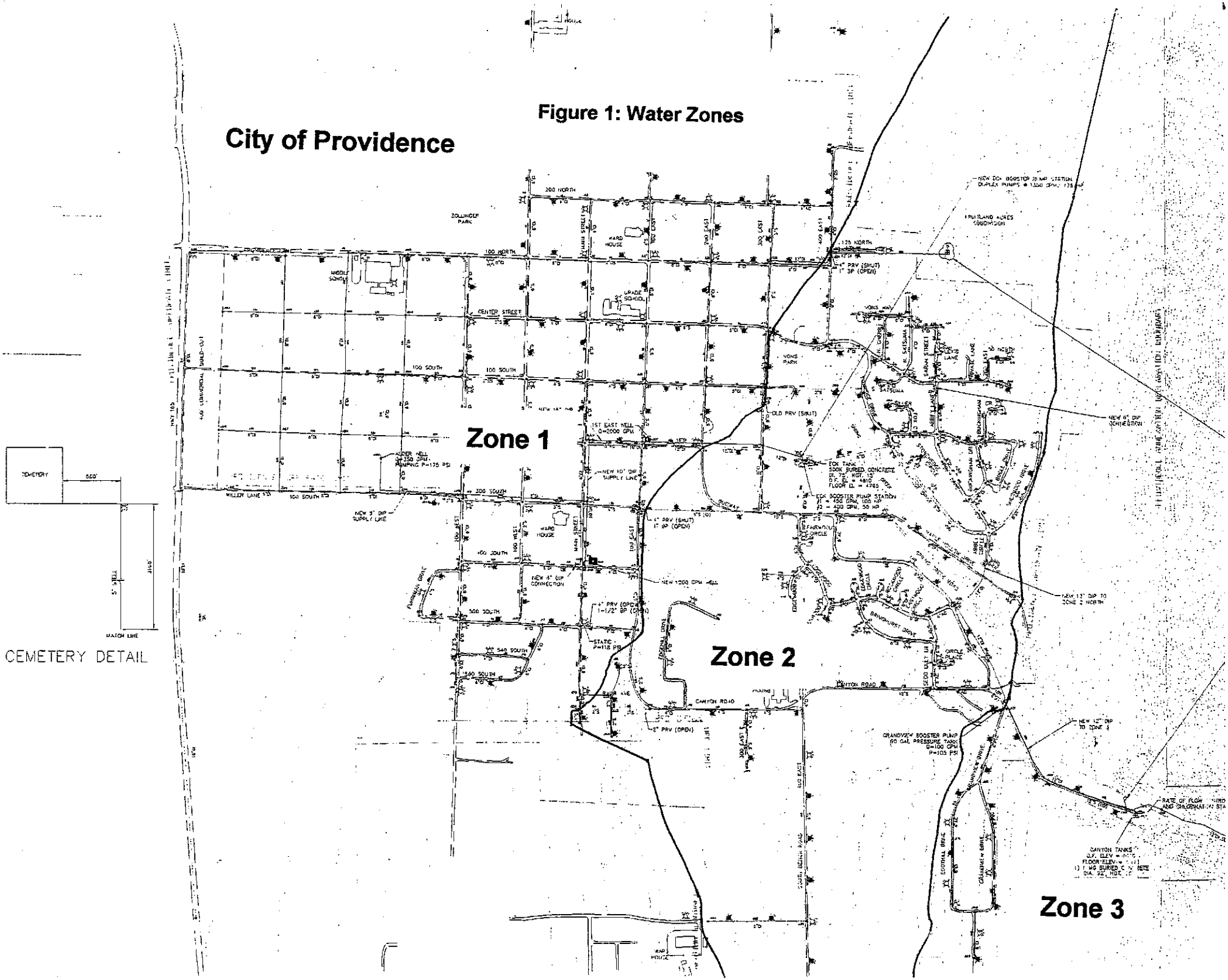

Table 23: Capital Improvements	
Non-Zone Specific Capital Projects	
Coomb Flat .6 MG Tank and Piping	$354,416
New 1200 GPM Well and Pump	$378,049
Total	$732,465
Total Additional Connections in City	827
Total per Additional Standard Connection	$886
Zone Specific Capital Projects	
Zone 1	
New 1.0 MG Tank and Piping	$540,606
Additional Connections in Zone 1	388
Total Per Additional Standard Connection in Zone 1	$1,393
Zone 3	
Canyon Booster Pump Station	$206,894
Transmission Line to Grandview	$69,890
Total	$276,784
Additional Connections in Zone 3	332
Total Per Additional Standard Connection in Zone 3	$834
Total Proportionate Share Per Standard Connection	
Zone 1	$2,279
Zone 2	$886
Zone 3	$1,720

Step 3: Proportionate Share Analysis

A. Calculate the cost of existing public facilities

The cost of existing water-related facilities is calculated by summing the water-related capital assets, including the accumulated water system capital depreciation. The accumulated water capital depreciation must be included in the calculation of the water public facilities cost to achieve the actual historic cost of the facilities. The depreciation listed in the Enterprise Balance Sheet of the 1996 City of Providence General Purpose Financial Statements includes $37,530 that must be netted out since it is equipment depreciation and to depreciation on capital assets.

The cost per connection is calculated by dividing $1,819,066 (total water asset cost) by 1,879 (number of connections at ultimate buildout). The result of that calculation is $968 which is the cost per connection.

TABLE 24: WATER SYSTEM CAPITAL ASSETS	
	Cost
Land	$112,508
Building and improvements	$120,352
Improvements other than buildings	$1,313,199
Accumulated Capital Deprecation[17]	$273,007
Total	$1,819,066
Connections at Ultimate Buildout	1,879
Water Assets Per Connection	$968

B. Determine the manner of financing existing public facilities

The existing public facilities have been financed through services[18], impact fees[19], installations[20], water sales[21], material sales[22], miscellaneous[23], and bonded indebtedness.[24]

C. Assess the Relative Extent of Contributions by Undeveloped Properties to Cost Existing Facilities

Properties that are not yet connected to the water system have not contributed to the cost of public facilities since these facilities were financed through the water enterprise fund, and this fund has not received money from the general fund. The adjustment factor used in parks and roads is unnecessary in the calculation of the water impact fee, because general funds have not been used to fund water capital improvements.

D. Relative Extent of Future Contributions to Cost of Existing Facilities

To pay for previous water projects, Providence City has four outstanding debts. These debts will be paid through impact fees and user fees. Since the new development will pay impact fees and user fees with a portion of both fees going towards the debt, the amount of money that will be paid to the debt through user fees is subtracted from the impact fee in the impact fee calculation.

To derive the debt service component of the water impact fee, the annual total principle and interest of the loans are divided by the number of connections. This yields the debt payment per connection per year. To account for the time value of money, the net present value (at an annual discount rate of 6%) is taken for each year and then the values for each year are summed together to obtain a net present value of $1,198 per connection (see **Table 25**). The projected growth rate is 25 new connections per year, taken from the Water Master Plan.[25] The debt service credit will be subtracted in the calculation of the impact fee.

TABLE 25: WATER SYSTEM IMPROVEMENT DEBTS

Year	Loan 1	Loan 2	Loan 3	Loan 4	Totals	Number of Connections	Debt per Connection
1997	$30,358	$41,300	$24,550	$58,991	$155,198	1,115	$139
1998	$29,311	$41,500	$24,150	$61,085	$156,045	1,140	$137
1999	$28,243	$40,650	$23,750	$62,917	$155,560	1,165	$134
2000	$32,163	$40,800	$24,350	$60,310	$157,622	1,190	$132
2001	$30,703	$40,900	$23,900	$61,882	$157,384	1,215	$130
2002	$28,823	$40,950	$29,450	$59,014	$158,236	1,240	$128
2003	$27,723	$40,950	$28,700	$60,325	$157,697	1,265	$125
2004	$31,203	$52,900	$28,950	$61,375	$174,428	1,290	$135
2005	$29,278	$53,200	$29,150	$62,165	$173,793	1,315	$132
2006	$32,340	$53,400	$29,300		$115,040	1,340	$86
2007		$53,500	$29,400		$82,900	1,365	$61
2008		$53,500	$29,450		$82,950	1,390	$60
2009		$53,400	$29,450		$82,850	1,415	$59
2010		$53,200	$29,400		$82,600	1,440	$57
2011		$52,900	$29,300		$82,200	1,465	$56
2012		$52,500	$29,150		$81,650	1,490	$55
2013			$28,950		$28,950	1,515	$19
2014			$28,700		$28,700	1,540	$19
2015			$29,400		$29,400	1,565	$19
Totals	$300,141	$765,550	$529,450	$548,064	Net Present Value = $1,198		

Loan 1 Utah Municipal Finance Cooperative
Loan 2 State of Utah Water Resources
Loan 3 State of Utah Water Resources #B
Loan 4 Zions First National Bank

E. Calculation of Credit Entitlements

New development is entitled to a credit when the development provides common facilities inside or outside the proposed development when similar facilities have been funded through general taxation or other means apart of user charges in other parts of the municipality. Providence City will evaluate these credits on a per development basis. The procedures for these credits needs to be addressed in the impact fee ordinance.

F. Extraordinary Costs

Extraordinary costs, if any, will be addressed on a per development basis. This procedure also needs to be addressed in the impact fee ordinance.

G. Time-Price Differential Inherent in Fair Comparisons of Amounts Paid at Different Times

The time-price differential of money was addressed in the Debt Service Credit section, but it also needs to be addressed with respect to the interest expense Providence has paid and will pay on its water related debts. The cost of the accumulated interest on the debts needs to be taken into account in the impact fee calculation. **Table 26** shows the share of this debt interest for each connection in the city is $440. Through their user fees, the current water customers of Providence will pay this amount. The future water customers need to pay this cost through impact fees.

TABLE 26: ACCUMULATED WATER DEBT INTEREST					
	Loan 1	Loan 2	Loan 3	Loan 4	Total
1992	$20,699	$16,090			$36,789
1993	$18,680	$28,100			$46,780
1994	$18,055	$27,450			$45,505
1995	$17,405	$26,750		$11,517	$55,672
1996	$16,393	$26,050	$15,511	$25,554	$83,508
1997	$15,358	$25,300	$16,550	$23,468	$80,676
1998	$14,308	$24,500	$16,150	$21,121	$76,079
1999	$13,243	$23,650	$15,750	$18,514	$71,157
2000	$12,163	$22,800	$15,350	$15,906	$66,219
2001	$10,703	$21,900	$14,900	$13,038	$60,541
2002	$9,223	$20,950	$14,450	$10,169	$54,792
2003	$7,723	$19,950	$13,700	$7,040	$48,413
2004	$6,203	$18,900	$12,950	$3,651	$41,704
2005	$4,278	$17,200	$12,150	$1,825	$35,453
2006	$2,340	$15,400	$11,300		$29,040
2007		$13,500	$10,400		$23,900
2008		$11,500	$9,450		$20,950
2009		$9,400	$8,450		$17,850
2010		$7,200	$7,400		$14,600
2011		$4,900	$6,300		$11,200
2012		$2,500	$5,150		$7,650
2013			$3,950		$3,950
2014			$2,700		$2,700
2015			$1,400		$1,400
Net Present Value of Interest Payments					$826,419
Number of Connections at Ultimate Buildout					1,879
Total Interest per Connection					$440

Step 4: Calculation of Impact Fee

The recommended impact fee is the capital asset cost per connection, minus the payment credit for debt service, plus the proportionate share for growth related projects per zone, plus accumulated debt interest. This produces a recommended base fee of $2,489 in Zone 1, $1,096 in Zone 2, and $1,930 in Zone 3. If Providence City were to decide not to differentiate the price of the impact fee according to zones, then the fee would be $2,084 (see **Table 27**).

TABLE 27: WATER SYSTEM IMPACT FEE CALCULATION	
Growth Related Cost per Connection	
Zone 1	$2,279
Zone 2	$886
Zone 3	$1,720
Water Capital Asset Cost Per Connection	$968
Accumulated Water Debt Interest	$440
Payment Credit for Debt Service	-$1,198
Impact Fee According to Zones	
Zone 1	$2,489
Zone 2	$1,096
Zone 3	$1,930
Impact Fee Without Zone Differentiation	
Anywhere in City	$2,084

Recommended Impact Fee Schedule

The impact fees recommended in **Step 4** are standard fees for single family houses. Non-residential fees are based on the capacity ratio of the desired meter size to the one inch standard. This is shown in **Table 28.**

TABLE 28: RECOMMENDED WATER IMPACT FEE SCHEDULE		
Zone 1		
Meter Size in Inches	Capacity Ratio to 1" Line	Impact Fee
1	1	$2,489
1.5	2.25	$5,600
2	4	$9,956
3	9	$22,401
4	16	$39,824
6	36	$89,604
Zone 2		
Meter Size in Inches	Capacity Ratio to 1" Line	Impact Fee
1	1	$1,096
1.5	2.25	$2,466
2	4	$4,384
3	9	$9,864
4	16	$17,536
6	36	$39,456
Zone 3		
Meter Size in Inches	Capacity Ratio to 1" Line	Impact Fee
1	1	$1,930
1.5	2.25	$4,343
2	4	$7,720
3	9	$17,370
4	16	$30,880
6	36	$69,480
No Zonal Differentiation		
Meter Size in Inches	Capacity Ratio to 1" Line	Impact Fee
1	1	$2,084
1.5	2.25	$4,689
2	4	$8,336
3	9	$18,756
4	16	$33,344
6	36	$75,024

RECOMMENDED IMPACT FEES SCHEDULE

TABLE 29: RECOMMENDED IMPACT FEES SUMMARY				
		Impact Fees Without Adjustment	Adjustment for Past Contributions	Adjusted Impact Fees
Parks		$673	0.38%	**$671**
Roads				
	Residential			**$3,336**
	Others: See page 26			
Wastewater		$1,266		**$1,266**
Water				
	Zone 1	$2,489		**$2,489**
	Zone 2	$1,096		**$1,096**
	Zone 3	$1,930		**$1,930**

APPENDIX

Table 1: Contribution of Undeveloped Land to Capital Improvements										
	1996	*1995*	*1994*	*1993*	*1992*	*1991*	*1990*	*1989*	*1988*	*1987*
Percent of Property Tax from Undeveloped Land	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
Property Tax	$156,324	$139,421	$123,694	$88,052	$87,679	$81,112	$82,197	$77,015	$71,770	$66,929
Total Revenue	$812,480	$686,104	$736,328	$548,030	$511,711	$440,489	$457,126	$536,238	$357,874	$323,149
Percent of Total Revenue from Property Tax	19.24%	20.32%	16.80%	16.07%	17.13%	18.41%	17.98%	14.36%	20.05%	20.71%
Percent of Total Revenue from Undeveloped Land	1.44%	1.52%	1.26%	1.21%	1.29%	1.38%	1.35%	1.08%	1.50%	1.55%
Capital Expenditures on Roads	$211,133	$169,877	$188,080	$134,734	$285,638	$177,786	$296,673	$189,702	$121,402	$125,219
Class "C" Roads Funds	$68,001	$68,521	$66,045	$62,154	$58,889	$57,006	$52,616	$51,250	$44,715	$32,643
Capital Expenditures on Parks	$26,716	$13,169	$54,802	$38,161	$17,792			$4,434	$18,830	
Total Capital Expenditures on Roads and Parks	$169,848	$114,525	$176,837	$110,741	$244,541	$120,780	$244,057	$142,886	$95,517	$92,576
Total Expenditures for the Year	$766,087	$567,228	$594,760	$475,615	$547,425	$407,698	$519,531	$409,855	$345,878	$317,426
Percentage of Total Expenditures from Roads and Parks	22.17%	20.19%	29.73%	23.28%	44.67%	29.62%	46.98%	34.86%	27.62%	29.16%
Percent of Capital Expenditures from Undeveloped Land	0.32%	0.31%	0.37%	0.28%	0.57%	0.41%	0.63%	0.38%	0.42%	0.45%
Average Percentage excluding 1987, 1990, 1991*	0.38%									

*These years are not included because there is insufficient data.

NOTES

1. Providence City Office

2. Providence City Office; Acres for undeveloped land estimated by Randy T. Simmons, Providence City Councilman

3. The population estimate of 3,700 people was determined by averaging the predictions of the 1990 census, the predictions found in the Providence City Water System Master Plan (Figure 1-1), and the result of multiplying the existing number of households in Providence, 1115 (Skarlet Bankhead, City Recorder), by the average of 3.3 persons per household.

4. Randy T. Simmons, Providence City Councilman

5. Providence City Financial Records; Local Prices

6. Source for land value is the average of current land sales prices. Source for other costs is Landscaping firms in Providence Area.

7. The following are approximations of the number of trees on developed acres of each park: Braegger Park, 55; Von's Park, 100; Providence Elementary, 25; Zollinger Park, 57; Total, 237. The total number of trees is divided by the total number of developed acres, 16.95, to yield an average of 14 trees per acre. The average cost of trees is $76, for size 1 3/4" according to local prices.

8. Providence City Office

11. Ibid. Table 1-1

12. Ibid. p. 7-3

13. Ibid. p. 3-4

14. Ibid. p. 7-4

15. Ibid. Table 1-1

16. Ibid. Table 1-1

17. In the Enterprise Funds Combined Balance Sheet in the City of Providence General Purpose Financial Statements 1996, p. 45 the Accumulated depreciation listed for water is $310,537. This includes $37,530 of accumulated depreciation on equipment. The $37,530 was provided by John Duersch of Peterson Allred, Providence City's

Accountants. The $37,530 is subtracted from the total accumulated depreciation at arrive at the total accumulated capital depreciation.

18. City of Providence General Purpose Financial Statements 1996, p. 46
19. Ibid. p. 46
20. City of Providence General Purpose Financial Statements 1993, p. 45
21. City of Providence Comprehensive Annual Financial Report 1990, p. 51
22. City of Providence Comprehensive Annual Financial Report 1989, p. 48
23. City of Providence General Purpose Financial Statements 1996, p. 46
24. Ibid. p. 24
25. Providence City Water System Master Plan, p. 1-2