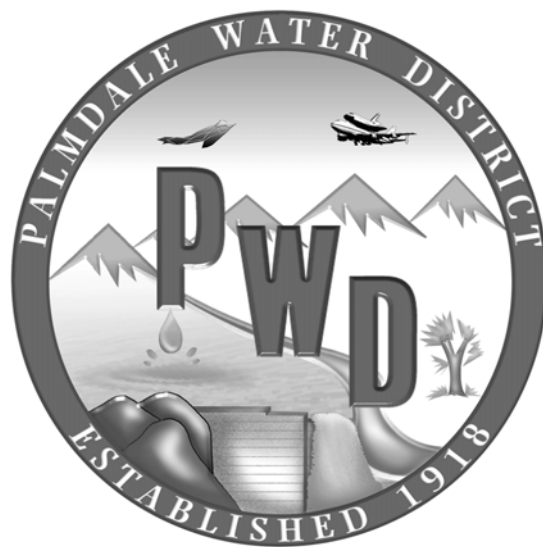


PALMDALE WATER DISTRICT



2005

Cost of Service Study

(Water Rate Analysis)

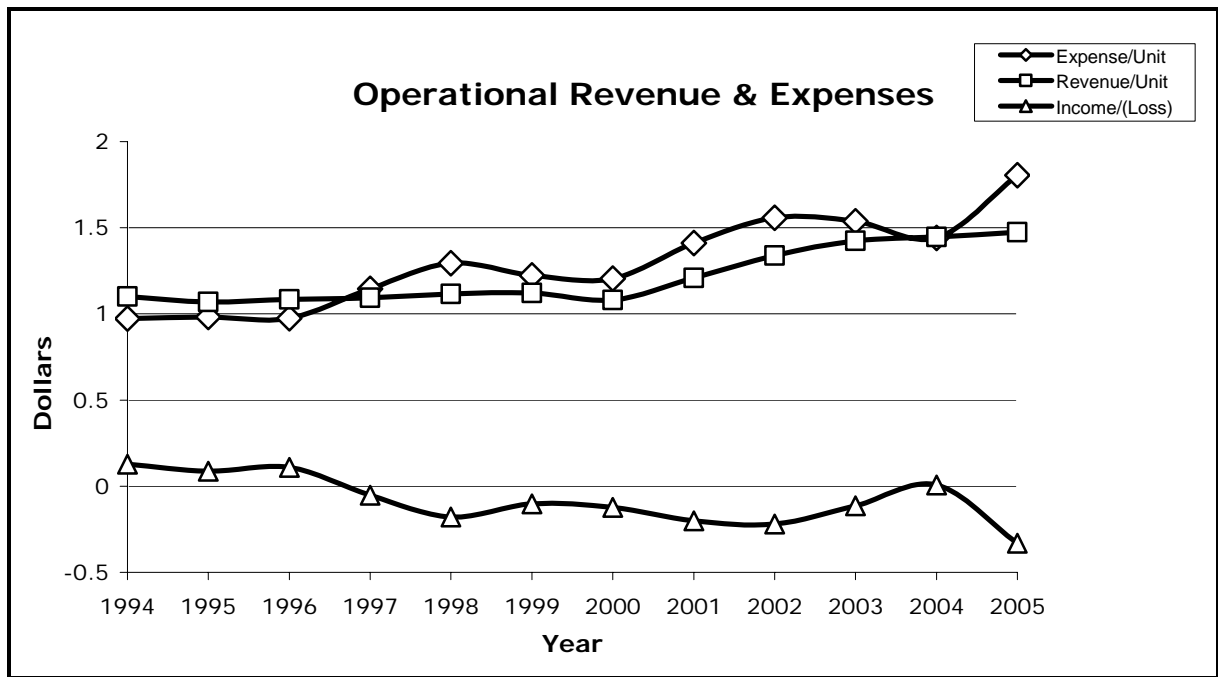
October 28, 2005

PWD Cost of Service

The purpose of this Cost of Service/Rate Base Study is to analyze the income and expenses of the Palmdale Water District using data (financial/water production/water use) from 2004. This will help create a new rate model based on the tier and elevation rate structure that was adopted in 2000 and project revenues to assist in determining proper rate levels.

Operational Revenue and Operational Expenses (per unit of water produced) for the time period of 1994 through 2005 (projected) is shown below.

Year	Expense/Unit	Revenue/Unit	Income/(Loss)
1994	0.9728	1.1010	0.1282
1995	0.9826	1.0699	0.0872
1996	0.9747	1.0847	0.1100
1997	1.1452	1.0929	(0.0523)
1998	1.2944	1.1155	(0.1789)
1999	1.2245	1.1217	(0.1028)
2000	1.2050	1.0814	(0.1236)
2001	1.4106	1.2094	(0.2012)
2002	1.5572	1.3382	(0.2189)
2003	1.5376	1.4237	(0.1139)
2004	1.4403	1.4474	0.0071
2005	1.8056	1.4752	(0.3304)



District Requirements

For 2004, District Operational Expenses totaled \$16,717,609 while Operating Revenue totaled \$16,800,264. This left an Operating Income (Loss) of \$82,655.

With total 2004 water production of 26,646 Acre Feet (11,607,041 Units), the District required an Operating Income of \$1.4403 per Unit to meet Expenses, and brought in \$1.4474 per Unit, a gain of \$0.0071 per Unit.

District Production Information

Wells typically account for about 40% of production, and the Water Treatment Plant accounts for 60% of Total District Water Production. These percentages are consistent from 1996 to 2004 as follows:

YEAR	WELLS	TREATMENT PLANT
1996	41.2	58.8
1997	40.1	59.9
1998	39.6	60.4
1999	41.5	58.5
2000	37.7	62.3
2001	44.8	55.2
2002	32.3	67.7
2003	42.6	57.4
2004	41.4	58.6

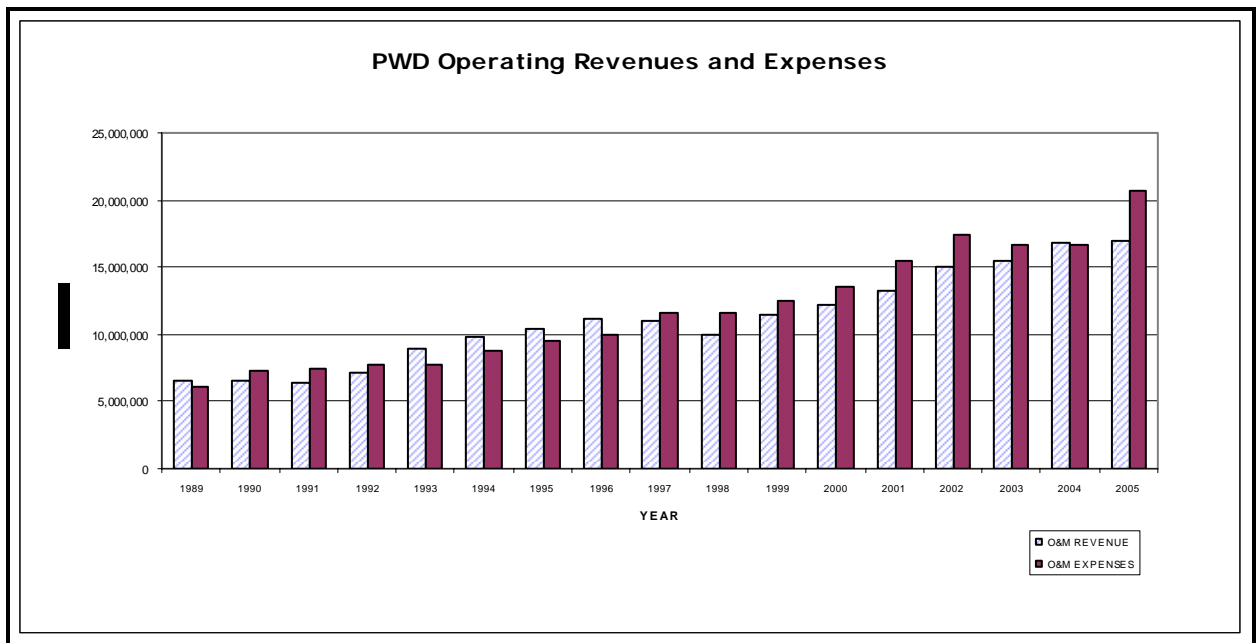
The average connection base for the District is as follows:

YEAR	CONNECTIONS
1995	21,306
1996	21,406
1997	21,210
1998	21,370
1999	21,917
2000	22,595
2001	22,963
2002	23,311
2003	23,455
2004	24,152
2005	24,637
2006 (Projected)	25,500

The District Budget

Budget history for the District from 1989 through 2005 is show on the table and chart below.

YEAR	Operating Revenue (\$)	Operating Expenses (\$)	Operating Income (Loss) (\$)
1989 (rate incr.)	6,490,233	6,066,570	423,663
1990 (rate incr.)	6,554,721	7,332,202	(777,481)
1991	6,329,443	7,460,508	(1,131,065)
1992	7,088,754	7,812,019	(723,265)
1993 (rate incr.)	8,999,788	7,734,721	1,265,067
1994	9,888,953	8,737,173	1,151,780
1995	10,361,210	9,516,255	844,955
1996	11,109,879	9,983,231	1,126,648
1997	11,022,396	11,549,386	(526,990)
1998	10,022,529	11,629,752	(1,607,223)
1999	11,432,216	12,479,790	(1,047,574)
2000 (rate incr.)	12,201,264	13,595,621	(1,394,357)
2001 (rate incr.)	13,298,509	15,510,663	(2,212,154)
2002 (rate incr.)	14,962,690	17,410,369	(2,447,679)
2003 (rate incr.)	15,449,027	16,685,321	(1,236,294)
2004 (rate incr.)	16,800,264	16,717,609	82,655
2005 (budget)	16,900,000	20,685,025	(3,785,025)



Cost to Treat

Water Treatment expenses for 2004 included the Clearwell Booster to the 2800' zone and the 2950' zone since this facility actually moves water from the Treatment process into the distribution system. The detailed cost breakdown is as follows:

2004 WTP Expense Details (Total Units Treated=6,805,959.4)					
Type	Source	Work Orders	Energy	Total	Cost/Unit
Raw Water	Littlerock Dam (4-4505)	29,513.61		\$29,513.61	0.004
	Palmdale Ditch (4-4507)	2,276.21		\$2,276.21	0.000
	SWP (0-4600/4601)	1,605,219.00		\$1,605,219.00	0.236
SubTotal		1,637,008.82	0.00	\$1,637,008.82	0.241
Palmdale Dam	Palmdale Dam (4-4506)	10,255.08		\$10,255.08	0.002
SubTotal		10,255.08	0.00	\$10,255.08	0.002
Storage/Tank/Booster	6MG ClearWell	5,334.79	254,028.83	\$259,363.62	0.038
SubTotal		5,334.79	254,028.83	\$259,363.62	0.038
WTP O & M	Account 5-4203	Contracted Maintenance		\$21,576.72	0.003
	Account 5-4212	Permits		\$19,725.71	0.003
	Account 5-4241	Waste Disposal		\$39,027.24	0.006
	Account 5-4244	Uniforms		\$6,418.19	0.001
	Account 5-4302	Laboratory Supplies		\$26,501.71	0.004
	Account 5-4306	Materials & Supplies		\$13,812.66	0.002
	Account 5-4307	Hypo Generator Supplies		\$18,251.81	0.003
	Account 5-4350	Chemicals		\$325,428.58	0.048
	Account 5-4410	Gas - Treatment Plant	\$1,911.45		0.000
	Account 5-4411	Electricity - Treatment Plant	\$39,589.54		0.006
	Account 5-4413	Electricity - Hypo Generator	\$19,847.07		0.003
	Account 5-4502	Mtce & Repair - Plant Bldgs		\$6,753.80	0.001
	Account 5-4503	Mtce & Repair - Facilities		\$36,875.97	0.005
	Account 5-4510	Mtce & Repair - Office Equip		\$1,193.90	0.000
	Account 5-4511	Mtce & Repair - Equipment		\$16,872.14	0.002
Account 5-4520	Palmdale Lake Management		\$48,786.82	0.007	
SubTotal			61,348.06	\$581,225.25	0.087
Total:		\$1,652,598.69	\$315,376.89	\$2,487,852.77	0.367

The cost to the district per unit of water treated at the Water Treatment Plant was \$0.367/unit in 2004.

WELL EXPENSES

The following table details the well expenses for 2004.

2004 Well Expense Details:

Zone	Well	Units	Utility Cost	Mtce Cost	Misc Cost	Total	Cost/Unit
2800/2850	2A	528,752	\$132,162.97	\$30,420.42	\$1,891.89	\$164,475.28	\$0.31
2800/2850	3A	192,855	55,795.78	143,723.91	1,891.89	\$201,411.58	\$1.04
2800/2850	4A	129,943	29,841.94	1,129.75	1,891.89	\$32,863.58	\$0.25
2800/2850	6A	76,155	24,704.28	62,979.04	1,891.89	\$89,575.21	\$1.18
2800/2850	7A	588,742	93,346.84	16,465.20	1,891.89	\$111,703.93	\$0.19
2800/2850	8A	860,201	140,110.44	8,923.89	1,891.89	\$150,926.22	\$0.18
2800/2850	10	51,874	12,993.98	2,978.51	1,891.89	\$17,864.38	\$0.34
2800/2850	11A	521,329	166,327.63	27,547.39	1,891.89	\$195,766.91	\$0.38
2800/2850	14A	321,047	105,999.23	93,418.69	1,891.89	\$201,309.81	\$0.63
2800/2850	15	556,997	149,276.47	72,428.58	1,891.89	\$223,596.94	\$0.40
2800/2850	22	89,855	10,795.85	5,884.95	1,891.89	\$18,572.69	\$0.21
2800/2850	23A	184,800	37,667.09	1,702.81	1,891.89	\$41,261.79	\$0.22
2800/2850	24	0	551.78	1,851.12	1,891.89	\$4,294.79	N/A
2800/2850	26	89,621	14,720.23	1,278.56	1,891.89	\$17,890.68	\$0.20
2800/2850	32	57,457	12,645.82	35,031.45	1,891.89	\$49,569.16	\$0.86
Zone Total:		4,249,627	\$986,940.33	\$505,764.27		\$1,492,704.60	\$0.35
2950/3000	16	29,679	\$8,575.78	\$1,488.78	\$1,891.89	11,956.45	\$0.40
2950/3000	20	44,127	7,269.92	1,594.54	1,891.89	10,756.35	\$0.24
2950/3000	21	30,969	12,910.32	3,022.56	1,891.89	17,824.77	\$0.58
2950/3000	25	123,589	22,820.66	67,817.01	1,891.89	92,529.56	\$0.75
2800/2850	30	86,042	17,058.37	43,794.09	1,891.89	62,744.35	\$0.73
2800/2850	33	88,302	21,961.41	1,710.32	1,891.89	25,563.62	\$0.29
2950/3000	35	135,406	29,920.33	2,697.96	1,891.89	34,510.18	\$0.25
Zone Total:		538,114	\$120,516.79	\$122,125.26		\$242,642.05	\$0.45
3200/3250	18	8,964	\$1,442.60	\$3,554.46	\$472.97	\$4,997.06	\$0.56
Zone Total:		8,964	\$1,442.60	\$3,554.46		\$4,997.06	\$0.56
3400+	19	11,903	\$1,442.60	\$3,554.46	\$472.97	4,997.06	\$0.42
Zone Total:		11,903	\$1,442.60	\$3,554.46		\$4,997.06	\$0.42
TOTALS:		4,808,607	\$1,110,342.32	\$634,998.44		\$1,745,340.76	\$0.36

The cost to the District per unit of well water \$0.36/unit in 2004.

Total Cost to Boost

The booster system sends water to the entire District, including back-feed for the 2800/2850 Zones. The same water may be boosted several times before it reaches its final destination. The approximate amount of (billed) water boosted through the entire District was 1,730,564 units.

Total Booster expenses for 2004 were \$399,867.30, and the cost to the District for boosted water was \$.23 per unit.

2004 Booster Expense Detail

Zone	Booster	Utility Cost	Maintenance Cost	Misc. Cost	Total	Cost/Unit
2950/3000	3MG Booster	\$41,897.52	\$877.99	\$1,891.89	\$44,667.40	
2950/3000	Avenue S	14,029.06	2,958.85	1,891.89	18,879.80	
2950/3000	25th Street	71,150.03	13,777.68	1,891.89	86,819.60	
2950/3000	45th Street	95,015.06	14,668.65	1,891.89	111,575.60	
2950/3000	Hilltop	1,148.27	1,067.63	1,891.89	4,107.79	
Zone Total:	1,344,410 units				\$266,050.19	\$0.20
3200/3250	Lower El Camino	\$4,771.97	\$3,439.11	\$1,891.89	\$10,102.97	
3200/3250	5MG Booster	1,156.25	1,028.01	1,891.89	4,076.15	
3200/3250	Palmdale Hills	1,442.60		472.97	1,915.57	
3200/3250	T-8 Booster	5,396.40	12,281.98	1,891.89	19,570.27	
3200/3250	Well 5 Booster	44,765.74	877.99	1,891.89	47,535.62	
Zone Total:	283,108 units				\$83,200.58	\$0.29
3400+	3600'	\$4,333.47	\$877.99	\$1,891.89	\$7,103.35	
3400+	3900'	3,314.71	877.99	1,891.89	6,084.59	
3400+	Underground	21,268.68	4,363.69	1,891.89	27,524.26	
3400+	Alta Valley	234.52	907.01	1,891.89	3,033.42	
3400+	V-5 Booster	1,442.60		472.97	1,915.57	
3400+	Vista View	866.29	2,197.15	1,891.89	4,955.33	
Zone Total:	103,046 units				\$50,616.52	\$0.49
TOTALS:	1,730,564 units	\$312,233.17	\$60,201.72	\$27,432.41	\$399,867.30	\$0.23

Water Usage figures and the number of units boosted to higher Zones are shown below.

Service Zone	Well Production (Units)	Treated Water (Units)	% of Use	Water Use			Boosted Water Amounts		
				Well (Units)	Treated (Units)	Total (Units)	Well (Units)	Treated (Units)	Total (Units)
2800/2850	4,249,627	4,542,193	64.1	3,083,341	4,364,069	7,447,410	0	0	0
2950/3000	538,114	2,263,766	33.3	1,599,416	2,263,766	3,863,182	1,166,286	178,125	1,344,410
3200	8,964	0	1.6	78,260	110,766	189,026	104,983	178,125	283,108
3400+	11,903	0	1.0	47,951	67,358	114,949	35,688	67,358	103,046
Total	4,808,608	6,805,959	100.0	4,808,608	6,805,959	11,614,567	1,306,957	423,607	1,730,564

Water Production -- Costs Summary (2004):

Based on 2004 Work Orders, Payroll, and Expense figures, the cost to produce one unit of water was as follows:

Production and Distribution

Source	Treated Water	Well Water
Water Treatment:	\$0.367	
Well Water:		\$0.36
Percent of Production:	58.6%	41.4%
Sub-Total Production Costs:	\$0.21	\$0.15
Distribution (boosting) Costs:	\$0.23	
Total Production and Distribution Costs Per Unit:	\$0.59	

Salaries and Benefits

Category	2004 Salary Expense	2004 Benefits Expense
Salaries	\$4,108,764	
Benefits		\$1,924,634
Water Produced	11,614,567 (Units)	
Cost per Unit:	\$0.35	\$0.16
Total:	\$0.51	

District expenditures totaled \$1.4403 per unit of water produced in 2004. As shown in the tables above, \$0.59 per unit was for water costs and \$0.51 was for Salaries and Benefits (O&M). Other Operating Expenses totaled \$0.34.

Operating Revenues for 2004 were \$1.4474 per unit, resulting in a gain of \$0.0071 per unit, or \$82,655 for the year.

Water Usage (2004)

Average usage figures per size of service and zone are detailed below.

Rate Zone	Meter Size	# of Meters	Cumulative Total Services per Zone		Average Number of Users	Total Units Billed for CY 2004	Aver. Annual Use per Service	Monthly Average per Service
Base	0.625	11347	11347	45.68%	11032	3,572,785	324	27
Base	1	3639	14986	14.65%	3538	1450241	410	34
Base	1.5	246	15232	0.99%	239	364293	1524	127
Base	2	258	15490	1.04%	251	818496	3261	272
Base	3	65	15555	0.26%	63	129815	2061	172
Base	4	34	15589	0.14%	33	343912	10422	868
Base	6	15	15604	0.06%	15	112643	7510	626
Base	8	23	15627	0.09%	22	43169	1962	164
Base	10	1	15628	0.00%	1	0	0	0
Area 1	0.625	7970	7970	32.08%	7749	2,604,584	336	28
Area 1	1	522	8492	2.10%	508	317810	626	52
Area 1	1.5	53	8545	0.21%	52	87491	1683	140
Area 1	2	58	8603	0.23%	56	189077	3376	281
Area 1	3	6	8609	0.02%	6	40277	6713	559
Area 1	4	13	8622	0.05%	13	159175	12244	1020
Area 1	6	7	8629	0.03%	7	132861	18980	1582
Area 1	8	13	8642	0.05%	13	28289	2176	181
Area 1	10	3	8645	0.01%	3	30622	10207	851
Area 2	0.625	203	203	0.82%	197	66,699	339	28
Area 2	1	173	376	0.70%	168	106951	637	53
Area 2	1.5	4	380	0.02%	4	2018	505	42
Area 3	0.625	30	30	0.12%	29	10,652	367	31
Area 3	1	152	182	0.61%	148	91318	617	51
Area 3	1.5	5	187	0.02%	5	3927	785	65
Area 3	2	1	188	0.00%	1	929	929	77
		24841			24152			

Rate Model

A Rate Model using 2004 data was created to mimic the District's business model. The Rate Model takes parameters from a user and uses them to calculate Operating Income based on the average use per size of meter per Area. The model's accuracy is 96% in calculating Operating Revenue compared with actual Operating Revenue. For 2004:

BASE AREA					
Minimum Chg	Rate Level	Included Units	Base Charge	Unit Charges	New Monthly Bill
\$ 11.85	5/8"	5	\$ 130,704.88	\$ 267,201.70	\$ 36.07
\$ 23.70	1"	10	83,834.50	66,055.72	42.37
\$ 35.54	1 1/2"	15	8,500.94	31,047.55	165.35
\$ 59.24	2"	25	14,859.37	74,214.71	355.10
\$ 118.48	3"	50	7,487.28	8,980.94	260.59
\$ 201.41	4"	85	6,657.92	31,574.03	1,156.55
\$ 390.97	6"	165	5,701.85	8,153.60	950.05
\$ 627.92	8"	265	14,041.53	-	627.92
\$ 912.26	10"	385	886.95	-	912.26
\$ 1,184.75	12"	500	-	-	1,184.75
Minimum Charge	2.37	Connections at Meter Size		Avg Monthly Usage	Consumption
Tier 1 Break (Units)	10	5/8"	11,032	27	297,871
Tier 2 Break (Units)	25	1"	3,538	34	120,294
Tier 3 Break (Units)	50	1 1/2"	239	127	30,375
Tier 4 Break (Units)	100	2"	251	272	68,230
Tier 5 Break (Units)	101	3"	63	172	10,870
Tier 1 Charge	1.09	4"	33	868	28,693
Tier 2 Charge	1.11	6"	15	626	9,130
Tier 3 Charge	1.14	8"	22	164	3,667
Tier 4 Charge	1.18	10"	1	0	0
Tier 5 Charge	1.23	12"	0	0	0
Totals:			15,195	2,290	569,131

AREA 1					
Minimum Chg	Rate Level	Included Units	Base Charge	Unit Charges	New Monthly Bill
11.85	5/8"	5	91,805.58	219,450.01	40.17
23.70	1"	10	12,025.72	26,589.06	76.09
35.54	1 1/2"	15	1,831.50	8,350.43	197.59
59.24	2"	25	3,340.48	19,184.88	399.45
118.48	3"	50	691.13	3,991.86	802.77
201.41	4"	85	2,545.68	15,971.81	1,465.06
390.97	6"	165	2,660.86	13,061.57	2,310.14
627.92	8"	265	7,936.52	0.00	627.92
912.26	10"	385	2,660.86	1,825.36	1,538.07
1,184.75	12"	500	0.00	0.00	1,184.75
Minimum Charge	2.37	Connections at Meter Size		Avg Monthly Usage	Consumption
Tier 1 Break (Units)	10	5/8"	7,749	28	216,970
Tier 2 Break (Units)	25	1"	508	52	26,391
Tier 3 Break (Units)	50	1 1/2"	52	140	7,214
Tier 4 Break (Units)	100	2"	56	281	15,846
Tier 5 Break (Units)	101	3"	6	559	3,261
Tier 1 Charge	1.22	4"	13	1,020	12,892
Tier 2 Charge	1.24	6"	7	1,582	10,767
Tier 3 Charge	1.27	8"	13	181	2,288
Tier 4 Charge	1.31	10"	3	851	2,482
Tier 5 Charge	1.36	12"	0	0	0
Totals:			8,405	4,694	298,112

AREA 2					
Minimum Chg	Rate Level	Included Units	Base Charge	Unit Charges	New Monthly Bill
11.85	5/8"	5	2,338.34	5,952.66	42.01
23.70	1"	10	3,985.54	9,604.31	80.80
35.54	1 1/2"	15	138.23	138.06	71.04
59.24	2"	25	0.00	0.00	59.24
118.48	3"	50	0.00	0.00	118.48
201.41	4"	85	0.00	0.00	201.41
390.97	6"	165	0.00	0.00	390.97
627.92	8"	265	0.00	0.00	627.92
912.26	10"	385	0.00	0.00	912.26
1,184.75	12"	500	0.00	0.00	1,184.75
Minimum Charge 2.37					
		Connections at Meter Size		Avg Monthly Usage	Consumption
Tier 1 Break (Units)	10	5/8"	197	28	5,526
Tier 2 Break (Units)	25	1"	168	53	8,915
Tier 3 Break (Units)	50	1 1/2"	4	42	163
Tier 4 Break (Units)	100	2"	0	0	0
Tier 5 Break (Units)	101	3"	0	0	0
Tier 1 Charge	1.30	4"	0	0	0
Tier 2 Charge	1.32	6"	0	0	0
Tier 3 Charge	1.35	8"	0	0	0
Tier 4 Charge	1.39	10"	0	0	0
Tier 5 Charge	1.44	12"	0	0	0
Totals:			369	123	14,604

AREA 3					
Minimum Chg	Rate Level	Included Units	Base Charge	Unit Charges	New Monthly Bill
11.85	5/8"	5	345.57	1,663.45	68.88
23.70	1"	10	3,501.74	13,371.50	114.18
35.54	1 1/2"	15	172.78	537.42	146.09
59.24	2"	25	57.59	111.90	174.33
118.48	3"	50	0.00	0.00	118.48
201.41	4"	85	0.00	0.00	201.41
390.97	6"	165	0.00	0.00	390.97
627.92	8"	265	0.00	0.00	627.92
912.26	10"	385	0.00	0.00	912.26
1,184.75	12"	500	0.00	0.00	1,184.75
Minimum Charge 2.37					
		Connections at Meter Size		Avg Monthly Usage	Consumption
Tier 1 Break (Units)	10	5/8"	29	31	904
Tier 2 Break (Units)	25	1"	148	51	7,537
Tier 3 Break (Units)	50	1 1/2"	5	65	316
Tier 4 Break (Units)	100	2"	1	77	75
Tier 5 Break (Units)	101	3"	0	0	0
Tier 1 Charge	2.18	4"	0	0	0
Tier 2 Charge	2.20	6"	0	0	0
Tier 3 Charge	2.23	8"	0	0	0
Tier 4 Charge	2.27	10"	0	0	0
Tier 5 Charge	2.32	12"	0	0	0
Totals:			183	224	8,832

SUMMARY			
Average Monthly Sales =	\$	1,235,746	
Total Annual Sales (Model) =	\$	14,828,951	Actual Annual Sales = 15,466,477
Other Income =	\$	1,343,787	Model Accuracy = 96%
Annual Operating Income (Model) =	\$	16,172,738	
Adjusted Income =	\$	16,810,264	
Total Connections =		24,152	