Docket #2214 Date Filed: 11/15/2013

UNITED STATES BANKRUPTCY COURT
FOR THE NORTHERN DISTRICT OF ALABAMA
SOUTHERN DIVISION

IN RE:	)	
JEFFERSON COUNTY, ALABAMA	)	**CASE NO.: 11-05736-TBB9**
	)	**CHAPTER 9**
Debtor.	)	

NOTICE OF FILING COUNTY EXHIBIT C.344 (PART 2 OF 6)

Jefferson County, Alabama, the debtor in the above-referenced case (the "County"), submits the following exhibits for the plan confirmation hearing set by the Court's *Order Continuing Confirmation Hearing and Extending Related Deadlines* [Docket No. 2169], which is scheduled to commence on November 20, 2013 at 10:00 a.m.:

1. *Ratemaking Record* of Jefferson County [County's Exhibit No. **C.344**] (PART 2 OF 6).

Respectfully submitted this 15th day of November, 2013.

/s/ James B. Bailey
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APPENDIX 6-1
EXISTING ASSETS
PRESENT VALUE ANALYSIS

LINE	DESCRIPTION	IN SVC	ERN	COST	ESCALATED COST	ENVIRONMENTAL SERVICES CATEGORY	TREATMENT	COLLECTION
1,693	#7 UPPER VALLEY CREEK	2004	1.081	481,279	520,039	collection	0	520,039
1,694	UPPER VALLEY CREEK	2003	1.148	301,482	346,249	collection	0	346,249
1,695	VALLEY CREEK SANITARY SEWER	2004	1.081	616,121	665,740	collection	0	665,740
1,696	PH II VALLEY CREEK SSCS	2002	1.176	479,300	563,606	collection	0	563,606
1,697	#33 LOWER VALLEY CREEK SANITARY SEWER	2004	1.081	341,830	369,359	collection	0	369,359
1,698	#9 UPPER VALLEY CREEK SANITARY SEWER	2004	1.081	255,492	276,068	collection	0	276,068
1,699	VALLEY CREEK SWR COLL	2004	1.081	2,390,754	2,583,292	collection	0	2,583,292
1,700	#22 LOWER VALLEY CREEK SANITARY SEWER	2003	1.148	298,819	343,191	collection	0	343,191
1,701	#19 & 20 LOWER VALLEY CREEK SANITARY SWR	2003	1.148	30,169	34,648	collection	0	34,648
1,702	IDA LANE TO PIPLINE RD SANITARY SWR	2004	1.081	69,898	75,527	collection	0	75,527
1,703	#32 LOWER VALLEY CREEK SANITARY SEWER	2004	1.081	69,897	75,526	collection	0	75,526
1,704	#28 & 29 LOWER VALLEY CREEK SSCS	2004	1.081	32,487	35,104	collection	0	35,104
1,705	30&31 LOWER VALLY CRK	2005	1.033	65,498	67,626	collection	0	67,626
1,706	VALLEY CREEK WWTP PHASE I	1998	1.299	349,755	454,209	treatment	454,209	0
1,707	SHADES CREEK COLL SYSTEM #10	2005	1.033	167,479	172,922	collection	0	172,922
1,708	VILLAGE CREEK SEWAGE TREATMENT	1987	1.745	788,600	1,376,023	treatment	1,376,023	0
1,709	CORBET BRANCH TRUNK SEWERS	1991	1.590	442,323	703,326	collection	0	703,326
1,710	2ND CREEK EXT MERRYWOOD EST TRUNK SEWER	1993	1.476	144,878	213,785	collection	0	213,785
1,711	FORESTVIEW ESTATES ASSESSMENT SANITARY S	1990	1.625	381,953	620,553	collection	0	620,553
1,712	FORESTVIEW ESTATES ASSESSMENT SANITARY	1991	1.590	50,001	79,505	collection	0	79,505
1,713	FORESTVIEW ESTATES ASSESSMENT SANITARY	1991	1.590	559,609	889,819	collection	0	889,819
1,714	DELANEY DRIVE TO CHERRYDALE ASSEMENT SEW	1991	1.590	10,500	16,696	collection	0	16,696
1,715	VILLAGE CK TRUNK SWR REPLACE-ROBERTS FLD	1993	1.476	73,380	108,281	collection	0	108,281
1,716	REBA STREET ASSESSMENT SEWER	1992	1.542	93,399	144,042	collection	0	144,042
1,717	VILLAGE CK TRUNK SWR RELOCATION	1993	1.476	580,668	856,847	collection	0	856,847
1,718	LOWER VILLAGE CREEK SANITARY SEWER	1986	1.790	2,038,514	3,648,916	collection	0	3,648,916
1,719	MIAMI DRIVE ASSESSMENT SEWER	1985	1.833	98,089	179,763	collection	0	179,763
1,720	VILLAGE CREEK 1989 MODIFICATIONS	1992	1.542	827,251	1,275,809	treatment	1,275,809	0
1,721	VILLAGE WWTP MODIFICATIONS-DESIGN	1994	1.422	56,400	80,178	treatment	80,178	0
1,722	VILLAGE CREEK SLUDGE DRYING BEDS	1995	1.405	14,630	20,559	treatment	20,559	0
1,723	SECOND CREEK-ENGINEERING DESIGN	1992	1.542	12,275	18,931	collection	0	18,931
1,724	UPPER SECOND CREEK SS EXTENSION	2002	1.176	1,432,520	1,684,493	collection	0	1,684,493
1,725	VILLAGE CREEK SANITARY SEWER	1999	1.269	62,305	79,056	collection	0	79,056
1,726	VILLAGE CREEK EMERGENCY REPAIRS	1993	1.476	2,903,447	4,284,396	collection	0	4,284,396
1,727	VILLAGE CREEK TRUNK SEWER REPLACEMENT	1998	1.299	13,619,488	17,686,930	collection	0	17,686,930
1,728	13TH AVE N SANITARY SEWER-CONSTR	1996	1.368	401,005	548,564	collection	0	548,564
1,729	W ENSLEY TRUNK-PRELIM ENGINEERING	1996	1.368	45,000	61,559	collection	0	61,559
1,730	WEST ENSLEY TRUNK SEWER	2001	1.212	1,295,122	1,569,746	collection	0	1,569,746
1,731	VILLAGE CREEK BRICK SEWER	2000	1.236	1,026,048	1,268,004	collection	0	1,268,004
1,732	EAST VILLAGE CRK SSCS REHAP	2000	1.236	3,287,577	4,062,834	collection	0	4,062,834
1,733	#1 WEST VILLAGE CREEK SSCS REHAB	1999	1.269	2,058,520	2,611,967	collection	0	2,611,967
1,734	#2 EAST VILLAGE CRK	2000	1.236	6,078,941	7,512,442	collection	0	7,512,442
1,735	WEST VILLAGE CREEK SSCS #2	1999	1.269	2,672,529	3,391,055	collection	0	3,391,055
1,736	VILLAGE CREEK-SEWER SYSTEMS-CONTRACT 3	1999	1.269	1,805,348	2,290,727	collection	0	2,290,727
1,737	#5 E VILLSSCS REHAP	2000	1.236	4,241,292	5,241,448	collection	0	5,241,448
1,738	VILLAGE CREEK SEWER SYSTEM-CONTRACT 5	1999	1.269	3,685,469	4,676,330	collection	0	4,676,330
1,739	#6 E VLG CRK SSCS REHAP	1999	1.269	4,248,400	5,390,608	collection	0	5,390,608
1,740	VILLAGE CREEK SEWER SYSTEMS-CONTRACT 6	1999	1.269	2,634,712	3,343,070	collection	0	3,343,070
1,741	#7 EAST VILLAGE CREEK SSCS PART C	1999	1.269	2,371,859	3,009,548	collection	0	3,009,548
1,742	VILLAGE CREEK #7 WEST	2000	1.236	7,784,902	9,620,692	collection	0	9,620,692
1,743	VILLAGE CREEK SWR SYSTEM REHAP	2000	1.236	5,324,940	6,580,636	collection	0	6,580,636
1,744	VILLAGE CREEK SSCS REHAP	1999	1.269	3,862,198	4,900,574	collection	0	4,900,574
1,745	VILLAGE CREEK SANITARY COLL SYS REHAB	2000	1.236	8,847,456	10,933,812	collection	0	10,933,812
1,746	SANITARY SWR. COLLECTION VILLAGE CRK	2000	1.236	5,058,173	6,250,962	collection	0	6,250,962
1,747	GLENRIDGE DR. SWR. REPLACEMENT	2000	1.236	243,955	301,483	collection	0	301,483
1,748	VILLAGE CREEK SSS REHAB	2001	1.212	4,421,770	5,359,384	collection	0	5,359,384
1,749	#12 VILLAGE CREEK SANTARY SWR	2000	1.236	4,295,337	5,308,238	collection	0	5,308,238
1,750	#12 VILLAGE CREEK SANITARY SWR	2001	1.212	3,470,841	4,206,815	collection	0	4,206,815
1,751	VILLAGE CRK SSCS REHAP #13	2001	1.212	4,269,970	5,175,395	collection	0	5,175,395
1,752	VILLAGE CREEK SANITARY SWR COLL	2001	1.212	2,615,943	3,170,640	collection	0	3,170,640
1,753	VILLAGE CRK CONTRACT 14	2001	1.212	6,166,187	7,473,695	collection	0	7,473,695
1,754	VILLAGE CRK SS COLL	2001	1.212	3,142,097	3,808,362	collection	0	3,808,362
1,755	83RD STREET NS SEWER REPLACEMENT	2002	1.176	1,182,998	1,391,081	collection	0	1,391,081
1,756	#19 EAST VILLAGE CREEK SANITARY SEWER	2003	1.148	4,656,127	5,347,521	collection	0	5,347,521
1,757	#20 EAST VILLAGE CREEK	2002	1.176	3,138,267	3,690,272	collection	0	3,690,272
1,758	DALTON DRIVE SEWER	2001	1.212	92,805	112,483	collection	0	112,483
1,759	VALLEY DRIVE SEWER REPLACEMENT	2002	1.176	259,265	304,868	collection	0	304,868
1,760	CRESTWOOD BLVD SEWER	2003	1.148	327,209	375,797	collection	0	375,797
1,761	#25 EAST VILLAGE CREEK	2002	1.176	1,676,243.	1,971,085	collection	0	1,971,085
1,762	EAST VILLAGE CREEK SANITARY SEWER	2003	1.148	3,016,924	3,464,911	collection	0	3,464,911
1,763	ROEBUCK PARKWAY SEWER	2003	1.148	1,282,497	1,472,937	collection	0	1,472,937
1,764	SHERMAN HEIGHTS PUMP STATION REPL SEWER	2002	1.176	824,131	969,091	collection	0	969,091
1,765	EMER SEWER REPAJ-7825 3RD AVE SOUTH	2005	1.033	142,707	147,345	collection	0	147,345
1,766	PUMP FOR SHERMAN HEIGHTS STATION	1998	1.299	26,015	33,785	collection	0	33,785
1,767	REPAIR SEWER COOSA STREET 15TH AVENUE	1998	1.299	14,830	19,259	collection	0	19,259
1,768	REPAIR SEWER 40TH STREET SOUTH	1998	1.299	8,662	11,249	collection	0	11,249
1,769	EMERGENCY SEWER REPAIR 37TH CT W HOOPER	1998	1.299	3,961	5,144	collection	0	5,144
1,770	EMERGENCY SEWER REPAIR AVE E ENSLEY	1998	1.299	26,983	35,042	collection	0	35,042
1,771	EMERGENCY SEWER REPAIR 86TH PL S VILLAGE	1998	1.299	2,001	2,598	collection	0	2,598
1,772	EMERGENCY SEWER REPAIR 8TH AVE & 82ND PL	1998	1.299	10,105	13,123	collection	0	13,123
1,773	EMERGENCY SEWER REPAIR 22ND ST NORTH	1998	1.299	20,069	26,062	collection	0	26,062
1,774	EMERGENCY SEWER REPAIR GEORGIA ROAD	1998	1.299	5,161	6,702	collection	0	6,702
1,775	EMERGENCY SEWER REPAIR 21ST ST LIBRARY	1998	1.299	87,768	113,980	collection	0	113,980
1,776	EMERGENCY SEWER REPAIR 21ST ALLEY BHAM	1998	1.299	63,389	82,321	collection	0	82,321
1,777	EMERGENCY SEWER REPAIR CASTLEBERRY WAY	1998	1.299	25,390	32,973	collection	0	32,973
1,778	EMERGENCY SEWER REPAIR PINSON CHALKVILLE	1998	1.299	28,968	37,619	collection	0	37,619
1,779	EMER SWR REPAIR PHASE II 2ND AVE 47TH PL	1998	1.299	28,334	36,795	collection	0	36,795
1,780	EMER SEWER REPAIR PH 12ND AVE 47TH PL	1998	1.299	46,232	60,039	collection	0	60,039
1,781	EMER SWR REPAIRS 1ST AVE N & 41ST	1999	1.269	5,405	6,859	collection	0	6,859
1,782	EMER SWR REPAIR 1601 AVE G	1999	1.269	5,814	7,377	collection	0	7,377
1,783	EMER SEWER REPAIR 32ND ST S OFF CLIFF RD	1999	1.269	5,927	7,521	collection	0	7,521
1,784	EMER SEWER REPAIR 5TH AVE S AND 77TH ST	1999	1.269	2,678	3,398	collection	0	3,398
1,785	EMER SEWER REPAIR 5TH AVE S AND 77TH ST	1999	1.269	1,988	2,522	collection	0	2,522
1,786	EMR.SWR.REPAIR 1ST CT. & 13TH ST	1999	1.269	10,194	12,935	collection	0	12,935

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APPENDIX 6-1
EXISTING ASSETS
PRESENT VALUE ANALYSIS

LINE	DESCRIPTION	IN SVC	ERN	COST	ESCALATED COST	ENVIRONMENTAL SERVICES CATEGORY	TREATMENT	COLLECTION
1,787	EMER.SWR.REPAIR-8TH AVE. N & 47TH PL	1999	1.269	36,809	46,705	collection	0	46,705
1,788	EMER SWR REPAIR 8TH AVE N & 47TH PL	1999	1.269	24,499	31,085	collection	0	31,085
1,789	EMER SWR REPAIR 8TH AVE N AIRPORT HWY	1999	1.269	8,720	11,064	collection	0	11,064
1,790	EMER SWR REPAIR 18TH ST & AVE P	1999	1.269	13,513	17,146	collection	0	17,146
1,791	EMER SWR REPAIR 8TH AVE N & AIRPORT HWY	1999	1.269	15,045	19,090	collection	0	19,090
1,792	EMER SWR REPAIR 206 2ND AVE WEST	1999	1.269	6,242	7,920	collection	0	7,920
1,793	EMER SWR REPAIR 15TH AVE & 12TJ ST S	1999	1.269	11,898	15,096	collection	0	15,096
1,794	EMER SWR REPAIR 5TH AVE & 23RD ST N	1999	1.269	20,889	26,505	collection	0	26,505
1,795	EMER SWR REPAIR 8TH AVE & 20TH ST	1999	1.269	4,178	5,302	collection	0	5,302
1,796	EMER SEWER REPAIR 40TH ST & 35TH AVE	1999	1.269	2,876	3,649	collection	0	3,649
1,797	EMER SEWER REPAIR 17TH AVE & 32 PL NO	1999	1.269	7,396	9,385	collection	0	9,385
1,798	EMER SWR REP-2512 32ND AVE N	1999	1.269	16,444	20,865	collection	0	20,865
1,799	EMER SWR REPAIR-5TH AVE S 5 5TH PL	1999	1.269	11,754	14,915	collection	0	14,915
1,800	EMERGENCY SEWER REPAIR SUNDALE DR	1999	1.269	1,177	1,494	collection	0	1,494
1,801	EMERGENCY SEWER REPAIR 11TH CT WEST	1999	1.269	3,290	4,174	collection	0	4,174
1,802	EMER SWR REPAIR-FINLEY BLVD	1999	1.269	27,373	34,733	collection	0	34,733
1,803	EMER SWR REPAIR-13TH AVE NORTH	1999	1.269	4,896	6,212	collection	0	6,212
1,804	EMER SWR REPAIR-2801 21ST AVE NO	1999	1.269	2,449	3,108	collection	0	3,108
1,805	EMER SEWER REPAIR 14TH AVE & 11TH ST	1999	1.269	10,916	13,851	collection	0	13,851
1,806	EMER SWR REPAIR 31ST ST & AVE H	1999	1.269	27,461	34,844	collection	0	34,844
1,807	EMERGENCY SEWER REPAIR 1ST AVE/59TH ST N	1999	1.269	18,724	23,758	collection	0	23,758
1,808	EMERGENCY SEWER REPARI FOREST AVE ALLEY	1999	1.269	14,052	17,830	collection	0	17,830
1,809	EMERGENCY SEWER REPAIR 18TH ST ALLEY	1999	1.269	3,545	4,498	collection	0	4,498
1,810	EMER SWR REP-224 2ND ST NO & OHIO AVE	1999	1.269	9,272	11,765	collection	0	11,765
1,811	EMER SWR REP- FLORIDA AVE & 2ND ST NO	1999	1.269	3,991	5,065	collection	0	5,065
1,812	EMERGENCY SEWER REPAIR 10TH AVE N	1999	1.269	29,014	36,815	collection	0	36,815
1,813	BURGUNDY PUMP STATION RE	2001	1.212	84,111	101,947	collection	0	101,947
1,814	VILLAGE CREEK PH III	1997	1.320	55,709	73,514	collection	0	73,514
1,815	VILLAGE CREEK BOUNDRY SURVEY	1997	1.320	43,000	56,743	treatment	56,743	0
1,816	VILLAGE WWTP DESIGN	1996	1.368	889,179	1,216,371	treatment	1,216,371	0
1,817	PCB REMEDIATION AT VILLAGE CREEK	1994	1.422	65,959	93,767	treatment	93,767	0
1,818	VILLAGE CREEK WWTP DECHLORINATION	1997	1.320	1,029,494	1,358,522	treatment	1,358,522	0
1,819	VILLAGE CREEK WWTP '96 MODS/ADDS	1999	1.269	15,276,308	19,383,439	treatment	19,383,439	0
1,820	VILLAGE CREEK ACCESS ROAD	1999	1.269	1,111,075	1,409,794	treatment	1,409,794	0
1,821	CON 1 VILL CRK PK FLW PR	2002	1.176	23,591,297	27,740,883	treatment	27,740,883	0
1,822	HAZARDOUS WASTE DISPOSAL	1998	1.299	11,645	15,122	treatment	15,122	0
1,823	ACCESS ROAD HAZARDOUS WASTE DISPOSAL	1998	1.299	5,924	7,693	treatment	7,693	0
1,824	HAZARDOUS WASTE DISPOSAL	1998	1.299	5,548	7,205	treatment	7,205	0
1,825	HAZARDOUS WASTE DISPOSAL	1998	1.299	6,436	8,358	treatment	8,358	0
1,826	HAZARDOUS WASTE DISPOSAL	1998	1.299	5,717	7,424	treatment	7,424	0
1,827	HAZARDOUS WASTE DISPOSAL	1998	1.299	11,898	15,451	treatment	15,451	0
1,828	HAZARDOUS WASTE DISPOSAL	1998	1.299	5,880	7,636	treatment	7,636	0
1,829	#4 VILLAGE CREEK PEAK FLOW	2003	1.148	18,865,358	21,666,697	treatment	21,666,697	0
1,830	VILL CRK WWTP METHANE GAS MONITORING	2000	1.236	28,496	35,216	treatment	35,216	0
1,831	EDGEWATER OAKS SUBDIVISION	2002	1.176	747,700	879,217	collection	0	879,217
1,832	EMERGENCY SEWER REPAIR VILLAGE CREEK DIV	1999	1.269	3,267	4,145	collection	0	4,145
1,833	EMERGENCY SEWER REPAIR 9AVE/36TH WAY	1999	1.269	3,394	4,306	collection	0	4,306
1,834	EMERGENCY SEWER REPAIR HIXON/ARMORY	1999	1.269	11,839	15,021	collection	0	15,021
1,835	EMERGENCY SEWER REPAIR 812 21ST ST ENSLE	1999	1.269	9,358	11,874	collection	0	11,874
1,836	EMERGENCY SEWER REPAIR 69TH ST N/47TH AV	1999	1.269	4,584	5,817	collection	0	5,817
1,837	EMERGENCY SEWER REPAIR AVE I/57TH ST	1999	1.269	1,487	1,886	collection	0	1,886
1,838	EMERGENCY SEWER REPAIR 233 KENT DR	1999	1.269	66,950	84,950	collection	0	84,950
1,839	EMER SWR REPAIR-64TH ST SO	1999	1.269	4,147	5,262	collection	0	5,262
1,840	EMER SWR REPAIR-929 52ND ST NORTH	1999	1.269	4,944	6,273	collection	0	6,273
1,841	EMER SWR REPA-5420 AVE K ENSLEY	1999	1.269	5,203	6,602	collection	0	6,602
1,842	EMER SWR REPR-27TH ST-ENSLEY	1999	1.269	6,311	8,008	collection	0	8,008
1,843	EMER SWR REPA-25TH AVE & 16TH ST N	1999	1.269	2,083	2,643	collection	0	2,643
1,844	EMER SWR REP-AVE P-28TH ST ENSLEY	1999	1.269	42,894	54,427	collection	0	54,427
1,845	EMR.SWR.REPAIR 108 5TH ST - DOCENA	1999	1.269	5,647	7,166	collection	0	7,166
1,846	EMER.SWR.REPAIR-VILLAGE CONTRACT 10 EAST	1999	1.269	2,140	2,715	collection	0	2,715
1,847	EMER.SWR.REPAIR-VILLAGE CONTRACT 10	1999	1.269	1,920	2,436	collection	0	2,436
1,848	EMER. SWR. REPAIR-VILLAGE CONTRACT 3 EAS	1999	1.269	3,585	4,549	collection	0	4,549
1,849	EMER. SWR. REPAIR-15TH AVE N BIRMINGHAM	2000	1.236	17,904	22,126	collection	0	22,126
1,850	EMER.SWR.REPAIR-1793 51ST ST.ENSLEY	2000	1.236	15,334	18,950	collection	0	18,950
1,851	EMER.SWR.REPAIR-3009 33RD COURT NORTH	2000	1.236	29,376	36,303	collection	0	36,303
1,852	EMER.SWR.REPAIR-8030 3RD AVE.NORTH	2000	1.236	100,823	124,599	collection	0	124,599
1,853	EMER.SWR.REP-4730 DONALD STREET	2000	1.236	2,530	3,126	collection	0	3,126
1,854	EMER.SWR.REP-541 BELLVIEW STREET	2000	1.236	4,444	5,493	collection	0	5,493
1,855	EMER.SWR.REP-541 BELLVIEW STREET	2000	1.236	6,072	7,504	collection	0	7,504
1,856	EMER.SWR.REP-541 BELLVIEW STREET	2000	1.236	10,523	13,005	collection	0	13,005
1,857	EMER.SWR.REP-AVENUE I, ENSLEY	2000	1.236	6,454	7,976	collection	0	7,976
1,858	EMER.SWR.REP.23RD ST. & 5TH AVENUE NORTH	2000	1.236	20,683	25,561	collection	0	25,561
1,859	EMER.SWR.REP.-36 AVE.F PRATT CITY	2000	1.236	3,049	3,768	collection	0	3,768
1,860	EMER.SWR.REP.-609 80TH PL SO	2000	1.236	6,696	8,275	collection	0	8,275
1,861	EMER.SWR.REP.-AVENUE T BIRMINGHAM	2000	1.236	6,158	7,610	collection	0	7,610
1,862	EMER.SWR.REP.-1705 ST.CHARLES AVE	2000	1.236	5,720	7,069	collection	0	7,069
1,863	EMER.SWR.REP.-1561 COTTON AVE SO	2000	1.236	29,110	35,974	collection	0	35,974
1,864	EMER.SWR.REP.-1908 24TH ST. NO	2000	1.236	1,678	2,074	collection	0	2,074
1,865	EMER.SWR.REP.-1120 4TH WAY NORTH	2000	1.236	5,953	7,357	collection	0	7,357
1,866	EMER.SWR.REP.-1908 24TH PL NORTH	2000	1.236	5,732	7,084	collection	0	7,084
1,867	EMER.SWR.REP.-12TH STREET WEST	2000	1.236	17,781	21,974	collection	0	21,974
1,868	EMER.SWR.REP.-1309 11TH ST. NO	2000	1.236	13,397	16,556	collection	0	16,556
1,869	EMER.SWR.REP.-20TH STREET NORTH	2000	1.236	16,942	20,937	collection	0	20,937
1,870	EMER.SWR.REP.-4789 7TH CT.SO	2000	1.236	8,575	10,597	collection	0	10,597
1,871	EMER.SWR.REP.-6TH ST & AVE D	2000	1.236	6,124	7,569	collection	0	7,569
1,872	EMER.SWR.REP.-6TH ST. & 9TH CT. NO.	2000	1.236	7,209	8,909	collection	0	8,909
1,873	EMER.SWR.REP.-14TH AVE. & 12TH ST. SOUTH	2000	1.236	9,704	11,992	collection	0	11,992
1,874	EMER.SWR.REP.-3RD PL & 13TH AVE NO	2000	1.236	10,280	12,704	collection	0	12,704
1,875	EMER.SWR.REP.-MAGNOLIA AVENUE	2000	1.236	36,262	44,813	collection	0	44,813
1,876	EMER SWR REP-FLYGT 3127	2000	1.236	4,948	6,115	collection	0	6,115
1,877	EMER SWR REP-23RD ST NO & FINLEY AVE	2000	1.236	21,414	26,464	collection	0	26,464
1,878	EMER SWR REP-34TH ST NO/SHUTTLESWORTH	2000	1.236	2,355	2,910	collection	0	2,910
1,879	EMER SWR REPAIR-47TH PLACE BHAM	2000	1.236	48,603	60,064	collection	0	60,064
1,880	EMER SWR REPAIR-5TH AVE NORTH	2000	1.236	60,487	74,751	collection	0	74,751

APPENDIX 6-1
EXISTING ASSETS
PRESENT VALUE ANALYSIS

LINE	DESCRIPTION	IN SVC	ERN	COST	ESCALATED COST	ENVIRONMENTAL SERVICES CATEGORY	TREATMENT	COLLECTION
1,881	EMER SWR REP-HIGHPOINT TER BHAM	2000	1.236	46,424	57,371	collection	0	57,371
1,882	EMER SWR REP-1485 JUNIPER DR BHAM	2000	1.236	6,965	8,608	collection	0	8,608
1,883	EMER SWR REP-817 WOODVALE RD-AVONDALE	2000	1.236	3,124	3,860	collection	0	3,860
1,884	EMER SWR RPR- 2075 CHERRY AVE-HUEYTOWN	2000	1.236	3,319	4,102	collection	0	4,102
1,885	EMER SWR REP-3515 24TH ST NO-BHAM	2000	1.236	4,569	5,646	collection	0	5,646
1,886	EMER SWR REP-1642 MARLIN ST F'DALE	2000	1.236	3,798	4,694	collection	0	4,694
1,887	SOUTHLAND TUBE	2002	1.176	298,280	350,745	collection	0	350,745
1,888	CHERRY AVE. TRUNK SWR	2001	1.212	428,383	519,219	collection	0	519,219
1,889	EMER SWR REP-6633 AVE N-BHAM	2000	1.236	37,677	46,561	collection	0	46,561
1,890	EMER SWR REP-5808-5TH TER SO BHAM	2000	1.236	7,746	9,572	collection	0	9,572
1,891	EMER SWR REP-824 LIBBY LN ROEBUCK	2000	1.236	4,886	6,038	collection	0	6,038
1,892	EMER SWR REP-7TH AVE & 84TH PL BHAM	2000	1.236	5,435	6,717	collection	0	6,717
1,893	EMER SWR REP-3440-33RD CT N-BHAM	2000	1.236	4,090	5,055	collection	0	5,055
1,894	EMER SWR REPAIR - 9016 PKWY E ROEBUCK	2000	1.236	3,883	4,799	collection	0	4,799
1,895	EMER SWR REPAIR - 2021 AVE G BHAM	2000	1.236	5,582	6,898	collection	0	6,898
1,896	EMER SWR REPAIR - 3615 15TH AVE N BHAM	2000	1.236	37,116	45,869	collection	0	45,869
1,897	EMER SWR REPAIR - 4172 CLIFF RD BHAM	2000	1.236	4,675	5,778	collection	0	5,778
1,898	EMER SWR REPAIR - 1500 20TH ST N BHAM	2000	1.236	2,674	3,305	collection	0	3,305
1,899	EMER SWER REPR-1700 VANDERBILT RD BHAM	2000	1.236	13,831	17,092	collection	0	17,092
1,900	EMER SWER REPR-1013 PINEHILL RD BHAM	2000	1.236	19,225	23,758	collection	0	23,758
1,901	EMER SWER REPR-947 46TH ST NO BHAM	2000	1.236	2,523	3,119	collection	0	3,119
1,902	EMER SWR REPAIR 7709 1ST AVE SOUTH	2000	1.236	3,367	4,161	collection	0	4,161
1,903	EMER SWR REP-INTERSE 8TH AVE & INDIANA S	2000	1.236	17,007	21,017	collection	0	21,017
1,904	EMER SWR REP-INTER 16TH AVE N & 1ST ST W	2000	1.236	10,535	13,020	collection	0	13,020
1,905	EMER SWR REP-1721 27TH ST	2000	1.236	9,405	11,623	collection	0	11,623
1,906	EMER SER REP-16H AVE W & ARKADELPHIA RD	2000	1.236	2,540	3,139	collection	0	3,139
1,907	EMER SWR REP -1412 RAYFIELD STREET	2000	1.236	3,693	4,564	collection	0	4,564
1,908	EMER SWR REP -2709 6TH ST NE	2000	1.236	2,874	3,552	collection	0	3,552
1,909	EMER SWR REP-6910 GEORGIA ROAD	2000	1.236	113,956	140,828	collection	0	140,828
1,910	EMER SWR REP-1525 FINLEY BLVD BHAM	2000	1.236	18,141	22,418	collection	0	22,418
1,911	EMER SWR REP-7529 1ST AVE NO - BHAM	2000	1.236	14,402	17,798	collection	0	17,798
1,912	EMER SWR REP-1730 VANDERBILT ROAD -BHAM	2000	1.236	11,835	14,625	collection	0	14,625
1,913	EMER SWR REP-6TH ST SW TO 5TH PLACE SW	2000	1.236	45,115	55,754	collection	0	55,754
1,914	EMER SWR REP-1ST AVE N & 84TH ST NORTH	2000	1.236	16,569	20,477	collection	0	20,477
1,915	EMER SWR REP-1807 50TH ST N	2000	1.236	1,657	2,048	collection	0	2,048
1,916	EMER SWR REP-1ST AVE N & 75TH ST N	2000	1.236	26,646	32,929	collection	0	32,929
1,917	EMER SWR REP-2716 35TH AVE N BHAM	2001	1.212	33,272	40,327	collection	0	40,327
1,918	EMER SWR REP-1709 36TH AVE N BHAM	2001	1.212	13,260	16,072	collection	0	16,072
1,919	EMER SWR REP-429 19TH AVE NE BHAM	2001	1.212	1,001	1,213	collection	0	1,213
1,920	EMER SWR REP-141 36TH PL NO & SHUTTLESWO	2001	1.212	3,318	4,021	collection	0	4,021
1,921	EMER SWR REPAIR	2001	1.212	49,377	59,847	collection	0	59,847
1,922	EMER SWR REPAIR-4317 OVERLOOK RD	2001	1.212	11,683	14,160	collection	0	14,160
1,923	EMER SWR REPAIR 4TH AVENUE N & 23RD ST	2001	1.212	11,813	14,318	collection	0	14,318
1,924	EMER SWR REPAIR-4729 AVENUE T	2001	1.212	12,865	15,592	collection	0	15,592
1,925	EMER SWR REPAIR-905 ELIZABETH DR	2001	1.212	49,839	60,407	collection	0	60,407
1,926	EMER SWR REPAIR-344 ROEBUCK DR	2001	1.212	15,729	19,064	collection	0	19,064
1,927	EMER SWR REPAIR 525 6TH AVENUE	2001	1.212	13,717	16,625	collection	0	16,625
1,928	EMER SWR REPAIR/3412 15TH AVENUE N	2001	1.212	11,064	13,410	collection	0	13,410
1,929	EMER SWR REPAIR-1800 50TH ST N	2001	1.212	45,141	54,713	collection	0	54,713
1,930	EMER SWR REPAIR-52ND WAY & 10TH AVE N	2001	1.212	50,150	60,784	collection	0	60,784
1,931	EMER SWR REPAIR-6TH AVE & 48TH ST SOUTH	2001	1.212	49,027	59,423	collection	0	59,423
1,932	EMER SWR REPAIR-9TH ST & 7TH ALLEY WEST	2001	1.212	17,234	20,888	collection	0	20,888
1,933	EMER SWR REPAIR-2ND ST N & 8TH AVE N	2001	1.212	16,969	20,567	collection	0	20,567
1,934	EMR SWR REPAIR 535 CAMBRIDGE ST	2001	1.212	21,272	25,783	collection	0	25,783
1,935	EMR SWR REPAIR 515 CAMBRIDGE ST	2001	1.212	47,068	57,048	collection	0	57,048
1,936	EMER SWR REPAIR 1400 34TH ST BHAM	2001	1.212	48,505	58,790	collection	0	58,790
1,937	EMR SWR REPAIR VILLAGE EMERGENCY SYSTEM	2001	1.212	30,378	36,820	collection	0	36,820
1,938	EMR SWR 1637 27TH STREET N	2001	1.212	16,120	19,538	collection	0	19,538
1,939	EMR SWR REPAIR 914 ALBANY STREET	2001	1.212	19,649	23,816	collection	0	23,816
1,940	EMER SWR REPAIR 406 22ND AVE BHAM	2001	1.212	10,665	12,926	collection	0	12,926
1,941	EMR SWR REPAIR UPDATE	2001	1.212	31,576	38,272	collection	0	38,272
1,942	EMR SWR REPAIR 24TH ST N BETWEEN 31ST	2002	1.176	11,985	14,094	collection	0	14,094
1,943	EMR SWR REPAIR 44TH PLACE NORTH	2002	1.176	17,169	20,188	collection	0	20,188
1,944	EMR SWR REPAIR-6013 84TH ST S BHAM	2002	1.176	42,321	49,766	collection	0	49,766
1,945	EMR SWR REPAIR VANDERBILT RD BIR	2002	1.176	49,806	58,567	collection	0	58,567
1,946	EMR SWR REPAIR-108 81ST ST WEST	2002	1.176	43,652	51,330	collection	0	51,330
1,947	EMR SWR REPAIR-603 6TH AVE	2002	1.176	13,322	15,665	collection	0	15,665
1,948	VILLAGE CREEK ACCESS ROAD BRIDGE	1998	1.299	156,148	202,782	treatment	202,782	0
1,949	VILLAGE CREEK ACCESS ROAD BRIDGE	1998	1.299	65,224	84,704	treatment	84,704	0
1,950	GEOTECH/VILLAGE CREEK DRYING BEDS	1998	1.299	52,740	68,490	treatment	68,490	0
1,951	MINOR PUMP STATION-GEOTECHNICAL	1997	1.320	37,946	50,074	collection	0	50,074
1,952	MATERIAL TESTING VILLAGE DECHLORINATION	1998	1.299	2,277	2,956	treatment	2,956	0
1,953	VILLAGE CRK WWTP-GEO TECH TESTS	2000	1.236	40,145	49,611	treatment	49,611	0
1,954	VILLAGE CREEK PEAK FLOW	2003	1.148	35,196	40,423	treatment	40,423	0
1,955	DELANEY DR/CHERRYDALE DESIGN C/O #2	1999	1.269	16,924	21,474	collection	0	21,474
1,956	MINOR PUMP WEST ENSLEY TRUNK	2002	1.176	504,575	593,327	collection	0	593,327
1,957	VILLAGE CREEK BRICK SWR EVALUATION	2000	1.236	224,076	276,917	collection	0	276,917
1,958	REMOVAL OF VLG CRL BRICK	2002	1.176	400,471	470,911	collection	0	470,911
1,959	VILLAGE CREEK SSES REHABILITATION	1998	1.299	849,983	1,103,829	collection	0	1,103,829
1,960	VILLAGE CRK WWTP ADDITIONS	2003	1.148	953,456	1,095,036	treatment	1,095,036	0
1,961	DESIGN SERVICES-VILLAGE CREEK WASTE WATE	1999	1.269	879,649	1,116,148	treatment	1,116,148	0
1,962	WEST JEFF CO ENGINEER SER SWR SHADY	2000	1.236	77,222	95,432	collection	0	95,432
1,963	CAHABA RIVER & VILLAGE CREEK SSCS	2003	1.148	224,875	258,267	collection	0	258,267
1,964	GPS DATA COLLECTION V	2000	1.236	783,930	968,792	collection	0	968,792
1,965	#21 EAST VILLAGE CREEK SEWER	2003	1.148	77,372	88,861	collection	0	88,861
1,966	#23 & 24 VILLAGE CREEK	2002	1.176	122,474	144,017	collection	0	144,017
1,967	GEOTECHNICAL VILLAGE CREEK ROBERT'S FIEL	1998	1.299	63,234	82,118	collection	0	82,118
1,968	VILLAGE/ROBERT'S FIELD INSPECTION	1998	1.299	392,768	510,068	collection	0	510,068
1,969	VILLAGE CREEK BRICK SEWER REPLACEMENT	2001	1.212	96,697	117,201	collection	0	117,201
1,970	#1 WEST VILLAGE CREEK SSCS REHAB	1999	1.269	100,947	128,088	collection	0	128,088
1,971	VILLAGE CREEK CONSTR 2	2001	1.212	363,457	440,526	collection	0	440,526
1,972	CONTRACT 2 (WEST) VALLEY CREEK SSCS	2002	1.176	146,990	172,844	collection	0	172,844
1,973	CON #3 EAST VILLAGE CRK S	2001	1.212	407,382	493,766	collection	0	493,766
1,974	CONTRACT 4 VILLAGE CRK SSCS EAST	2002	1.176	180,497	212,246	collection	0	212,246

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LINE	DESCRIPTION	IN SVC	ERN	COST	ESCALATED COST	ENVIRONMENTAL SERVICES CATEGORY	TREATMENT	COLLECTION
1,975	CONTRACT 5 VILLAGE CRK SSCS EAST	2002	1.176	193,727	227,803	collection	0	327,803
1,976	#5 WEST VILLAGE CREEK SSCS REHAB	2002	1.176	114,916	135,129	collection	0	135,129
1,977	#6 WEST VILLAGE CREEK SSCS REHAB	2002	1.176	133,485	156,964	collection	0	156,964
1,978	#7 EAST VALLEY CREEK SSCS	2003	1.148	131,291	150,787	collection	0	150,787
1,979	VILLAGE CREEK SSCS CONTRA	2002	1.176	221,509	260,471	collection	0	260,471
1,980	#9 EAST VLG CRK SSCS REH	2002	1.176	421,989	496,214	collection	0	496,214
1,981	VILLAGE CREEK SSCS REHAP	2001	1.212	186,905	226,537	collection	0	226,537
1,982	WEST VILLAGE CREEK SSCS REHAB	2001	1.212	146,945	178,104	collection	0	178,104
1,983	#10 WEST VALLEY CREEK SSCS REHAB	2001	1.212	146,999	178,170	collection	0	178,170
1,984	VILLAGE CREEK SSCS	2001	1.212	326,987	396,323	collection	0	396,323
1,985	#11 EAST VILLAGE CREEK SANITARY SEWER	2004	1.081	175,611	189,753	collection	0	189,753
1,986	VILLAGE CREEK SSCS REHAB	2001	1.212	146,826	177,960	collection	0	177,960
1,987	#12 E VLG CRK SSCS REHAB	2001	1.212	146,887	178,034	collection	0	173,034
1,988	#12 WEST VILLAGE CREEK REHAB	2001	1.212	146,991	178,160	collection	0	178,160
1,989	#13 E VILL CRK SSCS REHAB	2001	1.212	146,986	178,153	collection	0	178,153
1,990	VILLAGE CREEK SANITARY SEWER	2002	1.176	197,502	232,242	collection	0	232,242
1,991	VILLAGE CREEK SSCS #15	2001	1.212	176,889	214,397	collection	0	214,397
1,992	VILLAGE CRK SSCS	2001	1.212	191,499	232,106	collection	0	232,106
1,993	VILLAGE CREEK SS COLL SYSTEM	2003	1.148	246,995	283,671	collection	0	283,671
1,994	#18 EAST VILLAGE CREEK SANITARY SEWER	2004	1.081	306,250	330,913	collection	0	330,913
1,995	PH II WEST VILLAGE CREEK	2002	1.176	999,300	1,175,072	collection	0	1,175,072
1,996	#20 EAST VILLAGE CREEK	2002	1.176	238,645	280,621	collection	0	280,621
1,997	PH II VILLAGE CREEK EAST	2001	1.212	936,381	1,134,936	collection	0	1,134,936
1,998	#25 EAST VILLAGE CREEK SANITARY SEWER	2003	1.148	236,154	271,221	collection	0	271,221
1,999	#21 VILLAGE CREEK SANITARY SEWER	2003	1.148	342,183	392,994	collection	0	392,994
2,000	#2 VILLAGE CREEK SANITARY SEWER	2003	1.148	827,989	950,938	collection	0	950,938
2,001	VILLAGE CREEK-WWTP ACCESS ROAD	1999	1.269	142,166	180,388	treatment	180,388	0
2,002	VILLAGE CREEK ACCESS ROAD	1999	1.269	97,012	123,094	treatment	123,094	0
2,003	VILLAGE CRK WWTP ENG SERVICES	2000	1.236	37,256	46,041	treatment	46,041	0
2,004	#2 VILLAGE CREEK PEAK FLOW HANDLING	1999	1.269	51,693	65,591	treatment	65,591	0
2,005	VILL CRK WWTP PK FLW	2001	1.212	270,000	327,252	treatment	327,252	0
2,006	EDGEWATER OAKS S/D PUMP STATION	2003	1.148	157,992	181,452	collection	0	181,452
2,007	#4 VILLAGE CREEK WWTP	2003	1.148	986,102	1,132,529	treatment	1,132,529	0
2,008	VILLAGE CREEK-WWTP PEAK	2001	1.212	249,996	303,006	treatment	303,006	0
2,009	TESTING AT VILLAGE CREEK WWTP PEAK FLOW	2003	1.148	260,647	299,350	treatment	299,350	0
2,010	GRAYSVILLE SS PHASE VI	1999	1.269	275,044	348,991	collection	0	348,991
2,011	CONSTRUCTION OF THE WARRIOR RD	1985	1.833	40,768	74,714	treatment	74,714	0
2,012	MORGAN GREENWOOD SANITARY SEWER	1989	1.666	248,251	413,555	collection	0	413,555
2,013	ADAMSVILLE TRUNK SEWER	1990	1.625	1,358,697	2,207,452	collection	0	2,207,452
2,014	PLEASANT GROVE TRUNK SEWER SYSTEM	1992	1.542	153,000	235,961	collection	0	235,961
2,015	WARRIOR SEWER SYSTEM IMPROVEMENTS	1987	1.745	1,368,575	2,388,017	collection	0	2,388,017
2,016	RIVER CHASE PUMP STA-RELIEF SYSTEM	2000	1.236	2,966,465	3,665,999	collection	0	3,665,999
2,017	PRUDES CREEK SANITARY SWR COLL SYSTEM	2002	1.176	3,625,622	4,263,350	collection	0	4,263,350
2,018	WARRIOR SANITARY SEWER COLLECTION	2003	1.148	1,247,696	1,432,968	collection	0	1,432,968
2,019	RIVERCHASE PUMPING STA REHAP	1999	1.269	2,008,198	2,548,115	collection	0	2,548,115
2,020	RIVERCHASE PUMPING STATION REHAP	2000	1.236	12,342	15,252	collection	0	15,252
2,021	RIVERCHASE PUMPING STATION	2001	1.212	274,354	332,529	collection	0	332,529
2,022	EMER.SWR.REP.-GRAYSVILLE PUMP STATION	2000	1.236	25,954	32,074	collection	0	32,074
2,023	SHANNON AREA TRUNK DESIGN	2003	1.148	225,190	258,629	collection	0	258,629
2,024	CONSTR ENGINEERING-BLUE RIDGE PUMP STA	2000	1.236	22,469	27,768	collection	0	27,768
2,025	RIDGEWOOD/HEATHERWOOD DESIGN	2003	1.148	75,329	86,515	collection	0	86,515
2,026	PRUDES CREEK SANITARY SEWER	2004	1.081	261,961	283,058	collection	0	283,058
2,027	SAMPLING ANALYSIS BELTORA & SHARIT FARM	2003	1.148	15,247	17,511	treatment	17,511	0
2,028	MILL RUN ESTATES CAPPED CONNECTION	1990	1.625	86,194	140,038	collection	0	140,038
2,029	CHAPEL HILLS OUTFALL RELIEF SANITARY	1986	1.790	201,000	359,788	collection	0	359,788
2,030	HURRICANE BRANCH-ENGINEERING	1993	1.476	355,492	524,572	collection	0	524,572
2,031	PATTON TRUNK SEWER (ENGINEERING)	1995	1.405	328,053	460,990	collection	0	460,990
2,032	PATTON CREEK SWR REPLACEMENT	2000	1.236	360,553	445,576	collection	0	445,576
2,033	PATTON CREEK TRUNK SWR REPLACEMENT	2000	1.236	454,031	561,098	collection	0	561,098
2,034	PATTON CRK TRNK SWR-PHASE II CONST	1999	1.269	9,908,280	12,572,183	collection	0	12,572,183
2,035	AL SIER/HURRICANE BRANCH-CONSTR	1997	1.320	9,447,216	12,466,563	collection	0	12,466,563
2,036	AL SEIER RD-GEOTECH TESTING	1995	1.405	7,507	10,549	collection	0	10,549
2,037	BLUFF PARK TUNNEL (ENGINEERING)	1995	1.405	242,305	340,493	collection	0	340,493
2,038	BLUFF TUNNELL-CONSTRUCTION	1997	1.320	8,570,770	11,310,003	collection	0	11,310,003
2,039	PATTON CREEK TRK SWR-GEO TECH SERV	2000	1.236	4,435	5,481	collection	0	5,481
2,040	PATTON CREEK TRNK CONSTR TESTING SERVICE	2000	1.236	27,519	34,008	collection	0	34,008
2,041	BLUFF TUNNEL GEOTECHNICAL SERVICE CONSTR	1998	1.299	14,146	18,371	collection	0	18,371
2,042	PATTON CREEK LATERAL SEWER RE-CONNECTION	1998	1.299	363,897	472,575	collection	0	472,575
2,043	VESTAVIA TRUNK SEWER DESIGN	1998	1.299	331,733	430,805	collection	0	430,805
2,044	AL SEIER ROAD CONSTRUCTION REVIEW	1998	1.299	313,179	406,710	collection	0	406,710
2,045	BLUFF TUNNEL CONSTRUCTION REVIEW	1998	1.299	347,494	451,272	collection	0	451,272
2,046	SHADES VALLEY CORROSION-CONSTRUCTION	1994	1.422	1,234,300	1,754,678	collection	0	1,754,678
2,047	FURNANCE BRANCH TRUNK SEWER	1991	1.590	1,625,237	2,584,245	collection	0	2,584,245
2,048	SEWER CROSSING HIGHWAY 149	1988	1.701	3,013,579	5,126,885	collection	0	5,126,885
2,049	SHADES CREEK-WATKINS BRANCH-ENGINEERING	1994	1.422	290,477	412,941	collection	0	412,941
2,050	SHADES CREEK TRUNK SECION 9	1992	1.542	3,054,058	4,710,049	collection	0	4,710,049
2,051	BERRY HIGH SCHOOL SANITARY SEWER REPLACE	1990	1.625	807,420	1,311,802	collection	0	1,311,802
2,052	LANDSCAPE/ARCHITECT-WATKINS BRANCE REPLA	1991	1.590	8,460	13,452	collection	0	13,452
2,053	WATKINS BRANCH REPLACEMENT	1991	1.590	37,735	60,001	collection	0	60,001
2,054	WATKINS BRANCH REPLACEMENT SEWER	1991	1.590	1,129,295	1,795,660	collection	0	1,795,660
2,055	SCOTTS BRANCH SEWER REPLACEMENT	1989	1.666	341,687	569,207	collection	0	569,207
2,056	CHEROKEE BK-KILGORE TRUNK SEWER	1992	1.542	231,270	356,671	collection	0	356,671
2,057	SCOTT'S BRANCH/SHADES TRANSFER (REVIEW)	1994	1.422	412,280	586,096	collection	0	586,096
2,058	SHADES VALLEY/CATHOLIC-ENGINEERING	1994	1.422	355,730	505,705	collection	0	505,705
2,059	SHADES VALLEY SOILS EVALUATION	1994	1.422	7,969	11,329	collection	0	11,329
2,060	FURNACE BR TK-INSPECTION	1996	1.368	189,137	258,734	collection	0	258,734
2,061	SHADES CR TK SEC 9 DESIGN	1992	1.542	19,087	29,437	collection	0	29,437
2,062	GRIFFIN BRANCH/SHADES VALLEY (CONSTR)	1995	1.405	11,626,244	16,337,518	collection	0	16,337,518
2,063	SHADES TRUNK EXTENTION DESIGN	1992	1.542	54,414	83,918	collection	0	83,918
2,064	GRIFFIN BRANCH TUNNELS (GEOTECHNICAL)	1994	1.422	25,973	36,923	collection	0	36,923
2,065	EAST IRONDALE TRUNK SEWER EXTENTION	1996	1.368	1,245,368	1,703,628	collection	0	1,703,628
2,066	PLEASANT GROVE TRUNK SEWER (CONSTR)	1995	1.405	1,947,836	2,737,153	collection	0	2,737,153
2,067	PLEASANT GROVE SYSTEM-ENGINEERING	1994	1.422	23,000	32,697	collection	0	32,697
2,068	PLEASANT GROVE WATER MAIN	1993	1.476	6,954	10,262	collection	0	10,262

APPENDIX 6-1
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LINE	DESCRIPTION	IN SVC	ERN	COST	ESCALATED COST	ENVIRONMENTAL SERVICES CATEGORY	TREATMENT	COLLECTION
2,069	FAIRFIELD SEWER (GEOTECHNICAL)	1994	1.422	26,941	38,299	collection	0	38,299
2,070	TRUSSVILLE INDUSTRIAL PARK-CONSTRUCTION	1997	1.320	4,227,581	5,578,724	collection	0	5,578,724
2,071	SLUDGE ALTERN - ENGINEER EVALUATION	1996	1.368	34,245	46,846	treatment	46,846	0
2,072	SCOTT'S BRANCH AERATION	1998	1.299	705,123	915,707	treatment	915,707	0
2,073	SHADES VALLEY-INSPECTION	1996	1.368	484,653	662,991	treatment	662,991	0
2,074	TRUSSVILLE INDUSTRIAL PK MATLS TESTING	1996	1.368	3,122	4,271	collection	0	4,271
2,075	CAHABA TRUNK REPL GEOTECHNICAL SER	2003	1.148	3,585	4,117	collection	0	4,117
2,076	SHADES CREEK FLOODWAY STUDY	1999	1.269	9,696	12,303	treatment	12,303	0
2,077	SHADES CREEK-PH II & III-DESIGN	2000	1.236	483,060	596,972	collection	0	596,972
2,078	AIRPORT DUMP STATION-DESIGN	1994	1.422	28,865	41,034	collection	0	41,034
2,079	REHAB INFILTRATION/INFLOW ENGINEERING	1993	1.476	147,672	217,908	collection	0	217,908
2,080	INFILT./INFLOW(VILLAGE,PATTON,CAHABA)	1993	1.476	716,990	1,058,008	collection	0	1,058,008
2,081	REHAB INFILTRA/INFLOW MGMT-CAHABA	1994	1.422	86,470	122,926	collection	0	122,926
2,082	REHAB INFILTRA/INFLOW MGMT-CAHABA/PATTON	1994	1.422	339,900	483,201	collection	0	483,201
2,083	EDWARDS LAKE ROAD SEWER	1991	1.590	72,233	114,856	collection	0	114,856
2,084	WESTWOOD AUTO PARTS OUTFALL	1992	1.542	20,000	30,845	collection	0	30,845
2,085	COBBLESTONE GARDENS TRUNK SEWER	1992	1.542	11,000	16,964	collection	0	16,964
2,086	JASMINE WAY SEWER EXTENSION	1993	1.476	35,234	51,991	collection	0	51,991
2,087	UTILITIES RIGHT OF WAY RELOCATION	2000	1.236	519,228	641,669	N/A	0	641,669
2,088	ALLEN ROAD OUTFALL	2001	1.212	278,149	337,129	collection	0	337,129
2,089	CORRIDOR X PROJECT 37	2002	1.176	876,792	1,031,015	collection	0	1,031,015
2,090	CORRIDOR X SWR CROSSING WEST OF US 78	2002	1.176	982,368	1,155,161	collection	0	1,155,161
2,091	40TH ST SEPTIC DUMP STATION MODICATIONS	1996	1.368	397,095	543,215	collection	0	543,215
2,092	PREPARE NPDES PERMITS	1994	1.422	151,439	215,285	treatment	215,285	0
2,093	2002 SEWER REHAP CONTRACT 2	2004	1.081	2,880,053	3,111,995	collection	0	3,111,995
2,094	SNOW DRIVE EMERGENCY 16" CLAY SEWER LINE	1998	1.299	21,633	28,093	collection	0	28,093
2,095	SNOW DRIVE EMERGENCY 10" CLAY SEWER LINE	1998	1.299	10,850	14,090	collection	0	14,090
2,096	VALLEY WWTP EMERGENCY GATE REPAIR	1998	1.299	2,571	3,339	treatment	3,339	0
2,097	VILLAGE CREEK PUMP STATION EMERGENCY	1998	1.299	21,227	27,567	treatment	27,567	0
2,098	CAHABA SLUDGE LINE REPAIR	1998	1.299	1,788	2,322	treatment	2,322	0
2,099	PIPELINE & MANHOLE REHABILITATION	1998	1.299	2,749,264	3,570,328	collection	0	3,570,328
2,100	ANNUAL CURDINE SEWER LINE REHAP	1999	1.269	3,445,756	4,372,169	collection	0	4,372,169
2,101	EMERGENCY SEWER REPAIR #2 PS HUEYTOWN	1999	1.269	5,289	6,711	collection	0	6,711
2,102	EMERGENCY SEWER REPAIR PS LEEDS	1999	1.269	1,645	2,087	collection	0	2,087
2,103	LAUREL LANE TRUNK SEWER	2003	1.148	523,495	601,229	collection	0	601,229
2,104	MANHOLE 2-3 ALEIGHT ADJ	2001	1.212	49,338	59,799	collection	0	59,799
2,105	MANHOLE HEIGHT ADJUSTMENT-VALLEY CREEK	2001	1.212	49,775	60,330	collection	0	60,330
2,106	#5 MANHOLE HEIGHT ADJ/VALLEY CREEK	2002	1.176	49,837	58,603	collection	0	58,603
2,107	#6 MANHOLE HGHT/VAL CREEK	2001	1.212	50,000	60,602	collection	0	60,602
2,108	VALLEY CREEK COLLECTION SYSTEM	2002	1.176	49,996	58,790	collection	0	58,790
2,109	#8 VALLEY CREEK COLLECTION SYSTEM	2002	1.176	49,283	57,951	collection	0	57,951
2,110	MANHOLE LIDS	2002	1.176	49,028	57,652	collection	0	57,652
2,111	MANHOLE LID & OR SEWER INSPECTIONS	1999	1.269	49,028	62,209	collection	0	62,209
2,112	#1 MAINTENANCE MANHOLE HEIGHT ADJ	2002	1.176	49,527	58,239	collection	0	58,239
2,113	ASPHALT RESURFACING & REPL	2000	1.236	50,000	61,791	collection	0	61,791
2,114	CAHABA RIVER SEWER COLLECTION SYSTEM	1996	1.368	497,598	680,700	collection	0	680,700
2,115	LONG-TERM FLOW MONITORING-LDS/TVL	1995	1.405	713,020	1,001,955	collection	0	1,001,955
2,116	LONG-TERM FLOW MONITORING-BARTON BRANCH	1995	1.405	87,720	123,267	collection	0	123,267
2,117	LONG-TERM FLOW MONITORING-CAHABA/PATTON	1995	1.405	92,820	130,433	collection	0	130,433
2,118	LONG TERM FLOW MONITORING-VILLAGE CREEK	1995	1.405	501,840	705,199	collection	0	705,199
2,119	VILLAGE CRK SEWER SYSTEM EVALUATION SRVY	1997	1.320	827,875	1,092,465	collection	0	1,092,465
2,120	VILLAGE CRK EVALUATION SURVEY PHASE IV	1997	1.320	883,306	1,165,612	collection	0	1,165,612
2,121	INFILTRATION/INFLOW MGMT	1996	1.368	304,080	415,973	collection	0	415,973
2,122	VILLAGE CRK SEWER COLLECTION-PHASE III	1997	1.320	1,616,600	2,133,268	collection	0	2,133,268
2,123	LONG-TERM FLOW MONITOR-SVC/MAINT	1997	1.320	163,526	215,789	collection	0	215,789
2,124	LONG-TERM FLOW MONITORING 1996.CNTRCT I	1997	1.320	574,870	758,599	collection	0	758,599
2,125	FLOW-TERM FLOW MONITORING 1996.CNTRCT II	1997	1.320	132,500	174,847	collection	0	174,847
2,126	LONG-TERM FLOW MONITORING III	1997	1.320	213,350	281,537	collection	0	281,537
2,127	MISC CAPPED SEWERS-DESIGN	1995	1.405	99,000	139,118	collection	0	139,118
2,128	PINCHGUT CREEK TRUNK SEWER	1993	1.476	20,245	29,874	collection	0	29,874
2,129	MISC CAPPED-TUNNELS-ENGINEERING	1993	1.476	5,855	8,640	collection	0	8,640
2,130	MISC SEWERS-ROW NEEDS/PROP PLATS-DESIGN	1995	1.405	54,400	76,444	collection	0	76,444
2,131	LATERAL SEWER PIPELINE	1994	1.422	3,259	4,632	collection	0	4,632
2,132	ENSLEY-ADAMSVILLE RD SWR RELOCATION-CSTR	1995	1.405	84,401	118,602	collection	0	118,602
2,133	MISC ASSESSMENT SEWERS-DESIGN	1995	1.405	61,725	86,738	collection	0	86,738
2,134	LATERAL SEWER EXTENSION-WESTCHESTER-CSTR	1994	1.422	27,000	38,383	collection	0	38,383
2,135	EMR SWR REPR-SEWER LINE POINT REPAIR	1999	1.269	89,531	113,602	collection	0	113,602
2,136	SEWER SYSTEM EVALUATION	2000	1.236	2,750,000	3,398,489	collection	0	3,398,489
2,137	PIPE REHAP ANN SUPPLY SWR REPAIRS	2001	1.212	3,999,960	4,848,131	collection	0	4,848,131
2,138	CURELINE SWR REHAB	2000	1.236	2,750,000	3,398,489	collection	0	3,398,489
2,139	ANNISH SWR LINE REHAB	2001	1.212	2,749,898	3,332,999	collection	0	3,332,999
2,140	#4 MANHOLE MAINTENANCE	2002	1.176	49,920	58,701	collection	0	58,701
2,141	#2 MANHOLE HEIGHT ADJUSTMENT	2002	1.176	49,083	57,716	collection	0	57,716
2,142	MANHOLE CONSTRUCTION #5	2000	1.236	50,000	61,791	collection	0	61,791
2,143	ANNUAL CURELINE SUPLY 01	2001	1.212	4,999,958	6,060,174	collection	0	6,060,174
2,144	PIPELINE/MANHOLE FY 2001	2001	1.212	4,999,999	6,060,223	collection	0	6,060,223
2,145	SANITARY SWR REHAB CONTRACT 1, 2001	2001	1.212	12,136,463	14,709,936	collection	0	14,709,936
2,146	VALLEY CREEK COLL SYSTEM	2001	1.212	49,980	60,578	collection	0	60,578
2,147	EMER. SEWER-CAPITAL IMPROVEMENTS	2003	1.148	814,410	935,342	collection	0	935,342
2,148	40TH STREET CONSTRUCTION REVIEW	1998	1.299	11,552	15,003	collection	0	15,003
2,149	SMALL CONTRACTORS DEVELOPMENT PLAN	1998	1.299	114,000	148,046	N/A	0	148,046
2,150	MASTER PLANFOR SEP SUPP ENVIR PROJECTS	2003	1.148	1,600,134	1,837,740	N/A	0	1,837,740
2,151	INFILTRATION/INFLOW MANAGEMENT PROGRAM	1998	1.299	185,443	240,825	collection	0	240,825
2,152	INFILTRATION/INFLOW MGMT	1998	1.299	2,327,270	3,022,306	collection	0	3,022,306
2,153	DESIGN MISCELLANEOUS SEWER SYSTEMS	1998	1.299	111,400	144,669	collection	0	144,669
2,154	SEWER DRAWINGS	2000	1.236	271,286	335,259	collection	0	335,259
2,155	MORRIS/KIMBERLY WWTP	2003	1.148	26,259	30,159	treatment	30,159	0
2,156	GEOTECH EXP CORRIDOR X	2002	1.176	12,034	14,151	collection	0	14,151
2,157	MORRIS/KIMBERLY WWTP	2004	1.081	52,075	56,269	treatment	56,269	0
2,158	MORRIS/KIMBERLY SANITARYT SEWER	2004	1.081	132,861	143,560	collection	0	143,560
2,159	CORRIDOR "X" RIGHT OF WAY	1999	1.269	38,000	48,217	collection	0	48,217
2,160	#2 CORRIDOR X RIGHT OF WAY	2003	1.148	80,245	92,161	collection	0	92,161
2,161	REVIEW & EVALUATION-SEWER IMPROVEMENTS	2004	1.081	2,102,330	2,271,629	collection	0	2,271,629
2,162	DESIGN-MISC SANITARY SEWERS	2000	1.236	140,500	173,632	collection	0	173,632

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LINE	DESCRIPTION	IN SVC	ERN	COST	ESCALATED COST	ENVIRONMENTAL SERVICES CATEGORY	TREATMENT	COLLECTION
2,163	DESIGN-MISC SANITARY SEWERS	2000	1.236	141,625	175,022	collection	0	175,022
2,164	DESIGN-MISC SANITARY SERVICES	2000	1.236	93,811	115,933	collection	0	115,933
2,165	SIMS SEWER DEED MAPPING	2003	1.148	537,084	616,836	collection	0	616,836
2,166	SEWER INSFRASTUCTURE MGT	2002	1.176	994,469	1,169,391	collection	0	1,169,391
2,167	PROFESSIONAL SERVICES AGREEMENT	2003	1.148	490,000	562,761	N/A	0	562,761
2,168	SANITARY SEWER BASE MAPPING CONTROL DATA	2003	1.148	189,789	217,971	collection	0	217,971
2,169	EVALUATION OF CIPP PROCESS	2000	1.236	35,000	43,253	collection	0	43,253
2,170	PROJECT MGMT AGREEMENT	1997	1.320	1,292,983	1,706,222	N/A	0	1,706,222
2,171	INFILTRATION AND INFLOW IMPROVEMENTS	1998	1.299	961,017	1,248,023	N/A	0	1,248,023
2,172	INFILTRATION/INFLOW MGMT PROGRAM	1999	1.269	563,528	715,036	N/A	0	715,036
2,173	JEFF CO IN FLOW IMPROVEMENTS PROJ MGMT	1999	1.269	1,481,976	1,880,415	N/A	0	1,880,415
2,174	ENVIRONMENTAL SERVICES RECORD CONVERSION	2000	1.236	227,906	281,650	N/A	0	281,650
2,175	SSES UPPER VALLEY COLL SYSTEM	2000	1.236	811,241	1,002,543	collection	0	1,002,543
2,176	VALLEY CREEK PHASE II CONTRACT 2	1997	1.320	610,750	805,947	collection	0	805,947
2,177	1997 CONTRACT I FLOW MONITORING	1998	1.299	717,516	931,801	collection	0	931,801
2,178	FIVE MILE CREEK SWR SYSTEM SURVEY	2000	1.236	688,475	850,827	collection	0	850,827
2,179	UPPER VALLEY SEWER COLLECTION SEWER	1998	1.299	352,400	457,644	collection	0	457,644
2,180	SEWER SYSTEM SURVEY-SHADES VALLEY	2000	1.236	681,640	842,380	collection	0	842,380
2,181	FIVE MILE VALLEY CREEK	2000	1.236	110,172	136,152	collection	0	136,152
2,182	SHADES VALLEY PH I #2SSES	2002	1.176	398,904	469,069	collection	0	469,069
2,183	WARRIOR & PRUDES CRK COLL SYSTEM	2003	1.148	201,116	230,980	collection	0	230,980
2,184	CONTRACT 2 PHASE II FIVE MILE WW	2002	1.176	682,264	802,271	collection	0	802,271
2,185	LONG TERM FLOW MONITORING	2003	1.148	657,660	755,316	collection	0	755,316
2,186	LONG TERM FLOOR-MONITORING	2000	1.236	435,495	538,191	collection	0	538,191
2,187	SANITARY SWR TV INSPECTION	2000	1.236	49,954	61,734	collection	0	61,734
2,188	#3 MISC SS TV INSPECTION FOR SEWER	2000	1.236	49,970	61,754	collection	0	61,754
2,189	SWR SURVEY INSPECTION	2000	1.236	49,300	60,926	collection	0	60,926
2,190	LONG TERM FLOW #2	2003	1.148	537,443	617,249	collection	0	617,249
2,191	ANALYSIS-BIOLOSLIDS-LAND APPLICATIONS	2000	1.236	17,644	21,805	collection	0	21,805
2,192	BELTONE SITE SAMPLING	2001	1.212	16,709	20,252	collection	0	20,252
2,193	RISK MGMT PROGRAM	1999	1.269	95,800	121,556	N/A	0	121,556
2,194	RISK MGMT PLAN RULE	2000	1.236	6,900	8,527	N/A	0	8,527
2,195	JEFFERSON CO INFLOW IMPV (Y2K)	2000	1.236	2,031,627	2,510,713	N/A	0	2,510,713
2,196	EMER.SWR.REPAIR-	2000	1.236	147,431	182,197	treatment	182,197	0
2,197	EMR.SWR.SERVICES INSPECTION	2000	1.236	147,431	182,197	treatment	182,197	0
2,198	PROFESSIONAL SVS-ENGINEERING FY00	2001	1.212	447,486	542,374	N/A	0	542,374
2,199	I & I IMP PROGRAM FY 2001	2002	1.176	3,047,447	3,583,477	N/A	0	3,583,477
2,200	LONG TERM FLOW 2001	2003	1.148	312,677	359,107	collection	0	359,107
2,201	LONG TERM FLOW 2001	2003	1.148	966,473	1,109,986	collection	0	1,109,986
2,202	LONG TERM FLOW MONITORING DATA ANALYSIS	2003	1.148	582,976	669,543	collection	0	669,543
2,203	#3 LONG TERM FLOW MONITORING	2003	1.148	561,224	644,561	collection	0	644,561
2,204	LONG TERM FLOW MONITORING-2003	2004	1.081	822,668	888,921	collection	0	888,921
2,205	CONSTRUCTED DRAWINGS-DRAFTING SERVICES	1999	1.269	10,360	13,145	collection	0	13,145
2,206	EMERGENCY SS EVAL FY 2001	2001	1.212	2,750,000	3,333,123	collection	0	3,333,123
2,207	#2 SS EVALUATION FY 2001	2001	1.212	2,250,000	2,727,101	collection	0	2,727,101
2,208	SANITARY SEWER BASE MAPPING	2000	1.236	425,152	525,409	collection	0	525,409
2,209	RECORDS CONVERSION FY01	2001	1.212	116,644	141,378	N/A	0	141,378
2,210	PROFESSIONAL SVCS 2001	2002	1.176	474,987	558,535	N/A	0	558,535
2,211	RECORDS & DATA MNAGEMENT	2003	1.148	204,000	234,292	N/A	0	234,292
2,212	I/I IMPROVEMENT PROGRAM	2003	1.148	3,215,883	3,693,413	N/A	0	3,693,413
2,213	WASTE WATER COLLECTION SYSTEM	2003	1.148	83,322	95,694	N/A	0	95,694
2,214	REVENUE STUDEY SWR LINES-OTHER PROF SER	2004	1.081	51,148	55,268	N/A	0	55,268
2,215	ENGINEERING SERVICES AGREEMENT-2003	2004	1.081	245,000	264,731	N/A	0	264,731
2,216	CON II VALLEY CRK WEST END	2002	1.176	185,222	217,802	collection	0	217,802
2,217	CONSTR REVIEW GRIFFIN BR	2001	1.212	510,248	618,443	collection	0	618,443
2,218	CORRIDOR X CROSSINGS	2001	1.212	69,000	83,631	collection	0	83,631
2,219	CORRIDOR X SANITARY SEWER CROSSINGS	2003	1.148	29,785	34,208	collection	0	34,208
2,220	MISC. SANITARY SEWER IMPROVEMENTS	2004	1.081	411,026	444,128	collection	0	444,128
2,221	SANITARY SWR MAINTENANCE	2002	1.176	316,555	372,236	collection	0	372,236
2,222	SEWER MANHOLE REHABILITATION	1996	1.368	19,823	27,118	collection	0	27,118
2,223	EMER SEW REP-1943 CROYDON CIRCLE	2000	1.236	6,073	7,505	collection	0	7,505
2,224	EMER SEW REP-1937 CROYDON CIRCLE	2000	1.236	9,214	11,386	collection	0	11,386
2,225	EMER SEW REP-1729 MOLLY DRIVE	2000	1.236	10,603	13,104	collection	0	13,104
2,226	EMER SEW REP-1745 MOLLY DRIVE	2000	1.236	11,610	14,348	collection	0	14,348
2,227	EMER SEW REP-1700 PATRICIA LANE	2000	1.236	9,372	11,582	collection	0	11,582
2,228	EMER SEW REP-1747 MOLLY DRIVE	2000	1.236	6,509	8,044	collection	0	8,044
2,229	EMER SEW REP-1945 CROYDON CIRCLE	2000	1.236	7,149	8,835	collection	0	8,835
2,230	EMER SEW REP-1742 TUDOR ROAD	2000	1.236	9,380	11,592	collection	0	11,592
2,231	EMER SEW REP-1751 TUDOR ROAD	2000	1.236	4,612	5,700	collection	0	5,700
2,232	EMER SEW REP-1957 CROYDON CIRCLE	2000	1.236	8,676	10,722	collection	0	10,722
2,233	EMER SEW REP-1794 CHER BROUG DRIVE	2000	1.236	1,239	1,531	collection	0	1,531
2,234	EMER SEW REP-1953 PEBBLE LAKE DRIVE	2000	1.236	6,026	7,447	collection	0	7,447
2,235	EMER SEW REP-1851 TUDOR ROAD	2000	1.236	5,164	6,382	collection	0	6,382
2,236	EMER SEW REP-1941 RIDGEMONT ROAD	2000	1.236	7,769	9,601	collection	0	9,601
2,237	EMER SEW REP-RIDGEMONT RD & CREELY DRIVE	2000	1.236	7,391	9,133	collection	0	9,133
2,238	EMER SEW REP-1921 RIDGEMONT RD	2000	1.236	7,491	9,258	collection	0	9,258
2,239	EMER SEW REP-1707 PATRICIA DRIVE	2000	1.236	9,139	11,294	collection	0	11,294
2,240	EMER SEW REP-RIDGEMONT RD & CREELY DRIVE	2000	1.236	7,233	8,939	collection	0	8,939
2,241	EMER SEW REP-1713 MOLLY DRIVE	2000	1.236	11,267	13,923	collection	0	13,923
2,242	EMER SEW REP-1717 MOLLY DRIVE	2000	1.236	9,593	11,855	collection	0	11,855
2,243	EMER SWR REPAIR JOEL LANE NORTH SMITHFIE	2001	1.212	13,099	15,876	collection	0	15,876
2,244	BROWSER ROAD TRUNK SEWER-ENGINEERING	1997	1.320	49,000	64,660	collection	0	64,660
2,245	TRUSSVILLE TRUNK SEWER-PHASE I	1996	1.368	4,513,099	6,173,791	collection	0	6,173,791
2,246	EMER SWER REPR-110 SO MALL ST TR'VILLE	2000	1.236	11,285	13,946	collection	0	13,946
2,247	T'VILL SER RD SWR LINE CONSTRUCTION	2004	1.081	4,475	4,836	collection	0	4,836
2,248	SWEETWATER PARK SEWER RELOCATION	1996	1.368	221,265	302,684	collection	0	302,684
2,249	EMERGENCY SEWER REPAIR HWY 150 PUMP STAT	1998	1.299	5,855	7,603	collection	0	7,603
2,250	EMER SWR RPR-RIDGE RD	1999	1.269	1,465	1,859	collection	0	1,859
2,251	MAN HOLE HEIGHT ADJ-VALLEY CREEK #27	2003	1.148	49,856	57,259	collection	0	57,259
2,252	EMR SWR REPAIR-548 19TH ST SW	2002	1.176	13,208	15,531		0	15,531
2,253	VALLEY CREEK BRICK SEWER REPLACEMENT	2004	1.081	284,741	307,672	collection	0	307,672
2,254	DUMP BODY (E903215)	1990	1.625	5,490	8,920	N/A	0	8,920
2,255	DUMP BODY (E903216)	1990	1.625	5,490	8,920	N/A	0	8,920
2,256	DELL 2650 SERVER FOR CAW SERVER	2005	1.033	5,171	5,339	N/A	0	5,339

APPENDIX 6-1
EXISTING ASSETS
PRESENT VALUE ANALYSIS

LINE	DESCRIPTION	IN SVC	ERN	COST	ESCALATED COST	ENVIRONMENTAL SERVICES CATEGORY	TREATMENT	COLLECTION
2,257	SINGLE PHASE NON-CLOP PUMP	1998	1.299	3,383	4,393	collection	0	4,393
2,258	3 PHASE GRINDER PUMP	1998	1.299	2,838	3,686	collection	0	3,686
2,259	SINGLE PHASE NON-CLOP PUMP	1998	1.299	3,383	4,393	collection	0	4,393
2,260	3 PHASE GRINDER PUMP	1998	1.299	2,838	3,686	collection	0	3,686
2,261	CENTERA DATA STORAGE SYSTEM	2005	1.033	227,672	235,071	N/A	0	235,071
2,262	TOTAL (EXCLUDING LAND)			$ 1,573,119,110	$ 2,239,305,405		$ 582,450,157	$ 1,656,855,247
							26.0%	74.0%

R-000925

APPENDIX 6-2
CONSTRUCTION IN PROGRESS
PRESENT VALUE ANALYSIS

LINE	PROJECT	FROM ENVIRO SERVICES		BAL EXPENDITURES @ 06/30/05	TREATMENT	COLLECTION
		TREATMENT	COLLECTION			
93	1A52V		yes	812,654	0	812,654
94	1A52X		yes	67,726	0	67,736
95	1A52Y		yes	47,497	0	47,497
96	1A53A		yes	67,777	0	67,777
97	1A53C		yes	21,493	0	21,493
98	1A53D		yes	3,091,447	0	2,091,447
99	1A53E		yes	445,377	0	445,377
100	1A53F		yes	0	0	0
101	1A53G		yes	0	0	0
102	1A53I		yes	0	0	0
103	1A53J		yes	19,345	0	19,345
104	1A53K		yes	311,068	0	311,068
105	1A53L		yes	788,931	0	788,931
106	1A53M		yes	856,634	0	856,634
107	1A53N		yes	231,962	0	231,962
108	1A53O		yes	77,657	0	77,657
109	1A53P		yes	248,154	0	248,154
110	1A53Q		yes	184,871	0	184,871
111	1A53R		yes	1,321,683	0	1,321,683
112	1A53S		yes	1,207,200	0	1,207,200
113	1A53T		yes	0	0	0
114	1A53U		yes	1,057,697	0	1,057,697
115	1A53V		yes	209,636	0	209,636
116	1A53W		yes	857,481	0	857,481
117	1A53X		yes	0	0	0
118	1A53Z		yes	39,494	0	39,494
119	1A54A		yes	58,626	0	58,626
120	1A54B		yes	0	0	0
121	1A54C		yes	1,638,038	0	1,638,038
122	1A54D		yes	1,915,277	0	1,915,277
123	1A54F		yes	142,637	0	142,637
124	1A54G		yes	254,677	0	254,677
125	1A54H		yes	0	0	0
126	1A54I		yes	2,060,229	0	2,060,229
127	1A54J		yes	258,235	0	258,235
128	1A54K		yes	34,099	0	34,099
129	1A54L		yes	169,225	0	169,225
130	1A54M		yes	884,758	0	884,758
131	1A54N		yes	144,907	0	144,907
132	1A54O		yes	1,476,876	0	1,476,876
133	1A54Q		yes	255,389	0	255,389
134	1A54R		yes	319,907	0	319,907
135	1A54S		yes	2,411,463	0	2,411,463
136	1A54T		yes	0	0	0
137	1A54U		yes	871,686	0	871,686
138	1A54V		yes	57,829	0	57,829
139	1A54W		yes	0	0	0
140	1A54X		yes	0	0	0
141	1A54Y		yes	1,443,180	0	1,443,180
142	1A54Z		yes	89,097	0	89,097
143	1A55A		yes	137,519	0	137,519
144	1A55B		yes	321,459	0	321,459
145	1A55C		yes	0	0	0
146	1A55D		yes	1,358,525	0	1,358,525
147	1A55E		yes	261,982	0	261,982
148	1A55F		yes	369,050	0	369,050
149	1A55G		yes	44,671	0	44,671
150	1A55H		yes	89,648	0	89,648
151	1A55I		yes	29,871	0	29,871
152	1A55J		yes	64,326	0	64,326
153	1A55L		yes	975,207	0	975,207
154	1B05A		yes	19,500	0	19,500
155	1B06C		yes	1,776	0	1,776
156	1B10A		yes	170,355	0	170,355
157	1B10B		yes	4,000	0	4,000
158	1B10D		yes	108,592	0	108,592
159	1B12D		yes	1,032,225	0	1,032,225
160	1B13A		yes	207,097	0	207,097
161	1B13D		yes	1,296,699	0	1,296,699
162	1B15D		yes	294,376	0	294,376
163	1B15G		yes	55,907	0	55,907
164	1B15K		yes	255,709	0	255,709
165	1B15N		yes	341,091	0	341,091
166	1B15P		yes	102,027	0	102,027
167	1B15Q		yes	1,225,838	0	1,225,838
168	1B15R		yes	106,984	0	106,984
169	1B16A		yes	379,843	0	379,843
170	1B18B		yes	394,121	0	394,121
171	1B18C		yes	468,664	0	468,664
172	1B21A		yes	276,530	0	276,530
173	1B21B		yes	200,497	0	200,497
174	1B21D		yes	469,687	0	469,687
175	1B24A		yes	239,251	0	239,251
176	1B25A		yes	105,601	0	105,601
177	1B27A		yes	196,012	0	196,012
178	1B28A		yes	232,989	0	232,989
179	1B28B		yes	641,660	0	641,660
180	1B51D		yes	82,793	0	82,793
181	1B51E		yes	55,075	0	55,075
182	1B51F		yes	1,697,581	0	1,697,581
183	1B51G		yes	246,171	0	246,171
184	1C06A		yes	2,269	0	2,269

Jeffco-000363

APPENDIX 6-2
CONSTRUCTION IN PROGRESS
PRESENT VALUE ANALYSIS

LINE	PROJECT	FROM ENVIRO SERVICES		BAL EXPENDITURES @ 06/30/05	TREATMENT	COLLECTION
		TREATMENT	COLLECTION			
1	1A04O		yes	$ 141,305	$ 0	$ 141,305
2	1A04P		yes	(0)	0	(0)
3	1A04S		yes	242,576	0	242,576
4	1A04T		yes	5,162,623	0	5,162,623
5	1A04U		yes	389,324	0	389,324
6	1A06B		yes	19,334	0	19,334
7	1A06F		yes	3,760	0	3,760
8	1A06G		yes	951,481	0	951,481
9	1A07C		yes	309,712	0	309,712
10	1A07E		yes	187,995	0	187,995
11	1A09C		yes	416,657	0	416,657
12	1A09D		yes	439,000	0	439,000
13	1A09E		yes	306,800	0	306,800
14	1A09G		yes	62,560	0	62,560
15	1A09I		yes	9,996,590	0	9,996,590
16	1A09I		yes	1,745,711	0	1,745,711
17	1A09K		yes	56,194	0	56,194
18	1A09L		yes	10,000	0	10,000
19	1A09M		yes	286,952	0	286,952
20	1A19I		yes	6,709	0	6,709
21	1A10C		yes	2,713,049	0	2,713,049
22	1A11C		yes	45,000	0	45,000
23	1A12D		yes	1,869,647	0	1,869,647
24	1A13A		yes	155,283	0	155,283
25	1A12E		yes	58,279	0	58,279
26	1A16A		yes	258,134	0	258,134
27	1A16C		yes	47,152	0	47,152
28	1A16D		yes	40,490	0	40,490
29	1A19G		yes	313,209	0	313,209
30	1A19H		yes	21,907	0	21,907
31	1A19I		yes	88,288	0	88,288
32	1A19J		yes	3,768,584	0	3,768,584
33	1A19K		yes	337,089	0	337,089
34	1A23A		yes	158,926	0	158,926
35	1A24B		yes	145,779	0	145,779
36	1A24C		yes	27,771,182	0	27,771,182
37	1A24D		yes	386,074	0	386,074
38	1A24E		yes	661,049	0	661,049
39	1A24G		yes	350,454	0	350,454
40	1A24H		yes	23,926,600	0	23,926,600
41	1A25D		yes	245,827	0	245,827
42	1A28B		yes	112,510	0	112,510
43	1A29A		yes	62,215	0	62,215
44	1A30A		yes	437,761	0	437,761
45	1A30B		yes	299,409	0	299,409
46	1A30C		yes	72,297	0	72,297
47	1A30E		yes	88,127	0	88,127
48	1A30G		yes	49,685	0	49,685
49	1A31A		yes	198,161	0	198,161
50	1A31B		yes	3,193	0	3,193
51	1A33A		yes	0	0	0
52	1A33B		yes	158,388	0	158,388
53	1A34A		yes	0	0	0
54	1A35A		yes	283,127	0	283,127
55	1A37A		yes	784,401	0	784,401
56	1A38A		yes	222,879	0	222,879
57	1A38B		yes	17,240	0	17,240
58	1A38C		yes	199,986	0	199,986
59	1A39A		yes	30,801	0	30,801
60	1A41A		yes	25,805	0	25,805
61	1A50C		yes	4,762,053	0	4,762,053
62	1A50D		yes	56,928	0	56,928
63	1A50E		yes	(6,957,959)	0	(6,957,959)
64	1A50I		yes	104,459	0	104,459
65	1A50K		yes	3,330,070	0	3,330,070
66	1A50M		yes	3,007,030	0	3,007,030
67	1A50R		yes	100,000	0	100,000
68	1A50V		yes	14,341,549	0	14,341,549
69	1A50W		yes	129,675	0	129,675
70	1A50X		yes	186,401	0	186,401
71	1A50Y		yes	445,250	0	445,250
72	1A51B		yes	221,549	0	221,549
73	1A51C		yes	22,608,843	0	22,608,843
74	1A51H		yes	247,488	0	247,488
75	1A51J		yes	909,282	0	909,282
76	1A51L		yes	3,358,675	0	3,358,675
77	1A51O		yes	295,761	0	295,761
78	1A51Q		yes	5,242,910	0	5,242,910
79	1A51R		yes	36,723	0	36,723
80	1A51T		yes	162,905	0	162,905
81	1A51V		yes	(301,482)	0	(301,482)
82	1A51W		yes	2,098,635	0	2,098,635
83	1A51Z		yes	290,625	0	290,625
84	1A52A		yes	65,992	0	65,992
85	1A52B		yes	212,783	0	212,783
86	1A52D		yes	9,741	0	9,741
87	1A52J		yes	272,509	0	272,509
88	1A52L		yes	205,106	0	205,106
89	1A52P		yes	4,294,226	0	4,294,226
90	1A52Q		yes	844,736	0	844,736
91	1A52T		yes	853,229	0	853,229
92	1A52U		yes	704,146	0	704,146

APPENDIX 6-2
CONSTRUCTION IN PROGRESS
PRESENT VALUE ANALYSIS

LINE	PROJECT	FROM ENVIRO SERVICES		BAL EXPENDITURES @ 06/30/05	TREATMENT	COLLECTION
		TREATMENT	COLLECTION			
185	1C08B		yes	254,512	0	254,512
186	1C09A		yes	356,066	0	356,066
187	1C14E		yes	553,498	0	553,498
188	1C20B		yes	911,151	0	911,151
189	1C24A		yes	240,499	0	240,499
190	1C24B		yes	140,250	0	140,250
191	1C25A		yes	141,714	0	141,714
192	1C50B		yes	2,254,852	0	2,254,852
193	1C50D		yes	202,752	0	202,752
194	1C50K		yes	219,453	0	219,453
195	1C50M		yes	146,993	0	146,993
196	1C50N		yes	9,413,677	0	9,413,677
197	1C50Q		yes	180,497	0	180,497
198	1C50R		yes	3,875,318	0	3,875,318
199	1C50S		yes	(33,586)	0	(33,586)
200	1C50V		yes	70,569	0	70,569
201	1C50Y		yes	4,193,546	0	4,193,546
202	1C51A		yes	471,033	0	471,033
203	1C51B		yes	245,871	0	245,871
204	1C51I		yes	1,081,622	0	1,081,622
205	1C51M		yes	296,191	0	296,191
206	1C51N		yes	4,763,429	0	4,763,429
207	1C51T		yes	5,978,069	0	5,978,069
208	1C51X		yes	5,573,670	0	5,573,670
209	1C52E		yes	32,124	0	32,124
210	1C52M		yes	173,052	0	173,052
211	1C52Q		yes	933,088	0	933,088
212	1C52R		yes	206,000	0	206,000
213	1C52S		yes	5,846,047	0	5,846,047
214	1C52U		yes	8,096,771	0	8,096,771
215	1C52V		yes	7,749,673	0	7,749,673
216	1C52W		yes	580	0	580
217	1C52X		yes	862,167	0	862,167
218	1C52Z		yes	39,403	0	39,403
219	1C53A		yes	493,706	0	493,706
220	1C53C		yes	935,345	0	935,345
221	1C53I		yes	226,943	0	226,943
222	1C53J		yes	257,797	0	257,797
223	1C53K		yes	87,209	0	87,209
224	1C53L		yes	93,007	0	93,007
225	1C53M		yes	408,407	0	408,407
226	1C53N		yes	(185,255)	0	(185,255)
227	1C53O		yes	53,914	0	53,914
228	1C53P		yes	115,214	0	115,214
229	1C53Q		yes	336,366	0	336,366
230	1C53R		yes	134,027	0	134,027
231	1C53S		yes	86,262	0	86,262
232	1C53U		yes	171,983	0	171,983
233	1Z53W		yes	1,847,249	0	1,847,249
234	1C53X		yes	345,899	0	345,899
235	1C53Z		yes	278,574	0	278,574
236	1C54B		yes	278,281	0	278,281
237	1C54E		yes	303,447	0	303,447
238	1C54G		yes	30,362	0	30,362
239	1C54I		yes	5,406,127	0	5,406,127
240	1C54J		yes	215,667	0	215,667
241	1C54K		yes	648,158	0	648,158
242	1C54L		yes	540,108	0	540,108
243	1C54M		yes	115,469	0	115,469
244	1C54N		yes	6,887,042	0	6,887,042
245	1C54O		yes	262,083	0	262,083
246	1C54P		yes	21,500	0	21,500
247	1C54Q		yes	522,329	0	522,329
248	1C54R		yes	128,038	0	128,038
249	1C54S		yes	123,081	0	123,081
250	1C54U		yes	160,385	0	160,385
251	1C54T		yes	47,019	0	47,019
252	1C54V		yes	52,527	0	52,527
253	1C54W		yes	71,703	0	71,703
254	1D07C		yes	241,275	0	241,275
255	1D11C		yes	470,968	0	470,968
256	1D11G		yes	331,650	0	331,650
257	1D15C		yes	(81,932)	0	(81,932)
258	1D16G		yes	7,943	0	7,943
259	1D18A		yes	695,770	0	695,770
260	1D26F		yes	269	0	269
261	1D18D		yes	192,419	0	192,419
262	1D21E		yes	7,543,678	0	7,543,678
263	1D21G		yes	9,780,206	0	9,780,206
264	1D23A		yes	158,139	0	158,139
265	1D26A		yes	874,751	0	874,751
266	1D26B		yes	14,065	0	14,065
267	1D26E		yes	4,672	0	4,672
268	1D26F		yes	284,037	0	284,037
269	1D27A		yes	122,105	0	122,105
270	1D28A		yes	11,324	0	11,324
271	1D29A		yes	48,972	0	48,972
272	1D30A		yes	53,475	0	53,475
273	1D31A		yes	14,868	0	14,868
274	1D50R		yes	2,284,447	0	2,284,447
275	1D50S		yes	138,745	0	138,745
276	1D50W		yes	116,096	0	116,096

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APPENDIX 6-2
CONSTRUCTION IN PROGRESS
PRESENT VALUE ANALYSIS

LINE	PROJECT	FROM ENVIRO SERVICES TREATMENT	FROM ENVIRO SERVICES COLLECTION	BAL EXPENDITURES @ 06/30/05	TREATMENT	COLLECTION
277	1D50Z		yes	272,126	0	372,126
278	1D51B		yes	629,414	0	629,414
279	1D51C		yes	81,932	0	81,932
280	1D51D		yes	1,532,296	0	1,532,296
281	1D51E		yes	125,239	0	125,239
282	1D51F		yes	0	0	0
283	1D51G		yes	810,709	0	810,709
284	1D51I		yes	51,236	0	51,236
285	1E03C		yes	6,492,822	0	6,492,822
286	1E03F		yes	16,241	0	16,241
287	1E04B		yes	40,352	0	40,352
288	1E04E		yes	10,920	0	10,920
289	1E050		yes	9,000	0	9,000
290	1E07A		yes	62,428	0	62,428
291	1E07B		yes	(2,455)	0	(2,455)
292	1E07D		yes	71,379	0	71,379
293	1E10A		yes	35,000	0	35,000
294	1E10C		yes	0	0	0
295	1F50A		yes	19	0	19
296	1F05D		yes	785,394	0	785,394
297	1F05E		yes	10,816,668	0	10,816,668
298	1F05F		yes	427,469	0	427,469
299	1F05G		yes	265,817	0	265,817
300	1F05H		yes	65,681	0	65,681
301	1F05I		yes	100	0	100
302	1F05J		yes	0	0	0
303	1F05K		yes	64,838	0	64,838
304	1F05L		yes	133,259	0	133,259
305	1F07A		yes	171,233	0	171,233
306	1F08C		yes	103,968	0	103,968
307	1F10A		yes	30,000	0	30,000
308	1F10C		yes	163,966	0	163,966
309	1F11A		yes	165,410	0	165,410
310	1F50F		yes	118,060	0	118,060
311	1G01A		yes	37,618	0	37,618
312	1G09A		yes	135,670	0	135,670
313	1G10A		yes	(19,800)	0	(19,800)
314	1G10B		yes	(46,449)	0	(46,449)
315	1G11A		yes	249,400	0	249,400
316	1G17A		yes	16,569	0	16,569
317	1G18A		yes	132,516	0	132,516
318	1G24A		yes	(46,566)	0	(46,566)
319	1G25A		yes	244,647	0	244,647
320	1G26A		yes	75,744	0	75,744
321	1G50C		yes	350,627	0	350,627
322	1G50D		yes	0	0	0
323	1G50E		yes	262,688	0	262,688
324	1G50F		yes	71,550	0	71,550
325	1H03A		yes	(149,085)	0	(149,085)
326	1H04A		yes	191,891	0	191,891
327	1H05A		yes	49,816	0	49,816
328	1H50B		yes	8,810,831	0	8,810,831
329	1H06A		yes	56,211	0	56,211
330	1J01D		yes	168,500	0	168,500
331	1J05C		yes	349,754	0	349,754
332	1J10A		yes	30,692	0	30,692
333	1J10B		yes	224,573	0	224,573
334	1J11A		yes	0	0	0
335	1J11B		yes	347,732	0	347,732
336	1J11C		yes	173,803	0	173,803
337	1J12A		yes	84,980	0	84,580
338	1J12B		yes	19,192	0	19,192
339	1J14A		yes	245,171	0	245,171
340	1J15A		yes	126,003	0	126,003
341	1J16A		yes	223,903	0	223,903
342	1J17A		yes	43,075	0	43,075
343	1J50A		yes	839,413	0	839,413
344	1J50C		yes	689,400	0	689,400
345	1J50D		yes	781,954	0	781,954
346	1J50E		yes	177,496	0	177,496
347	1J50F		yes	2,692,978	0	2,692,978
348	1J50G		yes	1,308,159	0	1,308,159
349	1J50H		yes	262,000	0	262,000
350	1J50I		yes	2,090,544	0	2,090,544
351	1J50J		yes	1,856,937	0	1,856,937
352	1J50K		yes	298,436	0	298,436
353	1J50L		yes	18,850	0	18,850
354	1J50M		yes	288,804	0	288,804
355	1J50N		yes	1,142,430	0	1,142,430
356	1J50O		yes	253,220	0	253,220
357	1J50P		yes	734,395	0	734,395
358	1J50Q		yes	110,747	0	110,747
359	1J50R		yes	765,080	0	765,080
360	1J50S		yes	144,418	0	144,418
361	1J50U		yes	130,968	0	130,968
362	1K05B		yes	0	0	0
363	1K05E		yes	242,453	0	242,453
364	1K05I		yes	0	0	0
365	1K50A		yes	158,621	0	158,621
366	1K50B		yes	779,934	0	779,934
367	1K50D		yes	0	0	0
368	1K50E		yes	58,051	0	58,051

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APPENDIX 6-2
CONSTRUCTION IN PROGRESS
PRESENT VALUE ANALYSIS

LINE	PROJECT	FROM ENVIRO SERVICES		BAL EXPENDITURES @ 06/30/05	TREATMENT	COLLECTION
		TREATMENT	COLLECTION			
369	1K06A		yes	78,976	0	78,976
370	1K09A		yes	393,802	0	393,802
371	1W01F		yes	0	0	0
372	1W02A		yes	50,370	0	50,370
373	1W50B		yes	185,188	0	185,188
374	1Z09C		yes	11,438	0	11,438
375	1Z13A		yes	35,226	0	35,226
376	1Z14A	yes		17,671	17,671	0
377	1Z16A		yes	128,606	0	128,606
378	1Z16D		yes	171,867	0	171,867
379	1Z16P		yes	93,612	0	92,612
380	1Z16Q		yes	36,500	0	36,500
381	1Z17B	N/A	N/A	544,801	317,679	227,122
382	1Z17C	N/A	N/A	634,233	369,828	264,405
383	1Z19A		yes	95,414	0	95,414
384	1Z19B		yes	253,558	0	353,558
385	1Z19C		yes	175,870	0	175,870
386	1Z19D		yes	64,921	0	64,921
387	1Z25A		yes	670,697	0	670,697
388	1Z40B		yes	0	0	0
389	1Z40D		yes	697,721	0	697,721
390	1Z40E		yes	735,005	0	735,005
391	1Z40G		yes	628,042	0	628,042
392	1Z40H		yes	0	0	0
393	1Z50A		yes	47,652	0	47,652
394	1Z50B		yes	188,500	0	188,500
395	1Z50C		yes	1,960	0	1,960
396	1Z50D		yes	15,849	0	15,849
397	1Z50G		yes	734,611	0	734,611
398	1Z56F		yes	4,348	0	4,348
399	1Z56G		yes	4,129	0	4,129
400	1Z56H		yes	5,341	0	5,341
401	1Z56I		yes	10,053	0	10,053
402	1Z56J		yes	8,123	0	8,123
403	1Z56K		yes	11,366	0	11,366
404	1Z56L		yes	8,862	0	8,862
405	1Z56M		yes	14,602	0	14,602
406	1Z56N		yes	4,166	0	4,166
407	1Z56R		yes	1,669	0	1,669
408	1Z56S		yes	5,614	0	5,614
409	1Z56T		yes	5,775	0	5,775
410	1Z56U		yes	935	0	935
411	1Z56V		yes	4,850	0	4,850
412	1Z56W		yes	1,400	0	1,400
413	1Z56X		yes	14,143	0	14,143
414	1Z56Y		yes	2,423	0	2,423
415	1Z56Z		yes	3,265	0	3,265
416	1Z57A		yes	4,538	0	4,538
417	1Z57B		yes	19,632	0	19,632
418	1Z57C		yes	3,108	0	3,108
419	1Z57D		yes	21,136	0	21,136
420	1Z57E		yes	1,641	0	1,641
421	1Z57F		yes	8,785	0	8,785
422	1Z57G		yes	1,424	0	1,424
423	1Z57H		yes	3,196	0	3,196
424	1Z57I		yes	3,270	0	3,270
425	1Z57J		yes	3,102	0	3,102
426	1Z57K		yes	3,290	0	3,290
427	1Z57L		yes	5,678	0	5,678
428	1Z57M		yes	2,031	0	2,031
429	1Z57N		yes	7,206	0	7,206
430	1Z57T		yes	2,488	0	2,488
431	1Z57U		yes	26,788	0	26,788
432	1Z57V		yes	49,575	0	49,575
433	1Z57W		yes	1,225	0	1,225
434	1Z57X		yes	9,932	0	9,932
435	1Z57Y		yes	4,498	0	4,498
436	1Z57Z		yes	8,799	0	8,799
437	1Z58A		yes	4,869	0	4,869
438	1Z58B		yes	1,913	0	1,913
439	1Z58C		yes	1,546	0	1,546
440	1Z58D		yes	1,465	0	1,465
441	1Z58E		yes	1,182	0	1,182
442	1Z58F		yes	9,579	0	9,579
443	1Z58G		yes	4,522	0	4,522
444	1Z58H		yes	8,977	0	8,977
445	1Z58I		yes	802	0	802
446	1Z58J		yes	2,190	0	2,190
447	1Z58L		yes	2,394	0	2,394
448	1Z58M		yes	9,721	0	9,721
449	1Z58N		yes	12,394	0	12,394
450	1Z58O		yes	27,496	0	27,496
451	1Z58P		yes	25,003	0	25,003
452	1Z58Q		yes	27,373	0	27,373
453	1Z58R		yes	4,896	0	4,896
454	1Z58T		yes	14,976	0	14,976
455	1Z58U		yes	6,166	0	6,166
456	1Z58X		yes	6,887	0	6,887
457	1Z58Y		yes	12,432	0	12,432
458	1Z58Z		yes	3,893	0	3,893
459	1Z59A		yes	11,267	0	11,267
460	1Z59B		yes	7,943	0	7,943

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APPENDIX 6-1
CONSTRUCTION IN PROGRESS
PRESENT VALUE ANALYSIS

LINE	PROJECT	FROM ENVIRO SERVICES		BAL EXPENDITURES @ 06/30/05	TREATMENT	COLLECTION
		TREATMENT	COLLECTION			
461	1Z59C		yes	2,449	0	2,449
462	1Z59D		yes	3,980	0	3,980
463	1Z59E		yes	6,566	0	6,566
464	1Z59E		yes	10,916	0	10,916
465	1Z59F		yes	6,307	0	6,307
466	1Z59G		yes	3,618	0	3,618
467	1Z59H		yes	3,616	0	3,616
468	1Z59I		yes	7,862	0	7,862
469	1Z59J		yes	9,151	0	9,151
470	1Z59K		yes	6,708	0	6,708
471	1Z59L		yes	27,461	0	27,461
472	1Z59M		yes	18,724	0	18,724
473	1Z59N		yes	14,052	0	14,052
474	1Z59O		yes	3,545	0	3,545
475	1Z59Q		yes	9,272	0	9,272
476	1Z59R		yes	3,991	0	3,991
477	1Z59S		yes	29,014	0	29,014
478	1Z59U		yes	2,236	0	2,236
479	1Z59V		yes	2,578	0	2,578
480	1Z59W		yes	5,496	0	5,496
481	1Z59X		yes	4,517	0	4,517
482	1Z59Y		yes	11,031	0	11,031
483	1Z59Z		yes	15,663	0	15,663
484	1Z80E		yes	0	0	0
485	1Z80I		yes	279,883	0	279,883
486	1Z80J		yes	324,686	0	324,686
487	1Z80K		yes	424,241	0	424,241
488	1Z80L		yes	(523,495)	0	(523,495)
489	1Z80M		yes	188,839	0	188,839
490	1Z80O		yes	508,562	0	508,562
491	1Z80P		yes	138,373	0	138,373
492	1Z80Q		yes	0	0	0
493	1Z80R		yes	74,548	0	74,548
494	1Z83A		yes	42,392	0	42,392
495	1Z85A		yes	49,358	0	49,358
496	1Z85O		yes	2,000	0	2,000
497	1Z85Z		yes	49,248	0	49,248
498	1Z90A	N/A	N/A	141,070	82,260	58,811
499	1Z90B	N/A	N/A	295,849	172,513	123,336
500	1Z90C	N/A	N/A	82,000	47,815	34,185
501	1Z90D	N/A	N/A	442,509	258,032	184,477
502	1Z90E	N/A	N/A	750,000	437,333	312,667
503	1Z90G	N/A	N/A	93,081	54,276	38,804
504	1Z90K	yes		12,120	12,120	0
505	1Z90P		yes	49,425	0	49,425
506	1Z90Q		yes	48,797	0	48,797
507	1Z90R		yes	230,381	0	230,381
508	1Z90U	yes		105,068	105,068	0
509	1Z90W	N/A	N/A	19,021	11,091	7,930
510	1Z91D		yes	1,000	0	1,000
511	1Z91E		yes	250,124	0	250,124
512	1Z91K		yes	314,465	0	314,465
513	1Z91L	N/A	N/A	976,130	569,192	406,938
514	1Z91O		yes	201,116	0	201,116
515	1Z91S		yes	49,990	0	49,990
516	1Z91U		yes	(0)	0	(0)
517	1Z91W		yes	414,095	0	414,095
518	1Z91X		yes	525,796	0	525,796
519	1Z91Y		yes	537,443	0	537,443
520	1Z91Z		yes	636,504	0	636,504
521	1Z95F		yes	111,405	0	111,405
522	1Z95G		yes	(134,669)	0	(134,669)
523	1Z95I		yes	3,900	0	3,900
524	1Z95N		yes	96,929	0	96,929
525	1Z95O		yes	104,432	0	104,432
526	1Z95P		yes	576,535	0	576,535
527	1Z95T		yes	8,665	0	8,665
528	1Z95U		yes	15,480	0	15,480
529	1Z95V		yes	442,482	0	442,482
530	1Z95W		yes	115,834	0	115,834
531	1Z95X		yes	518,890	0	518,890
532	1Z95Y		yes	542,714	0	542,714
533	1Z96O	N/A	N/A	100,324	58,500	41,824
534	1Z96D	N/A	N/A	218,086	127,169	90,918
535	1Z96U	N/A	N/A	12,300	7,172	5,128
536	1Z96V	N/A	N/A	20,000	11,662	8,338
537	1Z96Z	N/A	N/A	482,352	281,264	201,087
538	1Z96Z	N/A	N/A	(24,961)	(14,555)	(10,406)
539	1Z96Z	N/A	N/A	221,830	129,351	92,478
540	1Z96Z	N/A	N/A	1,524	888	635
541	1Z96Z	N/A	N/A	29,471	17,185	12,286
542	1Z96Z	N/A	N/A	59,504	34,698	24,807
543	1Z96Z	N/A	N/A	69,988	40,811	29,177
544	1Z96Z	N/A	N/A	(25,793)	(15,040)	(10,753)
545	1Z96Z	N/A	N/A	(17,374)	(10,131)	(7,243)
546	1Z96Z	N/A	N/A	(1,847)	(1,077)	(770)
547	1Z97H		yes	(4,191)	0	(4,191)
548	1Z97Q		yes	(49,200)	0	(49,200)
549	1Z97U		yes	894,249	0	894,249
550	1Z97V		yes	377,852	0	377,852
551	1Z97X		yes	554,285	0	554,285
552	1Z98M		yes	90,122	0	90,122

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APPENDIX 6-2
CONSTRUCTION IN PROGRESS
PRESENT VALUE ANALYSIS

LINE	PROJECT	FROM ENVIRO SERVICES		BAL EXPENDITURES @ 06/30/05	TREATMENT	COLLECTION
		TREATMENT	COLLECTION			
553	1Z98N		yes	152,347	0	152,347
554	1Z98O		yes	12,341	0	12,341
555	1Z98Q		yes	144,972	0	144,972
556	1Z98R		yes	236,313	0	236,313
557	1Z98S		yes	4,150	0	4,150
558	1Z98T		yes	192,057	0	192,057
559	1Z98U		yes	232,322	0	232,322
560	1Z98V		yes	375,950	0	375,950
561	1Z98W		yes	52,796	0	52,796
562	1Z98X		yes	94,030	0	94,030
563	1Z98Y		yes	53,304	0	53,304
564	1Z98Z		yes	292,623	0	292,623
565	1Z99B		yes	28,211	0	28,211
566	1Z99C		yes	26,350	0	26,350
567	1Z99L		yes	63,798	0	63,798
568	2A17E	yes		10,393	10,393	0
569	2A17F	yes		2,022,621	2,022,621	0
570	2A17G	yes		61,804	61,804	0
571	2A17H	yes		11,596,807	11,596,807	0
572	2A17I	yes		274,075	274,075	0
573	2A17N	yes		723,989	723,989	0
574	2A17P	yes		68,998	68,998	0
575	2A17T	yes		334,990	334,990	0
576	2A17U	yes		79,057,687	79,057,687	0
577	2A17Z	yes		(0)	(0)	0
578	2A19B	yes		447,646	447,646	0
579	2A20A	yes		1,342,559	1,342,559	0
580	2B22A	yes		(0)	(0)	0
581	2B22B	yes		2,130,000	2,130,000	0
582	2B50A		yes	512,405	0	512,405
583	2B50B		yes	722,518	0	722,518
584	2B50C		yes	4,323,675	0	4,323,675
585	2B50D		yes	1,386,903	0	1,386,903
586	2B50E		yes	346,950	0	346,950
587	3B50F		yes	0	0	0
588	2B50G		yes	247,245	0	247,245
589	2B50H		yes	337,839	0	337,839
590	2B50I		yes	170,995	0	170,995
591	2B50J		yes	241,827	0	241,827
592	2B50K		yes	47,075	0	47,075
593	2B50L		yes	3,622,908	0	3,622,908
594	2B50M		yes	226,144	0	226,144
595	2B50N		yes	29,978	0	29,978
596	2B50O		yes	0	0	0
597	2B50P		yes	0	0	0
598	2B50Q		yes	1,085,706	0	1,085,706
599	2B50R		yes	121,562	0	121,562
600	2B50T		yes	122,700	0	122,700
601	2B50U		yes	1,191,914	0	1,191,914
602	2B50V		yes	0	0	0
603	2B50W		yes	187,041	0	187,041
604	2B50X		yes	1,651,127	0	1,651,127
605	2B50Y		yes	227,830	0	227,830
606	2B50Z		yes	1,393,298	0	1,393,298
607	2B51A		yes	1,311,757	0	1,311,757
608	2B51B		yes	0	0	0
609	2B51C		yes	121,001	0	121,001
610	2B51D		yes	0	0	0
611	2B51E		yes	1,222,134	0	1,222,134
612	2B51F		yes	117,802	0	117,802
613	2B51G		yes	2,075,808	0	2,075,808
614	2B51H		yes	264,998	0	264,998
615	2B51I		yes	1,337,005	0	1,337,005
616	2B51J		yes	189,496	0	189,496
617	2B51K		yes	1,596,543	0	1,596,543
618	2B51L		yes	249,878	0	249,878
619	2C15I	yes		462,851	462,851	0
620	2C15M	yes		94,209	94,209	0
621	2C15O	yes		44,295,063	44,295,063	0
622	2C15R	yes		503,563	503,563	0
623	2C15T	yes		5,933	5,933	0
624	2C15W	yes		968,809	968,809	0
625	2C15X	yes		23,549	23,549	0
626	2C15O	yes		(66,865)	(66,865)	0
627	2C16D	yes		5,169,047	5,169,047	0
628	2C18F	yes		890	890	0
629	2C18H	yes		589,273	589,273	0
630	2C18I	yes		6,914,100	6,914,100	0
631	2C21E	yes		38,739	38,739	0
632	2C22A		yes	231,066	0	231,066
633	2C22C		yes	9,094	-0	9,094
634	2C23A		yes	195,801	0	195,801
635	2C26A	yes		936,749	936,749	0
636	2D02A	yes		199,986	199,986	0
637	2D05O	yes		53,743,638	53,743,638	0
638	2D05H	yes		26,612,398	26,612,398	0
639	2D05J	yes		24,695	24,695	0
640	2D05K	yes		808,931	808,931	0
641	2D05N	yes		970,315	970,315	0
642	2D05P	yes		2,237,234	2,237,234	0
643	2D05Q	yes		617,606	617,606	0
644	2F03C	yes		2,000	2,000	0

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APPENDIX 6-2
CONSTRUCTION IN PROGRESS
PRESENT VALUE ANALYSIS

LINE	PROJECT	FROM ENVIRO SERVICES		BAL EXPENDITURES @ 06/30/05	TREATMENT	COLLECTION
		TREATMENT	COLLECTION			
645	2F03G	yes		(533,165)	(533,165)	0
646	2F03K	yes		242,946	242,946	0
647	2F03L	yes		906,638	906,638	0
648	2F03M	yes		34,521	34,521	0
649	2G14C	yes		(106,531)	(106,531)	0
650	2G14L	yes		1,467,905	1,467,905	0
651	2G14M	yes		33,919,298	33,919,298	0
652	2G14N	yes		242,611	242,611	0
653	2H01G	yes		13,582,391	13,582,391	0
654	2J08L	yes		7,413,882	7,413,882	0
655	2J080	yes		872,115	872,115	0
656	2J08P	yes		907,123	907,123	0
657	2J08S	N/A	N/A	3,372,148	1,966,335	1,405,812
658	2J08O	N/A	N/A	9,808	5,719	4,089
659	2J08T	N/A	N/A	122,312	71,321	50,990
660	2J08U	yes		49,977	49,977	0
661	2J08W	yes		846	846	0
662	2J08Z	N/A	N/A	1,481,527	863,894	617,633
663	2K08B	yes		0	0	0
664	2K08C	yes		0	0	0
665	2K08D	yes		3,836,013	3,836,013	0
666	2K08E	yes		252,955	252,955	0
667	2K08F	yes		48,685	48,685	0
668	2M01B	yes		477,001	477,001	0
669	3M01C	yes		944,704	944,704	0
670	2M01F	yes		332,553	332,553	0
671	2M01G	yes		2,295,901	2,295,901	0
672	2M01H	yes		800,477	800,477	0
673	2M01H	yes		0	0	0
674	2M01L	yes		253,788	253,788	0
675	2W01E	yes		17,200	17,200	0
676	2W01G	yes		14,998	14,998	0
677	2W01H	yes		3,657,932	3,657,932	0
678	2W01I	yes		248,138	248,138	0
679	2W01J	yes		23,174	23,174	0
680	2Z05H	N/A	N/A	582	339	243
681	2Z05K	yes		2,000	2,000	0
682	2Z05N	yes		13,920	13,920	0
683	2Z05U	yes		23,646	23,646	0
684	2Z05V	yes		22,301	22,301	0
685	2Z05W	yes		233,570	233,570	0
686	2Z05X	yes		22,978	22,978	0
687	2Z18C	yes		64,588	64,588	0
688	2Z96Z	N/A	N/A	9,874	5,758	4,116
689	2Z96Y	N/A	N/A	(3)	(2)	(1)
690	2Z91A	N/A	N/A	566,967	330,604	236,362
691	3Z51H		yes	0	0	0
692	3Z85F		yes	48,632	0	48,632
693	3Z85G		yes	49,749	0	49,749
694	3Z85M		yes	49,920	0	49,920
695	3Z85O		yes	49,896	0	49,896
696	3Z85P		yes	47,481	0	47,481
697	3Z85Q		yes	49,930	0	49,930
698	3Z85R		yes	49,975	0	49,975
699	3Z85S		yes	49,733	0	49,733
700	3Z85V		yes	48,510	0	48,510
701	3Z90A	N/A	N/A	495,304	288,817	206,487
702	3Z90C	yes		20,059	20,059	0
703	3Z90D	N/A	N/A	432,494	252,192	180,302
704	3Z90B	yes		153,028	153,028	0
705	3C52F		yes	222,111	0	222,111
706	3Z90H		yes	49,970	0	49,970
707	3Z90K		yes	48,583	0	48,583
708	3Z90M		yes	87,020	0	87,020
709	3Z90Q		yes	49,805	0	49,805
710	3Z90R		yes	49,042	0	49,042
711	3Z90S	yes		81,378	81,378	0
712	3Z90V		yes	72,362	0	72,362
713	3Z90V		yes	20,320	0	20,320
714	3Z90V		yes	240,903	0	240,903
715	3Z90X		yes	48,750	0	48,750
716	3Z90Y		yes	49,733	0	49,733
717	3Z91C		yes	251,566	0	251,566
718	3Z91G		yes	550,762	0	550,762
719	3Z91H		yes	1,281,788	0	1,281,788
720	3Z95B		yes	451,562	0	451,562
721	3Z95P		yes	19,678	0	19,678
722	3Z95T		yes	0	0	0
723	3Z98A		yes	34,372	0	34,372
724	3Z98D		yes	95,520	0	95,520
725	3Z98E		yes	473,565	0	473,565
726	3Z98I		yes	38,966	0	38,966
727	3Z98N		yes	933,180	0	933,180
728	3Z98R		yes	0	0	0
729	3Z98S		yes	0	0	0
730	3Z98V		yes	65,949	0	65,949
731	3Z98W		yes	49,935	0	49,935
732	4A17A	yes		994,635	994,635	0
733	4A17D	yes		19,315	19,315	0
734	4A17E	yes		50,271,483	50,271,483	0
735	4A17F	yes		1,308,489	1,308,489	0
736	4A17G	yes		457,591	457,591	0

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APPENDIX 6-1
CONSTRUCTION IN PROGRESS
PRESENT VALUE ANALYSIS

LINE	PROJECT	FROM ENVIRO SERVICES		BAL EXPENDITURES @ 06/30/05	TREATMENT	COLLECTION
		TREATMENT	COLLECTION			
737	4A17I	yes		804,998	804,998	0
738	4A17J	yes		0	0	0
739	4A17K	yes		0	0	0
740	4A17M	yes		546,885	546,885	0
741	4A17P	yes		2,742,994	2,742,994	0
742	4a17Q	yes		111,088,536	111,088,536	0
743	4A17R	yes		446,831	446,831	0
744	4A17S	yes		0	0	0
745	4A17T	yes		3,800	3,800	0
746	4C15A	yes		9,345,500	9,345,500	0
747	4C15B	yes		864,999	864,999	0
748	4C15D	yes		(0)	(0)	0
749	4C15I	yes		748,636	748,636	0
750	4C15M	yes		250,065	350,065	0
751	4C15N	yes		288,326	288,326	0
752	4C15P	yes		1,421,983	1,421,983	0
753	4C15R	yes		1,495,916	1,495,916	0
754	4C15S	yes		71,488,343	71,488,343	0
755	4C15T	yes		1,229,248	1,229,248	0
756	4C15U	yes		539,346	539,346	0
757	4C15V	yes		671,355	671,355	0
758	4C15X	yes		993,302	993,302	0
759	4C15Y	yes		317,686	317,686	0
760	4C15Z	yes		3,962,816	3,962,816	0
761	4J08A	yes		749,387	749,387	0
762	4J08B	yes		6,365,642	6,365,642	0
763	4J08C	yes		48,740	48,740	0
764	4J08D	N/A	N/A	1,194,998	696,816	498,182
765	4J08E	N/A	N/A	456,074	265,942	190,133
766	4J08F	N/A	N/A	486,603	283,743	202,860
767	4J08G	N/A	N/A	0	0	0
768	4J08H	N/A	N/A	489,489	285,426	204,063
769	4J08I	N/A	N/A	274,460	160,040	114,419
770	4J08J	N/A	N/A	232,843	135,773	97,070
771	4J08K	N/A	N/A.	759,971	443,147	316,824
772	4Z03A	yes		22,985	22,985	0
773	4Z05B	yes		24,280	24,280	0
774	4Z05C	yes		5,525	5,525	0
775	4Z52K		yes	8,082	0	8,082
776	4Z52L		yes	13,360	0	13,360
777	4Z52M		yes	10,377	0	10,377
778	4Z52N		yes	11,244	0	11,244
779	4Z52P		yes	44,530	0	44,530
780	4Z52Q		yes	1,569	0	1,569
781	4Z52R		yes	7,815	0	7,815
782	4Z52S		yes	4,063	0	4,063
783	4Z52T		yes	867	0	867
784	4Z52U		yes	4,675	0	4,675
785	4Z52V		yes	1,725	0	1,725
786	4Z52W		yes	5,635	0	5,635
787	4Z52X		yes	2,674	0	2,674
788	4Z52Y		yes	2,004	0	2,004
789	4Z52Z		yes	1,013	0	1,013
790	4Z53H		yes	0	0	0
791	4A58J		yes	(2,148,092)	0	(2,148,092)
792	4Z96B	N/A	N/A	93,062	54,266	38,797
793	4Z96G	N/A	N/A	(22)	(13)	(9)
794	5Z52M		yes	300	0	300
795	5Z53V		yes	346,508	0	346,508
796	5Z53Y		yes	10,497	0	10,497
797	5Z53Z		yes	21,518	0	21,518
798	5Z54S		yes	49,377	0	49,377
799	5Z54T		yes	18,984	0	18,984
800	5Z54U		yes	11,683	0	11,683
801	5Z54V		yes	11,813	0	11,813
802	5Z54W		yes	46,035	0	46,035
803	5Z54X		yes	13,712	0	13,712
804	5Z54Y		yes	12,865	0	12,865
805	5Z54Z		yes	17,653	0	17,653
806	5Z55O		yes	10,424	0	10,424
807	5Z55P		yes	27,686	0	27,686
808	5Z55Q		yes	49,839	0	49,839
809	5Z55R		yes	41,511	0	41,511
810	5Z55S		yes	15,729	0	15,729
811	5Z55T		yes	27,327	0	27,327
812	5Z55U		yes	48,437	0	48,437
813	5Z55V		yes	49,470	0	49,470
814	5Z55W		yes	49,042	0	49,042
815	5Z55X		yes	36,008	0	36,008
816	5Z55Y		yes	22,161	0	22,161
817	5Z55Z		yes	49,914	0	49,914
818	5Z56D		yes	13,717	0	13,717
819	5Z56E		yes	11,633	0	11,633
820	5Z56F		yes	11,064	0	11,064
821	5Z56G		yes	11,448	0	11,448
822	5Z56H		yes	45,141	0	45,141
823	5Z56I		yes	50,150	0	50,150
824	5Z56J		yes	57,000	0	57,000
825	5Z56X		yes	12,785	0	12,785
826	5Z56Z		yes	10,271	0	10,271
827	5Z57A		yes	11,373	0	11,373
828	5Z57B		yes	11,645	0	11,645

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APPENDIX 6-2
CONSTRUCTION IN PROGRESS
PRESENT VALUE ANALYSIS

LINE	PROJECT	FROM ENVIRO SERVICES		BAL EXPENDITURES @ 06/30/05	TREATMENT	COLLECTION
		TREATMENT	COLLECTION			
829	5Z57C		yes	12,557	0	12,557
830	5Z57D		yes	12,917	0	12,917
831	5Z57E		yes	13,197	0	13,197
832	5Z57F		yes	16,865	0	16,865
833	5Z57I		yes	18,336	0	18,336
834	5Z57J		yes	49,027	0	49,027
835	5Z57K		yes	36,929	0	36,929
836	5Z57L		yes	47,592	0	47,592
837	5Z57M		yes	48,105	0	48,105
838	5Z57O		yes	17,234	0	17,234
839	5Z57P		yes	1	0	1
840	5Z57Q		yes	49,813	0	49,813
841	5Z57R		yes	16,362	0	16,362
842	5Z57S		yes	15,943	0	15,943
843	5Z57T		yes	46,611	0	46,611
844	5Z57U		yes	16,400	0	16,400
845	5Z57V		yes	12,448	0	12,448
846	5Z58D		yes	11,534	0	11,534
847	5Z58E		yes	15,071	0	15,071
848	5Z58F		yes	16,969	0	16,969
849	5Z59T		yes	7,851,271	0	7,851,271
850	5Z85C		yes	48,425	0	48,425
851	5Z85D		yes	49,765	0	49,765
852	5Z85E		yes	49,978	0	49,978
853	5Z85F		yes	48,215	0	48,215
854	5Z85K		yes	46,193	0	46,193
855	5Z85M		yes	49,468	0	49,468
856	5Z85O		yes	49,953	0	49,953
857	5Z85P		yes	49,364	0	49,364
858	5Z85R		yes	46,817	0	46,817
859	5Z85S		yes	48,695	0	48,695
860	5Z85U		yes	49,951	0	49,951
861	5Z85V		yes	48,105	0	48,105
862	5Z85Y		yes	49,973	0	49,973
863	5Z85Z		yes	49,827	0	49,827
864	5Z90C	N/A	N/A	15,582	9,086	6,496
865	5Z90H		yes	251,351	0	251,351
866	5Z90L		yes	450,000	0	450,000
867	5Z90M	N/A	N/A	0	0	0
868	5Z90O	N/A	N/A	0	0	0
869	5Z90P	yes		160,834	160,834	0
870	5Z90Q	yes		399,999	399,999	0
871	5Z90R	yes		84,975	84,975	0
872	5Z90S	yes		73,325	73,325	0
873	5Z90T		yes	154,002	0	154,002
874	5Z90U	N/A	N/A	940,014	548,132	391,882
875	5Z90W		yes	322,614	0	322,614
876	5Z90X		yes	3,185,272	0	3,185,272
877	5Z90Z		yes	80,145	0	80,145
878	7F90G	N/A	N/A	51,444	29,997	21,446
879	7Z51V		yes	3,981,163	0	3,981,163
880	7Z85B		yes	48,630	0	48,630
881	7Z85C		yes	49,880	0	49,880
882	7Z85D		yes	49,980	0	49,980
883	7Z85E		yes	46,190	0	46,190
884	7Z85F		yes	49,525	0	49,525
885	7Z85G		yes	49,052	0	49,052
886	7Z85I		yes	(1,250)	0	(1,250)
887	7Z85K		yes	48,265	0	48,265
888	7Z85L		yes	47,900	0	47,900
889	7Z85M		yes	1,250	0	1,250
890	7Z85N		yes	48,850	0	48,850
891	7Z85O		yes	49,975	0	49,975
892	7Z85P		yes	48,222	0	48,222
893	7Z85Q		yes	49,330	0	49,330
894	7Z85S		yes	49,812	0	49,812
895	7Z85T		yes	47,999	0	47,999
896	7Z85V		yes	48,455	0	48,455
897	7Z85W		yes	45,400	0	45,400
898	7Z85X		yes	1,250	0	1,250
899	7Z85Y		yes	48,142	0	48,142
900	7Z85Z		yes	1,250	0	1,250
901	7Z90A	N/A	N/A	658,013	383,694	274,319
902	7Z90D	N/A	N/A	2,405,802	1,402,849	1,002,954
903	7Z90E	N/A	N/A	468,790	273,356	195,433
904	7Z90F	N/A	N/A	91,569	53,395	38,174
905	7Z90G	N/A	N/A	762,481	444,611	317,870
906	9Z85A		yes	48,573	0	48,573
907	9Z85B		yes	49,033	0	49,033
908	9Z85C		yes	47,603	0	47,603
909	9Z85F		yes	1,250	0	1,250
910	9Z85M		yes	48,831	0	48,831
911	9Z85Q		yes	0	0	0
912	9Z85R		yes	0	0	0
913	9Z85S		yes	0	0	0
914	9Z85T		yes	44,647	0	44,647
915	9Z85U		yes	39,542	0	39,542
916	9Z85V		yes	97,510	0	97,510
917	True-up			(245,318)	(143,047)	(102,270)
918	TOTAL			$ 1,026,459,722	$ 598,539,566	$ 427,920,156
					58.3%	41.7%

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APPENDIX 6-3
DEBT SERVICE
PRESENT VALUE ANALYSIS

Year	Annual Debt Service	Discount Factor	Present Value Calculation
2007	$ (131,833,519)	1.0000	$ (131,833,519)
2008	(131,851,312)	1.0497	(125,608,566)
2009	(139,919,887)	1.1019	(126,984,014)
2010	(147,961,940)	1.1566	(127,924,705)
2011	(154,971,088)	1.2141	(127,640,910)
2012	(154,879,220)	1.2745	(121,525,430)
2013	(154,831,928)	1.3378	(115,736,232)
2014	(154,949,415)	1.4043	(110,340,148)
2015	(155,036,871)	1.4741	(105,175,217)
2016	(155,061,436)	1.5473	(100,211,376)
2017	(155,952,107)	1.6242	(96,015,042)
2018	(157,468,554)	1.7050	(92,358,457)
2019	(156,949,101)	1.7897	(87,695,330)
2020	(157,807,240)	1.8787	(84,000,014)
2021	(154,788,823)	1.9720	(78,492,261)
2022	(164,032,958)	2.0700	(79,241,586)
2023	(177,048,430)	2.1729	(81,479,607)
2024	(179,175,728)	2.2809	(78,554,456)
2025	(181,872,058)	2.3943	(75,961,307)
2026	(184,530,541)	2.5133	(73,422,558)
2027	(187,646,493)	2.6382	(71,127,330)
2028	(169,877,488)	2.7693	(61,343,237)
2029	(170,122,659)	2.9069	(58,523,167)
2030	(175,859,063)	3.0514	(57,632,203)
2031	(176,205,805)	3.2031	(55,011,752)
2032	(167,596,234)	3.3622	(49,846,461)
2033	(167,610,503)	3.5294	(47,490,430)
2034	(174,608,882)	3.7048	(47,130,930)
2035	(178,373,797)	3.8889	(45,867,549)
2036	(178,510,084)	4.0822	(43,729,251)
2037	(176,802,991)	4.2851	(41,260,424)
2038	(272,669,362)	4.4980	(60,619,902)
2039	(264,278,117)	4.7216	(55,972,524)
2040	(259,188,182)	4.9562	(52,295,424)
2041	(253,822,913)	5.2026	(48,788,124)
2042	(259,674,543)	5.4611	(47,549,666)
		Total	(2,864,389,110)
		Percent Expansion	36%
		Debt Service Adjustment	(1,041,519,688)

Debt Service Apportionment Analysis		
Description	Treatment	Collection
Existing Analysis	$ 582,450,157	$ 1,656,855,247
Construction in Progress	598,539,566	427,920,156
Total	$ 1,180,989,723	$ 2,084,775,404
Percent	36%	64%
Debt Service Adjustment	$ (376,641,920)	$ (664,877,768)

Jefferson County Environmental Services Department

Final Technical Report

7

Revenue Enhancement Analysis

7. Revenue Enhancement Analysis

7.0 REVENUE ENHANCEMENT ANALYSIS

7.1 Introduction

As part of this study, Red Oak agreed to "evaluate the impact and feasibility of enhancing the County's overall revenue base to reduce the sewer rate revenue requirements including but not limited to a review of other revenue sources such as the Ad Valorem tax." In the course of the project, we reviewed the existing revenue sources used to fund the County's sewer system, drew on our extensive experience with other such systems throughout the United States to identify other sources of revenue that might be appropriately applied to sewer system operations, and evaluated the feasibility of establishing or expanding such revenue sources within the County.

In general, the methods of funding for a utility enterprise should achieve the following goals:

Revenue Sufficiency – The revenue generated should be established at a level that will fully fund on a sustainable basis the cost of providing service.

Economic Efficiency - Revenue generated should cover the cost of doing business, building prudent reserves, and where appropriate, provide a fair return on investment. Excessive reserves should not be accumulated.

Fairness and Equity – To the extent possible, considering other factors, revenue sources should be established so that customers pay at a level consistent with the costs incurred on their behalf. This often means setting different rates of different customer classes, and allocating costs to various rate components such as fixed and usage charges as appropriate to the nature of the costs being recovered. In addition, there should be recognition of the "expiration" or the using up of assets over time with the rates charged to those using them, as a matter of intergenerational equity. Further, rates and cost sharing approaches should be explored in terms of their ability to better align the costs of service with the distribution of who receives the benefits (value) of sewer service.

Market Acceptability – Costs borne by customers should be reasonable given the relative increases in other commodities and when compared to other similar utilities.

Resource Conservation – Where scarcity is an issue, revenue sources should be selected which discourage inefficient or excessive usage in order to preserve resources for future generations of users.

Social Responsibility - Decisions regarding funding sources should be made in the context of a broad perspective of community impact and general health and welfare.

Historically, wastewater systems were funded through general (taxation) revenue streams until the 1970's. Federal programs established by the EPA at that time to assist local sewer systems in mitigating pollution, particularly of surface waters, required a fair and equitable rate structure for sewer customers in order to obtain grants under those programs. Consequently, sewer rates began from that time to be established on a cost-of-service basis, with contribution to wastewater flows as the cost-causative factor. This contribution is generally measured indirectly, as the metering of sewer flows from individual customers, except in the case of very large users, is generally not feasible. Methods used have included establishing relative cost-causation based on water demand (and presumptively consequent wastewater contribution) by number of water fixture units, or more directly by using potable water usage as a surrogate. When potable water usage is used, generally some adjustment is made to account for water usage not returned to the wastewater system, for example when used for lawn irrigation, car washing, filling swimming pools, and other such uses.

Wastewater rate structures, like water rate structures, generally include a fixed charge that remains the same for each customer in each billing period, and a variable charge that changes with usage, however measured. Fixed charges can include a portion reflecting "customer costs" (billing, meter reading, and account management) and another portion reflecting "readiness-to-serve" (measured by relative potential demand, often defined by relative maximum meter flow rates). The former portion is the same for every customer; the latter varies depending on a customer's potential demand on the system, with meter size as a common determinant.

Usage charges have become the mainstay of sewer system funding in the United States. Sewer systems, like the County's, are often accounted for in the financial statements of local governments as "enterprise funds", which are on a commercial basis of accounting that provides a measure of net income during a fiscal year, taking into consideration the depreciation of long-lived fixed assets. However, other sources of revenue have become common in order to lend further precision to the "cost-causative" principle of rate-setting.

Major alternative revenue sources available to the County, discussed with staff in a meeting on September 18, 2006, have been identified as:

- Ad valorem (property) taxes
- Impact fees
- Fees for reclaimed water
- Special Assessments

Each of these revenue sources is discussed in the following sections in terms of feasibility and potential impact on sewer usage rates.

7.2 Ad valorem (property) taxes

Ad valorem taxes have historically been a major source of sewer system funding in the United States until the significant changes in the 1970's caused by EPA regulations. In the Midwest and Northeast, it is still common for sewer systems to receive significant funding from this source. In the Southeast, Southwest, and West, wastewater utilities are more commonly funded from a combination of user fees and impact fees.

The County currently dedicates $5,000,000 in property taxes annually to funding its sewer system. Current usage charges are approximately $133,000,000 annually, meaning that these tax revenues, if eliminated, would require a 3.7% increase in usage charges. Every additional $1 million in ad valorem taxes would result in the avoidance of approximately 0.7% in user fee increases.

Ad valorem taxes are a general source of revenue that is most appropriately applied to government services that have substantial benefit to the community as a whole and for which it is difficult to distinguish individual benefit. While cost-causative factors are determinable for wastewater service on an individual basis, the contribution to general health and welfare through the reduction of pollution and water-borne illnesses, as well as ecological benefits, is also significant. Consequently, funding a portion of a sewer system from ad valorem taxes is justifiable. The extent to which this is done depends upon the governing body's assessment of the degree to which the benefits provided by the sewer system have a community-wide effect. From an economic standpoint, ad valorem taxes are a progressive form of governmental revenue – that is, generally households with the highest incomes pay the most.

It is our understanding that under Alabama law, it is difficult for a county government to raise ad valorem taxes significantly. Consequently, raising the amount of ad valorem taxes contributed to the sewer system might require elimination or reduction of other services provided by the County. In making this determination, the County should consider:

- The impact of user fee increases on ratepayers
- The effect on other services of diverting additional ad valorem taxes to the sewer system
- The probability of obtaining appropriate legislative approval for an increase in the ad valorem tax rate for purposes of providing sewer ratepayer relief, shifting the burden of higher sewer system costs to property owners

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7.3 Impact fees

Impact fees are charges levied on new development for the purposes of equitably charging that development for the cost of system expansion required to serve it. Impact fees must be set at a level that reasonably reflects the new customer's probable demand for system capacity in the future. These fees can only be expended for purposes of funding the expansion of the capacity of the system in response to the demands of new growth. They are artifacts of law (typically National case law), and must be levied in accordance with general case law and any state or local statutory requirements. Standards for the calculation of impact fees on a cost-causative basis have been established by the American Water Works Association (potable water) and the Water Environment Foundation (wastewater).

The County levies impact fees on new development. Section 6 of this report discusses the factors involved in setting impact fees and calculates the level of impact fee that is justifiable for the County sewer system. Utilities are not required to set impact fees at the "justifiable" level, this simply sets a limit above which the fee could reasonably be contested in a court of law. Local governments such as the County may want to consider economic development goals in setting impact fees, since higher fees might inhibit or drive away new development.

Since impact fees are usually collected at the issuance of building permits or certificates of occupancy, the capacity to service the new development must be in place before the fees are collected. This creates a quandary, since the utility must obtain funding for the system expansion prior to collecting the fees. The solution to this is to use debt financing for system expansion, and then apply impact fees to the payment of debt service. This provides a better matching of benefits to costs as new customers pay impact fees that offset the reasonable amortization of the facilities over their useful life.

Jefferson County follows this procedure in managing its sewer system expansion – impact fees are levied on new development and those fees are used to pay debt service on the portion of debt attributable to system expansion. As indicated in Section 6, a higher level of impact fee may be justified. The County should consider, in the context of its economic development goals, whether to implement such an increase.

7.4 Fees for Reclaimed Water

While the County does not operate a potable water system, obviously the availability of water is a major factor in sustaining the viability of the community, and water conservation is a major goal of modern utility management. Wastewater systems produce effluent that can be treated to a level necessary to allow its reuse for purposes currently filled by potable water, thus conserving future water supplies. Because

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reclaimed water is a valuable commodity, it can provide a source of revenue for a sewer system above and beyond the fees charged for wastewater collection, transmission, treatment and disposal services.

However, the financial dynamics of reclaimed water services in the context of the larger water and wastewater utility systems are extremely complex and in some cases counterintuitive. Many utilities have implemented reclaimed water systems, making very large investments, only to face unanticipated financial challenges. For this reason, we have provided a fairly extensive discussion of this subject below.

Over the past 20 years the availability of water resources in the United States, once considered a given, has been challenged by growth in demand and the degradation of water quality by pollution. Particularly on the southern rim of the nation, water providers and regulatory agencies have recognized the need to take steps to preserve and protect existing resources, explore new sources of water, and plan for a future in which traditional sources of water will not meet the expected demand of growing populations.

One of the most important considerations in this planning effort is the extent to which the reclamation and reuse of wastewater can substitute for potable water demand, thereby indirectly conserving available water resources. As utilities and regulators have pursued this goal, the complex financial and economic effects of the implementation of reclaimed water systems have often been poorly understood, resulting in a degree of frustration and disappointment. Significant issues that have emerged include:

- Somewhat unexpectedly to some, the total cost of providing reclaimed water (treatment, transmission and distribution) often exceeds the current cost of providing potable water on a per unit basis. This occurs because potable water pricing is often based on historical average costs that are lower than the marginal cost of producing reclaimed water. The marginal cost of reclaimed water is frequently greater than the historic cost of potable due to the relatively low number of customers served coupled with the cost of developing a transmission and distribution system. This can be further exacerbated by the allocation or assignment of wastewater treatment costs to the production of reclaimed water. Depending upon existing potable water plant capacity and the marginal cost of developing future potable water sources, this situation can persist for a significant period of time.

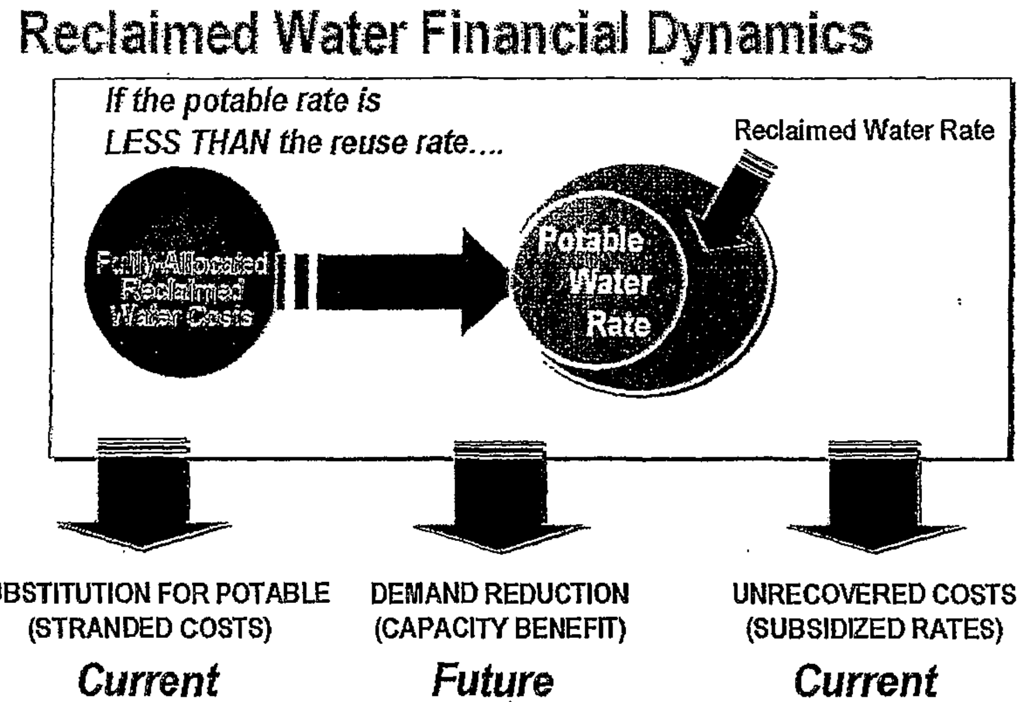
- Substituting reclaimed water use for potable water use reduces potable water demand (wastewater is billed from metered potable water). Since within the relevant range of demand utility costs are fundamentally fixed in nature (that is, they do not vary with usage), as the number of usage units is reduced, total costs remain essentially stable. The result is an increase in potable water and wastewater rates.

- In cases where potable water is available for the same uses as reclaimed water (e.g., landscape irrigation), potable water constitutes a perfect "substitute commodity" in relation to reclaimed water. Water and wastewater services are traditionally treated under a monopolistic model and priced on a regulated cost-of-service basis that allows for full cost recovery and in the case of investor-owned utilities a fair return on investment. However, the availability of a substitute commodity effectively creates a "price ceiling" on reclaimed water at the level of the potable water price. This is exacerbated by the fact that many consumers perceive reclaimed water as less desirable than potable water due to lingering concerns about its purity. These factors effectively push the acceptable price ceiling for reclaimed water to some point below the price of potable water where consumers perceive that the lower price adequately compensates for the risk.

- Where fixed fees for unlimited usage have been implemented, the demand for reclaimed water has sometimes gone far beyond the utility's capacity to deliver. There is an inherent paradox in that when rainfall is high, higher levels of reclaimed water can be produced. Conversely, in conditions of low rainfall demand is high, but supplies are low (quite simply, if it rains a lot we water our yards less). If guarantees of delivery are made, the cost of storage and/or augmentation with potable water greatly increases the cost of reclaimed water without a commensurate increase in rates: rates which must still be below the price of the substitute commodity.

Each utility's unique circumstances are critical to making decisions regarding the development of reclaimed water systems and associated pricing policies. For example, utilities with limited wastewater disposal options may view reclaimed water systems primarily as an alternative disposal system. Where potable water resources are dwindling, the substitution of reclaimed water for some uses may be the primary goal. The evaluation of financial consequences will differ markedly between these two situations.

Unlike potable water supply benefits, which are enjoyed primarily by the same people and business that bear the costs, the full benefits of reclaimed water projects often are dispersed over a broader region (such as where reclaimed water projects' environmental and water supply improvements provide benefits to communities downstream). This implies a disconnect between who pays for a reclaimed water project (i.e., the utility's water and wastewater customers) and those who receive some of the important benefits (and may live beyond the service area boundaries and span multiple political jurisdictions). This raises issues about the equity and efficiency of traditional cost recovery approaches, and points toward broader cost sharing and subsidy needs.



The result is that the financial consequences for a utility implementing a reclaimed water system can be undesirable in the short term as potable water and wastewater customers experience increased rates to subsidize the reclaimed water system's capital investment and on-going operation. The local benefits of reclaimed water from an economic standpoint often consist of a reduction in the ultimate outlay of capital costs for potable water treatment facilities, new water resources, and wastewater disposal facilities, but these benefits often lie far in the future, are conjectural, and may not be material (and other reclaimed water benefits may be enjoyed beyond the service area boundaries). While it is certainly legitimate to make current investments in anticipation of future returns, principles of public accountability and sound financial management suggest that these decisions be made in the context of a clear understanding of the reasonable range of expected outcomes.

Within this larger context, the County should consider the following issues before pursuing the development of a reclaimed water system:

- Incremental cost vs. full cost allocation (subsidies between wastewater and reclaimed water users)

- Effect of specific goals served by implementing reclaimed water systems (for example, water resource "creation" or conservation as opposed to alternative wastewater disposal systems) on identifying what part of the customer base should provide subsidies if required

- Issues regarding legal constraints, particularly in terms of environmental regulations mandating conservation and cost-recovery rules established by bodies regulating investor-owned utilities

- Market constraints (potable water as a substitute commodity)

- Effect on potable water consumption (and related billed wastewater usage) – "stranded costs"

- Effect on future need for water resources development – "capacity benefit"

- Public policy issues

    - Conservation

    - Affordability

    - Economic impact

    - Equitable cost distribution (and associated potential for cost sharing or subsidies across beneficiaries beyond the service area boundaries

7.5 Special Assessments

Special assessments are capital charges levied on customers to offset the cost of connecting to the sewer system. Unlike impact fees, which cover the cost of the expansion of system capacity to serve new growth, special assessments cover the cost of collection systems necessary to provide a customer with access to existing capacity (transmission, treatment, and disposal). These customers would also be required to pay an impact fee, in addition to the special assessment, to bear their fair burden of system expansion costs.

If special assessments are used in conjunction with impact fees, the advantage to the utility is that the fixed costs of the system are shared over a larger number of users, while the capital charges offset the additional costs of the facilities required to serve the new customers. This has the effect of mitigating future rate increases. The disadvantage is that these costs are often quite significant for a homeowner, often running between $12,000 and $25,000. This makes voluntary connection difficult to obtain, while mandatory connection can create ill-will.

In our experience, the connection of significant numbers of septic tank users to a central sewer system can provide substantial benefits to existing ratepayers. Consequently, an exercise to determine the potential for the County sewer system is warranted (In our amended scope analyses, provided under separate cover, an analysis of the additional of septic users to the system is completed. However, the analysis is based on best estimates and could change materially with actual data). If the County decides to pursue this avenue, the following steps are recommended:

- Identify potential connections within or approximate to the service area that currently use septic tanks. Smaller sewer system (such as package plants) are also candidates for conversion.
- Prepare a "best estimate" analysis of the costs and revenues expected from such conversion, as well as the probable schedule of conversion.
- In the context of the County's baseline financial management plan for its sewer system, estimate the impact on future rates of the conversion of these users from septic (or smaller system) to central sewer.
- If the initial analysis indicates material benefit could results, commission a master plan for septic conversion in the service area. This plan would refine the initial analysis and confirm (or refute) the original conclusion of financial benefit.

Implementation of a septic conversion plan requires substantial public outreach efforts and accommodation of household financial realities. For this reason, successful efforts in this area almost always include the ability to pay an assessment loan over a reasonable period of time, usually 5-10 years. The assessment is established as a lien on the property that is payable in full upon sale. Consequently, many of the assessments are paid long before the term of the loan has expired. The County can debt finance the construction of the needed facilities, and operating costs will be paid by rate revenue from the new customers.

Jefferson County Environmental Services Department

Final Technical Report

8

Amendment

8. Ame ent

Jeffco-000384

REDOAK CONSULTING
A DIVISION OF MALCOLM PIRNIE

Robert Henderson
ESD Director
Jefferson County
716 Richard Arrington Jr. Blvd. N
Suite A-300
Birmingham, AL 35203

RE: Sewer Rate Stabilization Study – Amendment No. 1

Dear Mr. Henderson:

We have completed the services associated with the June 7, 2006 "Amendment No. 1 To Agreement for Professional Services for Development of a Sewer Rate Stabilization Program". Please note that much of the effort associated with this Amendment provided information that was used as a basis for our basic rate study analysis and is included in our full report on the project. The results of our amended Scope of Work are summarized below:

1. Expand the forecast period to 30 years.

2. Include sub-periods of 5, 10 and 20 years in the forecast with the capacity to examine rate revenue impacts of various scenarios individually or comparatively.

    - The Revenue Sufficiency model forecast period has been updated to include any forecast period between 1 and 30 years.
    - The revenue sufficiency model includes several key variables which may be used individually or simultaneously to test differing scenarios.
    - Examples of 10, 20 and 30 year forecasts are provided as attachments to this letter

3. Re-examine and revise significant forecast assumptions as necessary.

    - Jefferson County staff provided revised data during our meeting on September 18, 2006 and January 4, 2007. Information from the revised data has been incorporated into the revenue sufficiency model, including an update of significant forecast assumptions. This is reflected in our rate study report sent to you under separate cover.

4. Consult with staff and with the County's financial advisor, underwriters and other consultants or experts to validate the underlying assumptions of the forecast.

Jeffco-000385

- Red Oak met with Mr. Steve Saylor, County Finance Director, on September 18, 2006. During this meeting, Red Oak outlined certain concerns regarding assumptions used in the revenue sufficiency model. During and subsequent to this meeting, Mr. Saylor provided verbal answers and documentation satisfying our concerns regarding these assumptions. Documentation provided by Mr. Saylor included letters from County bond council as well as reports from the County's financial advisor. This is reflected in our rate study report sent to you under separate cover.
- In addition, at the request of County officials we conduct meetings and held consultations with an agent for a potential offer to purchase the system, generating rate analysis results based on numerous scenarios. We also advised County officials on the process involved in such a purchase and the due diligence required on both sides of the sale, providing a detailed proposal outlining the elements and costs of such due diligence.

5. Assuming data availability, calculate the replacement cost to the system net of accumulated depreciation.

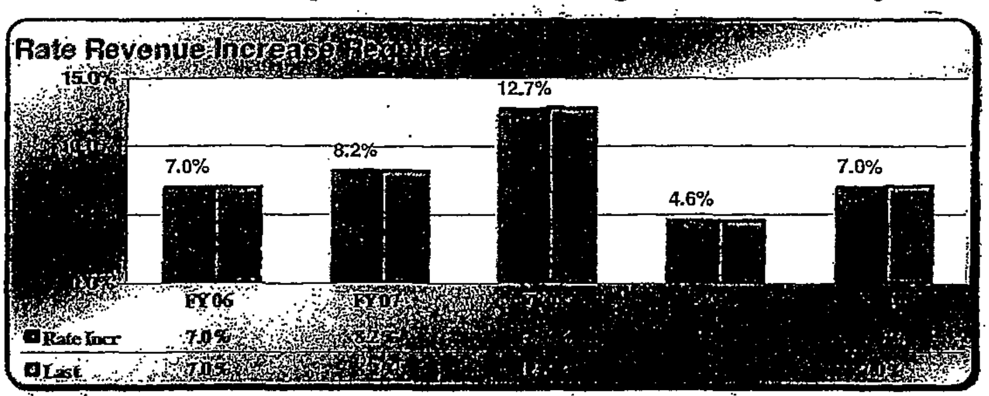
   - Using data provided during the course of the study, an analysis of replacement cost less accumulated depreciation has been completed. This analysis results in a replacement cost less accumulated depreciation of $3,757,000,000 and is attached for your review.

6. Develop an improved demand forecast for the longer forecast period and its sub-periods, including the conversion of existing septic tank users to central sewer services.

   - Data, including a forecast of septic conversions and cost of conversion, was not available during the course of this study.
   - However, the revenue sufficiency model has been customized to include an analysis of septic tank conversions, using general assumptions including the following:
     - It is assumed that between 100 and 500 conversions will occur annually.
     - The average cost of conversion is assumed to be $10,000 per conversion and paid through special assessments from converting customers. (the analysis also allows these costs to be included in the County's capital improvement program)
     - It is assumed that the connecting customers will be largely residential with a consumption of 5,100 gallons per month.
   - 5-year rates resulting from this analysis are included in the figures below:

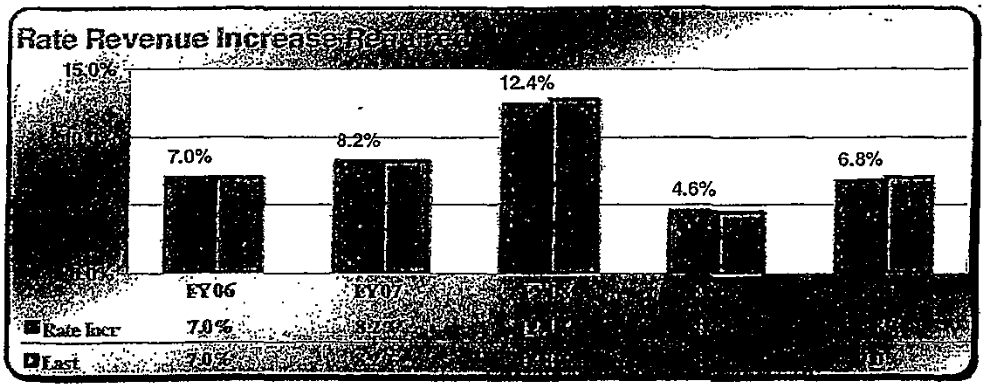
100 Annual Conversions

The figure below provides the rate results assuming 100 annual septic conversions (red bars). The blue bars provide the resulting rate increases of no septic conversions. As can be seen, the annual conversion of 100 septic users does not have a significant effect on the systems rates.



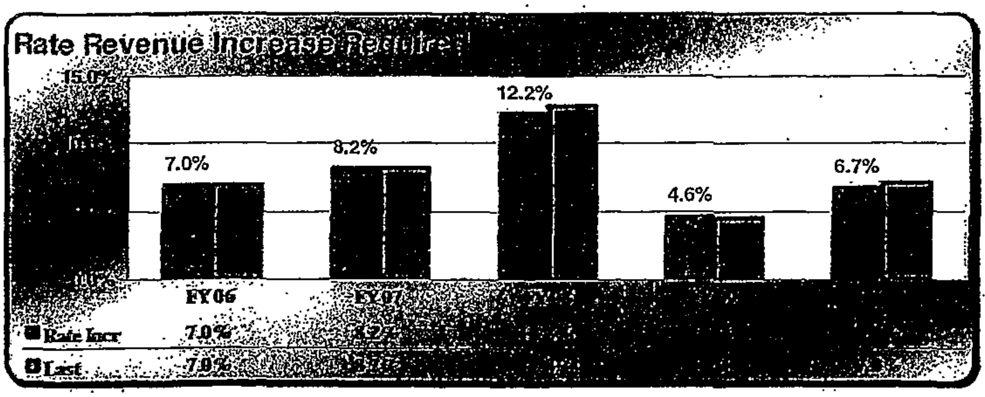
300 Annual Conversions

The figure below provides the rate results assuming 300 annual septic conversions. A slight decrease in rates is observed in fiscal years 2008 and 2010, however, this change is not significant.



500 Annual Conversions

The figure below provides the rate results assuming 500 annual septic conversions. A rate decrease of 0.6% occurs in 2008 and 0.3% in 2010.



7. Project new development based on current development plans over the short term.

   - Current development plans were not available from the County during the course of this study (See item 8 bullet).

8. Project new development based on probable available land uses over the longer periods

- Future land use plans were not available during the course of this study.
- However, growth projections and annual impact fee revenue (from new development) were discussed with County staff during our September 18, 2006 and January 4, 2007 workshops. Staff agreed with the projections used.

9. Develop, in conjunction with staff and consulting engineers, estimated capital improvement requirements over the longer periods to serve new customers and to maintain assets in the current system.

    - The County's consulting engineer provided a 10-year Capital Improvement Plan which is used in the revenue sufficiency analysis. Beyond 10-years, the average annual amount of capital improvements, $75,000,000, is estimated.

10. Make presentations to staff, County consultants, and the Jefferson County commission as required.

    - Two workshops have been conducted with County staff.

11. Prepare a preliminary report reflecting the results of the analysis.

    - This letter is included with a Draft Technical Report summarizing our Sewer Rate Stabilization Study.

12. Review the report with appropriate County officials.

    - Will be conducted as requested

13. Prepare a final report for presentation to the Jefferson County Commission.

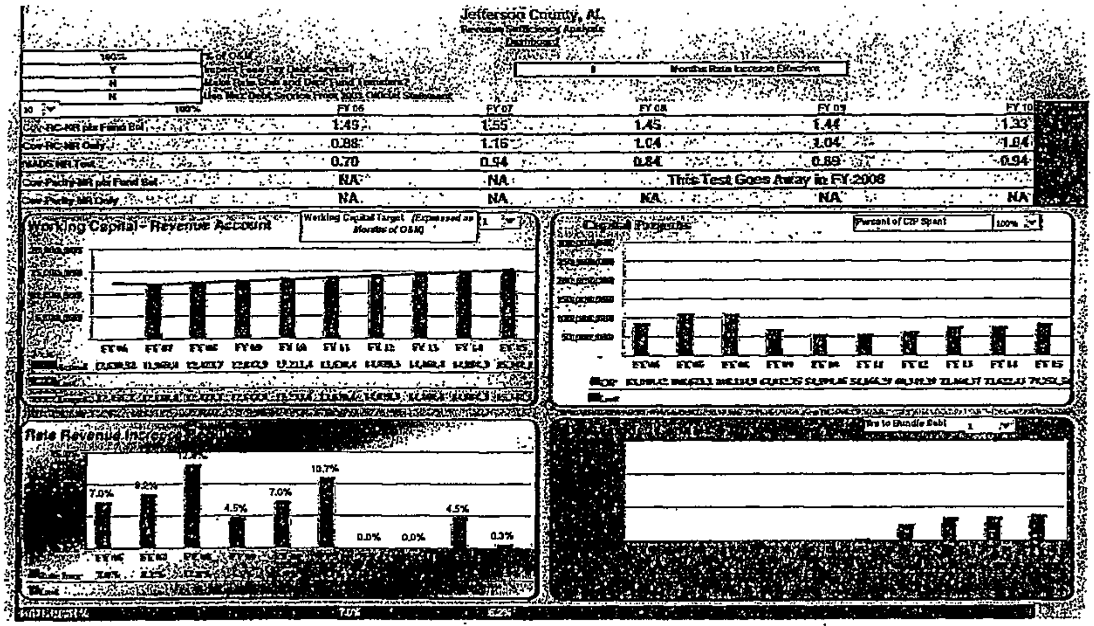
    - Will be conducted as requested

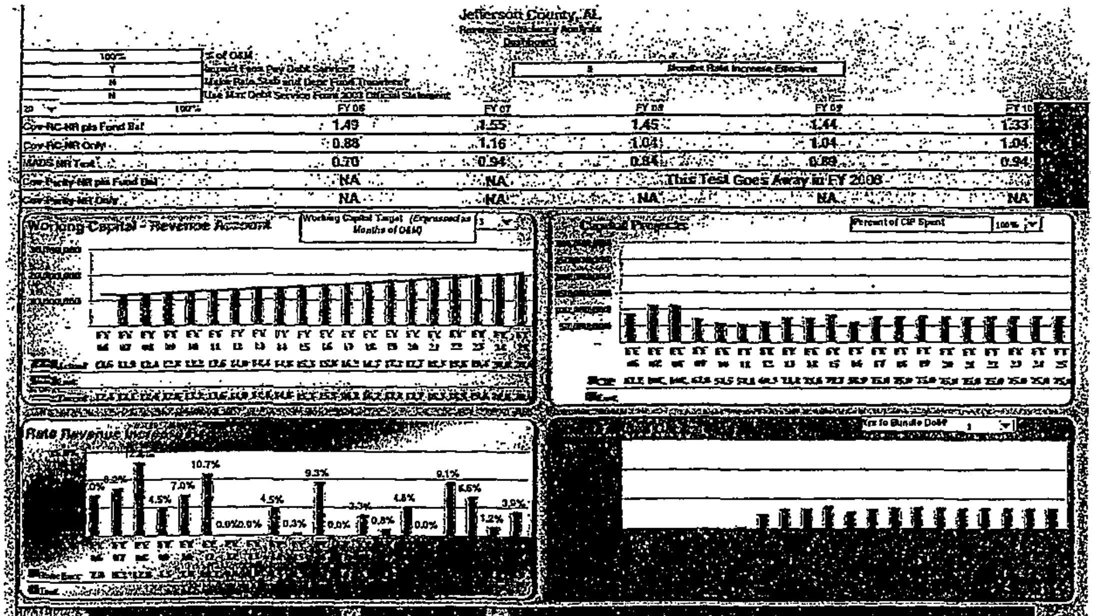
If you or your staff has any questions regarding this letter, please do not hesitate to contact me at 407-620-9954. If you can provide data that was originally not available during the study, we have set up the model to be able to run scenarios based on that data and will be pleased to assist you.

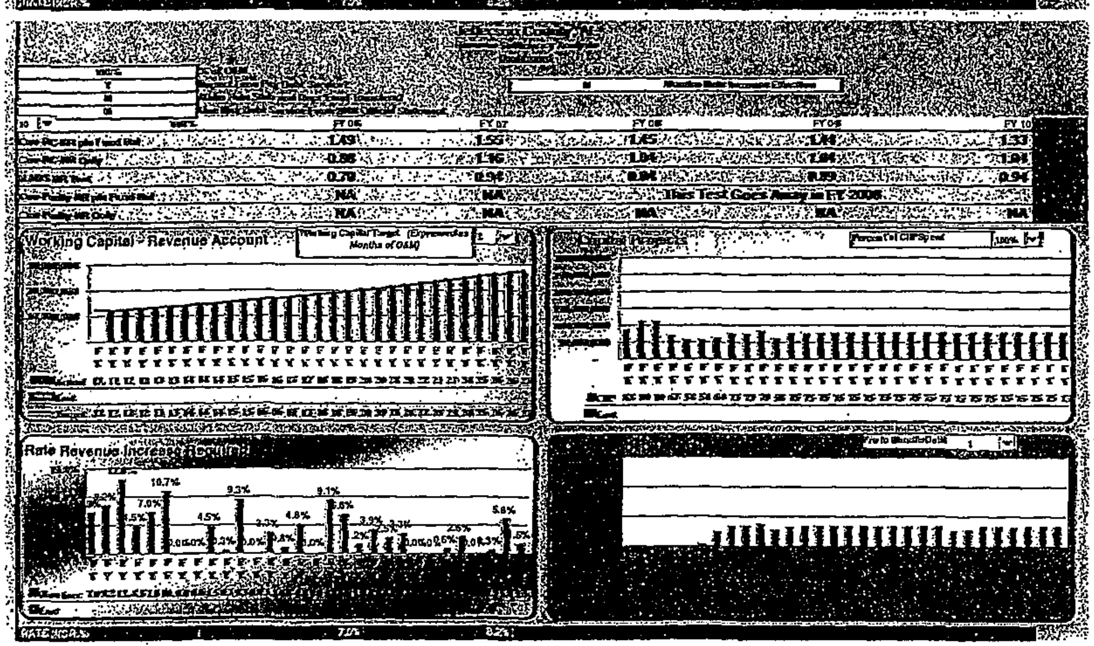
Very truly yours,

Robert Lockridge
Project Manager

10, 20 and 30 Year Forecasts







PATHWAYS TO LASTING SOLUTI

Jeffco-000392

Replacement Cost less Depreciation Analysis

SUMMARY
REPLACEMENT COST NEW LESS DEPRECIAITON CALCULATION
AS OF 6/30/2005

ASSET CATEGORY	REPLACEMENT COST	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
EXISTING ASSETS	$ 2,120,651,818	$ (809,806,034)	$ 1,310,845,784
CONSTRUCTION IN PROGRESS	1,026,459,722	0	1,026,459,722
CIPPs	1,741,183,554	(321,459,443)	1,419,724,114
TOTAL	$ 4,888,295,094	$ (1,131,265,476)	$ 3,757,029,620

Jeffco-000394

R-000957

EXISTING ASSETS

DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIAITION PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
1.6 ACRES ADJ TURKEY CREEK, PINSON	2001	1.1478007	15,495.31	0.00%	0.00	15,495.31
EMER SWR REPAIR	2001	1.1478007	280.02	0.00%	0.00	280.02
LAND PURCHASE	2001	1.1478007	11,266.20	0.00%	0.00	11,266.20
EMER SWR REPAIR-CARRAWAY METHODIST	2001	1.1478007	1,891,692.62	0.00%	0.00	1,891,692.62
EMER SWR REPAIR-CAHABA RIVERSLAND	2001	1.1478007	342,152.36	0.00%	0.00	342,152.36
EMER SWR REPAIR-CAHABA RIVERSLAND	2001	1.1478007	162,156.70	0.00%	0.00	162,156.70
EMER SWR REPAIR BLACK WARRIOR CAHABA	2001	1.1478007	48,781.53	0.00%	0.00	48,781.53
EMR SWR REPAIR BLACK WARRRIOR CAHABA	2002	1.1135668	27,839.17	0.00%	0.00	27,839.17
EMR SWR REPAIR BLACK WARRIOR CAHABA	2002	1.1135668	277,206.12	0.00%	0.00	277,206.12
GREENWAY PROPERTY	2001	1.1478007	175,720.66	0.00%	0.00	175,720.66
EMER SWR REPAIR-BLACK WARRIOR	2001	1.1478007	688,353.31	0.00%	0.00	688,353.31
EMER SWR REPAIR CAHABA RIVERSLAND	2001	1.1478007	72,145.01	0.00%	0.00	72,145.01
EMER SWR REPAIR CAHABA RIVERSLAND	2001	1.1478007	75,754.85	0.00%	0.00	75,754.85
EMER SWR REPAIR CAHABA RIVERSLAND	2001	1.1478007	70,796.35	0.00%	0.00	70,796.35
EMER SWR REPAIR	2001	1.1478007	89,758.02	0.00%	0.00	89,758.02
EMER SWR REPAIR LAND PURCHASE	2001	1.1478007	5,853.78	0.00%	0.00	5,853.78
LAND PURCHASE -2149 HEADRICK ROAD	2002	1.1135668	104,659.65	0.00%	0.00	104,659.65
EMR SWR REPAIR-CAHABA RIVER	2002	1.1135668	382,223.39	0.00%	0.00	382,223.39
EMR SWR REPAIR-BLACK WARRIOR	2002	1.1135668	74,590.76	0.00%	0.00	74,590.76
EMR SWR REPAIR-CAHABA RIVERSLAND	2001	1.1478007	354,788.89	0.00%	0.00	354,788.89
EMR SWR REPAIR-CAHABA RIVERS LAND	2002	1.1135668	6,239.45	0.00%	0.00	6,239.45
EMR SWR REPAIR BLACK WARRIOR	2002	1.1135668	33,477.16	0.00%	0.00	33,477.16
EMR SWR REPAIR PAT O'SULLIVAN PROPERTY	2002	1.1135668	646.95	0.00%	0.00	646.95
EMR SWR REPAIR O'SULLIVAN PROPERTY	2002	1.1135668	4,788.34	0.00%	0.00	4,788.34
EMR SWR REPAIR REIMBURSE PROPERTY	2002	1.1135668	413.13	0.00%	0.00	413.13
EMR SWR REPAIR REIMBURSE PROPERTY	2002	1.1135668	505.56	0.00%	0.00	505.56
EMR SWR REPAIR-CAHABA RIVERSLAND	2002	1.1135668	54,377.54	0.00%	0.00	54,377.54
EMR SWR REPAIR O'SULLIVAN PROPERTY	2002	1.1135668	2,521.12	0.00%	0.00	2,521.12
EMR SWR REPAIR LEWIS PROPERTY	2002	1.1135668	6,673.90	0.00%	0.00	6,673.90
EMR SWR REPAIR WEAVER AGENCY	2002	1.1135668	5,517.47	0.00%	0.00	5,517.47
EMR SWR REPAIR BIR WATER WORKS	2002	1.1135668	5,011.05	0.00%	0.00	5,011.05
EMR SWR REPAIR WALKER PROPERTY	2002	1.1135668	3,721.63	0.00%	0.00	3,721.63
EMR SWR REPAIR TAPAWINGO SPRINGS	2002	1.1135668	18,373.85	0.00%	0.00	18,373.85
EMER SWR REPAIR APPRAISAL ON PALOS	2002	1.1135668	2,783.92	0.00%	0.00	2,783.92
EMR SWR REPAIR-CAHABA RIVERSLAND	2002	1.1135668	16,624.38	0.00%	0.00	16,624.38
EMR SWR REPAIR CAHABA RIVER LAND TRUST	2002	1.1135668	1,558,993.58	0.00%	0.00	1,558,993.58
EMR SWR REPAIR-CAHABA RIVERS LAND	2002	1.1135668	209,691.70	0.00%	0.00	209,691.70
EMR SWR REPAIR-CAHABALAND TRUST	2002	1.1135668	33,129.88	0.00%	0.00	33,129.88
EMR SWR REPAIR TITLE LILLY EPPERSON	2002	1.1135668	1,296.19	0.00%	0.00	1,296.19
EMR SWR RPAIR PEARSON PROPERTY	2002	1.1135668	1,336.28	0.00%	0.00	1,336.28
EMR SWR REPAIR PEARSON PROPERTY	2002	1.1135668	1,336.28	0.00%	0.00	1,336.28
EMR SWR REPAIR SURVEY OF LEWIS PROPERTY	2002	1.1135668	9,153.52	0.00%	0.00	9,153.52
EMR SWR REPAIR LEGAL SERVICES	2002	1.1135668	2,029.43	0.00%	0.00	2,029.43
EMR SWR REPAIR HARRIS PROPERTY	2002	1.1135668	1,391.96	0.00%	0.00	1,391.96
EMR SWR REPAIR VICKERS PROPERTY	2002	1.1135668	1,290.62	0.00%	0.00	1,290.62
EMR SWR REPAIR LEGAL SERVICES	2002	1.1135668	3,514.19	0.00%	0.00	3,514.19
EMR SWR REPAIR OVERTON ROAD	2002	1.1135668	2,004.42	0.00%	0.00	2,004.42
EMR SWR REPAIR TITLE ON SVI PROPERTY	2002	1.1135668	66.81	0.00%	0.00	66.81
EMR SWR REPAIR SHIELDS PROPERTY	2002	1.1135668	2,115.78	0.00%	0.00	2,115.78
EMR SWR REPAIR PARRISH PROPERTY	2002	1.1135668	2,115.78	0.00%	0.00	2,115.78
SEP LAND PURCHASE	2002	1.1135668	3,547.48	0.00%	0.00	3,547.48
REAL ESTATE PURCHASE	2002	1.1135668	278,391.71	0.00%	0.00	278,391.71
LAND PURCHASE	2003	1.0876158	34,206.98	0.00%	0.00	34,206.98
SEP-LAND PURCHASE, ALA WEST, AL LLC	2003	1.0876158	718,560.01	0.00%	0.00	718,560.01
LAND PURCHASE VILLAGE CRK SHADY GRO	2003	1.0876158	303,328.69	0.00%	0.00	303,328.69
SEP-LAND PUR. CAHABA GIRL SCOUT COUNCIL	2003	1.0876158	215,407.20	0.00%	0.00	215,407.20
SEP LAND PURCHASE-DOUGLAS ROSSER	2003	1.0876158	54,845.60	0.00%	0.00	54,845.60
SEP LAND PUR. WATER WORKS & SUR BD	2003	1.0876158	2,739,955.38	0.00%	0.00	2,739,955.38
SEP LAND PURCHASE- U.S. STEEL	2003	1.0876158	4,386,993.06	0.00%	0.00	4,386,993.06
LAND PURCHASE COMPASS BANK PROPERTY	2005	1	98,042.63	0.00%	0.00	98,042.63
LAND PURCHASE	2005	1	24,941.98	0.00%	0.00	24,941.98
LAND CITY OF MIDFIELD	2004	1.0232607	115,310.30	0.00%	0.00	115,310.30
LAND-BLACK WARRIOR RIVER TRUST	2005	1	21,049.64	0.00%	0.00	21,049.64
LAND	2004	1.0232607	204,466.89	0.00%	0.00	204,466.89
LAND PURCHASE-ATKINS & JOHNSON	2005	1	2,140,000.00	0.00%	0.00	2,140,000.00
LAND	2004	1.0232607	49,922.32	0.00%	0.00	49,922.32
LAND PURCHASE-CITY OF VESTAVIA	2005	1	399,388.85	0.00%	0.00	399,388.85
LAND-OWNED BY ROSCOE & SHELIA CONN	2004	1.0232607	100,202.46	0.00%	0.00	100,202.46
LAND PURCHASE BY BLACK WARRIOR	2004	1.0232607	359,166.35	0.00%	0.00	359,166.35
LAND	2004	1.0232607	57,232.58	0.00%	0.00	57,232.58
GREENWAY TAPAWINGO SPRINGS	2000	1.1703102	296,673.65	0.00%	0.00	296,673.65
GREENWAY RUFFNER MTN PARCELS 2 & 2(A)	2000	1.1703102	921,354.62	0.00%	0.00	921,354.62
GREENWAY RUFFNER	2000	1.1703102	520,800.34	0.00%	0.00	520,800.34
LAND VALLEY CREEK WWTP	1932	46.372611	46.37	0.00%	0.00	46.37
SEC 24 & 25 T17S R4W BLACK	1982	1.9033987	68,141.67	0.00%	0.00	68,141.67
SEC 24 & 25 T17S R4W BLACK CREEK LA	1982	1.9033987	68,141.67	0.00%	0.00	68,141.67
EMER SWR REPAIR-RIDGEWOOD S/D	2000	1.1703102	10,181.70	0.00%	0.00	10,181.70
EMER SWR REPA-RIDGEWOOD S/D	2000	1.1703102	13,728.91	0.00%	0.00	13,728.91
PATTON CREEK TRUNK SEWER PHASE III	1998	1.2298142	77,945.62	0.00%	0.00	77,945.62

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DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIAITION PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
TRACT 32 VESTAVIA TRUNK SEWER REPLACE	1998	1.2298142	211,766.48	0.00%	0.00	211,766.48
TRACT 32 VESTAVIA TRUNK SEWER REPLACE	1998	1.2298142	5,650.41	0.00%	0.00	5,650.41
CONDEMANATION LITTLE SHADES CRK PWKY	1999	1.2016009	596,085.38	0.00%	0.00	596,085.38
CONDEMNATION PATTON CREEK TRUNK	1998	1.2298142	547,033.77	0.00%	0.00	547,033.77
CONDEMNATION AWARDS ROW & TEMPORARY	1998	1.2298142	559,398.82	0.00%	0.00	559,398.82
CONDEMNATION VESTAVIA TRUNK SEWER	1998	1.2298142	1,061,677.56	0.00%	0.00	1,061,677.56
CONDEMNATION LITTLE SHADES CREEK PH III	1999	1.2016009	93,524.08	0.00%	0.00	93,524.08
PANORAMA REPLACEMENT SEWER	1998	1.2298142	6,458.98	0.00%	0.00	6,458.98
VESTAVIA TRUNK SEWER REPLACEMENT	1998	1.2298142	3,348.78	0.00%	0.00	3,348.78
VESTHAVEN REPLACEMENT SEWER RIGHT OF	1998	1.2298142	3,504.97	0.00%	0.00	3,504.97
LITTLE SHADES CREEK TRUNK SEWER ROW	1998	1.2298142	1,392.15	0.00%	0.00	1,392.15
TRACT 62 LITTLE SHADES CREEK TRUNK	1998	1.2298142	8,748.90	0.00%	0.00	8,748.90
ROW TRACT 34 VESTAVIA TRUNK	1998	1.2298142	1,229.81	0.00%	0.00	1,229.81
TRACT 74 LITTLE SHADES CREEK TRUNK	1998	1.2298142	1,115.44	0.00%	0.00	1,115.44
CONDEMNATION LITTLE SHADES CREEK	1998	1.2298142	29,458.72	0.00%	0.00	29,458.72
TAXES VESTAVIA TRUNK SEWER	1998	1.2298142	1,661.95	0.00%	0.00	1,661.95
LITTLE SHADES CREEK TRUNK SEWER	1998	1.2298142	7,199.33	0.00%	0.00	7,199.33
TRACT 65 LITTLE SHADES CREEK TRUNK	1999	1.2016009	26,435.22	0.00%	0.00	26,435.22
TRACT 60 LITTLE SHADES CREEK TRUNK	1999	1.2016009	8,411.21	0.00%	0.00	8,411.21
TRACT 47 LITTLE SHADES CREEK TRUNK	1998	1.2298142	3,987.06	0.00%	0.00	3,987.06
TRACT 64 LITTLE SHADES TRUNK SEWER	1998	1.2298142	35,537.94	0.00%	0.00	35,537.94
LITTLE SHADES CREEK TRUNK SEWER	1998	1.2298142	11,338.89	0.00%	0.00	11,338.89
TRACT 66 LITTLE SHADES CREEK TRUNK	1998	1.2298142	6,430.70	0.00%	0.00	6,430.70
TRACT 36 LITTLE SHADES CREEK TRUNK	1998	1.2298142	7,378.89	0.00%	0.00	7,378.89
TRACT 67 LITTLE SHADES CREEK TRUNK	1998	1.2298142	922.36	0.00%	0.00	922.36
TRACT 73 LITTLE SHADES CREEK TRUNK	1998	1.2298142	2,679.77	0.00%	0.00	2,679.77
TRACT 40 VESTAVIA TRUNK SEWER ROW	1998	1.2298142	368.94	0.00%	0.00	368.94
TRACT 21 VESTHAVEN REPLACEMENT SEWER	1998	1.2298142	12,667.09	0.00%	0.00	12,667.09
TRACT 27 VESTAVIA TRUNK SEWER ROW	1998	1.2298142	6,064.21	0.00%	0.00	6,064.21
ROW WATKINS GLEN CAPPED SWR CONN TRCT	1999	1.2016009	1,361.41	0.00%	0.00	1,361.41
TRACT 4 BEAVER CREEK TRUNK SEWER	1998	1.2298142	3,259.01	0.00%	0.00	3,259.01
TRACT 3 PATTON CREEK TRUNK SEWER	1998	1.2298142	30,247.28	0.00%	0.00	30,247.28
TRACT 61 LITTLE SHADES CRK TRK SWR ROW	1999	1.2016009	2,005.47	0.00%	0.00	2,005.47
TAXES ON TRACT 7 VESTAVIA TRUNK SEWER	1998	1.2298142	1,558.20	0.00%	0.00	1,558.20
TRACT 34 LITTLE SHADES TRUNK SEWER	1998	1.2298142	5,429.63	0.00%	0.00	5,429.63
ROW WATKINS GLEN CAPPED SWR CONN TRCT	1999	1.2016009	2,041.52	0.00%	0.00	2,041.52
TRACT 54 LITTLE SHADES CREEK TRUNK	1998	1.2298142	40,773.26	0.00%	0.00	40,773.26
TRACT 68 LITTLE SHADES CREEK SEWER ROW	1998	1.2298142	2,146.03	0.00%	0.00	2,146.03
CONDEMNATION JEFFERSON COUNTY VS	1998	1.2298142	35,830.39	0.00%	0.00	35,830.39
TRACT 63 LITTLE SHADES CREEK TRUNK	1998	1.2298142	3,689.44	0.00%	0.00	3,689.44
TAXES ON TRACT 32 VESTAVIA TRUNK SEWER	1998	1.2298142	1,310.80	0.00%	0.00	1,310.80
TRACT 20 VESTHAVEN REPLACEMENT SEWER	1998	1.2298142	9,223.61	0.00%	0.00	9,223.61
TRACT 42 LITTLE SHADES TRUNK SEWER	1998	1.2298142	3,172.92	0.00%	0.00	3,172.92
TRACT 35 LITTLE SHADES CREEK TRUNK	1998	1.2298142	8,977.64	0.00%	0.00	8,977.64
TRACT 49 LITTLE SHADES TRUNK SEWER	1998	1.2298142	11,190.08	0.00%	0.00	11,190.08
TRACT 53 LITTLE SHADES CREEK TRUNK	1998	1.2298142	16,309.80	0.00%	0.00	16,309.80
TRACT 59 LITTLE SHADES CREEK SEWER	1998	1.2298142	13,390.22	0.00%	0.00	13,390.22
TRACT 39 VESTAVIA TRUNK SEWER ROW	1998	1.2298142	368.94	0.00%	0.00	368.94
TRACT 35 VESTAVIA TRUNK SEWER ROW	1998	1.2298142	7,132.92	0.00%	0.00	7,132.92
PATTON CREEK TRUNK SEWER PHASE III ROW	1998	1.2298142	129,892.97	0.00%	0.00	129,892.97
TRACT 43 LITTLE SHADES TRUNK	1999	1.2016009	2,897.30	0.00%	0.00	2,897.30
TRACT 43 LITTLE SHADES TRUNK	1999	1.2016009	2,897.30	0.00%	0.00	2,897.30
APPRAISAL BLUE RIDGE BLVD PUMP STATION	1999	1.2016009	1,321.76	0.00%	0.00	1,321.76
TRACT 43 LITTLE SHADES TRUNK	1999	1.2016009	2,897.30	0.00%	0.00	2,897.30
TRACT 43 LITTLE SHADES	1999	1.2016009	2,897.30	0.00%	0.00	2,897.30
TRACT 43 LITTLE SHADES TRUNK	1999	1.2016009	2,897.30	0.00%	0.00	2,897.30
TRACT 33 LITTLE SHADES TRUNK	1999	1.2016009	620.43	0.00%	0.00	620.43
TRACT 33 LITTLE SHADES TRUNK SEWER REPL	1999	1.2016009	11,840.76	0.00%	0.00	11,840.76
TRACT 43 LITTLE SHADES TRUNK SEWER REPL	1999	1.2016009	14,486.50	0.00%	0.00	14,486.50
EMER SWR RPA-CAHABA RIVER-PAR-2	1999	1.2016009	2,404.40	0.00%	0.00	2,404.40
EMER SWR RPL CAHABA RIVER PARCEL-5	1999	1.2016009	2,224.16	0.00%	0.00	2,224.16
ROW TRACT 50 LITTLE SHADES SEWER	1999	1.2016009	22,972.21	0.00%	0.00	22,972.21
ROW TRACT 39 LITTLE SHADES CREEK SEWER	1999	1.2016009	11,662.01	0.00%	0.00	11,662.01
EMER SWR RPL CAHABA RIVER PARCEL-6	1999	1.2016009	2,150.87	0.00%	0.00	2,150.87
ROW TRACT 56 & 57 LITTLE SHADES SEWER	1999	1.2016009	73,024.89	0.00%	0.00	73,024.89
EMER SWR REPR CHAPEL HILL	1999	1.2016009	1,816.82	0.00%	0.00	1,816.82
RWO TRACT 8 B PATTON CREEK TRUNK	1999	1.2016009	3,140.98	0.00%	0.00	3,140.98
EMER SWR REPA-15 CHAPEL HILL	1999	1.2016009	4,538.45	0.00%	0.00	4,538.45
EMR SWR REPA-TRACT 7 RPL	1999	1.2016009	2,374.36	0.00%	0.00	2,374.36
EMER SWR RPR-CAHABA TRK SWR #4	1999	1.2016009	1,689.45	0.00%	0.00	1,689.45
EMER SWR RPR-CAHABA RIVER-PARCEL #3	1999	1.2016009	2,472.89	0.00%	0.00	2,472.89
TRACT 33 LITTLE SHADES TRUCK	1999	1.2016009	620.43	0.00%	0.00	620.43
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	5,345.12	0.00%	0.00	5,345.12
EMR SWR REPAIR CAHABA RIVER	2002	1.1135668	15,559.87	0.00%	0.00	15,559.87
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	11,102.26	0.00%	0.00	11,102.26
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	9,131.25	0.00%	0.00	9,131.25
EMER SWR REPA IDA LANE TRNK SEWER	2003	1.0876158	17,263.73	0.00%	0.00	17,263.73
EMR SWR REPAIR-CAHABA RIVER	2002	1.1135668	12,026.52	0.00%	0.00	12,026.52
EMR SWR REPAIR-CAHABA RIVER	2002	1.1135668	70,721.52	0.00%	0.00	70,721.52

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DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIAITION PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
EMR SWR REPAIR-CAHABA RIVER	2002	1.1135668	24,469.52	0.00%	0.00	24,469.52
EMR SWR REPAIR-CAHABA RIVER	2002	1.1135668	87,661.10	0.00%	0.00	87,661.10
EMR SWR REPAIR-VESTAVIA LATERAL	2002	1.1135668	877.49	0.00%	0.00	877.49
EMR SWR REPAIR-IDA LANE TRUNK SEWER	2002	1.1135668	398.66	0.00%	0.00	398.66
LITTLE SHADES CREEK SWR REPL	2002	1.1135668	18,431.76	0.00%	0.00	18,431.76
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	3,897.48	0.00%	0.00	3,897.48
EMER SWR REPAIR	2002	1.1135668	1,416.35	0.00%	0.00	1,416.35
EMR SWR REPAIR GRANTS MILL SEWER	2001	1.1478007	1,999.47	0.00%	0.00	1,999.47
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	3,613.52	0.00%	0.00	3,613.52
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	4,278.32	0.00%	0.00	4,278.32
EMR SWR REPAIR-IDA LANE TRUNK SEWER	2002	1.1135668	1,113.57	0.00%	0.00	1,113.57
EMR SWR REPAIR-IDA LANE TRUNK SEWER	2002	1.1135668	8,908.53	0.00%	0.00	8,908.53
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	4,493.24	0.00%	0.00	4,493.24
EMR SWR REPAIR CAHABA RIVER TRUNK	2002	1.1135668	6,031.08	0.00%	0.00	6,031.08
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	4,724.86	0.00%	0.00	4,724.86
EMR SWR REPAIR-CAHABA RIVER TRUNK	2002	1.1135668	9,086.71	0.00%	0.00	9,086.71
EMR SWR REPAIR-IDA LANE TRUNK SEWER	2002	1.1135668	1,670.35	0.00%	0.00	1,670.35
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	278.39	0.00%	0.00	278.39
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	1,670.35	0.00%	0.00	1,670.35
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	8,017.68	0.00%	0.00	8,017.68
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	222.71	0.00%	0.00	222.71
EMR SWR REPAIR-IDA LANE TRUNK SEWER	2002	1.1135668	334.07	0.00%	0.00	334.07
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	5,233.76	0.00%	0.00	5,233.76
EMR SWR REPAIR IDA LAND TRUNK SEWER	2002	1.1135668	3,340.70	0.00%	0.00	3,340.70
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	8,160.22	0.00%	0.00	8,160.22
EMR SWR REPAIR PATTON CREEK TRUNK	2002	1.1135668	506.67	0.00%	0.00	506.67
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	11,135.67	0.00%	0.00	11,135.67
EMR SWR REPAIR-IDA LANE TRUNK SEWER	2002	1.1135668	3,340.70	0.00%	0.00	3,340.70
EMR SWR REPAIR-IDA LANE TRUNK SEWER	2002	1.1135668	1,670.35	0.00%	0.00	1,670.35
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	1,670.35	0.00%	0.00	1,670.35
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	4,956.49	0.00%	0.00	4,956.49
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	2,227.13	0.00%	0.00	2,227.13
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	9,406.30	0.00%	0.00	9,406.30
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	139.20	0.00%	0.00	139.20
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	5,567.83	0.00%	0.00	5,567.83
EMR SWR REPAIR IDA LANE TRUNK SEWER	2002	1.1135668	8,351.75	0.00%	0.00	8,351.75
EMR SWR REPAIR-IDA LANE TRUNK SEWER	2002	1.1135668	1,670.35	0.00%	0.00	1,670.35
EMR SWR REPAIR-IDA LANE TRUNK SEWER	2002	1.1135668	6,681.40	0.00%	0.00	6,681.40
EMR SWR REPAIR-IDA LANE TRUNK SEWER	2002	1.1135668	4,454.27	0.00%	0.00	4,454.27
EMR SWR REPAIR-CHAPEL HILL SEWER	2002	1.1135668	5,289.44	0.00%	0.00	5,289.44
EMR SWR REPAIR-IDA LANE TRUNK SEWER	2002	1.1135668	2,227.13	0.00%	0.00	2,227.13
EMER SWR REPAIR-TR 7 GRANTS MILL RD SAN.	2000	1.1703102	9,562.60	0.00%	0.00	9,562.60
EMER SWR REPAIR-TR 43 CHAPEL HILL TRUNK	2000	1.1703102	8,117.27	0.00%	0.00	8,117.27
EMER SWR REPAIR-TR 40 CHAPEL HILL TRUNK	2000	1.1703102	251.62	0.00%	0.00	251.62
EMER SWR REPAIR CHAPEL HILL TRUNK	2001	1.1478007	8,458.14	0.00%	0.00	8,458.14
EMER SWR REPAIR LITTLE SHADES PHASE II	2001	1.1478007	694.65	0.00%	0.00	694.65
EMER SWR REPAIR CHAPEL HILL	2001	1.1478007	189.39	0.00%	0.00	189.39
EMER SWR REPAIR LITTLE SHADES II	2001	1.1478007	694.65	0.00%	0.00	694.65
EMER SWR REPAIRS GRANTS MILL RD	2001	1.1478007	9,982.42	0.00%	0.00	9,982.42
EMER SWR REPAIR GRANTS MILL RD	2001	1.1478007	405.17	0.00%	0.00	405.17
EMER SWR REPAIR GRANTS MILL RD	2001	1.1478007	17,345.56	0.00%	0.00	17,345.56
EMER SWR REPAIR GRANTS MILL RD	2001	1.1478007	1,129.44	0.00%	0.00	1,129.44
EMER SWR REPAIR LITTLE SHADES PHASE II	2001	1.1478007	694.65	0.00%	0.00	694.65
EMER SWR REPAIR-TR 5 GRANTS MILL RD SAN	2000	1.1703102	48,165.29	0.00%	0.00	48,165.29
EMER SWR REPAIR LITTLE SHADES PHASE II	2001	1.1478007	694.65	0.00%	0.00	694.65
EMER SWR REPAIR LITTLE SHADES PHASE II	2001	1.1478007	694.65	0.00%	0.00	694.65
EMER SWR REPAIR CHAPEL HILL	2001	1.1478007	2,292.16	0.00%	0.00	2,292.16
EMER SWR REPAIR CHAPEL HILL SEWER	2001	1.1478007	591.12	0.00%	0.00	591.12
EMER SWR REPAIR LETTLE SHADES PHASE II	2001	1.1478007	3,473.24	0.00%	0.00	3,473.24
EMER SWR REPAIR GRANTS MILL RD	2001	1.1478007	676.05	0.00%	0.00	676.05
EMER SWR REPAIR GRANTS MILL RD	2001	1.1478007	676.05	0.00%	0.00	676.05
EMER SWR REPAIR	2001	1.1478007	92.40	0.00%	0.00	92.40
EMER SWR REPAIRS GRANTS MILL RD	2001	1.1478007	809.20	0.00%	0.00	809.20
EMER SWR REPAIR-TR 41 CHAPEL HILL TRUNK	2000	1.1703102	73.73	0.00%	0.00	73.73
EMER SWR REPAIRS GRANTS MILL RD	2001	1.1478007	2,866.06	0.00%	0.00	2,866.06
EMER SWR REPAIR GRANTS MILL RD	2001	1.1478007	676.05	0.00%	0.00	676.05
EMER SWR REPAIR GRANTS MILL RD	2001	1.1478007	1,220.11	0.00%	0.00	1,220.11
EMER SWR REPAIR-TR 39 CHAPEL HILL TRUNK	2000	1.1703102	251.62	0.00%	0.00	251.62
EMER SWR REPAIR-CHAPEL HILL	2001	1.1478007	8,566.04	0.00%	0.00	8,566.04
EMER SWR REPAIR-GRANTS MILL RD	2001	1.1478007	34,434.02	0.00%	0.00	34,434.02
EMER SWR REPAIR VESTHAVEN	2001	1.1478007	3,333.56	0.00%	0.00	3,333.56
EMER SWR REPAIR-TR 12 (LINE S-14) GRANTS	2001	1.1478007	1,883.54	0.00%	0.00	1,883.54
EMER SWR REPAIR-TR 38, CHAPEL HILL	2001	1.1478007	246.78	0.00%	0.00	246.78
EMER SWR REPAIR GRANT MILL RD	2001	1.1478007	45,912.03	0.00%	0.00	45,912.03
EMER SWR REPAIR GRANT MILL RD	2001	1.1478007	724.26	0.00%	0.00	724.26
EMER SWR REP-TR 8-CHAPEL HILL TR SWR RD	2000	1.1703102	15,291.55	0.00%	0.00	15,291.55
EMER SWR REP-TR 1-CHAPEL HILL TR SWR RD	2000	1.1703102	4,795.93	0.00%	0.00	4,795.93
EMER SWR REP-TR 48-CHAPEL HILL TR SWR RD	2000	1.1703102	4,362.92	0.00%	0.00	4,362.92
EMER SWR REP-TR 3-CHAPEL HILL TR SWR RD	2000	1.1703102	8,889.68	0.00%	0.00	8,889.68

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EMER SWR REP-TR 46-CHAPEL HILL TR SWR RE	2000	1.1703102	8,393.47	0.00%	0.00	8,393.47
EMER SWR REP-TR 29-CHAPEL HILL TR SWR RE	2000	1.1703102	2,437.76	0.00%	0.00	2,437.76
EMER SWR REP-TR 47-CHAPEL HILL TR SWR RE	2000	1.1703102	5,977.94	0.00%	0.00	5,977.94
EMER SWR REP-CONDEMNATION-CASE 171060	2000	1.1703102	349,463.65	0.00%	0.00	349,463.65
EMER SWR REP-TR 2-CHAPEL HILL TR SWR REF	2000	1.1703102	6,394.58	0.00%	0.00	6,394.58
EMER SWR REP-TR 30-CHAPEL HILL TR SWR RE	2000	1.1703102	3,351.77	0.00%	0.00	3,351.77
EMER SWR REP-TR 14- CHAPEL HILL TR SWR R	2000	1.1703102	3,369.32	0.00%	0.00	3,369.32
EMER SWR REP-TRACT 34-CHAPEL HILL SW REF	2000	1.1703102	2,168.58	0.00%	0.00	2,168.58
EMER SWR REPAIR- TR 3 & 4 GRANTS MILL RD	2000	1.1703102	40,912.88	0.00%	0.00	40,912.88
EMER SWR REP-TR 8 (S14) GRANTS MILL ROAD	2001	1.1478007	780.50	0.00%	0.00	780.50
EMER SWR REPAIR- TR 7 GRANTS MILL RD	2000	1.1703102	427.16	0.00%	0.00	427.16
EMER SWR REPAIR-TR 31 CHAPEL HILL TRUNK	2000	1.1703102	3,824.57	0.00%	0.00	3,824.57
EMER SWR REPAIR-TR 6 CHAPEL HILL TRUNK S	2000	1.1703102	8,631.04	0.00%	0.00	8,631.04
EMER SWR REPAIR-CROSS HAVEN SEWER	2000	1.1703102	585.16	0.00%	0.00	585.16
EMER SWR REPAIR-CROSS HAVEN SWR	2000	1.1703102	585.16	0.00%	0.00	585.16
EMER SWR REPAIR-CROSS HAVEN SEWER	2000	1.1703102	585.16	0.00%	0.00	585.16
EMER SWR REP-TR 42-CHAPEL HILL TRUNK	2001	1.1478007	300.72	0.00%	0.00	300.72
EMER SWR REP-TR 35-CHAPEL HILL TRUNK	2001	1.1478007	189.39	0.00%	0.00	189.39
EMER SWR REP-TR 3(S-10) TR 8(S-16) TR 1	2001	1.1478007	8,088.55	0.00%	0.00	8,088.55
EMER SWR REP-BROOKVIEW CHURCH PUMP	2001	1.1478007	8,751.98	0.00%	0.00	8,751.98
EMER SWR REP-BROOKVIEW CHURCH PUMP	2001	1.1478007	376.48	0.00%	0.00	376.48
EMER SWR REP-TR 2(LINE S-10)GRANTS MILL	2001	1.1478007	304.17	0.00%	0.00	304.17
EMER SWR REP-TR 11(LINE S-14) GRANTS MIL	2001	1.1478007	2,202.63	0.00%	0.00	2,202.63
EMER SWR REPAIR-TR 32 CHAPEL HILL	2001	1.1478007	4,344.43	0.00%	0.00	4,344.43
EMER SWR REPAIR-CONDEMNATION CASE	2001	1.1478007	683,441.87	0.00%	0.00	683,441.87
EMER SWR REP-TR 7 CHAPEL HILL TR SW REPL	2000	1.1703102	8,999.69	0.00%	0.00	8,999.69
EMER SWR REP-TR 22 CHAPEL HILL TR SW REF	2000	1.1703102	1,892.39	0.00%	0.00	1,892.39
EMER SWR REP-TRS 20 & 21 CHAPEL HILL TR	2000	1.1703102	4,884.87	0.00%	0.00	4,884.87
EMER SWR REP-TR 20-CAHABA RIVER TRUNK	2000	1.1703102	351.09	0.00%	0.00	351.09
PROPERTY	1999	1.2016009	2,221.21	0.00%	0.00	2,221.21
EMER SWR REP-TR 5, CHAPEL HILL TRUNK SEW	2000	1.1703102	8,495.28	0.00%	0.00	8,495.28
EMER SWR REP-TR 10(LINES 5-14)GRANTS MIL	2001	1.1478007	1,147.80	0.00%	0.00	1,147.80
EMER SWR REP-BELMONT RD PUMP STA 2 &	2000	1.1703102	5,405.66	0.00%	0.00	5,405.66
EMER.SWR.REP.-CAHABA TRUNK ALTADENA	2000	1.1703102	585.16	0.00%	0.00	585.16
EMER.SWR.REP.-UPPER FIVE MILE #1	2000	1.1703102	51,187.03	0.00%	0.00	51,187.03
EMER.SWR.REP.-CAHABA RIVER/LITTLE	2000	1.1703102	69,765.70	0.00%	0.00	69,765.70
EMER SWR SVS-LITTLE SHADES TRK REPL	1999	1.2016009	620.42	0.00%	0.00	620.42
EMER SWR REP-TR 2-TVILE LAT EXT TC	2000	1.1703102	4,467.07	0.00%	0.00	4,467.07
EMER SWR REPAIR-TR 1(S3) MORRIS KIMBERLY	2001	1.1478007	1,148.95	0.00%	0.00	1,148.95
EMER SWR REPAIR PURCHASE FROM UNITED	2001	1.1478007	711,636.45	0.00%	0.00	711,636.45
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	132,675.56	0.00%	0.00	132,675.56
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	20,730.92	0.00%	0.00	20,730.92
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	13.90	0.00%	0.00	13.90
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	522.26	0.00%	0.00	522.26
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	496.09	0.00%	0.00	496.09
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	35,899.88	0.00%	0.00	35,899.88
EMER SWR REP-COST BILL,FULTONBROOK	2001	1.1478007	4,491.11	0.00%	0.00	4,491.11
EMER.SWR.REPAIR TRACT 43 BLACK CREEK	1999	1.2016009	8,793.32	0.00%	0.00	8,793.32
EMER.SWR.REPAIR FIVE MILE ROAD	2000	1.1703102	365.14	0.00%	0.00	365.14
EMER.SWR.REPAIR FIVE MILE ROAD	2000	1.1703102	5,734.52	0.00%	0.00	5,734.52
EMER.SWR.REPAIR FIVE MILE ROAD	2000	1.1703102	887.10	100.00%	(887.10)	0.00
EMER.SWR.REPAIR FIVE MILE ROAD	2000	1.1703102	234.06	0.00%	0.00	234.06
EMER.SWR.REPAIR FIVE MILE ROAD	2000	1.1703102	292.58	0.00%	0.00	292.58
EMER.SWR.REPAIR FIVE MILE ROAD	2000	1.1703102	117.03	0.00%	0.00	117.03
EMER.SWR.REPAIR FIVE MILE ROAD	2000	1.1703102	1,406.71	0.00%	0.00	1,406.71
EMER.SWR.REP.-UPPER FIVE MILE	2000	1.1703102	10,399.96	0.00%	0.00	10,399.96
EMER.SWR.REP.-UPPER FIVE MILE	2000	1.1703102	877.73	0.00%	0.00	877.73
EMER.SWR.REP.-UPPER FIVE MILE #1	2000	1.1703102	2,340.62	0.00%	0.00	2,340.62
EMER.SWR.REPAIR-FIVE MILE ROAD	2000	1.1703102	688.14	0.00%	0.00	688.14
EMER.SWR.REPAIR FIVE MILE ROAD	2000	1.1703102	1,406.71	0.00%	0.00	1,406.71
EMER.SWR.REPAIR-FIVE MILE ROAD	2000	1.1703102	7,637.44	0.00%	0.00	7,637.44
EMER.SWR.REPAIR-TRACT 120-FIVE MILE RD	2000	1.1703102	763.04	0.00%	0.00	763.04
EMER.SWR.REPAIR-BLACK CREEK	2000	1.1703102	672.93	0.00%	0.00	672.93
EMER.SWR.REP.-UPPER FIVE MILE	2000	1.1703102	11.70	0.00%	0.00	11.70
TRACT 7 UPPER 5 MILE REPLACEMENT SEWER	1999	1.2016009	5,098.39	0.00%	0.00	5,098.39
EMER.SWR.REP.JEFF.CO.VS SALISBURY-168942	2000	1.1703102	3,727.44	0.00%	0.00	3,727.44
EMER.SWR.REPAIR-	2000	1.1703102	234.06	0.00%	0.00	234.06
EMER.SWR.REP.-GARDEN LANE SEWER REPL.	2000	1.1703102	753.68	0.00%	0.00	753.68
EMER.SWR.REP.-UPPER FIVE MILE	2000	1.1703102	9,362.48	0.00%	0.00	9,362.48
EMER.SWR.REP.-UPPER FIVE MILE	2000	1.1703102	10,399.96	0.00%	0.00	10,399.96
EMER.SWR.REP.-5-MILE CRK TO BOYLES YD	2000	1.1703102	585.16	0.00%	0.00	585.16
EMER.SWR.REP.-UPPER FIVE MILE #1	2000	1.1703102	1,462.89	0.00%	0.00	1,462.89
EMER SWR REPAIR-BLACK CREEK TRUNK EXT	2000	1.1703102	3,285.65	0.00%	0.00	3,285.65
EMER SWR-BLACK CREEK TRUNK EXT	2000	1.1703102	1,170.31	0.00%	0.00	1,170.31
EMER SWR REPAIR-TR 2 MIMOSA TRAILER	2000	1.1703102	1,755.47	0.00%	0.00	1,755.47
EMER SWR REPAIR-BURGANDY PUMP STATION	2000	1.1703102	688.03	0.00%	0.00	688.03
EMER SWR REPAIR-UPPER 5 MILE CREEK REPL	2000	1.1703102	8,997.35	0.00%	0.00	8,997.35
EMER SWR REPAIR LAUREL LANE	2001	1.1478007	840.19	0.00%	0.00	840.19
EMER SWR REPAIR BLACK CREEK TO WALKER	2001	1.1478007	2,181.97	0.00%	0.00	2,181.97

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EMER SWR REPAIR DAY ST. 8" GRAVITY SEWER	2001	1.1478007	501.59	0.00%	0.00	501.59
EMER SWR REPAIR MT OLIVE AVE PUMP	2001	1.1478007	883.81	0.00%	0.00	883.81
EMER SWR REPAIR MT OLIVE AVE	2001	1.1478007	103.30	0.00%	0.00	103.30
EMER SWR REPAIRS-TR. 15,LAUREL LN GRAVTI	2001	1.1478007	1,160.43	0.00%	0.00	1,160.43
EMER SWR REPAIR UPPER 5 MILE CONTRACT #2	2001	1.1478007	1,077.78	0.00%	0.00	1,077.78
EMER SWR REPAIR BROOKWOOD COURT	2001	1.1478007	1,002.03	0.00%	0.00	1,002.03
EMER SWR REPAIR MT OLIVE AVE	2001	1.1478007	3,398.64	0.00%	0.00	3,398.64
EMER SWR REPAIR LAUREL LANE	2001	1.1478007	467.15	0.00%	0.00	467.15
EMER SWR REPAIR 22ND COURT TO 6TH ST NE	2001	1.1478007	1,494.44	0.00%	0.00	1,494.44
EMER SWR REPAIR ANNENDALE OUTFALL	2001	1.1478007	378.77	0.00%	0.00	378.77
EMER SWR REPAIR LAUREL LANE	2001	1.1478007	1,740.07	0.00%	0.00	1,740.07
EMER SWR REPAIR-LAUREL LANE	2001	1.1478007	373.04	0.00%	0.00	373.04
EMER SWR REPAIR-BROOKWOOD COURT	2001	1.1478007	1,561.01	0.00%	0.00	1,561.01
EMER SWR REPAIR LAUREL LANE	2001	1.1478007	4,099.94	0.00%	0.00	4,099.94
EMER SWR REPAIR LAUREL LANE	2001	1.1478007	2,239.36	0.00%	0.00	2,239.36
EMER SWR REPAIR-LAUREL LANE GRAVITY	2001	1.1478007	5,840.01	0.00%	0.00	5,840.01
EMER SWR REPAIR-BROOKWOOD CT	2001	1.1478007	3,567.36	0.00%	0.00	3,567.36
EMER SWR REPAIR-UPPER FIVE MILE	2001	1.1478007	114.78	0.00%	0.00	114.78
EMER SWR REPAIR-UPPER FIVE MILE	2001	1.1478007	1,310.79	0.00%	0.00	1,310.79
EMER SWR REPAIR LAUREL LANE	2001	1.1478007	1,740.07	0.00%	0.00	1,740.07
EMER SWR REPAIR BROOKWOOD CT	2001	1.1478007	1,700.47	0.00%	0.00	1,700.47
EMER SWR REPAIR UPPER FIVE MILE	2001	1.1478007	45.91	0.00%	0.00	45.91
EMER SWR REPAIR LAUREL LANE GRAVITY	2001	1.1478007	6,886.80	0.00%	0.00	6,886.80
EMER SWR REPAIR BROOKWOOD CT	2001	1.1478007	1,348.67	0.00%	0.00	1,348.67
EMER SWR REPAIR UPPER FIVE MILE	2001	1.1478007	45.91	0.00%	0.00	45.91
EMER SWR REPAIR BROOKWOOD CT	2001	1.1478007	1,700.47	0.00%	0.00	1,700.47
EMER SWR REPAIR LAUREL LANE	2001	1.1478007	4,419.03	0.00%	0.00	4,419.03
EMER SWR REPAIR ANNENDALE OUTFALL	2001	1.1478007	3,094.47	0.00%	0.00	3,094.47
EMER SWR REPAIR LAUREL LANE	2001	1.1478007	7,580.08	0.00%	0.00	7,580.08
EMER SWR REPAIR	2001	1.1478007	5,899.70	0.00%	0.00	5,899.70
EMER SWR REPAIR MT. OLIVE AVENUE	2001	1.1478007	371.89	0.00%	0.00	371.89
EMER SWR REPAIR BROOKWOOD CT	2001	1.1478007	1,594.30	0.00%	0.00	1,594.30
EMER SWR REPAIR BROOKWOOD CT	2001	1.1478007	4,060.92	0.00%	0.00	4,060.92
EMER SWR REPAIR CENTER POINT PKWY	2001	1.1478007	1,681.53	0.00%	0.00	1,681.53
EMER SWR REPAIR-NON BUILDING	2001	1.1478007	1,377.36	100.00%	(1,377.36)	0.00
EMER SWR REPAIR-LAUREL LANE	2001	1.1478007	2,754.72	0.00%	0.00	2,754.72
EMER SWR REPAIR MT OLIVE AVENUE	2001	1.1478007	206.60	0.00%	0.00	206.60
EMER SWR REPAIR-MT OLIVE AVE	2001	1.1478007	206.60	0.00%	0.00	206.60
EMER SWR REPAIR-UPPER FIVE MILE	2001	1.1478007	2,869.50	0.00%	0.00	2,869.50
EMER SWR REPAIR BROOKWOOD COURT	2001	1.1478007	632.44	0.00%	0.00	632.44
EMER SWR REPAIR BROOKWOOD COURT	2001	1.1478007	8,608.51	0.00%	0.00	8,608.51
EMER SWR REPAIR BROOKWOOD CT 8"	2001	1.1478007	8,354.84	0.00%	0.00	8,354.84
EMER SWR REPAIR UPPER FIVE MILE	2001	1.1478007	1,223.56	0.00%	0.00	1,223.56
EMER SWR REPAIR BROOKWOOD COURT	2001	1.1478007	934.31	0.00%	0.00	934.31
EMER SWR REPAIR DAY STREET 8" GRAVITY SE	2001	1.1478007	1,033.02	0.00%	0.00	1,033.02
EMR SWR REPAIR UPPER FIVE MILE CREEK	2002	1.1135668	222.71	0.00%	0.00	222.71
EMR SWR REPAIR CENTER POINT	2002	1.1135668	14,342.74	0.00%	0.00	14,342.74
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	116.92	0.00%	0.00	116.92
EMR SWR REPAIR BLACK CREEK SEWER	2002	1.1135668	3,563.41	0.00%	0.00	3,563.41
EMR SWR REPAIR CENTER POINT PKWY SEWER	2002	1.1135668	157.57	0.00%	0.00	157.57
EMR SWR REPAIR BLACK CREEK SEWER	2002	1.1135668	2,060.10	0.00%	0.00	2,060.10
EMR SWR REPAIR UPPER FILE MILE	2002	1.1135668	111.36	0.00%	0.00	111.36
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	146.99	0.00%	0.00	146.99
EMR SWR REPAIR MT OLIVE PUMP STATION	2002	1.1135668	1,113.57	0.00%	0.00	1,113.57
EMR SWR REPAIR BROOKWOOD COURT	2002	1.1135668	5,790.55	0.00%	0.00	5,790.55
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	116.92	0.00%	0.00	116.92
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	111.36	0.00%	0.00	111.36
EMR SWR REPAIR	2002	1.1135668	4,231.55	0.00%	0.00	4,231.55
EMR SWR REPAIR CENTER POINT PARKWAY	2002	1.1135668	38,296.68	0.00%	0.00	38,296.68
EMR SWR REPAIR CENTER POINT PARKWAY	2002	1.1135668	8,763.77	0.00%	0.00	8,763.77
EMR SWR REPAIR ANNENDALE OUTFALL	2002	1.1135668	727.16	0.00%	0.00	727.16
EMR SWR REPAIR UPPER FIVE MILE	2001	1.1478007	120.52	0.00%	0.00	120.52
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	1,113.57	0.00%	0.00	1,113.57
EMR SWR REPAIR BLACK CREEK SEWER	2002	1.1135668	1,162.56	0.00%	0.00	1,162.56
EMR SWR REPAIR MT OLIVE AVENUE PUMP	2002	1.1135668	5,011.05	0.00%	0.00	5,011.05
EMR SWR REPAIR UPPER FIVE MILE	2001	1.1478007	114.78	0.00%	0.00	114.78
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	139.20	0.00%	0.00	139.20
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	22,271.34	0.00%	0.00	22,271.34
EMR SWR REPAIR GRACE BIBLE CHURCH	2002	1.1135668	3,312.86	0.00%	0.00	3,312.86
EMER SEWER REPAIR UPPER FIVE MILE	2001	1.1478007	14,139.76	0.00%	0.00	14,139.76
EMR SWR REPAIR BLACK CREEK SEWER	2002	1.1135668	198.21	0.00%	0.00	198.21
EMR SWR REPAIR UPPER FIVE MILE	2001	1.1478007	355.82	0.00%	0.00	355.82
EMR SWR REPAIR BLACK CREEK SEWER	2002	1.1135668	120.27	0.00%	0.00	120.27
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	116.92	0.00%	0.00	116.92
EMR SWR REPAIR UPPER FIVE MILE CREEK	2001	1.1478007	126.26	0.00%	0.00	126.26
EMR SWR REPAIR BLACK CREEK SEWER	2002	1.1135668	2,889.71	0.00%	0.00	2,889.71
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	4,170.31	0.00%	0.00	4,170.31
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	2,151.41	0.00%	0.00	2,151.41
EMR SWR REPAIR-MT OLIVE PUMP STATION	2002	1.1135668	11,135.67	0.00%	0.00	11,135.67

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EMR SWR REPAIR-UPPER FIVE MILE CREEK	2002	1.1135668	836.29	0.00%	0.00	836.29
EMR SWR REPAIR-UPPER FIVE MILE CREEK	2002	1.1135668	111.36	0.00%	0.00	111.36
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	3,768.31	0.00%	0.00	3,768.31
EMR SWR REPAIR GRACE BILE CHURCH	2002	1.1135668	12,811.59	0.00%	0.00	12,811.59
EMER SWR REPAIR	2002	1.1135668	821.81	0.00%	0.00	821.81
EMR SWR REPAIR CENTER POINT PKWY SEWER	2002	1.1135668	21.71	0.00%	0.00	21.71
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	30,066.30	0.00%	0.00	30,066.30
UPPER 5 MILE SWR REPL	2002	1.1135668	61,543.50	0.00%	0.00	61,543.50
EMR SWR REPAIR-UPPER FIVE MILE	2002	1.1135668	1,113.57	0.00%	0.00	1,113.57
EMR SWR REPAIR-UPPER FIVE MILE	2002	1.1135668	304.00	0.00%	0.00	304.00
EMR SWR REPAIR UPPER FIVE MILE	2002	1.1135668	779.50	0.00%	0.00	779.50
PROPERTY HOUSE PURCHASE	2003	1.0876158	60,073.57	0.00%	0.00	60,073.57
LAND PURCHASE-UPPER FIVE MILE #3	2003	1.0876158	71,782.64	0.00%	0.00	71,782.64
ROW TRACT 5 UPPER FIVE MILE SEWER	1999	1.2016009	1,252.07	0.00%	0.00	1,252.07
RWO TRACT 3 UPPER FIVE MILE SEWER	1999	1.2016009	2,703.60	0.00%	0.00	2,703.60
ROW TRACT 14 UPPER FIVE MILE SEWER	1999	1.2016009	3,604.80	0.00%	0.00	3,604.80
UPPER FIVE MILE SWR & BLACK CREEK	1999	1.2016009	28,997.06	0.00%	0.00	28,997.06
UPPER FIVE MILE SWR REOL. & TAXES	2000	1.1703102	18,028.29	0.00%	0.00	18,028.29
ROW TRACT 53 UPPER FIVE MILE SEWER	1999	1.2016009	830.31	0.00%	0.00	830.31
ROW TRACT 15 UPPER FIVE MILE SEWER	1999	1.2016009	3,854.74	0.00%	0.00	3,854.74
ROW TRACT 2 UPPER FIVE MILE SEWER	1999	1.2016009	1,502.00	0.00%	0.00	1,502.00
TRACT 113 & 114 UPPER 5 MILE REPLACEMENT	1999	1.2016009	240.32	0.00%	0.00	240.32
TRACT 6 UPPER 5 MILE REPLACEMENT SEWER	1999	1.2016009	360.48	0.00%	0.00	360.48
CREELEAS HEIGHTS TRUNK SEWER	1999	1.2016009	41,385.54	0.00%	0.00	41,385.54
TRACT 11 UPPER 5 MILE REPLACEMENT SEWER	1999	1.2016009	504.67	0.00%	0.00	504.67
RWO TRACT A1,A2,A3 FIVE MILE CREEK	1999	1.2016009	1,802.40	0.00%	0.00	1,802.40
TRACT 11 UPPER 5 MILE REPLACEMENT SEWER	1999	1.2016009	60.08	0.00%	0.00	60.08
TRACT 13 UPPER 5 MILE REPLACEMENT SEWER	1999	1.2016009	60.08	0.00%	0.00	60.08
TRACT 45 BLACK CREEK TRUNK SEWER	1999	1.2016009	7,721.49	0.00%	0.00	7,721.49
TRACT 10 UPPER 5 MILE SEWER REPLACEMENT	1999	1.2016009	60.08	0.00%	0.00	60.08
TRACT 36A 5 MILE CREEK REPLACEMENT	1999	1.2016009	600.80	0.00%	0.00	600.80
GREENLEAS HEIGHTS TRUNK SEWER ROW	1998	1.2298142	5,177.52	0.00%	0.00	5,177.52
TRACT 70 LITTLE SHADES CREEK TRUNK	1998	1.2298142	157.42	0.00%	0.00	157.42
TRACT 18 VESTHAVEN REPLACEMENT SEWER	1998	1.2298142	9,346.59	0.00%	0.00	9,346.59
TRACT 72 LITTLE SHADES CREEK TRUNK	1998	1.2298142	614.91	0.00%	0.00	614.91
TRACT 48 LITTLE SHADES CREEK TRUNK	1998	1.2298142	22,628.58	0.00%	0.00	22,628.58
ROW TRACT A 10 FIVE MILE CRK REPL SEWER	1999	1.2016009	170.63	0.00%	0.00	170.63
TRACT 71 LITTLE SHADES CREEK TRUNK	1998	1.2298142	4,304.35	0.00%	0.00	4,304.35
GREENLEAS HEIGHT ROW DEED	1998	1.2298142	1,229.81	0.00%	0.00	1,229.81
GREENLEAS HTS TRK SWR ROW	1999	1.2016009	2,488.16	0.00%	0.00	2,488.16
VESTHAVEN TRK SWR REPL ROW	1999	1.2016009	36,306.97	0.00%	0.00	36,306.97
TRACT 11 BLACK CREEK SEWER ROW TO	1998	1.2298142	922.36	0.00%	0.00	922.36
GREENLEAS HEIGHTS TRUNK SEWER ROW	1998	1.2298142	184.47	0.00%	0.00	184.47
GREENLEAS HEIGHTS TRUNK SEWER ROW	1998	1.2298142	1,229.81	0.00%	0.00	1,229.81
BLACK CREEK TO CARSON ROAD TRNK EXT	1999	1.2016009	3,014.22	0.00%	0.00	3,014.22
TURKEY CRK LAT EXT TO DEERFOOT PKWY	1999	1.2016009	660.88	0.00%	0.00	660.88
TAXES ON GREENLEA HEIGHTS TRUNK SEWER	1998	1.2298142	33.23	0.00%	0.00	33.23
BLACK CREEK TO CARSON RD TRNK EXT ROW	1999	1.2016009	1,502.00	0.00%	0.00	1,502.00
FIVE MILE CREEK REPLACEMENT SEWER	1998	1.2298142	319.51	0.00%	0.00	319.51
GREENLEAS HEIGHT TRUCK SEWER ROW DEED	1998	1.2298142	245.96	0.00%	0.00	245.96
GREENLEAS HEIGHTS TRUNK SEWER ROW	1998	1.2298142	1,844.72	0.00%	0.00	1,844.72
TRACT 1AAA15 FIVE MILE CREEK	1998	1.2298142	4,359.69	0.00%	0.00	4,359.69
GREENLEAS HEIGHTS TRUNK SEWER ROW	1998	1.2298142	1,512.67	0.00%	0.00	1,512.67
GREENLEAS HEIGHTS TRUNK SEWER ROW	1998	1.2298142	707.14	0.00%	0.00	707.14
GREENLEAS HEIGHTS TRUNK SEWER ROW	1998	1.2298142	1,229.81	0.00%	0.00	1,229.81
TRACT58 BLACK CREEK SEWER ROW	1998	1.2298142	1,014.60	0.00%	0.00	1,014.60
BOYLES YARD TO BARTON BRANCH SEWER	1998	1.2298142	1,438.88	0.00%	0.00	1,438.88
ROW GREENLEAS HEIGHTS TRUNK SEWER	1998	1.2298142	1,770.93	0.00%	0.00	1,770.93
GREENLEAS HEIGHT TRUNK SEWER	1998	1.2298142	184.47	0.00%	0.00	184.47
FIVE MILE CREEK REPLACEMENT SEWER ROW	1998	1.2298142	1,820.13	0.00%	0.00	1,820.13
REPLACEMENT SEWER-BOYLES YARD TO	1998	1.2298142	1,844.72	0.00%	0.00	1,844.72
EMR SWR REPA-WHITMERE ST	1999	1.2016009	2,403.20	0.00%	0.00	2,403.20
EMER SWR REPAIR	2002	1.1135668	20,276.94	0.00%	0.00	20,276.94
LEEDS GATEWAY TRUNK SWR ROW	2002	1.1135668	20,276.94	0.00%	0.00	20,276.94
EMR SWR REPAIR-LEEDS GATEWAY TRUNK	2002	1.1135668	12,029.48	0.00%	0.00	12,029.48
EMR SWR REPAIR -LEEDS GATEWAY TRUNK	2002	1.1135668	12,029.50	0.00%	0.00	12,029.50
EMR SWR REPAIR-LEEDS GATEWAY TRUNK	2002	1.1135668	12,029.48	0.00%	0.00	12,029.48
EMER SWR REPA-TR 42-W'WOOD GDNS EST	2000	1.1703102	912.84	0.00%	0.00	912.84
EMER SWR REP-TR 34, WESTWOOD GDNS	2000	1.1703102	3,506.25	0.00%	0.00	3,506.25
EMER SWR REPAIR-WESTWOOD GARDEN	2001	1.1478007	573.90	0.00%	0.00	573.90
EMER SWR REPAIR WEST LEEDS SEWER	2001	1.1478007	4,242.27	0.00%	0.00	4,242.27
EMER SWR REPAIR WEST LEEDS SEWER	2001	1.1478007	22,398.18	0.00%	0.00	22,398.18
EMER SWR REPAIR-DALTON DRIVE	2000	1.1703102	2,397.97	0.00%	0.00	2,397.97
EMER SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	1,120.25	0.00%	0.00	1,120.25
EMER SWR REPAIR-TRUSSVILLE TRUNK DRY	2001	1.1478007	4,591.20	0.00%	0.00	4,591.20
EMER SWR REPAIR TRUSSVILLE TRUNK DRY	2001	1.1478007	18,364.81	0.00%	0.00	18,364.81
EMER SWR REPAIR TRUSSVILLE TRUNK DRY	2001	1.1478007	10,697.50	0.00%	0.00	10,697.50
EMER SWR REPAIR TRUSSVILLE TRUNK DRY	2001	1.1478007	344.34	0.00%	0.00	344.34
EMER SWR REP-TR 6-T'VILLE LAT EXT TO DE	2001	1.1478007	2,807.52	0.00%	0.00	2,807.52

EXISTING ASSETS

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EMER SWR REP-TR 5-TVILLE LAT EXT TO DEE	2001	1.1478007	10,415.71	0.00%	0.00	10,415.71
EMER SWR REP-TR 5A-TVILLE LAT EXT DEERI	2001	1.1478007	7,573.77	0.00%	0.00	7,573.77
EMER SWR REPAIR US HIGHWAY 11 VANN RD	2001	1.1478007	13,501.58	0.00%	0.00	13,501.58
EMER SWR REPAIR OLD SPRINGVILLE RE	2001	1.1478007	5,739.00	0.00%	0.00	5,739.00
EMER SWR REPAIR TRUSSVILLE TRUNK DRY	2001	1.1478007	7,460.70	0.00%	0.00	7,460.70
EMER SWR REPAIR-CONDEMNATION CASE	2001	1.1478007	20,595.10	0.00%	0.00	20,595.10
EMER SWR REP- TR 1 TVILLE LAT EXT DEERI	2000	1.1703102	13,917.33	0.00%	0.00	13,917.33
EMER SWR REPAIR/JEFFCO CASE # 169567	2000	1.1703102	11,549.21	0.00%	0.00	11,549.21
EMER SWR REP-TRACT 9-TVILE LAT EXT TO DI	2000	1.1703102	166.18	0.00%	0.00	166.18
EMER SWR REPAIR TR7 TVILLE LAT EXT TO DI	2000	1.1703102	11,704.27	100.00%	(11,704.27)	0.00
EMER.SWR.REP.E.TRUSSVILLE DEERFOOT PKY	2000	1.1703102	994.76	0.00%	0.00	994.76
EMER.SWR.REP.E.TRUSSVILLE DEERFOOT PKY	2000	1.1703102	4,973.82	0.00%	0.00	4,973.82
EMER.SWR.REP.TR.20 SHERMAN OAKS	2000	1.1703102	3,693.50	100.00%	(3,693.50)	0.00
EMER.SWR.REP.TR.3-E.TRUSS.DEERFOOT PKY	2000	1.1703102	44,536.16	0.00%	0.00	44,536.16
EMER.SWR.REP.TR.25-SHERMAN OAKS	2000	1.1703102	17,554.65	0.00%	0.00	17,554.65
EMER.SWR.REP.TR.7-E.TRUSS.DEERFOOT PKY	2000	1.1703102	5,252.35	0.00%	0.00	5,252.35
EMER.SWR.REP.TR.2-E.TRUSS.DEERFOOT PKY	2000	1.1703102	3,159.84	0.00%	0.00	3,159.84
EMER.SWR.REP.TR.1-E.TRUSS.DEERFOOT PKY	2000	1.1703102	585.16	0.00%	0.00	585.16
EMER SWER REPR-TR 3-TVILLE LATERAL EXT	2000	1.1703102	173.21	0.00%	0.00	173.21
ROW TRACT 16 SHERMAN OAKS SEWER	1999	1.2016009	1,366.22	0.00%	0.00	1,366.22
TRACT 21 SHERMAN OAKS SEWER	1999	1.2016009	3,004.00	0.00%	0.00	3,004.00
ROW TRACT 19 SHERMAN OAKS SEWER	1999	1.2016009	1,552.47	0.00%	0.00	1,552.47
ROW TRACT 7 SHERMAN OAKS SEWER	1999	1.2016009	2,370.76	0.00%	0.00	2,370.76
ROW TRACT 5 SHERMAN OAKS SEWER	1999	1.2016009	633.24	0.00%	0.00	633.24
ROW TRACT 8 SHERMAN OAKS SEWER	1999	1.2016009	3,085.71	0.00%	0.00	3,085.71
TRACT 16 SHERMAN OAKS SANITARY SEWER	1999	1.2016009	603.20	0.00%	0.00	603.20
TRACT 13 SHERMAN OAKS	1999	1.2016009	5,367.55	0.00%	0.00	5,367.55
TRACT 14;15;17;18 SHERMAN OAKS SANITARY	1999	1.2016009	19,318.14	0.00%	0.00	19,318.14
EMER SWR REPR SHERMAN OAKS	1999	1.2016009	1,802.40	0.00%	0.00	1,802.40
ROW TRACT 9 SHERMAN OAKS SEWER	1999	1.2016009	3,085.71	0.00%	0.00	3,085.71
ROW TRACT 22 SHERMAN OAKS SEWER	1999	1.2016009	240.32	0.00%	0.00	240.32
TRACT 4 SHERMAN OAKS SANITARY SEWER	1999	1.2016009	267.96	0.00%	0.00	267.96
ROW. TRACT 1 2 SHERMAN OAKS SANITARY	1999	1.2016009	15,364.87	0.00%	0.00	15,364.87
ROW TRACT 10 SHERMAN OAKS SANITARY	1999	1.2016009	120.16	0.00%	0.00	120.16
CONDEMNATION MOCKINGBIRD LANE	1999	1.2016009	477,419.48	0.00%	0.00	477,419.48
EMER SWR REPAIR-MOCKINGBIRD LANE	2001	1.1478007	115,151.96	0.00%	0.00	115,151.96
EMER SWR REP-CONDEMNATION DAVIE PROP	2000	1.1703102	3,256,666.19	0.00%	0.00	3,256,666.19
EMER.SWR.REP.TURKEY CRK DAVIES SUIT	2000	1.1703102	208,155.57	0.00%	0.00	208,155.57
EMER.SWR.-JEFF.CO. VS. I.L. SULLIVAN	2000	1.1703102	265,314.06	0.00%	0.00	265,314.06
EMER SWR REPAIR ANNENDAL OUTFALL	2001	1.1478007	314.61	0.00%	0.00	314.61
TRACT 3 BEAVER CREEK TRUNK SEWER	1998	1.2298142	897.76	0.00%	0.00	897.76
TRACT 24 BEAVER CREEK TRUNK SEWER	1998	1.2298142	8,055.28	0.00%	0.00	8,055.28
TURKEY CREEK LATERAL EXTENSIONS TO	1998	1.2298142	2,273.31	0.00%	0.00	2,273.31
TRACT 6 BEAVER CREEK TRUNK SEWER	1998	1.2298142	2,305.90	0.00%	0.00	2,305.90
ROW SEWER RELOCATION TRACT 32 BEAVER	1999	1.2016009	6,910.41	0.00%	0.00	6,910.41
ROW SEWER RELOCATION TRACT 12 BEAVER	1999	1.2016009	1,331.37	0.00%	0.00	1,331.37
TRACT 6 BEAVER CREEK SEWER	1998	1.2298142	2,305.90	0.00%	0.00	2,305.90
TRACT 3 BEAVER CREEK TRUNK SEWER	1998	1.2298142	897.76	0.00%	0.00	897.76
EMR SWR REPR-CONDEMNATION CASE 168493	2000	1.1703102	27,843.44	0.00%	0.00	27,843.44
ROW TRACT 10 & 10A BEAVER CREEK SEWER	1999	1.2016009	2,643.52	0.00%	0.00	2,643.52
EMR SWR REPAIR CARDINAL DRIVE SEWER	2002	1.1135668	652.55	0.00%	0.00	652.55
EMR SWR REPAIR-CARDINAL DR CAPPED	2002	1.1135668	222.71	0.00%	0.00	222.71
EMR SWR REPAIR-CARDINAL DRIVE CAPPED	2002	1.1135668	390.86	0.00%	0.00	390.86
EMR SWR REPAIR-CARDINAL DRIVE CAPPED	2002	1.1135668	404.22	0.00%	0.00	404.22
EMR SWR REPAIR-CARDINAL DRIVE CAPPED	2002	1.1135668	222.71	0.00%	0.00	222.71
EMR SWR REPAIR-CARDINAL DRIVE CAPPED	2002	1.1135668	222.71	0.00%	0.00	222.71
EMR SWR REPAIR-CARDINAL DRIVE CAPPED	2002	1.1135668	1,790.62	0.00%	0.00	1,790.62
EMR SWR REPAIR-CARDINAL DRIVE CAPPED	2002	1.1135668	2,554.52	0.00%	0.00	2,554.52
EMR SWR REPAIR DRY BRANCH SEWER	2002	1.1135668	918.69	0.00%	0.00	918.69
EMR SWR REPAIR-CARDINAL DR CAPPED	2002	1.1135668	2,983.25	0.00%	0.00	2,983.25
EMR SWR REPAIR-CARDINAL DR CAPPED	2002	1.1135668	317.37	0.00%	0.00	317.37
EMR SWR REPAIR-CARDINAL DR CAPPED	2002	1.1135668	222.71	0.00%	0.00	222.71
EMR SWR REPAIR-CARDINAL DR CAPPED	2002	1.1135668	445.43	0.00%	0.00	445.43
EMR SWR REPAIR-CARDINAL DR CAPPED	2002	1.1135668	2,058.99	0.00%	0.00	2,058.99
EMR SWR REPAIR-CARDINAL DR CAPPED	2002	1.1135668	175.94	0.00%	0.00	175.94
EMR SWR REPAIR DRY BRANCH SEWER	2002	1.1135668	334.07	0.00%	0.00	334.07
EMR SWR REPAIR-CARDINAL DR-CAPPED	2002	1.1135668	339.64	0.00%	0.00	339.64
EMR SWR REPAIR CARDINAL DRIVE CAPPED	2002	1.1135668	1,878.59	0.00%	0.00	1,878.59
EMR SWR REPAIR CARDINAL DRIVE CAPPED	2002	1.1135668	574.60	0.00%	0.00	574.60
EMR SWR REPAIR DRY BRANCH SEWER	2002	1.1135668	1,093.52	0.00%	0.00	1,093.52
EMR SWR REPAIR MAY AVENUE SEWER	2002	1.1135668	304.45	0.00%	0.00	304.45
EMR SWR REPAIR DRY BRANCH SEWER	2002	1.1135668	122.49	0.00%	0.00	122.49
EMR SWR REPAIR DRY BRANCH SEWER	2002	1.1135668	1,069.02	0.00%	0.00	1,069.02
EMR SWR REPAIR DRY BRANCH SEWER	2002	1.1135668	707.11	0.00%	0.00	707.11
EMR SWR REPAIR-TURKEY CREEK TO	2002	1.1135668	4,740.45	0.00%	0.00	4,740.45
EMR SWR REPAIR MAY AVENUE SEWER	2002	1.1135668	5,022.19	0.00%	0.00	5,022.19
EMR SWR REPAIR-DRY BRANCH SANITARY	2002	1.1135668	923.15	0.00%	0.00	923.15
EMR SWR REPAIR COUNTRY VALE SEWER	2001	1.1478007	1,767.61	0.00%	0.00	1,767.61
EMR SWR REPAIR MAY AVENUE SEWER	2002	1.1135668	2,783.92	0.00%	0.00	2,783.92

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EMR SWR REPAIR COUNTRY VALE SEWER	2002	1.1135668	111.36	0.00%	0.00	111.36
EMER SWR REPAIR COUNTRY VALE SEWER	2002	1.1135668	9,390.71	0.00%	0.00	9,390.71
EMR SWR REPAIR CLAYSTONE CAPPED SEWER	2002	1.1135668	389.75	0.00%	0.00	389.75
EMR SWR REPAIR COUNTRY VALE SEWER	2002	1.1135668	347.43	0.00%	0.00	347.43
EMR SWR REPAIR COUNTRY VALE SEWER	2002	1.1135668	2,247.18	0.00%	0.00	2,247.18
EMR SWR REPAIR-COUNTRY VALE CAPPED	2002	1.1135668	1,948.74	0.00%	0.00	1,948.74
EMR SWR REPAIR COUNTRY VALE SEWER	2002	1.1135668	2,227.13	0.00%	0.00	2,227.13
EMER SWR REP-TR 1 (LINES S-2 & S2A MORRI	2000	1.1703102	5,420.88	100.00%	(5,420.88)	0.00
EMER SWR REP-TR 1 (LINES 13) MOR/KIM WWS	2000	1.1703102	532.49	100.00%	(532.49)	0.00
EMER SWR REP-TR 2 (LINE S1) MOR/KIM WWS	2000	1.1703102	585.16	100.00%	(585.16)	0.00
EMER SWR REP-TR 2 (LINE S3) MOR/KIM TR E	2000	1.1703102	695.16	100.00%	(695.16)	0.00
EMER SWR REP-TR 10(LINE 6A) MOR/KIM TR E	2000	1.1703102	585.16	100.00%	(585.16)	0.00
EMER SWR REPAIR-MORRIS KIMBERLY TRACT	2000	1.1703102	1,975.48	0.00%	0.00	1,975.48
EMER SWR REP-TR 9-MORRIS KIMBERLY WW	2000	1.1703102	393.22	0.00%	0.00	393.22
EMER SWR REP TR 9-MORRIS KIMBERLY, WW	2000	1.1703102	393.22	0.00%	0.00	393.22
EMER SWR REP-TR 23 MORRIS/KIMBERLY WW	2000	1.1703102	367.48	0.00%	0.00	367.48
EMER SWR REPAIR-CENTER POINT PKWY	2001	1.1478007	7,919.83	0.00%	0.00	7,919.83
EMER SWR REPAIR MORRIS KIMBERLY	2001	1.1478007	860.85	0.00%	0.00	860.85
EMER SWR REPAIR MAY AVE CAPPED SEWER	2001	1.1478007	371.89	0.00%	0.00	371.89
EMER SWR REPAIR CENTER POINT PKWY	2001	1.1478007	20,118.65	0.00%	0.00	20,118.65
EMER SWR REPAIR MORRIS KIMBERLY	2001	1.1478007	8,129.87	0.00%	0.00	8,129.87
EMER SWR REPAIR MAY AVENUE CAPPED	2001	1.1478007	7,091.11	0.00%	0.00	7,091.11
EMER SWR REPAIR OLD SPRINGVILLE RD	2001	1.1478007	11,478.01	0.00%	0.00	11,478.01
EMER SWR REPAIR MORRIS KIMBERLY WWTF	2001	1.1478007	9,456.73	0.00%	0.00	9,456.73
EMER SWR REPAIR MAY AVE CAPPED SEWER	2001	1.1478007	1,156.98	0.00%	0.00	1,156.98
EMER SWR REPAIR MAY AVE CAPPED SEWER	2001	1.1478007	4,745.01	0.00%	0.00	4,745.01
EMER SWR REPAIR OLD SPRINGVILLE RC	2001	1.1478007	2,364.47	0.00%	0.00	2,364.47
EMER SWR REPAIR OLD SPRINGVILLE RC	2001	1.1478007	3,699.36	0.00%	0.00	3,699.36
EMER SWR REPAIR MAY AVENUE CAPPED	2001	1.1478007	573.90	0.00%	0.00	573.90
EMER SWR REPAIR COUNTY VALE CAPPED	2001	1.1478007	1,664.31	0.00%	0.00	1,664.31
EMER SWR REPAIR COUNTY VALE CAPPED	2001	1.1478007	401.73	0.00%	0.00	401.73
EMER SWR REPAIR COUNTRY VALE CAPPED	2001	1.1478007	516.51	0.00%	0.00	516.51
EMER SWR REPAIR	2001	1.1478007	1,044.50	0.00%	0.00	1,044.50
EMER SWR REPAIR COUNTRY VALE CAPPED	2001	1.1478007	912.50	0.00%	0.00	912.50
EMER SWR REPAIR COUNTRY VALE CAPPED	2001	1.1478007	177.91	0.00%	0.00	177.91
EMER SWR REPAIR COUNTRY VALE CAPPED	2001	1.1478007	172.17	0.00%	0.00	172.17
BULLARD-SETTLEMENT CONDEMNATION CASE	1992	1.4604814	44,325.61	0.00%	0.00	44,325.61
RIGHT OF WAY ACQUISITION	1993	1.3974088	2,096.11	0.00%	0.00	2,096.11
TRACT 23 VALLEY CREEK BRICK SEWER	1998	1.2298142	70,099.41	0.00%	0.00	70,099.41
VALLEY CREEK WWTP EXP 37-13-1-0-2.000	1999	1.2016009	73,826.36	0.00%	0.00	73,826.36
EMER SWR REP-PROPERTY-4880 BESS/JOHNS RD	2000	1.1703102	140,437.23	0.00%	0.00	140,437.23
EMER SWR REP-PROP.TAX-4900 BESS/JOHNS RD	2000	1.1703102	383.52	0.00%	0.00	383.52
EMER SWR REP-MTG PAYOFF-4900 BESS/JOHNS	2000	1.1703102	2,837.22	0.00%	0.00	2,837.22
EMER SWR REP-PROPERTY-4900 BESS/JOHNS RD	2000	1.1703102	29,910.53	0.00%	0.00	29,910.53
EMER SWR REP-MTG PAYOFF-4900 BESS/JOHNS	2000	1.1703102	77,785.34	0.00%	0.00	77,785.34
EMER SWR REPAIR VALLEY CREEK TRUNK	2001	1.1478007	2,357,153.99	0.00%	0.00	2,357,153.99
EMER SWR REPAIR VALLEY CREEK TRUNK	2001	1.1478007	25,882.91	0.00%	0.00	25,882.91
EMER SWR REPAIR VALLEY CREEK TRUNK	2001	1.1478007	51,473.95	0.00%	0.00	51,473.95
EMER SWR REPAIR JEFF CO/VS SALLY	2001	1.1478007	106,816.95	0.00%	0.00	106,816.95
EMER SWR REPAIR VALLEY CREEK WWTF	2001	1.1478007	550,944.35	0.00%	0.00	550,944.35
LAND PURCHASE 4850 BESS. JOHN'S ROAD	2002	1.1135668	228,281.20	0.00%	0.00	228,281.20
PURCHASE PROPERTY-HWY 459 & 150 PUMP	2004	1.0232607	284,286.39	0.00%	0.00	284,286.39
EMER SWR REPA-VALLEY CREEK	1999	1.2016009	112,577.99	0.00%	0.00	112,577.99
RIGHT OF WAY-VALLEY CREEK WWTF	2000	1.1703102	469,212.48	0.00%	0.00	469,212.48
EMER SWR REPAIR	2001	1.1478007	2,362.17	0.00%	0.00	2,362.17
EMER SWR REPAIR CHAPEL HILL TRUNK	2001	1.1478007	6,755.96	0.00%	0.00	6,755.96
EMER SWR REPAIR BLACK CREEK TRUNK	2001	1.1478007	3,869.24	0.00%	0.00	3,869.24
EMER SWR REPAIR VALLEY CREEK BRICK	2001	1.1478007	48,755.96	0.00%	0.00	48,755.96
EMER SWR REPAIR VILLAGE BRICK SEWER	2001	1.1478007	4,559.06	0.00%	0.00	4,559.06
EMER SWR REPAIR VALLEY CREEK RICKWOOD	2001	1.1478007	700.16	0.00%	0.00	700.16
EMER SWR REPAIR HARLEM AVE TRUNK	2001	1.1478007	1,965.03	0.00%	0.00	1,965.03
EMER SWR REPAIR CHAPEL HILL TRUNK	2001	1.1478007	573.90	0.00%	0.00	573.90
EMER SWR REPAIR VALLEY CREEK RICKWOOD	2001	1.1478007	1,394.58	0.00%	0.00	1,394.58
EMER SWR REPAIR VALLEY CREEK BRICK	2001	1.1478007	406.64	0.00%	0.00	406.64
EMER SWR REPAIR VALLEY CREEK BRICK	2001	1.1478007	2,066.04	0.00%	0.00	2,066.04
EMER SWR VALLEY CREEK BRICK SEWER	2001	1.1478007	1,721.70	0.00%	0.00	1,721.70
EMER SWR REPAIR HOPEWELL AREA SEWER	2001	1.1478007	19,346.18	0.00%	0.00	19,346.18
EMER SWR REPAIR VALLEY CREEK TRUNK	2001	1.1478007	14,874.35	0.00%	0.00	14,874.35
EMER SWR REPAIR ETHEL AVE SEWER	2001	1.1478007	1,744.66	0.00%	0.00	1,744.66
EMER SWR REPAIR VALLEY CREEK TRUNK	2001	1.1478007	11,478.01	0.00%	0.00	11,478.01
EMER SWR REPAIR HOPEWELL SEWER	2001	1.1478007	13,773.61	0.00%	0.00	13,773.61
EMER SWR REPAIR CHAPEL HILL TRUNK	2001	1.1478007	1,721.70	0.00%	0.00	1,721.70
EMER SWR REPAIR MCCALLA AREA SEWER	2001	1.1478007	713.93	0.00%	0.00	713.93
EMER SWR REPAIR ROEBUCK SPRINGS	2001	1.1478007	1,245.36	0.00%	0.00	1,245.36
EMER SWR REPAIR HOPEWELL	2001	1.1478007	249.99	0.00%	0.00	249.99
EMER SWR REPAIR KENILWORTH DR	2001	1.1478007	8,453.55	0.00%	0.00	8,453.55
EMER SWR REPAIR HOPEWELL AREA SEWER	2001	1.1478007	3,349.28	0.00%	0.00	3,349.28
EMER SWR REPAIR HOPEWELL AREA SEWER	2001	1.1478007	58.54	0.00%	0.00	58.54
EMER SWR REPAIR EASTEN VALLEY SEWER	2001	1.1478007	826.42	0.00%	0.00	826.42

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DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIATION PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
EMER SWR REPAIR EASTERN VALLEY SEWER	2001	1.1478007	1,854.85	0.00%	0.00	1,854.85
EMER SWR REPAIR ROEBUCK PLAZA TRUNK	2001	1.1478007	865.44	0.00%	0.00	865.44
EMER SWR REPAIR HOPEWELL AREA	2001	1.1478007	2,512.54	0.00%	0.00	2,512.54
EMER SWR REPAIR HOPEWELL AREA	2001	1.1478007	1,031.87	0.00%	0.00	1,031.87
EMER SWR REP-PROPERTY 460 WILLOW LANE	2001	1.1478007	7,851.84	0.00%	0.00	7,851.84
EMER SWR REP-TAX REDEMPTION460 WILLOW	2001	1.1478007	1,101.00	0.00%	0.00	1,101.00
EMER SWR REP-TR 4 KENILWORTH DR	2001	1.1478007	5,772.29	0.00%	0.00	5,772.29
EMER SWR REP-TR 1 SHADES VALLEY T/FR STA	2001	1.1478007	15,999.19	0.00%	0.00	15,999.19
EMER SWR REPAIR-HOPEWELL AREA SEWER	2001	1.1478007	2,512.54	0.00%	0.00	2,512.54
EMER SWR REPAIR-TR 3,KENILWORTH DR	2001	1.1478007	3,902.52	0.00%	0.00	3,902.52
EMER SWR REPAIR-HOPEWELL	2001	1.1478007	499.98	0.00%	0.00	499.98
EMER SWR REPAIR-HOPEWELL	2001	1.1478007	2,967.06	0.00%	0.00	2,967.06
EMER SWR REPAIR-HOPEWELL	2001	1.1478007	499.98	0.00%	0.00	499.98
EMER SWR REPAIR-HOPEWELL	2001	1.1478007	413.21	0.00%	0.00	413.21
EMER SWR REP-TR 5 WESTEND ELM ST REPL	2001	1.1478007	1,135.17	0.00%	0.00	1,135.17
EMER SWR REPAIR-JOHNS ROAD TRUNK	2001	1.1478007	10,904.11	0.00%	0.00	10,904.11
EMER SWR REPAIR HOPEWELL AREA SEWER	2001	1.1478007	10,069.66	0.00%	0.00	10,069.66
EMER SWR REPAIR-HOPEWELL AREA SEWER	2001	1.1478007	501.59	0.00%	0.00	501.59
EMER SWR REPAIR BRIGHTON TRUNK SEWER	2001	1.1478007	3,079.69	0.00%	0.00	3,079.69
EMER SWR REPAIR ALASKA DRIVE SEWER	2001	1.1478007	10,826.06	0.00%	0.00	10,826.06
EMER SWR REPAIR HOPEWELL AREA	2001	1.1478007	619.81	0.00%	0.00	619.81
EMER SWR REPAIR ROEBUCK PLAZA TRUNK	2001	1.1478007	11,478.01	0.00%	0.00	11,478.01
EMER SWR REPAIR HOPEWELL AREA SEWER	2001	1.1478007	10,550.58	0.00%	0.00	10,550.58
EMER SWR REPAIR BRIGHTON SWER	2001	1.1478007	229.56	0.00%	0.00	229.56
EMER SWR REPAIR BRIGHTON SEWER	2001	1.1478007	229.56	0.00%	0.00	229.56
EMER SWR REPAIR HOPEWELL AREA SEWER	2001	1.1478007	7,250.66	0.00%	0.00	7,250.66
EMER SWR REPAIR-VALLEY CREEK BRICK	2001	1.1478007	2,295.60	0.00%	0.00	2,295.60
EMER SWR REPAIR-ROEBUCK PLAZA TRUNK	2001	1.1478007	4,314.58	0.00%	0.00	4,314.58
EMER SWR REPAIR EASTERN VALLEY SEWER	2001	1.1478007	1,147.80	0.00%	0.00	1,147.80
EMER SWR REPAIR HOPEWELL AREA SEWER	2001	1.1478007	2,332.33	0.00%	0.00	2,332.33
EMER SWR REPAIR HOPEWELL SEWER	2001	1.1478007	2,839.66	0.00%	0.00	2,839.66
EMER SWR REPAIR VALLEY CREEK BRICK	2001	1.1478007	473.47	0.00%	0.00	473.47
EMER SWR REPAIR VALLEY CREEK BRICK	2001	1.1478007	473.47	0.00%	0.00	473.47
EMER SDW REPAIR HOPEWLEE AREA SEWER	2001	1.1478007	389.10	0.00%	0.00	389.10
EMER SWR REPAIR HOPEWELL AREA SEWER	2001	1.1478007	1,790.57	0.00%	0.00	1,790.57
EMER SWR REPAIR-VALLEY CREEK BRICK	2001	1.1478007	917.09	0.00%	0.00	917.09
EMER SWR REPAIR VALLEY CREEK SEWER	2001	1.1478007	149.21	0.00%	0.00	149.21
EMER SWR REPAIR EASTERN VALLEY SEWER	2001	1.1478007	1,345.22	0.00%	0.00	1,345.22
EMER SWR REPAIR HOPEWELL	2001	1.1478007	249.99	0.00%	0.00	249.99
EMER SWR REPAIR KENILWORTH DRIVE	2001	1.1478007	5,772.29	0.00%	0.00	5,772.29
EMER SWR REPAIR-ROEBUCK PLAZA TRUNK	2001	1.1478007	1,953.56	0.00%	0.00	1,953.56
EMER SWR REPAIR ROEBUCK PLAZA TRUNK	2001	1.1478007	1,590.85	0.00%	0.00	1,590.85
EMER SWR REPAIR-HOMEWOOD SEWERS	2001	1.1478007	1,947.82	0.00%	0.00	1,947.82
EMER. SWR REPAIR	2001	1.1478007	1,947.82	0.00%	0.00	1,947.82
EMER SWR REPAIR HOPEWELL AREA	2001	1.1478007	3,873.83	0.00%	0.00	3,873.83
EMER SWR REP-TR 13, VALLEY CRK BRICK SWR	2001	1.1478007	344.34	0.00%	0.00	344.34
EMER SWR REPAIR	2001	1.1478007	10,043.26	0.00%	0.00	10,043.26
EMER SWR REP-RICE CREEK PUMP STATION	2000	1.1703102	1,170.31	0.00%	0.00	1,170.31
EMER SWR REPAIR HOPEWELL AREA	2001	1.1478007	2,512.54	0.00%	0.00	2,512.54
EMER SWR REPAIR HOPEWELL AREA	2001	1.1478007	9,848.13	0.00%	0.00	9,848.13
EMER SWR REPAIR HARLEM AVE	2001	1.1478007	243.33	0.00%	0.00	243.33
EMER SWR REPAIR-SHADES CREEK	2001	1.1478007	8,723.29	0.00%	0.00	8,723.29
EMER SWR REPAIR-KENILWORTH DR	2001	1.1478007	1,951.26	0.00%	0.00	1,951.26
EMER SWR REPAIR SHANNON TRUNK SEWER	2001	1.1478007	11,478.01	0.00%	0.00	11,478.01
EMER SWR REPAIR SAMFORD SWR	2001	1.1478007	6,657.24	0.00%	0.00	6,657.24
EMER SWR REP-TR 2 WEST END REHAB-ELM ST	2000	1.1703102	933.91	0.00%	0.00	933.91
EMER SWR REPAIR HOOPEWELL SEWER	2001	1.1478007	1,640.21	0.00%	0.00	1,640.21
EMER SWR REPAIR-HOPEWELL	2001	1.1478007	499.98	0.00%	0.00	499.98
EMER SWR REPAIR-TR 2 BRIGHTON TRUNK SW	2001	1.1478007	459.12	0.00%	0.00	459.12
EMER SWR REP-TR 12-KENILWORTH DR	2000	1.1703102	585.16	0.00%	0.00	585.16
EMER SWR REPAIR EASTERN VALLEY SEWER	2001	1.1478007	3,425.04	0.00%	0.00	3,425.04
EMER SWR REP-TR 8 & 9 VALLEY CRK BRICK S	2000	1.1703102	438.87	0.00%	0.00	438.87
EMER SWR REP-TR 1 & 2 26TH ST SEWER REPL	2000	1.1703102	10,834.73	0.00%	0.00	10,834.73
EMER SWR REPAIR TR 78 HOPEWELL AREA SAN	2000	1.1703102	1,315.43	0.00%	0.00	1,315.43
EMER SWR REPAIR-HOPEWELL SEWER	2001	1.1478007	5,739.00	0.00%	0.00	5,739.00
EMER SWR REPAIR-RELOCATION DISTRI FACIL	2001	1.1478007	16,326.32	0.00%	0.00	16,326.32
EMER SWR REPAIR-HOPEWELL	2001	1.1478007	499.98	0.00%	0.00	499.98
EMER SWR REPAIR KENILWORTH DR	2001	1.1478007	6,347.34	0.00%	0.00	6,347.34
EMER SWR REPAIR-TR 12(S4) HOPEWELL AREA	2001	1.1478007	1,471.48	0.00%	0.00	1,471.48
EMER SWR REPAIR-TR 34 TRUNK EXT TO	2001	1.1478007	463.71	0.00%	0.00	463.71
EMER SWR REPAIR HARLEM AVE	2001	1.1478007	508.48	0.00%	0.00	508.48
EMER SWR REP-TR 52-HOPEWELL AREA	2000	1.1703102	1,997.72	0.00%	0.00	1,997.72
EMER SWR REP-TR 1-COOPER GREEN SW REPL	2000	1.1703102	428.33	0.00%	0.00	428.33
EMER SWR REP-TR 81-HOPEWELL AREA SANI	2000	1.1703102	713.89	0.00%	0.00	713.89
EMER SWR REP-CONSERVATION COST BILL	2000	1.1703102	34,626.33	0.00%	0.00	34,626.33
EMER SWR REPAIR	2000	1.1703102	3,510.93	0.00%	0.00	3,510.93
EMER SWR REP-TR 2-COOPER GREEN PARK	2000	1.1703102	2,570.00	0.00%	0.00	2,570.00
EMER SWR REP-TR 4-WEST END CONTRACT 2	2000	1.1703102	1,285.00	0.00%	0.00	1,285.00
EMER SWR REP-TR 13-HOPEWELL AREA SANI	2000	1.1703102	2,333.60	0.00%	0.00	2,333.60

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EMER SWR REP-TR 80-HOPEWELL AREA SANI	2000	1.1703102	1,302.56	0.00%	0.00	1,302.56
EMER SWR REPAIR-HOPEWELL AREA SEWER	2000	1.1703102	2,881.30	0.00%	0.00	2,881.30
EMER SWR REPAIR-TRACT 10-HOPEWELL	2000	1.1703102	88.94	0.00%	0.00	88.94
EMER SWR REP-TR26-HOPEWELL AREA SAN	2000	1.1703102	1,005.30	0.00%	0.00	1,005.30
EMER SWR REP-TR 22-HOPEWELL AREA	2000	1.1703102	1,409.05	0.00%	0.00	1,409.05
EMER SUR REP-TRACT 9-HOPEWELL AREA	2000	1.1703102	235.23	0.00%	0.00	235.23
EMER SWR REPAIR-TR 4-VALLEY CR BRICK SER	2000	1.1703102	585.16	0.00%	0.00	585.16
EMER SWR REP-TRACT 28-HOPEWELL AREA	2000	1.1703102	1,396.18	0.00%	0.00	1,396.18
EMR SWR REP-DEPON CONVEYOR PROP-VAL	2000	1.1703102	2,196.67	0.00%	0.00	2,196.67
EMER.SWR.REP.VALLEY CRK BASIN	2000	1.1703102	17.99	0.00%	0.00	17.99
EMER.SWR.TR.18 HOPEWELL AREA	2000	1.1703102	691.65	0.00%	0.00	691.65
EMER.SWR.TR.16 HOPEWELL AREA	2000	1.1703102	2,177.95	0.00%	0.00	2,177.95
EMER.SWR.REP.-TR.20 LINES S-4 HOPEWELL	2000	1.1703102	951.46	0.00%	0.00	951.46
EMER.SWR.TR.25 HOPEWELL AREA	2000	1.1703102	145.12	0.00%	0.00	145.12
EMER.SWR.TR.21 HOPEWELL AREA	2000	1.1703102	510.26	0.00%	0.00	510.26
EMR SWR REP-TR 7-VALLEY CRK BR SWR, RICK	2000	1.1703102	2,120.60	0.00%	0.00	2,120.60
EMER.SWR.REP.TR.24-HOPEWELL AREA	2000	1.1703102	157.99	0.00%	0.00	157.99
EMER.SWR.REP.TR.19-HOPEWELL AREA	2000	1.1703102	209.49	0.00%	0.00	209.49
EMER.SWR.REP.TR.17 LINE S-4 HOPEWELL	2000	1.1703102	1,369.26	0.00%	0.00	1,369.26
EMER.SWR.REP.TR.14 HOPEWELL AREA	2000	1.1703102	822.73	0.00%	0.00	822.73
EMER.SWR.REP.TR.30 HOPEWELL AREA	2000	1.1703102	4,235.35	0.00%	0.00	4,235.35
EMER.SWR.REP.-TR.20A - HOPEWELL AREA	2000	1.1703102	664.74	0.00%	0.00	664.74
EMER.SWR.REP.TR.15 HOPEWELL AREA	2000	1.1703102	418.97	0.00%	0.00	418.97
EMER SWR REPARI TR7 HOPEWELL AREA	2000	1.1703102	4,523.25	0.00%	0.00	4,523.25
EMER SWR REPAIR TR61 HOPEWELL AREA SAN	2000	1.1703102	1,214.78	0.00%	0.00	1,214.78
EMER SWR REPAIR-VALLEY CR SEWER	2000	1.1703102	730.27	0.00%	0.00	730.27
EMER SWER REPAIR-TR 10-SAMFORD TR	2000	1.1703102	1,137.54	0.00%	0.00	1,137.54
EMER SWER REPAIR-TR 1-WEST END CONTRAC	2000	1.1703102	1,004.13	0.00%	0.00	1,004.13
EMER SWER REPAIR-TR 11-VALLEY CRK BR	2000	1.1703102	204.80	0.00%	0.00	204.80
EMER SWER REPAIR-TR 3-WEST END CONTRAC	2000	1.1703102	1,387.99	0.00%	0.00	1,387.99
EMER SWER REPAIR-TR 5 & 6 SAMFORD TR EXI	2000	1.1703102	6,006.03	0.00%	0.00	6,006.03
EMER SWER REPAIR-TR 10 VALLEY CRK BR	2000	1.1703102	409.61	0.00%	0.00	409.61
EMER SWER REPAIR-VALLEY CRK BR SEWER	2000	1.1703102	526.64	0.00%	0.00	526.64
DMR SWR REPAIR UPDATE	2001	1.1478007	10,843.62	0.00%	0.00	10,843.62
EMR SWR REPAIR UPDATE	2001	1.1478007	9,903.61	0.00%	0.00	9,903.61
EMR SWR REPAIR LOMB AVE & BORDER ST	2002	1.1135668	389.75	0.00%	0.00	389.75
EMR SWR REPAIR UPDATE	2001	1.1478007	13,443.50	0.00%	0.00	13,443.50
EMR SWR REPAIR SHADES VALLEY TRANSFER	2002	1.1135668	1,113.57	0.00%	0.00	1,113.57
EMR SWR REPAIR CO SEWER	2002	1.1135668	684.84	0.00%	0.00	684.84
EMR SWR REPAIR MCCALLA AREA SEWER	2002	1.1135668	662.57	0.00%	0.00	662.57
EMR SWR REPAIR MCALLA AREA SEWER	2002	1.1135668	662.57	0.00%	0.00	662.57
EMR SWR REPAIR MCCALLA AREA SEWER	2002	1.1135668	39,754.34	0.00%	0.00	39,754.34
EMR SWR REPAIR LOMB AVENUE	2002	1.1135668	328.50	0.00%	0.00	328.50
EMR SWR REPAIR LAMMACK RD SEWER	2002	1.1135668	556.78	0.00%	0.00	556.78
EMR SWR REPAIR-HOPEWELL SEWER	2002	1.1135668	17,147.82	0.00%	0.00	17,147.82
EMR SWR REPAIR-HOPEWELL SEWER	2002	1.1135668	23,384.90	0.00%	0.00	23,384.90
EMR SWR REPAIR-MCCALLA PUMP STATION	2002	1.1135668	3,340.70	0.00%	0.00	3,340.70
EMR SWR REPAIR-SHANNON TRUNK SEWER	2002	1.1135668	40,533.83	0.00%	0.00	40,533.83
EMR SWR REPAIR-LOMB AVE & BADER ST	2002	1.1135668	328.50	0.00%	0.00	328.50
EMR SWR REPAIR-LOMB AVE & BORDER ST	2002	1.1135668	662.57	0.00%	0.00	662.57
EMR SWR REPAIR MCCALLA AREA SEWER	2002	1.1135668	271.71	0.00%	0.00	271.71
EMR SWR REPAIR MCCALLA AREA SEWER	2002	1.1135668	7,794.97	0.00%	0.00	7,794.97
EMR SWR REPAIR MCCALLA AREA SEWER	2002	1.1135668	3,234.91	0.00%	0.00	3,234.91
EMR SWR REPAIR SHANNON TRUNK SEWER	2002	1.1135668	13,730.37	0.00%	0.00	13,730.37
EMR SWR REPAIR MCCALLA AREA SEWER	2002	1.1135668	4,856.26	0.00%	0.00	4,856.26
EMR SWR REPAIR	2002	1.1135668	13,023.50	0.00%	0.00	13,023.50
EMR SWR REPAIR MCCALLA AREA SEWER	2001	1.1478007	2,404.64	0.00%	0.00	2,404.64
EMR SWR REPAIR LOMB AVENUE	2002	1.1135668	122.49	0.00%	0.00	122.49
EMR SWR REPAIR LOMB AVENUE	2002	1.1135668	328.50	0.00%	0.00	328.50
EMR SWR REPAIR 12TH AVNEUE	2002	1.1135668	3,006.63	0.00%	0.00	3,006.63
EMER SRW REPAIR ELDER STREET	2002	1.1135668	1,263.90	0.00%	0.00	1,263.90
EMR SWR REPAIR ALASKA DRIVE	2001	1.1478007	11,478.01	0.00%	0.00	11,478.01
EMR SWR REPAIR KENILWORTH DRIVE	2001	1.1478007	1,947.82	0.00%	0.00	1,947.82
EMR SWR REPAIR VALLEY CREEK	2001	1.1478007	41,435.61	0.00%	0.00	41,435.61
EMR SWR REPAIR LOMB AVE & BORDER ST	2002	1.1135668	606.89	0.00%	0.00	606.89
EMR SWR REPAIR LOMB & BORDER ST SEWER	2002	1.1135668	935.40	0.00%	0.00	935.40
EMR SWR REPAIR COMMACK ROAD SANITARY	2002	1.1135668	278.39	0.00%	0.00	278.39
EMER SWR REPAIR	2002	1.1135668	35,461.68	0.00%	0.00	35,461.68
EMER SWR REPAIR	2003	1.0876158	7,263.10	0.00%	0.00	7,263.10
EMR SWR REPAIR VALLEY CREEK BRICK	2002	1.1135668	161,123.55	0.00%	0.00	161,123.55
EMR SWR REPAIR-FOREST HILLS	2002	1.1135668	1,113.57	0.00%	0.00	1,113.57
EMR SWR REPAIR-VALLEY CREEK	2002	1.1135668	35,879.12	0.00%	0.00	35,879.12
EMR SWR REPAIR-TRACT 19	2002	1.1135668	138.64	0.00%	0.00	138.64
EMR SWR REPAIR-FOREST HILLS	2002	1.1135668	249.16	0.00%	0.00	249.16
EMR SWR REPAIR-TRACT 28	2002	1.1135668	94.10	0.00%	0.00	94.10
EMR SWR REPAIR-TRACT 4	2002	1.1135668	138.64	0.00%	0.00	138.64
EMR SWR REPAIR-SHADES CREEK	2002	1.1135668	6,215.31	0.00%	0.00	6,215.31
EMR SWR REPAIR-LOMB AVE & BODER ST	2002	1.1135668	556.78	0.00%	0.00	556.78
EMR SWR REPAIR-TRACT 25	2002	1.1135668	89.09	0.00%	0.00	89.09

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EMR SWR REPAIR-FOREST HILLS	2002	1.1135668	1,069.02	0.00%	0.00	1,069.02
EMR SWR REPAIR SHADES CREEK	2002	1.1135668	1,948.74	0.00%	0.00	1,948.74
EMR SWR REPAIR SHANNON TRUNK SEWER	2002	1.1135668	6,353.89	0.00%	0.00	6,353.89
LAND PURCHASE-MILL CREEK PUMP STATION	2003	1.0876158	35,347.51	0.00%	0.00	35,347.51
LAND PURCHASE-HOPE WELL SEWER AREA	2003	1.0876158	24,471.35	0.00%	0.00	24,471.35
ROW TRACT 2 SAND RIDGE TRUNK SEWER	1999	1.2016009	2,101.60	0.00%	0.00	2,101.60
EMER SWR REPAIR - VALLEY CREEK	2000	1.1703102	585.16	0.00%	0.00	585.16
EMER SWR REPAIR POWDER PLANT RD	2000	1.1703102	24,470.02	0.00%	0.00	24,470.02
RWO PIPESHOP TRUNK SEWER	1999	1.2016009	45,132.42	0.00%	0.00	45,132.42
BRIGHTON TRK - SWR REPAIR	2000	1.1703102	351.09	0.00%	0.00	351.09
CONDEMNATION CASE #34736	2000	1.1703102	14,511.85	0.00%	0.00	14,511.85
VALLEY CREEK WWTP EXPANSION	1999	1.2016009	20,419.21	0.00%	0.00	20,419.21
TRACT 26 SHERMAN OAKS SANITARY SEWER	1999	1.2016009	950.47	0.00%	0.00	950.47
CONDEMNATION OXMOOR TRUNK SEWER	1999	1.2016009	102,447.31	0.00%	0.00	102,447.31
VALLEY CREEK BRICK SEWER REPLACEMENT	1999	1.2016009	6,406.34	0.00%	0.00	6,406.34
TRACT 30 VALLEY CREEK BRICK SEWER	1998	1.2298142	241.04	0.00%	0.00	241.04
ROW BRIGHTON TRUCK SEWER REPL TRACT 6	1999	1.2016009	240.32	0.00%	0.00	240.32
TRACT 1 VALLEY CREEK BRICK SEWER	1998	1.2298142	1,893.91	0.00%	0.00	1,893.91
TRACT 2 PIPE SHOP TRUNK SEWER	1998	1.2298142	3,375.84	0.00%	0.00	3,375.84
BRICK SEWER REPLACEMENT TRACT 15	1998	1.2298142	1,980.00	0.00%	0.00	1,980.00
BRICK SEWER REPLACEMENT TRACT 21	1998	1.2298142	1,697.14	0.00%	0.00	1,697.14
PIPE SHOP TRUNK SEWER ROW	1998	1.2298142	928.51	0.00%	0.00	928.51
PIPE SHOP TRUNK SEWER ROW	1998	1.2298142	135.28	0.00%	0.00	135.28
EMER SWR REPAIR 22ND COURT TO 6TH ST	2001	1.1478007	2,479.25	0.00%	0.00	2,479.25
LAND-VALLEY CREEK RELOCATION	2005	1	3,800.00	0.00%	0.00	3,800.00
VILLAGE PEAK FLOW HANDLING FACILITY	1998	1.2298142	881,404.14	0.00%	0.00	881,404.14
VILLAGE CREEK LAND TRACT	1998	1.2298142	39,354.05	0.00%	0.00	39,354.05
MINOR PUMP STATION PROPERTY	1998	1.2298142	22,136.66	0.00%	0.00	22,136.66
VILLAGE WWTP-USX PROPERTY	1993	1.3974088	705,691.46	0.00%	0.00	705,691.46
PURCHASE PROPERTY-VILLAGE CRK BUFFER	2003	1.0876158	71,416.57	0.00%	0.00	71,416.57
PURCHASE PROPERTY-506 BLOUNT STREET	2003	1.0876158	82,589.51	0.00%	0.00	82,589.51
VILLAGE CREEK PEAK FLOW	1998	1.2298142	768.46	0.00%	0.00	768.46
TRACT 5 WEST ENSLEY SEWER	1999	1.2016009	493.86	0.00%	0.00	493.86
VILLAGE CREEK EXPANSION 4 TAX DEEDS	1999	1.2016009	1,397.35	0.00%	0.00	1,397.35
ROW TRACT 2 WEST ENSLEY	1999	1.2016009	1,527.23	0.00%	0.00	1,527.23
ROW TRACT 9 WEST ENSLEY TRUNK SEWER	1999	1.2016009	587.58	0.00%	0.00	587.58
ROW TRACT 1 DALTON DR SEWER	1999	1.2016009	1,441.92	0.00%	0.00	1,441.92
ROW, TRACT 1 GLENDRIDGE REPL SEWER	1999	1.2016009	2,403.20	0.00%	0.00	2,403.20
ROW, TRACT 4 GLENDRIDGE REPL SEWER	1999	1.2016009	600.80	0.00%	0.00	600.80
VILLAGE CREEK BUFFER LOTS	2004	1.0232607	10,127.03	0.00%	0.00	10,127.03
LAND PUR.VILLAGE CREEK PLANT BUFFER	2003	1.0876158	10,614.68	0.00%	0.00	10,614.68
EMR SWR REPAIR BLACK CREEK	2002	1.1135668	2,239.38	0.00%	0.00	2,239.38
EMR SWR REPAIR VILLAGE CREEK	2002	1.1135668	38,863.48	0.00%	0.00	38,863.48
EMR SWR REPAIR VILLAGE CREEK	2002	1.1135668	5,041.54	0.00%	0.00	5,041.54
REAL ESTATE PURCHASE	2003	1.0876158	5,190.34	0.00%	0.00	5,190.34
BLACK CREEK	2002	1.1135668	3,955.39	0.00%	0.00	3,955.39
VILLAGE CREEK ROW	2002	1.1135668	385.29	0.00%	0.00	385.29
BLACK CREEK TO WALKER CHAPEL RD	2002	1.1135668	385.29	0.00%	0.00	385.29
MINOR PUMP STATION ACCESS RD	2003	1.0876158	9,144.89	0.00%	0.00	9,144.89
EMER SWR REPAIR ROW	2002	1.1135668	1,679.26	0.00%	0.00	1,679.26
EMER SWR BLACK CREEK	2002	1.1135668	488.86	0.00%	0.00	488.86
EMER SWR BLACK CREEK	2002	1.1135668	6,742.65	0.00%	0.00	6,742.65
EMER SWR BLACK CREEK	2002	1.1135668	1,901.97	0.00%	0.00	1,901.97
BLACK CREEK TO WLAKER CHAPEL RD	2002	1.1135668	2,860.75	0.00%	0.00	2,860.75
EMR SWR REPAIR-BLACK CREEK	2002	1.1135668	182.62	0.00%	0.00	182.62
EMR SWR REPAIR-ZION CITY PUMP STATION	2002	1.1135668	952.10	0.00%	0.00	952.10
EMR SWR REPAIR-VALLEY CREEK	2002	1.1135668	679.28	0.00%	0.00	679.28
EMR SWR REPAIR-VILLAGE CREEK	2002	1.1135668	3,618.51	0.00%	0.00	3,618.51
EMR SWR REPAIR-BLACK CREEK	2002	1.1135668	5,592.33	0.00%	0.00	5,592.33
EMR SWR REPAIR-ZION CITY PUMP STATION	2002	1.1135668	6,681.40	0.00%	0.00	6,681.40
EMR SWR REPAIR-VILLAGE CREEK	2002	1.1135668	2,884.33	0.00%	0.00	2,884.33
EMR SWR REPAIR-BLACK CREEK	2002	1.1135668	699.32	0.00%	0.00	699.32
EMR SWR REPAIR-BLACK CREEK	2002	1.1135668	753.88	0.00%	0.00	753.88
BLACK CREEK TRUNK EXTENSION	2002	1.1135668	3,482.12	0.00%	0.00	3,482.12
EMR SWR REPAIR ZION CITY PUMP STATION	2002	1.1135668	222.71	0.00%	0.00	222.71
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	148.77	0.00%	0.00	148.77
EMR SWR REPAIR BRANDY LANE	2002	1.1135668	514.47	0.00%	0.00	514.47
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	4,244.92	0.00%	0.00	4,244.92
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	3,297.27	0.00%	0.00	3,297.27
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	8,513.22	0.00%	0.00	8,513.22
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	2,310.65	0.00%	0.00	2,310.65
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	111.36	0.00%	0.00	111.36
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	251.67	0.00%	0.00	251.67
EMR SWR REPAIR BLACK CREEK OT WALKER	2002	1.1135668	223.16	0.00%	0.00	223.16
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	948.76	0.00%	0.00	948.76
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	1,675.92	0.00%	0.00	1,675.92
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	120.27	0.00%	0.00	120.27
EMR SWR REPAIR ZION CITY PUPMP STATION	2002	1.1135668	690.41	0.00%	0.00	690.41
EMR SWR REPAIR ZION CITY PUMP STATION	2002	1.1135668	334.07	0.00%	0.00	334.07

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EMR SWR REPAIR ZION CITY PUMP STATION	2002	1.1135668	334.07	0.00%	0.00	334.07
EMER SWR REPAIR	2002	1.1135668	21,098.19	0.00%	0.00	21,098.19
EMR SWR REPAIR ZION CITY PUMP STATION	2002	1.1135668	556.78	0.00%	0.00	556.78
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	5,012.16	0.00%	0.00	5,012.16
EMER SWR REPAIR SHADES VALLEY	2001	1.1478007	3,236.80	0.00%	0.00	3,236.80
EMR SWR REPAIR VILLAGE CREEK SEWER	2002	1.1135668	5,612.38	0.00%	0.00	5,612.38
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	737.18	0.00%	0.00	737.18
EMER SWR REPAIR ROEBUCK PLAZA SEWER	2001	1.1478007	21,198.73	0.00%	0.00	21,198.73
EMR SWR REPAIR ZION CITY PUMP STATION	2002	1.1135668	11,135.67	0.00%	0.00	11,135.67
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	90.20	0.00%	0.00	90.20
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	111.36	0.00%	0.00	111.36
EMER SWR REPAIR ROEBUCK PLAZA SEWER	2001	1.1478007	14,347.51	0.00%	0.00	14,347.51
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	5,002.14	0.00%	0.00	5,002.14
EMR SWR REPAIR ZION CITY PUMP STATION	2002	1.1135668	3,260.16	0.00%	0.00	3,260.16
EMER SWR REPAIR-401 6TH ST	2001	1.1478007	285.53	0.00%	0.00	285.53
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	1,146.97	0.00%	0.00	1,146.97
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	3,432.01	0.00%	0.00	3,432.01
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	8,996.51	0.00%	0.00	8,996.51
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	1,198.20	0.00%	0.00	1,198.20
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	2,871.89	0.00%	0.00	2,871.89
EMER SWR REPAIR-424 6TH ST	2001	1.1478007	950.95	0.00%	0.00	950.95
EMER SWR REPAIR BRADY LANE	2001	1.1478007	3,772.82	0.00%	0.00	3,772.82
EMR SWR REPAIR VILLAGE CREEK SEWER	2002	1.1135668	267.26	0.00%	0.00	267.26
EMR SWR REPAIR BRANDY LANE	2002	1.1135668	5,715.94	0.00%	0.00	5,715.94
EMR SWR REPAIR VILLAGE CREEK SEWER	2002	1.1135668	378.61	0.00%	0.00	378.61
EMER SWR REPAIR SHADES VALLEY	2001	1.1478007	22,788.14	0.00%	0.00	22,788.14
EMER SWR REPAIR BLACK CREEK	2001	1.1478007	373.04	0.00%	0.00	373.04
EMER SWR REPAIR BLACK CREEK WALKER	2001	1.1478007	2,412.68	0.00%	0.00	2,412.68
EMER SWR REPA	2001	1.1478007	3,876.12	0.00%	0.00	3,876.12
EMER SWR REPAIR BLACK CREEK TO WALKER	2001	1.1478007	1,305.05	0.00%	0.00	1,305.05
EMR SWR REPAIR VILLAGE CREEK BUFFER	2001	1.1478007	14,931.49	0.00%	0.00	14,931.49
EMR SWR REPAIR-BLACK CREEK TO WALKER	2002	1.1135668	3,741.58	0.00%	0.00	3,741.58
EMR SWR REPAIR BLACK CREEK TO WALKER	2001	1.1478007	780.50	0.00%	0.00	780.50
EMR SWR REPAIR VILLAGE CREEK BUFFER	2001	1.1478007	10,899.48	0.00%	0.00	10,899.48
EMR SWR REPAIR BLACK CREEK TO WALKER	2001	1.1478007	1,451.97	0.00%	0.00	1,451.97
EMR SWR REPAIR VILLAGE CREEK BORDER	2001	1.1478007	1,429.32	0.00%	0.00	1,429.32
EMR SWR REPAIR VILLAGE CREEK BORDER	2001	1.1478007	24,952.54	0.00%	0.00	24,952.54
EMR SWR REPAIR MORRIS KIMBERLY	2001	1.1478007	2,419.95	0.00%	0.00	2,419.95
EMR SWR REPAIR MORRIS KIMBERLY	2001	1.1478007	8,838.07	0.00%	0.00	8,838.07
EMR SWR REPAIR ROEBUCK PLAZA TRUNK	2001	1.1478007	12,138.45	0.00%	0.00	12,138.45
EMR SWR REPAIR ZION CITY PUMP STATION	2002	1.1135668	5,567.83	0.00%	0.00	5,567.83
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	2,893.05	0.00%	0.00	2,893.05
EMR SWR REPAIR BLACK CREEK TO WALKER	2002	1.1135668	2,767.21	0.00%	0.00	2,767.21
EMER SWR REPAIR GRANTS MILL ROAD	2001	1.1478007	780.50	0.00%	0.00	780.50
EMER SWR REPAIR SHADES VALLEY ODOR	2001	1.1478007	167.88	0.00%	0.00	167.88
EMER.SWR.REP. TR.3-DALTON DRIVE	2000	1.1703102	1,283.83	0.00%	0.00	1,283.83
EMER.SWR.REP. TR.6-DALTON DRIVE	2000	1.1703102	1,259.25	0.00%	0.00	1,259.25
EMER.SWR.REP. TR.1-VILLAGE CONTRACT 11 E	2000	1.1703102	1,755.47	0.00%	0.00	1,755.47
EMER SWR REPAIR TR1 A W ENSLEY TRUNK	2000	1.1703102	2,165.07	0.00%	0.00	2,165.07
EMER.SWR.REP. TR.13-W.ENSLEY TRUNK	2000	1.1703102	344.07	0.00%	0.00	344.07
EMER.SWR.REP. TR.2-GARDEN LANE	2000	1.1703102	2,340.62	0.00%	0.00	2,340.62
EMER.SWR.REP.TR.4,VILLAGE CONTRACT 11E	2000	1.1703102	1,088.39	0.00%	0.00	1,088.39
EMER.SWR.REP. TR.11-W.ENSLEY TRUNK	2000	1.1703102	993.59	0.00%	0.00	993.59
EMER SWR REP-TRACT 2-DALTON DR	1999	1.2016009	4,442.32	0.00%	0.00	4,442.32
EMER.SWR.REP.TR.3 GARDE LANE	2000	1.1703102	3,663.07	0.00%	0.00	3,663.07
EMER SWR REPA-TRACT 5 DALTON DRIVE	1999	1.2016009	9,547.92	0.00%	0.00	9,547.92
EMER SWR REPR - TRACTIMIROR SWR MAIN	1999	1.2016009	8,560.20	0.00%	0.00	8,560.20
EMER SWR REPR - CHERRY AVENUE	1999	1.2016009	3,004.00	0.00%	0.00	3,004.00
EMER SWR REPAIR WEST ENSLEY TRUNK SWR	2000	1.1703102	1,487.46	0.00%	0.00	1,487.46
EMR SWR REP-TR 4-W ENSLBY TRUNK SEWER	2000	1.1703102	661.23	0.00%	0.00	661.23
EMER SWR REPAIR-TRACT 10-WEST ENSLEY	2000	1.1703102	4,919.98	0.00%	0.00	4,919.98
EMER SWR REPAIR-BURGANDY PUMP STA	2000	1.1703102	3,276.87	0.00%	0.00	3,276.87
EMER SWR REPAIR-VILLAGE EAST TRCT 5	2000	1.1703102	765.38	0.00%	0.00	765.38
EMER SWR REPAIR 22ND CT TO 6TH ST	2001	1.1478007	4,660.07	0.00%	0.00	4,660.07
EMER SWR REP-TR 2-11TH AVE SO SEWER REDE	2000	1.1703102	2,637.88	0.00%	0.00	2,637.88
EMER SWR REPAIR 417 BIBB STREET	2001	1.1478007	1,110.46	0.00%	0.00	1,110.46
EMER SWR REP-TR 1-VILLAGE CRK SANI SEWER	2000	1.1703102	4,120.66	0.00%	0.00	4,120.66
EMER SWR REPAIR 11TH AVE SOUTH	2001	1.1478007	2,812.11	0.00%	0.00	2,812.11
EMER SWR REPAIR 11TH AVE SOUTH	2001	1.1478007	2,812.11	0.00%	0.00	2,812.11
EMER SWR. REPAIR	2001	1.1478007	967.60	0.00%	0.00	967.60
EMER SWR REPAIR 417 BIBB STREET	2001	1.1478007	15,232.64	0.00%	0.00	15,232.64
EMER SWER REPT-TR 7-11TH AV S SEWER REDE	2000	1.1703102	1,507.36	0.00%	0.00	1,507.36
EMER SWER REPR-TR 8-W ENSLEY TR SEWER	2000	1.1703102	481.00	0.00%	0.00	481.00
EMER SWR REPAIR-VALLEY DR REPLACEMENT	2001	1.1478007	3,443.40	0.00%	0.00	3,443.40
EMER SWR REPAIR-22ND CT TO 6TH ST NE	2001	1.1478007	766.73	0.00%	0.00	766.73
EMER SWR REPAIR VILLAGE CREEK BORDER	2001	1.1478007	6,721.89	0.00%	0.00	6,721.89
EMER SWER REPR-TR 9-11TH AV S.SEWER REDE	2000	1.1703102	179.06	0.00%	0.00	179.06
EMER SWER REPR-TR 1 & 12-W ENSLEY TR SEW	2000	1.1703102	4,255.25	0.00%	0.00	4,255.25
EMER SWER REPR-485 BIBB ST-VILL CRK BORD	2000	1.1703102	442.03	0.00%	0.00	442.03

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EMER SWER REPR-TR5-11TH AV SO SEW REDESI	2000	1.1703102	4,299.72	0.00%	0.00	4,299.72
EMER SWER REPR-TR6-11TH AV SO SEW REDESI	2000	1.1703102	1,533.11	0.00%	0.00	1,533.11
EMER SWR REP-TR 8-11TH AVE SO REDESIGN	2001	1.1478007	292.69	0.00%	0.00	292.69
EMER SWR REP-TR 3&4-26TH ST-PIKE RD	2001	1.1478007	11,133.67	0.00%	0.00	11,133.67
EMER SWR REP-TR 11-11TH AVE S SEWER RED	2000	1.1703102	380.35	0.00%	0.00	380.35
EMER SWR REP-PURCHASE PROPERTY-WMS	2000	1.1703102	3,862.02	0.00%	0.00	3,862.02
EMER SWR REP-TR 1-11TH AVE S SEWER	2000	1.1703102	849.65	0.00%	0.00	849.65
EMER SWR REP-TR 10-11TH AVE S SWR REDES	2000	1.1703102	131.07	0.00%	0.00	131.07
EMER SWR REP-CASE 171401-TIMMONS	2000	1.1703102	1,735.45	0.00%	0.00	1,735.45
EMER SWR REP-TR 3- 11TH AVE S SEWER REDI	2000	1.1703102	3,800.00	0.00%	0.00	3,800.00
EMER SWR REP-PURCHASE LAND/AC DEP OF	2000	1.1703102	3,581.55	0.00%	0.00	3,581.55
EMER SWR REPAIR 22ND COURT TO 6TH ST NW	2001	1.1478007	2,299.04	0.00%	0.00	2,299.04
EMER SWR REPAIR 22ND COURT TO 6TH ST NW	2001	1.1478007	191.68	0.00%	0.00	191.68
EMER SWR REPAIR 5TH PLACE NW	2001	1.1478007	308.76	0.00%	0.00	308.76
EMER SWR REPAIR 5TH PLACE NW	2001	1.1478007	34,089.68	0.00%	0.00	34,089.68
EMER SWR REPAIR ENSLEY HIGHLANDS	2001	1.1478007	1,231.31	0.00%	0.00	1,231.31
EMER SWR REPAIR WARRIOR WWTF	2002	1.1135668	20,378.27	0.00%	0.00	20,378.27
EMER SWR REPAIR-WESTWOOD GARDEN	2001	1.1478007	1,704.48	0.00%	0.00	1,704.48
EMER SWR REPAIR-WESTWOOD GARDEN	2001	1.1478007	114.78	0.00%	0.00	114.78
EMR SWR REPAIR WESTWOOD GARDEN	2002	1.1135668	10,205.84	0.00%	0.00	10,205.84
EMR SWR REPAIR WESTWOOD GARDEN	2002	1.1135668	4,518.85	0.00%	0.00	4,518.85
EMR SWR REPAIR WESTWOOD GARDEN	2002	1.1135668	116.92	0.00%	0.00	116.92
EMR SWR REPAIR WESTWOOD GARDEN	2002	1.1135668	7,683.61	0.00%	0.00	7,683.61
EMER SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	2,359.88	0.00%	0.00	2,359.88
EMR SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	2,920.01	0.00%	0.00	2,920.01
EMR SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	120.52	0.00%	0.00	120.52
EMER SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	5,600.12	0.00%	0.00	5,600.12
EMER SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	143.48	0.00%	0.00	143.48
EMR SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	930.87	0.00%	0.00	930.87
EMR SWR REPAIR WESTWOOD GARDEN	2002	1.1135668	222.71	0.00%	0.00	222.71
EMR SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	1,740.07	0.00%	0.00	1,740.07
EMR SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	229.56	0.00%	0.00	229.56
EMR SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	172.17	0.00%	0.00	172.17
EMR SWR REPAIR BRANDY LANE	2001	1.1478007	1,247.66	0.00%	0.00	1,247.66
EMER SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	2,419.56	0.00%	0.00	2,419.56
EMER SWR REP-TR 42 WESTWOOD GDNS ESTS	2000	1.1703102	429.59	0.00%	0.00	429.59
EMER SWR REP-TR 42 WESTWOOD GDNS ESTS	2000	1.1703102	483.26	0.00%	0.00	483.26
EMER SWR REP-TR 42 WESTWOOD GDNS ESTS	2001	1.1478007	2,068.34	0.00%	0.00	2,068.34
EMER SWR REPAIR CORRIDOR X SEWER	2001	1.1478007	1,147.80	0.00%	0.00	1,147.80
EMER SWR REP-TR 33-W'WOOD GDN ESTATES	2001	1.1478007	3,166.78	0.00%	0.00	3,166.78
EMER SWR REAPIR WESTWOOD GARDEN	2001	1.1478007	200.87	0.00%	0.00	200.87
EMER SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	2,662.86	0.00%	0.00	2,662.86
EMER SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	184.65	0.00%	0.00	184.65
EMER SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	59.69	0.00%	0.00	59.69
EMER SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	205.46	0.00%	0.00	205.46
EMER SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	1,206.34	0.00%	0.00	1,206.34
EMER SER REPAIR WESTWOOD GARDEN	2001	1.1478007	3,751.01	0.00%	0.00	3,751.01
EMER SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	899.88	0.00%	0.00	899.88
EMER SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	3,299.93	0.00%	0.00	3,299.93
EMER SWR REPAIR WESTWOOD GARDENE	2001	1.1478007	180.20	0.00%	0.00	180.20
EMER SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	2,022.42	0.00%	0.00	2,022.42
EMER SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	428.13	0.00%	0.00	428.13
EMER SWR-TRACT 26-MORRIS KIMBERLY	2000	1.1703102	502.06	0.00%	0.00	502.06
EMER SWR-REPAIR-TRACT 15- MORRIS	2000	1.1703102	4,488.14	0.00%	0.00	4,488.14
EMER SWR REPAIR-MORRIS KIMBERLY SYSTEM	2000	1.1703102	3,965.01	0.00%	0.00	3,965.01
EMER SWR REPAIR-MORRIS KIMBERLY SYSTEM	2000	1.1703102	337.05	0.00%	0.00	337.05
EMER SWR REPAIR-MORRIS KIMBERLY SYSTEM	2000	1.1703102	3,965.01	0.00%	0.00	3,965.01
EMER SWR REPAIR-MORRIS KIMBERLY SYSTEM	2000	1.1703102	287.90	0.00%	0.00	287.90
EMER SWR REPAIR-MORRIS KIMBERLY SYSTEM	2000	1.1703102	3,752.01	0.00%	0.00	3,752.01
EMER SWR REPAIR-MORRIS KIMBERLY SYSTEM	2000	1.1703102	59.69	0.00%	0.00	59.69
EMER SWR REPAIR-MORRIS KIMBERLY SYSTEM	2000	1.1703102	4,364.09	0.00%	0.00	4,364.09
VALLEY CREEK BRICK SEWER REPLACEMENT-	1994	1.3462463	12,116.22	0.00%	0.00	12,116.22
CHRISTOPHER DR TO KNOLLWOOD CAPPED-	1994	1.3462463	875.06	0.00%	0.00	875.06
GRIFFIN BRANCH TRUNK SEWER-ROW	1994	1.3462463	77,412.39	0.00%	0.00	77,412.39
GRIFFIN BRANCH SEWER TUNNEL-ROW	1994	1.3462463	6,131.12	0.00%	0.00	6,131.12
EMER SWR REPA (LAND)	2000	1.1703102	4,096.09	0.00%	0.00	4,096.09
EMER.SWR.REP.-RIDGEWOOD S/D	2000	1.1703102	3,134.09	100.00%	(3,134.09)	0.00
EMER.SWR.REP.-RIDGEWOOD/HEATHERWOOD	2000	1.1703102	3,510.93	100.00%	(3,510.93)	0.00
EMER SWR REPAIR 40 GREEN STREET	2001	1.1478007	49.54	0.00%	0.00	49.54
UPDTE(GEORGE REYNOLDS)	2000	1.1703102	170.28	0.00%	0.00	170.28
EMR SWR REPAIR RENTAL OF PROPERTY	2002	1.1135668	200.44	0.00%	0.00	200.44
TURKEY CREEK LATERAL EXTENSION ROW	1998	1.2298142	2,890.06	0.00%	0.00	2,890.06
TURKEY CREEK LATERAL TO DEERFOOT ROW	1998	1.2298142	1,537.27	0.00%	0.00	1,537.27
RIDGEWOOD & HEATHERWOOD SEWER	1998	1.2298142	2,705.59	0.00%	0.00	2,705.59
APPRAISAL REPORT	1998	1.2298142	1,352.80	0.00%	0.00	1,352.80
TURKEY CREEK LATERAL TO DEERFOOT ROW	1998	1.2298142	2,213.67	0.00%	0.00	2,213.67
TURKEY CREEK LATERAL EXTENSION TO	1998	1.2298142	614.91	0.00%	0.00	614.91
BYRD BRANCH EXT TO PATTON CHAPEL ROW	1998	1.2298142	737.89	0.00%	0.00	737.89
BLACK CREEK TO CARSON ROAD SEWEW EXT	1998	1.2298142	3,812.42	0.00%	0.00	3,812.42

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BLACK CREEK SEWER EXT TO GARDENDALE	1998	1.2298142	1,721.74	0.00%	0.00	1,721.74
TURKEY CREEK LATERAL EXTENSION TO	1998	1.2298142	25,364.92	0.00%	0.00	25,364.92
CONDEMNATION DANNY COSHALT	1998	1.2298142	3,463.77	0.00%	0.00	3,463.77
BLACK CREEK TRUNK SEWER GARDENDALE	1998	1.2298142	1,475.78	0.00%	0.00	1,475.78
25TH COURT 2ND WAY NW ASSESSMENT	1998	1.2298142	3,074.54	0.00%	0.00	3,074.54
TURKEY CREEK LATERAL TO DEERFOOT PKWY	1998	1.2298142	6,149.07	0.00%	0.00	6,149.07
PATTON CREEK TRUNK SEWER	1998	1.2298142	1,844.72	0.00%	0.00	1,844.72
TRUSSVILLE TRUNK SEWER CONDEMNATION	1997	1.2496567	103,619.04	0.00%	0.00	103,619.04
RIDGEWOOD & HEARTHERWOOD CAPPED	1998	1.2298142	3,074.54	0.00%	0.00	3,074.54
CAHABA TRUCK LINE CONDEMNATION	1998	1.2298142	18,447.21	0.00%	0.00	18,447.21
VESTAVIA TRUNK SEWER REPLACEMENT	1998	1.2298142	683.78	0.00%	0.00	683.78
EMER SWR REPAIR COUNTRY VALE CAPPED	2001	1.1478007	1,267.17	0.00%	0.00	1,267.17
EMR SWR REPAIR HOPEWELL SEWER	2001	1.1478007	1,147.80	0.00%	0.00	1,147.80
EMR SWR REPAIR HOPEWELL SANITARY	2001	1.1478007	1,516.24	0.00%	0.00	1,516.24
LAND PURCHASE-MILL CREEK PUMP STATION	2003	1.0876158	41,873.21	0.00%	0.00	41,873.21
EMER SWR REPAIR ROEBUCK PLAZA TRUNK	2001	1.1478007	35,581.82	0.00%	0.00	35,581.82
EMER SWR REPAIR TR6 ENSLEY TRUNK SEWER	2000	1.1703102	10,298.73	0.00%	0.00	10,298.73
PINCHGUT CREEK P.S.	1986	1.6951106	932,425.77	38.50%	(358,984.00)	573,441.78
ENER SWR REO TR60 & 61 5MI CR REPL SWR	2000	1.1703102	3,276.87	0.00%	0.00	3,276.87
EMER SWR REPAIR WESTWOOD GARDEN	2001	1.1478007	918.24	0.00%	0.00	918.24
EMER.SWR.REP.-MORRIS/KIMBERLY WW	2000	1.1703102	23,580.58	11.78%	(2,778.16)	20,802.42
EMER SWR REPAIR-GARDEN LANE	2000	1.1703102	2,106.56	0.00%	0.00	2,106.56
NEWFOUND CREEK PS/SEWER-ROW	1994	1.3462463	740.44	0.00%	0.00	740.44
LEEDS WWTP: TRACT #4	1992	1.4604814	102,233.70	0.00%	0.00	102,233.70
SETTLEMENT CONDEMNATION CASE ROWAN	1992	1.4604814	123,827.94	0.00%	0.00	123,827.94
LEEDS WWTP- 9.2 ACRES	1992	1.4604814	33,225.95	0.00%	0.00	33,225.95
LEEDS WWTP: 40.64 ACRES	1992	1.4604814	226,374.62	0.00%	0.00	226,374.62
LAND - TRUSSVILLE WWTF	1994	1.3462463	354,768.92	0.00%	0.00	354,768.92
LAND - TRUSSVILLE WWTF	1995	1.3307439	518,890.26	0.00%	0.00	518,890.26
RIGHT OF WAY-TURKEY CREEK TRUNK SEWER	1989	1.5775731	55,011.79	0.00%	0.00	55,011.79
MORGAN/GREENWOOD SEWER SYSTEM-LAND	1992	1.4604814	43,814.44	0.00%	0.00	43,814.44
EMER SWR REPAIR 1221 1ST COURT W BHAM	2001	1.1478007	13,937.84	0.00%	0.00	13,937.84
EMR SWR REPAIR-BRANCH TRUNK SEWER	2000	1.1703102	7,921.48	0.00%	0.00	7,921.48
PATTON CREEK SWR REPLACEMENT	1999	1.2016009	2,758,020.31	0.00%	0.00	2,758,020.31
SHADES CREEK PLANT SITE	1992	1.4604814	76,117.37	0.00%	0.00	76,117.37
MAINTENANCE BUILDING	1991	1.5057911	212,617.70	36.67%	(77,960.54)	134,657.16
BLOWER BUILING	1991	1.5057911	1,348,119.72	36.67%	(494,311.09)	853,808.63
NEW ADMINISTRATION	1991	1.5057911	286,115.37	36.67%	(104,908.59)	181,206.78
CHLORINE BLDG.	1978	2.6226585	264,623.62	69.17%	(183,031.82)	81,591.80
OLD ADMINISTRATION BLDG	1978	2.6226585	2,234,557.50	69.17%	(1,545,568.30)	688,989.20
PUMP HOUSE BLDG. #53D	1991	1.5057911	77,337.43	36.67%	(28,357.06)	48,980.37
PIPE GALLERY	1978	2.6226585	1,601,922.44	69.17%	(1,107,995.56)	493,926.88
COVERED SAND BED	1982	1.9033987	346,610.81	59.17%	(205,078.84)	141,531.97
TURKEY CREEK-W.W.T.P.	1973	3.8419525	31,767,875.85	100.00%	(31,767,875.85)	0.00
OFFICE/LAB	1982	1.9033987	130,135.37	100.00%	(130,135.37)	0.00
SHOP BLDG.	1982	1.9033987	22,764.65	59.17%	(13,469.71)	9,294.94
BLOWER BLDG.	1982	1.9033987	32,890.73	59.17%	(19,460.35)	13,430.38
RETURN/STORM PUMP	1982	1.9033987	96,138.76	59.17%	(56,882.88)	39,255.88
RETURN SLUDGE PUMP	1982	1.9033987	82,171.62	59.17%	(48,618.32)	33,553.30
OLD PUMP BUILDING	1982	1.9033987	103,069.04	59.17%	(60,981.85)	42,087.19
EFFLUENT WATER PUMP	1986	1.6951106	551,472.02	49.17%	(271,139.72)	280,332.30
LANDFILL GAS PUMF	1986	1.6951106	107,317.45	49.17%	(52,764.76)	54,552.69
PUMP HOUSE B	1986	1.6951106	1,079,870.20	49.17%	(530,936.78)	548,933.43
STORM FLOW GRIT PUMP	1986	1.6951106	170,477.27	49.17%	(83,817.79)	86,659.48
GRIT CLASSIFIER	1986	1.6951106	147,271.21	49.17%	(72,408.34)	74,862.86
GRIT PUMP BUILDING	1986	1.6951106	148,184.87	49.17%	(72,856.87)	75,328.00
VALLEY CREEK SHOP	1976	3.0322782	288,160.43	74.17%	(213,718.43)	74,442.01
GENERATOR BUILDING	1986	1.6951106	1,095,760.17	49.17%	(538,749.44)	557,010.73
BLDG #59AA	1981	2.0595474	116,179.07	100.00%	(116,179.07)	0.00
DRY BED FILATRATE PUMP	1976	3.0322782	25,501.46	74.17%	(18,913.23)	6,588.23
UTILITY BUILDING	1976	3.0322782	228,075.84	74.17%	(169,156.25)	58,919.59
NEW SLUDGE DRYING	1981	2.0595474	3,222,800.34	100.00%	(3,222,800.34)	0.00
MAIN PUMP HOUSE	1976	3.0322782	1,568,733.97	100.00%	(1,568,733.97)	0.00
VALLEY CREEK W.W.T.P.	1976	3.0322782	149,520,453.28	74.17%	(110,894,335.27)	38,626,118.01
MAIN CONTROL BLDG.	1976	3.0322782	2,526,369.89	74.17%	(1,873,725.25)	652,644.64
AERATION BASIN CONT.	1976	3.0322782	31,929.89	74.17%	(23,682.27)	8,247.61
INTERMEDIATE CLARIFIER	1976	3.0322782	96,544.71	74.17%	(71,603.43)	24,941.28
FINAL CLARIFIER;CONTROL HOUSE	1976	3.0322782	96,544.71	74.17%	(71,603.43)	24,941.28
SCREW PUMP STATION	1976	3.0322782	703,791.77	74.17%	(521,978.16)	181,813.61
FINAL CLARIFIER CONTROL	1951	13.407919	60,349.04	100.00%	(60,349.04)	0.00
EFFLUENT PUMPING	1986	1.6951106	364,364.02	49.17%	(179,145.05)	185,218.97
HOLDING POND PUMP	1976	3.0322782	156,295.75	100.00%	(156,295.75)	0.00
BLDG 60AH	1956	10.520954	2,016,982.57	100.00%	(2,016,982.57)	0.00
CONTROL HOUSE	1956	10.520954	122,253.48	100.00%	(122,253.48)	0.00
ELUTRATION BLDG.	1957	10.055939	130,727.21	100.00%	(130,727.21)	0.00
BLDG #60AJ	1991	1.5057911	102,935.88	73.33%	(75,486.15)	27,449.73
BLDG #60AK	1991	1.5057911	102,935.88	73.33%	(75,486.15)	27,449.73
COMPRESSOR BUILDING	1956	10.520954	158,655.98	100.00%	(158,655.98)	0.00

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VILLAGE CREEK SEWAGE TREATEMENT PLANT	1987	1.6524058	19,123.29	37.17%	(7,107.89)	12,015.40
CONTROL HOUSE	1956	10.520954	122,253.48	100.00%	(122,253.48)	0.00
CONTROL HOUSE	1956	10.520954	122,253.48	100.00%	(122,253.48)	0.00
RETURN SLUDGE	1976	3.0322782	102,533.46	74.17%	(76,045.96)	26,487.50
BLDG #60AE	1990	1.5385672	214,522.42	78.33%	(168,042.83)	46,479.59
BLDG #60AG	1985	1.7355185	484,792.79	100.00%	(484,792.79)	0.00
BLDG #60AD	1990	1.5385672	214,522.42	78.33%	(168,042.83)	46,479.59
BLDG #60AE	1990	1.5385672	214,522.42	78.33%	(168,042.83)	46,479.59
CONTROL HOUSE	1949	15.263103	30,968.84	100.00%	(30,968.84)	0.00
BLDG #60AB	1991	1.5057911	173,060.57	73.33%	(126,911.09)	46,149.49
BLDG #60AA	1991	1.5057911	173,060.57	73.33%	(126,911.09)	46,149.49
CONTROL HOUSE	1949	15.263103	37,531.97	100.00%	(37,531.97)	0.00
ENSLEY LIFT STATION	1956	10.520954	538,094.18	100.00%	(538,094.18)	0.00
PRIMARY SLUDGE PUMP	1956	10.520954	714,488.49	100.00%	(714,488.49)	0.00
DRAINAGE PUMP	1975	3.2913653	148,042.32	76.67%	(113,499.57)	34,542.75
SCREW PUMP BLDG.	1976	3.0322782	800,109.06	74.17%	(593,414.85)	206,694.21
THICKENER PUMP	1975	3.2913653	355,171.23	76.67%	(272,297.02)	82,874.21
SLAKER BUILDING	1976	3.0322782	562,854.51	74.17%	(417,450.26)	145,404.26
SHOP-LINE	1990	1.5385672	406,751.01	39.17%	(159,310.63)	247,440.38
SHOP- SEWER LINE	1975	3.2913653	164,239.13	76.67%	(125,917.47)	38,321.66
ADMINISTRATION BLDG	1976	3.0322782	9,657,442.25	74.17%	(7,162,603.63)	2,494,838.62
SCREW PUMP BLDG.	1976	3.0322782	800,109.06	74.17%	(593,414.85)	206,694.21
OLD BLOWER BLDG.	1975	3.2913653	620,656.04	76.67%	(475,836.76)	144,819.28
NEW BLOWER BLDG.	1990	1.5385672	362,180.26	39.17%	(141,854.22)	220,326.04
BLDG #60AL	1988	1.6110865	1,201,644.99	88.33%	(1,061,453.08)	140,191.92
BLDG #60AM	1988	1.6110865	61,670.78	88.33%	(54,475.89)	7,194.89
SUPERNATE PUMP	1930	35.864532	1,290,370.00	100.00%	(1,290,370.00)	0.00
METER BLDG.	1956	10.520954	141,506.83	100.00%	(141,506.83)	0.00
BLDG #60AI	1940	30.084711	1,428,422.07	100.00%	(1,428,422.07)	0.00
CONTROL HOUSE	1949	15.263103	30,968.84	100.00%	(30,968.84)	0.00
VILLAGE CREEK W.W.T.P.	1981	2.0595474	85,757,804.49	61.67%	(52,883,979.06)	32,873,825.42
PUMP STATION 3	1988	1.6110865	314,161.87	88.33%	(277,509.65)	36,652.22
PUMP STATION #23	1977	2.8262811	511,630.35	100.00%	(511,630.35)	0.00
PUMP STATION # 9	1980	2.2491504	267,986.28	100.00%	(267,986.28)	0.00
PUMP STATION #22	1977	2.8262811	458,338.00	100.00%	(458,338.00)	0.00
PUMP STATION #4	1988	1.6110865	39,595.67	88.33%	(34,976.14)	4,619.53
PUMP STATION #2	1982	1.9033987	168,608.77	100.00%	(168,608.77)	0.00
TIN BUILDING	1976	3.0322782	3,790.35	74.16%	(2,810.86)	979.49
PUMP STATION #24	1988	1.6110865	93,541.29	88.33%	(82,627.96)	10,913.34
PUMP STATION #7	1962	8.3491972	537,696.65	100.00%	(537,696.65)	0.00
PUMP STATION #1	1982	1.9033987	471,169.22	100.00%	(471,169.22)	0.00
PUMP STATION #26	1982	1.9033987	70,922.54	100.00%	(70,922.54)	0.00
PUMP STATION #10	1986	1.6951106	389,534.72	100.00%	(389,534.72)	0.00
PUMP STATION #8	1972	4.153166	143,035.04	100.00%	(143,035.04)	0.00
PUMP STAION #11	1986	1.6951106	86,218.41	98.33%	(84,781.46)	1,436.95
PRUDES CREEK PACKAGE	1988	1.6110865	3,814,975.56	44.17%	(1,684,946.82)	2,130,028.74
PUMP STATION #12	1989	1.5775731	129,184.31	83.33%	(107,653.59)	21,530.72
PUMP STATION 13	1989	1.5775731	98,456.34	83.33%	(82,046.74)	16,409.60
PUMP STATION #17	1970	5.2719044	4,506,502.97	100.00%	(4,506,502.97)	0.00
PUMP STATION #16	1984	1.7560299	423,062.73	100.00%	(423,062.73)	0.00
PUMP STAION #15	1980	2.2491504	390,677.43	100.00%	(390,677.43)	0.00
WARRIOR PACKAGE PLANT	1990	1.5385672	2,115,389.89	39.17%	(828,527.15)	1,286,862.75
PUMP STAION #14	1984	1.7560299	204,577.48	100.00%	(204,577.48)	0.00
TRUSSVILLE PACKAGE	1979	2.4244089	2,101,952.84	66.67%	(1,401,301.30)	700,651.54
PUMP STAION #20	1979	2.4244089	376,631.93	100.00%	(376,631.93)	0.00
PUMP STATION #19	1987	1.6524058	117,386.91	93.33%	(109,561.11)	7,825.79
PUMP STATION #25	1987	1.6524058	48,830.24	93.33%	(45,575.00)	3,255.24
PUMP STATION #28	1984	1.7560299	115,883.93	100.00%	(115,883.93)	0.00
PUMP STATION #27	1986	1.6951106	38,046.76	98.33%	(37,412.62)	634.14
PUMP STATION #30	1990	1.5385672	129,885.84	78.33%	(101,743.91)	28,141.93
PUMP STATION #31	1989	1.5775731	111,059.57	83.33%	(92,549.83)	18,509.74
PUMP STATION #32	1989	1.5775731	80,803.30	83.33%	(67,336.18)	13,467.11
PATTON CAHABA TRANSFER PUMP STATION	1988	1.6110865	2,151,573.83	85.00%	(1,828,837.76)	322,736.07
ADMINISTRATION BLDG	1958	9.5922266	378,221.50	95.33%	(360,571.61)	17,649.89
CHLORINE BLDG.	1958	9.5922266	141,005.73	100.00%	(141,005.73)	0.00
PUMP HOUSE BLDG.	1958	9.5922266	40,383.27	100.00%	(40,383.27)	0.00
T.V. GROUTING & EPUIOMENT BLDG.	1974	3.6042079	279,470.28	79.17%	(221,246.43)	58,223.85
STORAGE BUILDING	1960	8.8355583	47,623.66	100.00%	(47,623.66)	0.00
BARTON LAB BLDG.	1973	3.8419525	830,876.02	100.00%	(830,876.02)	0.00
MAINTENANCE STORAGE	1960	8.8355583	78,380.24	100.00%	(78,380.24)	0.00
PACKAGE PLANT SHOP	1960	8.8355583	513,973.26	100.00%	(513,973.26)	0.00
BARTON STORAGE BLDG.	1960	8.8355583	73,423.49	100.00%	(73,423.49)	0.00
MAINTENANCE SHOP	1960	8.8355583	312,602.05	100.00%	(312,602.05)	0.00
COMPRESSOR BUILDING	1960	8.8355583	53,190.06	100.00%	(53,190.06)	0.00
PINCHGUT CREEK PUMP STATION	1987	1.6524058	1,974,211.53	35.67%	(704,135.52)	1,270,076.00
SHADES VALLEY IMPROVEMENTS	1997	1.2496567	7,514,127.07	20.21%	(1,518,480.05)	5,995,647.02
SHADES VALLEY DRAINAGE IMPROVEMENTS	1997	1.2496567	1,084,650.79	20.00%	(216,930.41)	867,720.38
PATTON CREEK REPLACEMENT PHASE III	1999	1.2016009	12,916,876.76	24.00%	(3,100,050.50)	9,816,826.25
HOOVER HIGH SCHOOL PUMP STATION IMPROV	2004	1.0232607	153,489.11	2.08%	(3,197.69)	150,291.42

EXISTING ASSETS

DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIAITION PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
CAHABA WWTP REVISIONS DESIGN	1992	1.4604814	363,436.43	67.50%	(245,319.30)	118,117.12
CAHABA WWTP-PATTON STATION ADDS	1991	1.5057911	297,469.03	70.83%	(210,707.23)	86,761.80
PATTON STATION ADDITIONS (CONSTR:	1990	1.5385672	1,682,346.31	77.08%	(1,296,808.34)	385,537.97
CAHABA WWTP CONST. PHASE II	1993	1.3974088	10,185,251.78	62.50%	(6,365,782.69)	3,819,469.09
PATTON TRANSFER P.S. #1C#2 DESIGN	1991	1.5057911	218,301.18	72.08%	(157,358.75)	60,942.42
PATTON TRANSFER PS 1 & 2	1993	1.3974088	385,640.44	61.67%	(237,811.94)	147,828.50
RIVERCHASE PUMP STATION BUBBLER SYSTEM	1999	1.2016009	11,827.36	16.04%	(1,897.65)	9,929.71
CAHABA RIVER WWTP (GEOTECHNICAL	2000	1.1703102	48,029.82	12.29%	(5,903.63)	42,126.19
SHADES VALLEY GEOTECHNICAL	1998	1.2298142	28,137.18	16.88%	(4,748.17)	23,389.01
SHADES VALLEY-GEOTECHNICAL	1998	1.2298142	3,595.18	16.87%	(606.66)	2,988.52
CAHABA RIVER WWTP/BIO NU	2002	1.1135668	396,429.25	8.75%	(34,687.76)	361,741.49
CAHABA PHASE III GEOTECHNICAL INSPECTION	1998	1.2298142	111,212.72	17.08%	(18,999.15)	92,213.57
RIVERCHASE PUMP STATION REMOVAL	1998	1.2298142	31,190.55	18.54%	(5,783.52)	25,407.03
CAHABA WWTP CONSTRUCTION REVIEW	1998	1.2298142	1,030,747.41	17.08%	(176,086.05)	854,661.36
SHADES VALLEY CONSTRUCTION REVIEW	1998	1.2298142	109,033.09	16.87%	(18,399.11)	90,633.97
FIVE MILE CREEK WWTP EXPANSION	1993	1.3974088	1,033,825.41	60.00%	(620,295.47)	413,529.94
FIVE MILE CREEK WWTP-NEW	1992	1.4604814	23,053,985.74	64.17%	(14,792,974.24)	8,261,011.50
FIVE MILE CK WWTP-GEOTECHNICAL	1993	1.3974088	129,025.78	62.92%	(81,179.01)	47,846.76
FIVE MILE CREEK WWTF	2001	1.1478007	4,205,912.55	11.25%	(473,165.40)	3,732,747.15
5 MILE CREEK STUDY 2000	2002	1.1135668	55,609.38	7.50%	(4,170.80)	51,438.58
FIVE MILE WWTP MODS	2003	1.0876158	493,475.55	5.00%	(24,673.69)	468,801.86
5 MILE CREEK WWTP	2002	1.1135668	35,402.57	7.50%	(2,655.06)	32,747.52
NEWFOUND CREEK CONSTRUCTION	1998	1.2298142	143,775.92	27.00%	(38,819.64)	104,956.28
LEEDS WWTP MODIF-STUDY	1992	1.4604814	93,648.29	64.58%	(60,480.95)	33,167.34
NORMAN R SKINNER WWTP	2000	1.1703102	1,872,875.33	12.29%	(230,207.74)	1,642,667.59
LEEDS WTTP UPGRADE-GEOTECHNICAL	1998	1.2298142	143,253.92	16.88%	(24,174.31)	119,079.61
NORMAN SKINNER WWTP	2002	1.1135668	37,631.88	9.17%	(3,449.38)	34,182.49
LEEDS WWTP UPGRADE-ENGINEERING	1999	1.2016009	931,028.42	16.04%	(149,352.60)	781,675.82
NORMAN R SKINNER WWTP.	2000	1.1703102	189,733.49	11.87%	(22,530.85)	167,202.65
NORMAN R SKINNER WWTP MODS	2002	1.1135668	12,022.96	7.50%	(901.59)	11,121.37
LEEDS SKINNER WWTP ROAD IMPROVEMENTS	2004	1.0232607	91,733.34	3.75%	(3,440.06)	88,293.28
NORMAN R. SKINNER WWTP ACCESS	2003	1.0876158	6,930.40	5.00%	(346.62)	6,583.77
EMER REPAIR TRUSSVILLE WWF	2003	1.0876158	79,746.16	5.62%	(4,485.60)	75,260.56
TRUSSVILLE WWTP UPGRADE-DESIGN	1992	1.4604814	507,475.40	63.75%	(323,515.85)	183,959.56
TRUSSVILLE WWTP-GEOTECHNICAL	1998	1.2298142	4,994.39	16.87%	(842.74)	4,151.64
GEOTECH TRUSSVILLE WWTF	2002	1.1135668	17,858.83	9.17%	(1,636.99)	16,221.84
DERBY PARKWAY PUMP STATION	2003	1.0876158	95,312.09	6.25%	(5,956.98)	89,355.11
TRUSSVILLE DESIGN	2003	1.0876158	137,072.62	6.25%	(8,566.93)	128,505.69
TURKEY CREEK CONSTRUCTION PHASE "C"	1999	1.2016009	1,922,407.33	15.63%	(300,376.50)	1,622,030.83
TURKEY CREEK PHASE I	1998	1.2298142	4,158,352.69	17.50%	(727,711.46)	3,430,641.23
TURKEY CREEK WWTP IMPROV	2002	1.1135668	724,051.92	8.33%	(60,337.51)	663,714.41
TURKEY CREEK WWTP	2002	1.1135668	369,089.50	7.92%	(29,219.73)	339,869.78
TURKEY CREEK WWTP PHASE I	2001	1.1478007	232,536.97	11.46%	(26,644.87)	205,892.09
TURKEY CREEK WWTP	2001	1.1478007	46,416.61	10.21%	(4,738.41)	41,678.21
EMER SWR REP-BIOLOGICAL CONSULTING FEI	2000	1.1703102	10,152.44	12.29%	(1,247.70)	8,904.74
EMER SWR REP-BIOLOGICAL CONSULTING FEI	2000	1.1703102	12,083.45	12.29%	(1,485.23)	10,598.22
EMER SWR REP-BIOLOGICAL CONSULTING FEES	2000	1.1703102	1,492.15	12.93%	(193.01)	1,299.14
EMER SWR REP-BIOLOGICAL CONSULTING FEES	2000	1.1703102	6,963.35	12.92%	(899.73)	6,063.61
EMR SWR REP-BIOLOGICAL CONSULTING FEES	2000	1.1703102	10,152.44	12.91%	(1,311.15)	8,841.30
EMER SWR REP-CAHABA RIVER PROJECT	2000	1.1703102	3,335.38	12.30%	(410.15)	2,925.24
SHADES VALLEY TRANSFER SYSTEM	2002	1.1135668	2,673,393.36	8.96%	(239,491.57)	2,433,901.80
ACADEMY BUSINESS PARK-PUMP STATION	1999	1.2016009	223,466.53	14.38%	(32,123.66)	191,342.87
FIVE MILE CREEK WEST PUMP STATION	2004	1.0232607	518,492.34	3.54%	(18,363.31)	500,129.03
PH II-A VALLEY CRK WWTF	2001	1.1478007	32,052,486.54	9.38%	(3,004,920.72)	29,047,565.82
PHASE II B VALLEY CREEK WWTF	2000	1.1703102	25,077,349.30	13.75%	(3,448,135.34)	21,629,213.96
SHADES VALLEY FACILITY PARKING	2000	1.1703102	45,127.16	14.17%	(6,392.75)	38,734.41
VALLEY CREEK WWTP-GEOTECH SVCS	1993	1.3974088	60,186.86	60.83%	(36,613.73)	23,573.13
VALLEY CREEK WASTE WATER TREATMENT	2004	1.0232607	60,566,801.82	2.71%	(1,640,350.88)	58,926,450.93
VALLEY LAND APPLICATIONS	1996	1.2954626	299,164.44	23.13%	(69,181.86)	229,982.57
VALLEY CREEK DECHLORINATION	1998	1.2298142	185,432.53	17.08%	(31,678.37)	153,754.16
VALLEY CREEK WWTP PHASE I-GEOTECHNICAL	1999	1.2016009	50,591.90	15.83%	(8,010.74)	42,581.17
HYDROGEOLIC EVALUATION	1998	1.2298142	28,797.78	16.87%	(4,859.22)	23,938.57
LAND APPLICATION SAMPLINGS 1996	1998	1.2298142	13,022.90	27.00%	(3,516.41)	9,506.49
SUBSURFACE EXPLORATION-VALLEY CREEK	2000	1.1703102	75,777.59	13.13%	(9,946.12)	65,831.47
RICE CREEK SWR SYSTEM	2001	1.1478007	114,889.11	90.00%	(103,400.20)	11,488.91
VALLEY CREEK WWTP EXPANSION	1998	1.2298142	405,337.74	16.87%	(68,400.60)	336,937.14
VALLEY CREEK FY98 PHASE II	1998	1.2298142	584,141.13	16.88%	(98,573.97)	485,567.16
DESIGN VALLEY CREEK WWTF	2000	1.1703102	1,637,345.44	13.54%	(221,723.99)	1,415,621.45
PRINCE STREET PUMP STATION	1998	1.2298142	124,211.23	19.17%	(23,807.53)	100,403.70
SHADES VALLEY COMPLEX	2001	1.1478007	89,585.39	10.00%	(8,958.36)	80,627.03
VALLEY CREEK WWTP PH 8 & 9	2002	1.1135668	1,111,574.99	7.71%	(85,684.04)	1,025,890.96
VALLEY CREEK WASTEWATER TREATMENT	2002	1.1135668	47,631.25	7.29%	(3,473.05)	44,158.20
RICE CREEK & MORGAN/GREENWOOD SSS	1998	1.2298142	55,095.68	16.87%	(9,297.06)	45,798.61
GARDENDALE/GRAYSVILLE/WARRIOE PH I	2004	1.0232607	189,579.34	3.75%	(7,109.25)	182,470.09
VALLEY CREEK 1993 IMPROVEMENTS	1998	1.2298142	568,116.34	16.87%	(95,869.43)	472,246.91
VALLEY CREEK RELOCATION CONTRACT I	1998	1.2298142	245,666.98	16.88%	(41,456.54)	204,210.44
POWDER PLANT ROAD/VALLEY CREEK	1998	1.2298142	6,629.31	17.29%	(1,146.30)	5,483.02
GEOTECHNICAL SER-SHADES VALLEY PHASE I	2001	1.1478007	39,146.39	11.46%	(4,485.32)	34,661.07
96 LAND APPLICATIONS OF BIOSOLIDS	1998	1.2298142	237,452.33	16.88%	(40,070.11)	197,382.21

EXISTING ASSETS

DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIATION PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
RICE CREEK & MORGAN GREENWOOD	2004	1.0232607	79,503.26	3.75%	(2,981.43)	76,521.83
VALLEY WWTP DESIGN	2001	1.1478007	1,016,179.96	11.04%	(112,203.02)	903,976.94
VALLEY CREEK WWTP PHASE III	2004	1.0232607	1,588,384.73	4.17%	(66,182.66)	1,522,202.07
PH III VLY CRK WWTP	2001	1.1478007	258,254.59	9.79%	(25,287.48)	232,967.10
PHASE II-B SLUDGE DEWATR	2002	1.1135668	803,024.60	8.54%	(68,591.65)	734,432.94
MCADORY ELEM PUMP STATION	1998	1.2298142	70,442.18	16.87%	(11,887.05)	58,555.13
PRINCE STREET PUMPING STATION *& SEWERS	2003	1.0876158	25,107.61	5.00%	(1,255.28)	23,852.33
SHADES VALLEY FACILITY PHASE I	1999	1.2016009	711,292.15	15.42%	(109,657.81)	601,634.34
GEOTECH SVCS-VALLEY CREEK	2001	1.1478007	81,491.72	10.62%	(8,658.33)	72,833.39
VALLEY CREEK WASTE WATER TREATMENT	2004	1.0232607	1,013,331.21	2.50%	(25,333.32)	987,997.89
VALLEY CREEK WWTP SLUDGE DRYING PAD	2003	1.0876158	27,366.37	5.00%	(1,368.31)	25,998.06
VALLEY CREEK WASTE WATER TREATMENT	2003	1.0876158	15,039.22	5.83%	(877.36)	14,161.87
CORBET BRANCH TRUNK SEWER P.S.	1989	1.5775731	785,285.32	82.08%	(644,588.43)	140,696.89
CORBET BRANCH P.C. STAND BY POWER	1990	1.5385672	17,837.76	75.00%	(13,378.53)	4,459.23
MINOR PUMP STATION	2003	1.0876158	13,866,839.12	5.83%	(808,899.01)	13,057,940.11
VILLAGE CREEK SEWAGE TREATMENT PALNT	1990	1.5385672	1,826,986.86	76.25%	(1,393,077.56)	433,909.29
VILLAGE MAINT. BLDG. INSPEC. S	1990	1.5385672	17,673.52	74.58%	(13,181.27)	4,492.25
VILLAGE CK WWTP-GEOTECHNICAL	1992	1.4604814	103,670.87	63.75%	(66,090.42)	37,580.45
VILLAGE CREEK WWTP MODIFICATION	1992	1.4604814	15,980,961.50	26.33%	(4,208,319.26)	11,772,642.24
VILLAGE CK WWTP #4 INSPECTION	1993	1.3974088	542,159.69	62.08%	(336,590.50)	205,569.19
#3 VLG CRK PEAK FLOW/PUM	2001	1.1478007	23,007,839.14	9.79%	(2,252,850.82)	20,754,988.32
VILLAGE CREEK DESIGN	2001	1.1478007	27,446,675.81	11.25%	(3,087,751.00)	24,358,924.81
VILLAGE CREEK WWTP LAGOON ACCESS	2000	1.1703102	55,776.99	12.50%	(6,972.01)	48,804.98
EMR SWR REPAIR VILLAGE CREEK WWTP	2002	1.1135668	400,552.59	8.33%	(33,379.39)	367,173.20
VILLAGE PEAK FLOW WWTF	2004	1.0232607	86,321.84	2.50%	(2,158.06)	84,163.79
VILLAGE CREEK PEAK FLOW HANDLING	2003	1.0876158	62,722,481.83	5.00%	(3,136,124.08)	59,586,357.75
#5 VILLAGE CREEK PEAK FLOW HANDLING	2003	1.0876158	59,702,714.63	4.37%	(2,611,993.73)	57,090,720.90
BILL OF SALE AGREEMENT	2001	1.1478007	722,655.34	9.38%	(67,749.11)	654,906.23
VILLAGE CREEK WWTP DRYING FACILITIES	1996	1.2954626	253,349.43	23.54%	(59,642.57)	193,706.86
VILLAGE WWTP PEAK POWER	1998	1.2298142	40,987.25	18.33%	(7,513.97)	33,473.28
MINOR PUMP STATION AND SEWERS	2003	1.0876158	51,961.56	6.25%	(3,247.51)	48,714.05
PHASE I ZION CITY PUMPING STATION	2002	1.1135668	2,583.48	8.54%	(220.52)	2,362.96
ZION CITY PUMPING STATION	2003	1.0876158	7,382.74	6.25%	(461.37)	6,921.37
VILLAGE WWTP-ENGINEERING	2001	1.1478007	528,599.51	10.42%	(55,062.30)	473,537.22
VILLAGE CRK-PEAK FLOW HANDLING	2001	1.1478007	74,302.65	10.21%	(7,584.83)	66,717.82
VILLAGE CREEK SLUDGE DIGESTING	2002	1.1135668	107,927.99	7.50%	(8,094.65)	99,833.34
VILLAGE WWTP DESIGN MODIFICATIONS	1998	1.2298142	150,885.15	17.08%	(25,775.92)	125,109.23
VILLAGE CRK PEAK FLOW WW PLANT	2000	1.1703102	1,168,830.63	13.54%	(158,279.19)	1,010,551.43
VILLAGE CREEK DIGESTING/DEWATERING	1998	1.2298142	1,325,027.90	18.75%	(248,443.00)	1,076,584.90
VILLAGE CREEK WASTEWATER TREATMENT	2002	1.1135668	356,082.05	7.50%	(26,706.09)	329,375.96
VILLAGE CREEK MODIFICATIONS	1999	1.2016009	53,822.54	15.83%	(8,522.14)	45,300.40
VILLAGE CREEK PEAK FLOW HANDLING	2001	1.1478007	1,786,020.12	10.42%	(186,043.58)	1,599,976.55
ELECTRICAL ALTERNATIVES/VILLAGE CREEK	2002	1.1135668	125,733.11	7.50%	(9,430.00)	116,303.11
VILLAGE CREEK WWTP/EGINEERING SER	2001	1.1478007	253,989.96	11.46%	(29,103.12)	224,886.84
VILLAGE CRK WWTP BIO SOLIDS MGMT	2000	1.1703102	6,602,253.27	13.54%	(894,054.94)	5,708,198.33
GEOTECHNICAL SER. VILLAGE CRK. WWTP	2000	1.1703102	9,918.20	12.29%	(1,219.39)	8,698.81
VILL CRK WWTP RETROFIT	2002	1.1135668	3,169,412.78	8.54%	(270,720.50)	2,898,692.28
VILLAGE CREEK WWTP-SLUDGE DIGESTION	1998	1.2298142	1,783,192.63	17.50%	(312,058.81)	1,471,133.83
VILLAGE CREEK WASTEWATER &	2003	1.0876158	322,789.51	5.00%	(16,139.41)	306,650.09
VILLAGE CREEK ODOR CONTROL	2001	1.1478007	564,106.78	9.37%	(52,884.98)	511,221.80
EMER SWR REPAIR-2024 29TH AVE NO	1999	1.2016009	30,043.44	25.00%	(7,510.61)	22,532.83
VILLAGE CREEK ACCESS ROAD #2	1999	1.2016009	695,295.55	25.67%	(178,458.89)	516,836.66
PROJ MGMT BIOSOLID APP-BELTONA	1999	1.2016009	274,107.10	14.58%	(39,974.26)	234,132.84
ADAMSVILLE P.S.	1990	1.5385672	977,015.16	74.58%	(728,690.24)	248,324.92
ADAMSVILLE P.S.	1991	1.5057911	50,965.01	69.58%	(35,463.16)	15,501.85
PRUDES CREEK WATER QUALITY SAMPLING	1999	1.2016009	57,927.98	25.00%	(14,482.30)	43,445.68
PRUDES CREEK WWTP UPGRADE	1999	1.2016009	1,045,488.31	15.21%	(159,001.64)	886,486.67
POP-I 6.5 180 RPM MIXER	1998	1.2298142	18,324.23	17.92%	(3,282.92)	15,041.32
POP-I 6.5 180 RPM MIXER	1998	1.2298142	18,324.23	17.92%	(3,282.92)	15,041.32
#2 MORRIS/KIMBERLY WWTF	2003	1.0876158	6,251,433.84	4.37%	(273,500.18)	5,977,933.66
PURDES CREEK WWTP EVALUATION	2003	1.0876158	69,724.87	5.00%	(3,486.29)	66,238.59
WARRIOR WASTE WATER TREATMENT PLANT	2004	1.0232607	484,626.93	4.00%	(19,385.06)	465,241.87
PRUDES CREEK DESIGN & ENGINEERING	2004	1.0232607	359,443.86	3.13%	(11,232.64)	348,211.22
PRUDES CREEK WWTP-ENGINEERING SVCS	1999	1.2016009	82,910.46	14.79%	(12,263.84)	70,646.62
PRUDES CRK WWTP-ENGINEERING	1997	1.2496567	117,092.83	20.21%	(23,662.71)	93,430.12
PRUDES CREEK WWTP	2001	1.1478007	53,988.06	9.79%	(5,286.23)	48,701.83
WARRIOR WWTP UPGRADE/GEOTECHNICAL	1998	1.2298142	6,440.23	17.08%	(1,100.22)	5,340.01
ENGINEERING CONSTRUCTION REVIEW	1998	1.2298142	116,277.20	17.08%	(19,864.40)	96,412.80
PROFESSIONAL ENGINEERING SV WARRIOR	1999	1.2016009	6,705.17	16.25%	(1,089.79)	5,615.38
BLUE RIDGE BLVD PUMP STATION	1998	1.2298142	958,605.86	18.96%	(181,735.67)	776,870.19
SHADES CK-CONST SEC. 9	1992	1.4604814	3,026,243.10	65.83%	(1,992,276.42)	1,033,966.68
SCOTT'S BRANCH PRETREATMENT FACILITY	1991	1.5057911	266,002.50	27.83%	(74,037.01)	191,965.49
SCOTT'S BRANCH-PRETREATMENT FACILITY	1996	1.2954626	12,077,818.36	22.71%	(2,742,671.13)	9,335,147.23
SHADES VALLEY PHASE II	1997	1.2496567	355,341.97	19.58%	(69,587.88)	285,754.09
UST REMOVAL/REPLACEMENT/UPGRADE	1999	1.2016009	114,139.50	15.21%	(17,358.64)	96,780.86
MT OLIVE AVENUE PUMP STATION	2003	1.0876158	298,339.60	5.00%	(14,916.95)	283,422.64
STATION #1 FIVE MILE CREEK WWTP MONITOR	1998	1.2298142	52,364.26	16.88%	(8,836.84)	43,527.42
STATION 2 FIVE MILE CREEK	1998	1.2298142	36,028.64	16.87%	(6,079.50)	29,949.14
LEEDS WWTP WATER QUALITY SAMPLING	1998	1.2298142	46,816.57	16.88%	(7,900.46)	38,916.10

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DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIAITION PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
LEEDS WWTP SAMPLING STATION #2	1998	1.2298142	36,466.45	16.88%	(6,153.72)	30,312.73
SCOTTS BRAND CONSTR REV	2001	1.1478007	56,295.03	10.63%	(5,981.40)	50,313.64
SHADES VALLEY ROADWAY MODIFICATIONS	2000	1.1703102	58,307.90	13.96%	(8,139.04)	50,168.86
VALLEY CREEK WWTP SOLIDS HANDLING	1992	1.4604814	2,869,834.95	27.33%	(784,422.10)	2,085,412.85
SHADES VALLEY & VILLAGE CRK DESIGN	2003	1.0876158	703,732.65	6.46%	(45,449.29)	658,283.36
REMOVE UNDERGROUND STORAGE TANKS	1999	1.2016009	275,767.88	14.79%	(40,791.02)	234,976.86
PHASE OPEN UPGRADE GARDENDALE	2002	1.1135668	183,643.02	7.50%	(13,773.17)	169,869.84
PUMP STATION ANALYSIS	2003	1.0876158	275,437.73	4.79%	(13,198.00)	262,239.73
JEFFCO WW PUMPING STATION	2000	1.1703102	174,996.61	13.54%	(23,697.38)	151,299.23
GARDENDALE GRAYSVILLE & WARRIOR PUMP	2001	1.1478007	374,249.03	11.67%	(43,662.62)	330,586.42
PUMP STATION DESIGN AND ENGINEERING	2004	1.0232607	237,664.24	3.13%	(7,427.03)	230,237.21
ENGINEER SVS WASTEWATER PUMP STATION	2003	1.0876158	706,916.14	6.46%	(45,654.96)	661,261.18
MORRIS/KIMBERLY WWTP/TRUNK SEWER	1997	1.2496567	81,642.32	20.00%	(16,328.71)	65,313.61
BELTON A REUSE SITE	2003	1.0876158	317,079.86	6.25%	(19,817.56)	297,262.30
VILLAGE CREEK WWTP LAGOON	2004	1.0232607	42,204.12	3.75%	(1,582.72)	40,621.40
SWR INFRASTRUCTURE MGMT SYSTEM	2005	1	1,194,970.23	1.67%	(19,916.16)	1,175,054.07
PRUDES CREEK-GEOTECHNICAL	2000	1.1703102	4,323.24	13.55%	(585.74)	3,737.50
MORRIS/KIMBERLY WWTF	2004	1.0232607	82,991.49	3.75%	(3,112.21)	79,879.28
MCADORY PUMP STATION & FORCE MAIN	1996	1.2954626	662,435.36	35.33%	(234,060.30)	428,375.06
WARRIOR WWTP IMPROVEMENTS	1997	1.2496567	1,299,662.94	20.63%	(268,055.49)	1,031,607.45
ROD TURNING MACHINE	2000	1.1703102	3,218.35	51.67%	(1,662.93)	1,555.42
RIDGEDALE SANITARY SEWER	1987	1.6524058	200,046.99	100.00%	(200,046.99)	0.00
CAHABA RIVER TRUNK SEWER EXTENSION	1986	1.6951106	517,469.80	38.33%	(198,364.23)	319,105.57
CAHABA RIVER TRUNK SEWER EXTENSION	1987	1.6524058	2,230,195.11	36.00%	(802,869.66)	1,427,325.45
FINAL PUMP STATION	1987	1.6524058	644,932.34	46.67%	(300,967.74)	343,964.60
SHOP BUILDING	1971	4.6049968	160,253.89	86.67%	(138,886.70)	21,367.19
DEWATERING SYSTEM #3	1987	1.6524058	68,558.32	96.49%	(66,149.90)	2,408.41
DEWATERING STATION #2	1987	1.6524058	260,336.54	93.33%	(242,980.85)	17,355.68
CONTROL BLDG.	1987	1.6524058	124,080.80	46.67%	(57,904.48)	66,176.32
RECIRCULATING PUMP	1987	1.6524058	21,092.96	93.33%	(19,686.83)	1,406.13
OLD BLOWER BLDG.	1971	4.6049968	348,229.86	86.67%	(301,798.23)	46,431.63
CAHABA RIVER W.W.T.P.	1981	2.0595474	49,162,240.45	100.00%	(49,162,240.45)	0.00
NEW BLOWER BLDG.	1987	1.6524058	934,187.62	46.67%	(435,953.65)	498,233.98
CONTROL BUILDING	1987	1.6524058	140,487.54	46.67%	(65,560.85)	74,926.69
CONTROL BUILDING	1987	1.6524058	95,872.59	93.33%	(89,481.08)	6,391.51
FILTER PRESS BUILDING	1987	1.6524058	1,024,027.28	46.67%	(477,879.10)	546,148.18
SAND FILTER BLDG.	1987	1.6524058	835,249.83	46.67%	(389,782.57)	445,467.26
ADMINISTRATION BLDG	1971	4.6049968	290,294.40	86.67%	(251,587.65)	38,706.75
PRIMARY PUMP STATION	1987	1.6524058	422,454.07	93.33%	(394,290.46)	28,163.60
INTERMEDIATE PUMP	1987	1.6524058	519,516.39	93.33%	(484,881.96)	34,634.43
CHLORINE BLDG.	1971	4.6049968	181,713.18	86.67%	(157,485.73)	24,227.44
SLUDGE PUMP STATION	1971	4.6049968	175,680.63	86.67%	(152,257.08)	23,423.55
HEADWORKS CONTROL	1991	1.5057911	105,299.97	36.67%	(38,610.52)	66,689.46
SHOP ANNEX BLDG. #52T	1987	1.6524058	81,564.40	46.67%	(38,063.56)	43,500.84
FIVE MILE CREEK SANITARY SEWER	1986	1.6951106	2,233,186.02	95.83%	(2,140,136.57)	93,049.45
LEWISBURG OUTFALL SANITARY SEWER	1987	1.6524058	598,018.11	36.33%	(217,280.09)	380,738.01
FIVE MILE CREEK SANITARY SEWER	1985	1.7355185	510,587.66	39.83%	(203,383.69)	307,203.97
FIVE MILE CREEK TO OLD SPRINGVILL ROAD	1988	1.6110865	41,025.67	34.67%	(14,222.00)	26,803.68
FIVE MILE CREEK-WWTF	1978	2.6226585	48,826,833.23	100.00%	(48,826,833.23)	0.00
TRUSSVILLE INDUSTRIAL PARK SEWER	1986	1.6951106	2,077,130.72	39.33%	(817,005.59)	1,260,125.13
WESTCHESTER TO CENTER PT SANITARY	1987	1.6524058	248,583.17	100.00%	(248,583.17)	0.00
CENTER PT PKWY ESTATES CAPPED SEWER	1986	1.6951106	257,863.26	100.00%	(257,863.26)	0.00
SEWER PIPE HOLIDAY PARK ESTATES	1985	1.7355185	204,632.99	40.67%	(83,217.26)	121,415.73
LOWER VALLEY CREEK INTERCEPTOR SEWER	1985	1.7355185	2,569,750.97	40.33%	(1,036,465.40)	1,533,285.57
LOWER VALLEY CREEK INTERCEPTOR	1985	1.7355185	1,735,336.24	39.50%	(685,457.39)	1,049,878.85
PORTABLE BUILDING/ARGRARIAN PRO.	1998	1.2298142	2,330.50	30.02%	(699.52)	1,630.98
VILLAGE CREEK WASTEWATER TREATMENT	1986	1.6951106	66,728.03	100.00%	(66,728.03)	0.00
VILLAGE CREEK CLARIFIER REDESIGN UNIT	1985	1.7355185	232,559.48	39.83%	(92,635.36)	139,924.11
BRANDY LANE II ASSESSMENT SEWER	1986	1.6951106	88,746.60	100.00%	(88,746.60)	0.00
DUGAN AV TO CHICKASAW DR. SANITARY	1986	1.6951106	149,193.55	100.00%	(149,193.55)	0.00
HOLIDAY HILLS 10TH SECTOR ASSESSMENT	1987	1.6524058	205,319.32	100.00%	(205,319.32)	0.00
BLACK CREEK P.S. REPLACEMENT	1987	1.6524058	474,612.26	100.00%	(474,612.26)	0.00
ALUMINUM STORAGE BLDG	1992	1.4604814	3,359.11	100.00%	(3,359.11)	0.00
BEAVER CREEK TO PINSON ROCK SCHOOL SS	1985	1.7355185	220,369.96	39.67%	(87,414.06)	132,955.90
PONDEROSA PARK SANITARY SEWER	1985	1.7355185	124,389.62	40.17%	(49,963.06)	74,426.56
NOHAVE DR-MIAMI CIRCLE ASSESSMENT	1987	1.6524058	147,262.01	36.83%	(54,240.82)	93,021.19
CHICKASAW DRIVE TO AVACADO DRIVE	1987	1.6524058	131,406.80	36.33%	(47,744.25)	83,662.55
PRUDES CREEK SEWAGE SYSTEM	1988	1.6110865	13,599.99	33.67%	(4,578.85)	9,021.13
IMPROVEMENT FOR PINCHGUT CREEK	1988	1.6110865	3,809,639.80	34.83%	(1,327,025.26)	2,482,614.54
WYLAM MINNIEVILLE SANITARY SEWER	1986	1.6951106	982,444.77	39.17%	(384,791.02)	597,653.75
PRUDES CREEK SEWEAGE SYSTEM	1988	1.6110865	3,256,057.71	35.00%	(1,139,620.89)	2,116,436.82
HICKORY HILLS TO SWEENEY HOLLOW	1987	1.6524058	161,442.92	35.83%	(57,851.17)	103,591.75
SAND RIDGE TRUNK SEWER	1997	1.2496567	1,817,408.97	32.00%	(581,570.94)	1,235,838.03
DESIGN/MISC CAPPED SEWER CONNECTORS	1997	1.2496567	93,345.91	32.00%	(29,870.59)	63,475.31
CAHABA TRNT/LTL SHADES CRK CONS REV	1998	1.2298142	495,373.20	29.00%	(143,658.48)	351,714.72
DESIGN-SAND RIDGE OUTFALL SWR	2000	1.1703102	141,022.38	21.67%	(30,555.10)	110,467.28
CAHABA RIVER TRANSFER SEWER	1988	1.6110865	1,529,847.49	100.00%	(1,529,847.49)	0.00
CAHABA RIVER WASTEWATER TREATMENT	1988	1.6110865	34,066,424.54	100.00%	(34,066,424.54)	0.00
PATTON TRANSFER PUMP-CONSTRUCTION	1993	1.3974088	4,797,222.05	47.00%	(2,254,694.73)	2,542,527.32

EXISTING ASSETS

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VALLEY BRICK CONSTRUCTION SECTION I	1989	1.5775731	1,278,354.05	100.00%	(1,278,354.05)	0.00
CAHABA RIVER SEWER SYSTEM	1989	1.5775731	751,315.39	32.17%	(241,673.74)	509,641.64
GRESHAM SCHOOL TO CARDINAL CIRCLE	1989	1.5775731	99,453.62	100.00%	(99,453.62)	0.00
CAHABA RIVER TRUNK SEWER EXTENSION	1988	1.6110865	310,141.24	100.00%	(310,141.24)	0.00
CAHABA HEIGHTS TO OVERTON SEWER	1992	1.4604814	66,032.75	26.17%	(17,278.58)	48,754.17
ACTON ROAD SANITARY SEWER	1991	1.5057911	251,629.36	27.83%	(70,036.21)	181,593.15
ACTON ROAD SEWER P.S.	1988	1.6110865	3,580,903.00	87.08%	(3,118,369.82)	462,533.18
ACTON DRIVE TO ASSA WINTHA DR. CAPPED	1991	1.5057911	152,781.32	97.22%	(148,537.36)	4,243.95
MEDOWLAWN ESTATES ASSESSMENT SEWER	1991	1.5057911	125,793.95	27.67%	(34,802.24)	90,991.72
KYLE LANE ASSESSMENT SEWER	1984	1.7560299	134,964.30	42.33%	(57,135.52)	77,828.77
CAHABA WWTP-CONSTRUCTION REVIEW	1994	1.3462463	491,409.18	100.00%	(491,409.18)	0.00
CAHABA WWTP-ENGINEERING	1994	1.3462463	597,165.34	44.33%	(264,742.98)	332,422.35
CAHABA RIVER PLANT IMPROVEMENTS	1988	1.6110865	5,023,706.11	87.08%	(4,374,810.58)	648,895.53
CAHABA RIVER PLANT IMPROVEMENTS	1986	1.6951106	1,477,062.18	95.00%	(1,403,209.02)	73,853.15
BERRY HIGH SCHOOL EMERGENCY SEWER	1989	1.5775731	31,428.90	33.33%	(10,475.57)	20,953.33
SHADES/CAHABA TRUCK GEOTECHNICAL	1999	1.2016009	38,238.91	23.00%	(8,795.14)	29,443.76
CLOVERLEAF & KNOLLWOOD DRIVE-SEWER	1999	1.2016009	830,278.77	23.67%	(196,499.55)	633,779.22
MILL RUN/CAHABA HGTS-DESIGN	1995	1.3307439	83,218.07	41.67%	(34,674.20)	48,543.87
CAHABA RIVER TRUCK SEWER	2002	1.1135668	15,524,012.35	12.67%	(1,966,374.79)	13,557,637.56
#2 CAHABA RIVER TRUNK SEWER	2004	1.0232607	15,180,607.07	6.33%	(961,438.44)	14,219,168.63
#3 CAHABA RIVER TRUNK SEWER	2004	1.0232607	12,748,832.53	6.33%	(807,426.08)	11,941,406.45
RIVERCHASE PUMP RELOCATION-	1995	1.3307439	165,392.84	41.00%	(67,811.46)	97,581.38
CAHABA RIVER TRUNK REPLACEMENT (ENG)	1995	1.3307439	311,910.45	40.00%	(124,763.80)	187,146.64
CAHABA RIVER TRUNK SEWER #4	2004	1.0232607	19,996,714.42	6.00%	(1,199,802.87)	18,796,911.55
LITTLE SHADES PHASE I	1999	1.2016009	7,008,303.28	24.00%	(1,681,992.61)	5,326,310.67
PH III LITTLE SHADES	2001	1.1478007	455,331.06	15.00%	(68,299.71)	387,031.35
CHRISTOPHER/KNOLLWOOD CAPPED SEWER-	1995	1.3307439	522,655.80	39.33%	(205,577.65)	317,078.15
LOCK RIDGE SEWER CONTRACT I	1998	1.2298142	159,479.23	30.33%	(48,375.55)	111,103.68
CROSS HAVEN SWR & PUMP STATION	2001	1.1478007	1,079,893.78	18.67%	(201,580.02)	878,313.76
GRANTS MILL ROAD #1	2001	1.1478007	6,050,480.43	17.67%	(1,068,918.34)	4,981,562.09
GRANTS MILL RD SEWER #1	2001	1.1478007	2,110,167.26	17.67%	(372,796.44)	1,737,370.83
BLUBERRY LANE SEWER EXTENSION	2003	1.0876158	410,560.47	8.00%	(32,844.87)	377,715.60
ALTADENA RD TRUNK TO HICKORY RIDGE	2004	1.0232607	682,643.36	4.33%	(29,581.19)	653,062.17
NAPIER DRIVE REPLACEMENT SEWER	2003	1.0876158	214,447.02	7.00%	(15,011.32)	199,435.70
CAHABA COLLECTION SYSTEM CONTRACT.	1998	1.2298142	2,122,668.90	28.00%	(594,347.36)	1,528,321.54
CAHABA REHABILITATION CONTRACT 2	1998	1.2298142	2,327,474.34	30.00%	(698,242.13)	1,629,232.21
CONTRACT 3 CAHABA REHABILITATION	1998	1.2298142	3,125,938.55	27.33%	(854,423.39)	2,271,515.15
CAHABA RIVER SSCS REHAP	2000	1.1703102	5,157,746.17	20.67%	(1,065,934.34)	4,091,811.83
CAHABA RIVER COLLECTION SYSTEM	1998	1.2298142	3,645,401.61	28.67%	(1,045,015.15)	2,600,386.45
CONTRACT 6 CAHABA RIVER REHABILITATION	1998	1.2298142	2,576,140.68	27.00%	(695,558.22)	1,880,582.46
CONTRACT 7 CAHABA SSCS REHAB	1998	1.2298142	3,150,864.97	27.67%	(871,739.35)	2,279,125.62
CAHABA REHABILITATION CONTRACT 8	1998	1.2298142	3,623,846.86	27.67%	(1,002,597.94)	2,621,248.92
CAHABA RIVER SSCS REHAB #10	1999	1.2016009	5,656,446.64	25.33%	(1,432,966.68)	4,223,479.96
#11 CAHABA RIVER SCS REHAB	1998	1.2298142	2,986,646.68	27.00%	(806,394.97)	2,180,251.71
CAHABA RIVER SCS REHAB #12	1999	1.2016009	2,908,396.99	25.67%	(746,488.85)	2,161,908.14
CHAPEL HILL REPLACEMENT SEWERS	2003	1.0876158	3,540,365.46	9.00%	(318,632.90)	3,221,732.56
PATTON CREEK/CONSTRUCTION REVIEW PH I	1998	1.2298142	246,347.24	27.00%	(66,513.90)	179,833.34
VESTAVIA TRNK SWR REPLACE	2002	1.1135668	14,078,255.31	13.67%	(1,924,028.39)	12,154,226.92
BYRD BRANCH TRUNK EXTENSION	2002	1.1135668	575,008.79	13.33%	(76,667.74)	498,341.05
VESTAVIA LATERAL EXT (WALD PARK	2003	1.0876158	1,218,259.20	10.00%	(121,825.91)	1,096,433.29
KNOB KNOSTER CAPPED SEWER CONNECTION	1999	1.2016009	313,741.82	24.33%	(76,343.56)	237,398.26
EMERGENCY SEWER REPAIR LONG MEADOW	1998	1.2298142	56,500.23	29.33%	(16,573.37)	39,926.86
EMERGENCY SEWER REPAIR TRACE	1998	1.2298142	5,064.93	29.67%	(1,502.80)	3,562.13
EMERGENCY SEWER REPAIR MAGNOLIA-	1998	1.2298142	6,430.88	27.67%	(1,779.16)	4,651.72
HIGHLAND DAY SCHOOL SEWERS	1999	1.2016009	167,797.56	25.67%	(43,067.73)	124,729.83
EMERGENCY SEWER REPAIR PRINCE OF PEACE	1999	1.2016009	60,569.16	24.33%	(14,738.19)	45,830.97
SANITARY SEWER CONSTRUCTION	2000	1.1703102	173,457.53	20.33%	(35,269.70)	138,187.83
CONSTRUCT SANITARY SEWER	2000	1.1703102	44,880.81	20.00%	(8,976.05)	35,904.77
EMERGENCY SEWER REPAIR 745 SUSSEX DR	1999	1.2016009	23,477.61	24.33%	(5,713.00)	17,764.61
EMER SWR RPR PETTICOAT LANE	1999	1.2016009	11,051.63	23.00%	(2,542.03)	8,509.59
EMER.SWR.REP. HIGHLAND DRIVE	2000	1.1703102	4,546.04	22.00%	(1,000.26)	3,545.77
EMER.SWR.REP.-4803 AVE.V, BIRMINGHAM	2000	1.1703102	9,350.21	22.00%	(2,056.91)	7,293.29
EMER.SWR.REP.-1304 PARLIAMENT LANE	2000	1.1703102	2,762.40	22.01%	(607.88)	2,154.52
EMER.SWR.REP.-2456 REGENT LANE	2000	1.1703102	12,717.50	21.67%	(2,755.26)	9,962.24
EMER SWR REP-2605 APOLLO CIR-HOOVER	2000	1.1703102	13,268.87	21.00%	(2,786.24)	10,482.63
EMER SWR REP-2155 MONTREAT PKWY-	2000	1.1703102	5,345.50	21.00%	(1,122.64)	4,222.85
EMER SWR REP-SUMMITT SHOP CTR BHAM	2000	1.1703102	22,664.73	21.00%	(4,759.53)	17,905.20
ACTON ROAD TRUNK SWR EXT	2000	1.1703102	140,178.01	20.00%	(28,035.48)	112,142.52
IDA LANE TO PIPLINE RD SANITARY SWR	2004	1.0232607	1,939,159.83	3.67%	(71,102.53)	1,868,057.31
EMER SWR REP-BELLWOOD & CROSSHAVEN DR	2000	1.1703102	7,161.71	20.67%	(1,480.21)	5,681.51
EMER SWR REP-512 EASTWOOD PL-VESTAVIA	2000	1.1703102	6,552.65	20.66%	(1,353.96)	5,198.69
EMER SWR REPAIR - NATCHEZ DRIVE CAHABA	2000	1.1703102	12,285.25	20.33%	(2,497.90)	9,787.35
EMER SWR REPAIR - 1950 WATERFORD PL	2000	1.1703102	6,594.49	20.00%	(1,318.71)	5,275.78
EMER SEW REP-HWY 150 & DEER VALLEY	2000	1.1703102	3,881.43	20.00%	(776.36)	3,105.07
EMER SEW REP-513 MONTGOMERY HWY	2000	1.1703102	2,666.65	20.00%	(533.40)	2,133.24
EMER SEW REP-2005 SOUTHWOOD DRIVE	2000	1.1703102	14,159.07	20.00%	(2,831.92)	11,327.15
EMER SEW REP-2005 SOUTHWOOD DRIVE	2000	1.1703102	2,903.83	20.00%	(580.71)	2,323.12
EMER SEW REP-224 BURGUNDY DRIVE	2000	1.1703102	11,766.18	20.00%	(2,353.03)	9,413.16
EMER SWER REPR-1925 OLD CREEK TRAIL	2000	1.1703102	19,009.98	0.00%	0.00	19,009.98

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EMER SWR REP-3990 METHODIST CIR	2000	1.1703102	2,496.51	19.66%	(490.93)	2,005.57
EMER SWR REPAIR-3257 MOCKINGBIRD LANE	2000	1.1703102	2,998.44	19.67%	(589.67)	2,408.77
EMER SWR REP-2337 GARLAND DR	2000	1.1703102	15,778.40	19.67%	(3,103.03)	12,675.37
EMER SWR REP-1905 MONTGOMERY HWY	2000	1.1703102	1,826.25	19.66%	(359.05)	1,467.19
EMER SWR REP-357 LAREDO DR	2000	1.1703102	6,463.89	19.67%	(1,271.18)	5,192.71
EMER SWR REP-2013 COUNTRY RIDGE PLACE	2000	1.1703102	3,125.86	19.33%	(604.11)	2,521.75
EMER SWR REP-2677 PADEN CIRCLE	2000	1.1703102	8,494.57	19.00%	(1,613.87)	6,880.70
EMER SWR REP-624 PADEN DR - HOOVER	2001	1.1478007	5,833.87	18.66%	(1,088.85)	4,745.02
EMER SWR REPAIR HOOVER COMMONS	2001	1.1478007	82,872.13	0.00%	0.00	82,872.13
EMER SWR REPAIR-2131 MONTREAT WAY-	2001	1.1478007	42,387.66	16.00%	(6,782.12)	35,605.54
EMR SWR REPAIR 1808 CANTON ROAD	2002	1.1135668	45,270.71	14.67%	(6,639.58)	38,631.14
EMR SWR REPAIR 509 RAYBURN ROAD	2002	1.1135668	55,620.73	14.67%	(8,157.50)	47,463.23
EMER SWR REPAIR 455 SHENANDOH DRIVE	2002	1.1135668	55,397.22	14.67%	(8,124.97)	47,272.25
EMR SWR REPAIR-1809 CATALA ROAD	2002	1.1135668	54,384.73	14.33%	(7,794.98)	46,589.75
EMR SWR REPAIR-OLD CREEK TRAIL	2002	1.1135668	41,606.85	12.67%	(5,270.29)	36,336.57
EMR SWR REPAIR-624 PADEN DRIVE	2002	1.1135668	53,714.23	12.67%	(6,803.92)	46,910.32
CAHABA TRUNK LITTLE SHADES CREEK	1998	1.2298142	21,198,910.50	28.00%	(5,935,694.74)	15,263,215.76
RIVERCHASE PUMPING STATION RELIEF SEWER	1998	1.2298142	27,524.42	30.67%	(8,440.46)	19,083.96
PATTON CREEK SSES	1998	1.2298142	912,923.15	27.00%	(246,489.22)	666,433.92
HURRICANE BRANCH SSES	1998	1.2298142	351,911.33	27.00%	(95,015.73)	256,895.60
PATTON CREEK-GEOTECHNICAL	1998	1.2298142	6,457.14	27.00%	(1,743.26)	4,713.88
VESTAVIA LATERAL EXTENSION TO WALD	2003	1.0876158	16,152.70	8.00%	(1,292.20)	14,860.51
CAHABA HEIGHTS SWR EXT	2000	1.1703102	2,320,254.81	21.67%	(502,721.86)	1,817,532.95
DOLLY BROOK TRUNK SEWER	2000	1.1703102	114,696.20	19.00%	(21,792.07)	92,904.13
LITTLE SHADES TRUNK REPLACEMENT	1998	1.2298142	206,147.21	27.00%	(55,659.85)	150,487.36
CROSSHAVEN SEWER/PUMP STATION	2002	1.1135668	112,035.96	12.00%	(13,444.45)	98,591.51
CAHABA RIVER SEWER REHAP DESIGN	1999	1.2016009	1,917,537.90	23.67%	(453,817.51)	1,463,720.38
CON III CAHABA RIVER BASIN	2002	1.1135668	1,845,601.18	13.67%	(252,232.01)	1,593,369.17
PATTON CREEK SYSTEM DATA COLLECTION	2004	1.0232607	456,948.33	3.00%	(13,708.48)	443,239.85
MISC. ASSESSMENT-SEWERS DESIGN	2003	1.0876158	219,211.05	8.33%	(18,267.59)	200,943.45
TRUNK EXTENSION TO CAHABA HEIGHTS	2004	1.0232607	19,675.26	5.67%	(1,114.87)	18,560.38
VESTAVIA HILLS EASY ELEMENTARY	2003	1.0876158	22,169.96	8.00%	(1,773.68)	20,396.28
CAHABA INTERCEP-ENGINEERING	2003	1.0876158	560,348.33	8.00%	(44,827.87)	515,520.46
EMER SEW REP-PROJECT # IM-459-4 (78)	2000	1.1703102	343,501.34	19.67%	(67,555.48)	275,945.86
INLINE SEWER REHAB PROFESSIONAL	1998	1.2298142	121,599.85	27.67%	(33,642.76)	87,957.09
TENBUSCH TRENCHLESS PIPE REPLACEMENT	1998	1.2298142	140,580.80	27.33%	(38,425.51)	102,155.29
MANHOLE REHAB-PROTECTIVE LINER	1999	1.2016009	7,170.55	24.66%	(1,768.59)	5,401.97
PRODUCTIVITY STUDIES-CAHABA RIVER	2000	1.1703102	29,253.89	22.33%	(6,533.19)	22,720.71
EMR SWR REPAIR BIOLOGICAL CONSULTING	2002	1.1135668	7,794.97	12.33%	(961.24)	6,833.73
EMR SWR REPAIR BIOLOGICAL CONSULTING	2002	1.1135668	6,702.28	12.33%	(826.51)	5,875.77
EMR SWR REPAIR MACROINVERTEBRATES	2002	1.1135668	10,133.46	12.33%	(1,249.66)	8,883.80
EMR SWR REPAIR-SPECIMEN SORTING	2002	1.1135668	1,016.13	12.66%	(128.64)	887.49
EMR SWR REPAIR-MACROINVERTEBRATES &	2002	1.1135668	6,013.26	12.33%	(741.64)	5,271.63
EMR SWR REPAIR-FISHES &	2002	1.1135668	6,681.40	12.33%	(824.04)	5,857.36
EMR SWR REPAIR-MACROINVERTEBRATE	2002	1.1135668	5,428.64	12.33%	(669.53)	4,759.11
EMR SWR REPAIR-MACROINVERTEBRATES &	2002	1.1135668	7,850.65	12.33%	(968.25)	6,882.40
EMR SWR REPAIR-MACROINVERTEBRATE	2002	1.1135668	5,929.74	12.33%	(731.34)	5,198.41
EMR SWR REPAIR-FISHES &	2002	1.1135668	6,124.62	12.66%	(775.64)	5,348.97
EMR SWR REPAIR-FISHES &	2002	1.1135668	7,349.54	12.67%	(930.94)	6,418.60
EMR SWR REPAIR-MACROINVERTEBRATE	2002	1.1135668	445.43	12.30%	(54.80)	390.63
EMR SWR REPAIR-CAHABA RIVER	2002	1.1135668	31,004.51	12.67%	(3,927.31)	27,077.20
EMR SWR REPAIR-MACROINVERTEBRATE	2002	1.1135668	1,113.57	12.32%	(137.20)	976.36
EMR SWR REPAIR-MACROINVERTEBRATE	2002	1.1135668	579.05	12.31%	(71.28)	507.78
EMR SWR REPAIR	2002	1.1135668	1,030.05	12.65%	(130.33)	899.72
EMR SWR REPAIR-MACROINVERTEBRATE	2002	1.1135668	528.94	12.64%	(66.86)	462.09
EMR SWR REPAIR-FISHES &	2002	1.1135668	5,846.23	12.33%	(721.03)	5,125.19
EMR SWR REPAIR BIOLOGICAL CONSULTING	2002	1.1135668	960.45	12.33%	(118.46)	841.99
EMR SWR REPAIR CAHABA RIVER	2002	1.1135668	21,177.99	12.33%	(2,611.79)	18,566.20
EMR SWR REPAIR BIOLOGICAL CONSULTING	2002	1.1135668	757.23	12.35%	(93.53)	663.70
EMR SWR REPAIR BIOLOGICAL CONSULTING	2002	1.1135668	7,962.00	12.66%	(1,008.38)	6,953.62
EMR SWR REPAIR MACROINVERTEBRATE	2002	1.1135668	1,294.52	12.67%	(163.97)	1,130.55
EMR SWR REPAIR BIOLOGICAL CONSULTING	2002	1.1135668	5,456.48	12.66%	(691.01)	4,765.46
EMR SWR REPAIR SPECIMEN SORTING	2002	1.1135668	1,024.48	12.68%	(129.91)	894.57
EMR SWR REPAIR CAHABA RIVER	2002	1.1135668	5,289.44	14.00%	(740.37)	4,549.08
EMER SWR REPAIR MACROINVERTEBRATES	2002	1.1135668	3,497.71	14.67%	(513.00)	2,984.72
EMR SWR REPAIR CAHABA RIVER STUDY	2002	1.1135668	9,186.93	14.67%	(1,347.42)	7,839.51
EMR SWR REPAIR CAHABA RIVER PROJECT	2002	1.1135668	5,512.16	13.00%	(716.58)	4,795.58
EMR SWR REPAIR CAHABA RIVER	2002	1.1135668	21,571.46	0.00%	0.00	21,571.46
EMR SWR REPAIR CAHABA RIVER PROJECT	2002	1.1135668	57,569.91	13.00%	(7,484.14)	50,085.78
EMR SWR REPAIR CAHABA RIVER PROJECT	2002	1.1135668	5,066.73	13.00%	(658.82)	4,407.91
EMR SWR REPAIR CAHABA RIVER PROJECT	2002	1.1135668	6,959.79	13.33%	(927.82)	6,031.97
EMR SWR REPAIR CAHABA RIVER PROJECT	2002	1.1135668	3,006.63	13.67%	(410.91)	2,595.72
EMR SWR REPAIR CAHABA RIVER	2002	1.1135668	445.43	13.63%	(60.72)	384.70
EMR SWR REPAIR MACROINVERTEBRATES	2002	1.1135668	4,509.95	14.00%	(631.39)	3,878.55
EMR SWR REPAIR CAHABA RIVER	2002	1.1135668	35,151.83	14.00%	(4,921.12)	30,230.71
EMR SWR REPAIR CAHABA RIVER	2002	1.1135668	29,136.47	13.67%	(3,982.14)	25,154.33
EMR SWR REPAIR CAHABA RIVER PROJECT	2002	1.1135668	25,868.54	13.33%	(3,448.98)	22,419.55
EMR SWR REPAIR CAHABA RIVER PROJECT	2002	1.1135668	4,676.98	13.67%	(639.19)	4,037.79
EMR SWR REPAIR CAHABA RIVER STUDY	2001	1.1478007	13,831.85	15.00%	(2,074.82)	11,757.03

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EMR SWR REPAIR CAHABA RIVER STUDY	2002	1.1135668	12,795.58	14.33%	(1,833.93)	10,961.65
EMER SWR REPAIR BIOLOGICAL CONSULTINC	2001	1.1478007	4,304.25	15.67%	(674.33)	3,629.92
EMR SWR REPAIR EXAMINATION OF 16 ALGAE	2001	1.1478007	4,591.20	15.66%	(719.11)	3,872.09
EMER SWR REPAIR BIOLOGICAL CONSULTINC	2001	1.1478007	1,162.15	15.67%	(182.08)	980.07
EMER SWR REPAIR BIOLOGICAL CONSULTINC	2001	1.1478007	4,017.30	15.67%	(629.56)	3,387.75
EMER SWR REPAIR-NON BUILDING	2001	1.1478007	1,420.40	16.00%	(227.26)	1,193.14
EMER SWR REPAIR-NON-BUILDINC	2001	1.1478007	10,617.16	16.33%	(1,733.95)	8,883.21
EMER SWR REPAIR-NON-BUILDINC	2001	1.1478007	5,911.17	16.34%	(965.68)	4,945.49
EMER SWR REPAIR-NON-BUILDINC	2001	1.1478007	8,551.12	16.00%	(1,367.99)	7,183.12
EMER SWR REPAIR-NON BUILDING	2001	1.1478007	588.25	16.35%	(96.17)	492.07
EMER SWR REPAIR-NON-BUILDINC	2001	1.1478007	7,173.75	16.00%	(1,147.62)	6,026.14
EMER SWR REPAIR-NON-BUILDINC	2001	1.1478007	7,460.70	16.00%	(1,193.90)	6,266.81
EMER. SEWER REPAIR	2001	1.1478007	12,422.45	18.00%	(2,236.28)	10,186.17
EMR SWR REPAIR CAHABA RIVER PROJECT	2001	1.1478007	33,761.81	15.33%	(5,176.93)	28,584.89
EMER SWR REPAIR-NON-BUILDINC	2001	1.1478007	6,886.80	16.00%	(1,101.89)	5,784.92
EMER SWR REPAIR-CAHABA RIVER PROJECT	2001	1.1478007	24,118.20	16.33%	(3,939.21)	20,178.99
EMER SWR REPAIR-NON BUILDING	2001	1.1478007	8,493.73	16.34%	(1,387.50)	7,106.23
EMER SWR REPAIR	2001	1.1478007	12,919.86	17.67%	(2,282.47)	10,637.39
EMER SWR REPAIR-NON BUILDING	2001	1.1478007	6,370.29	16.33%	(1,040.48)	5,329.81
EMER SWR REPAIR-CAHABA RIVER PROJ NUT	2001	1.1478007	9,476.75	18.67%	(1,768.90)	7,707.85
EMER SWR REPAIR-CAHABA RIVER PROJ NUT	2001	1.1478007	22,086.41	18.67%	(4,122.72)	17,963.69
EMER SWR REPAIR-CAHABA RIVER PROJ NUT	2001	1.1478007	10,849.28	18.67%	(2,025.36)	8,823.91
EMER SWR REPAIR	2001	1.1478007	301.30	15.67%	(47.21)	254.09
EMER SWR REPA CAHABA RIVER PROJ	2001	1.1478007	7,075.50	17.67%	(1,250.13)	5,825.38
EMER SWR REPAIR CAHABA RIVER	2001	1.1478007	12,998.44	17.00%	(2,209.80)	10,788.64
EMER SWR REPAIR CAHABA RIVER PROJ	2001	1.1478007	3,525.91	17.67%	(622.93)	2,902.97
EMER SWR REPAIR-CAHABA RIVER	2001	1.1478007	9,368.27	16.67%	(1,561.58)	7,806.69
EMER SWR REPAIR	2001	1.1478007	2,238.21	15.67%	(350.65)	1,887.56
EMER SWR REPAIR-NON BUILDING	2001	1.1478007	1,441.92	16.01%	(230.85)	1,211.08
EMER SWR REPAIR	2001	1.1478007	53,593.51	15.67%	(8,396.25)	45,197.26
EMER SWR REPAIR PRIMARY PRODUCTIVITY	2001	1.1478007	29,094.06	15.67%	(4,557.95)	24,536.11
EMER SWR REPAIR	2001	1.1478007	1,262.58	15.68%	(197.98)	1,064.60
EMER SWR REPAIR-CAHABA RIVER	2001	1.1478007	33,288.08	15.67%	(5,215.02)	28,073.06
EMER SWR REP-CAHABA RIV PROJ-NUTR &	2000	1.1703102	17,775.09	20.33%	(3,614.42)	14,160.67
EMER SWR REP-CAHABA RIVER PROJ	2000	1.1703102	6,164.77	21.00%	(1,294.69)	4,870.08
EMER SWR REP-BIOLOGICAL CONSULTING FEE	2000	1.1703102	28,961.41	19.67%	(5,695.79)	23,265.62
EMER SWR REP-CAHABA RIVER NUTRIENT	2000	1.1703102	12,167.56	21.34%	(2,596.03)	9,571.53
EMER.SWR.REP.-CAHABA RIVER NUT. STATION	2000	1.1703102	3,112.44	21.67%	(674.37)	2,438.07
EMER.SWR.REP.CAHABA NUT. & PRI.PROD.	2000	1.1703102	7,037.02	22.00%	(1,547.90)	5,489.12
CAHABA RIVER MODELING PROJECT	1999	1.2016009	19,344.81	23.33%	(4,513.51)	14,831.30
EMER SWR REPAIR-CAHABA RIVER PROJECT	2000	1.1703102	22,118.86	20.67%	(4,571.23)	17,547.63
#2 CABAHA RIVER TRUNK SEWER	2000	1.1703102	506,706.97	20.33%	(103,030.64)	403,676.33
#4 CAHABA RIVER TRUNK SEWER	2003	1.0876158	802,660.44	7.00%	(56,186.23)	746,474.21
CONSTRUCTION REVIEW/LITTLE SHADES CRK	1999	1.2016009	357,880.49	23.67%	(84,698.55)	273,181.94
LITTLE SHADES TRUNK SWR PHASE II	2001	1.1478007	390,734.61	15.00%	(58,609.98)	332,124.63
GRANTS MILL RD SEWER SYSTEM	2003	1.0876158	404,384.28	10.67%	(43,134.32)	361,249.96
NAPIER DRIVE SEWER REPLACMENT	2004	1.0232607	26,899.53	6.67%	(1,793.37)	25,106.16
CAHABA TRNK SWR REHAP	2000	1.1703102	145,905.64	21.67%	(31,613.01)	114,292.64
CAHABA RIVER SS MINI SYSTEMS	1999	1.2016009	161,061.45	23.67%	(38,118.15)	122,943.30
CAHABA RIVER SCS REHAP	2000	1.1703102	212,939.77	21.67%	(46,137.01)	166,802.76
# 4 CAHABA SSCS REHAB	2002	1.1135668	307,706.42	12.00%	(36,924.63)	270,781.79
CONTRACT 6 CAHABA RIVER SSCS REHAB	2002	1.1135668	159,629.80	12.00%	(19,155.44)	140,474.35
CAHABA RIVER SSCS REHAP	2000	1.1703102	220,202.36	21.67%	(47,710.45)	172,491.91
CAHABA RIVER SANITARY SEWER	2003	1.0876158	141,966.26	8.00%	(11,357.32)	130,608.94
CAHABA RIVER SSCS REHABILITAION # 8	2002	1.1135668	191,758.72	12.00%	(23,011.15)	168,747.57
CAHABA REHAB #10	2002	1.1135668	226,301.32	12.00%	(27,156.29)	199,145.04
#12 CAHABA RIVER SSCS REHAB	2002	1.1135668	116,841.31	12.00%	(14,020.92)	102,820.39
VESTHAVEN REPLACEMENT SW	2002	1.1135668	91,236.80	13.67%	(12,469.18)	78,767.63
VESTAVIA TRNK SWR REPLAC	2001	1.1478007	648,804.95	16.00%	(103,808.93)	544,996.02
VESTAVIA LATERAL SEWER EXTENSION	2004	1.0232607	153,392.78	3.67%	(5,624.44)	147,768.33
WALKER CHAPEL TRUNK SEWER	1993	1.3974088	97,259.65	81.67%	(79,428.80)	17,830.85
FULTONDALE ESTATES TRUNK SEWER	1991	1.5057911	97,751.53	27.83%	(27,207.58)	70,543.95
VALLEY VIEW ESTATES ASSESS SEWER	1993	1.3974088	248,618.04	80.56%	(200,275.84)	48,342.20
TUGGLES ADDTION TO CELINDA LANE	1990	1.5385672	89,851.82	100.00%	(89,851.82)	0.00
CRESTLANE GARDENS OUTFALL SEWER	1991	1.5057911	106,896.56	28.67%	(30,644.28)	76,252.28
N. SMITHFIELD TRUNK OUTFALL SEWER	1993	1.3974088	164,664.51	24.83%	(40,891.21)	123,773.29
DANIEL DR CAPPED SEWER CONSTRUCTION	1993	1.3974088	154,689.68	60.42%	(93,458.42)	61,231.25
GARDENDALE SEWER SYSTEM	1988	1.6110865	166,005.98	100.00%	(166,005.98)	0.00
BRIDLEWOOD & 17TH AVENUE CAPPED	1994	1.3462463	428,555.90	44.33%	(189,992.71)	238,563.19
WALKER CHAPEL TRUNK SEWER-	1994	1.3462463	702,983.20	45.00%	(316,342.32)	386,640.89
NEWFOUND CRK PUMP STATION	1995	1.3307439	398,557.80	39.67%	(158,094.20)	240,463.60
VALLEYVIEW EST- ENGINEERING DESIGN	1991	1.5057911	8,396.49	93.33%	(7,836.78)	559.70
NEWFOUND CREEK/GEOTECHNICAL	1997	1.2496567	20,763.11	31.33%	(6,505.39)	14,257.72
VALLEY VIEW ESTATES CONSTRUCTION	1994	1.3462463	134,026.86	44.00%	(58,971.42)	75,055.44
NORTH SMITHFIELD TRUNK SEWER (CONSTR'	1994	1.3462463	2,849,945.53	44.00%	(1,253,975.66)	1,595,969.88
GREENLEUS HEIGHTS TRUNK SWR SYSTEM	2000	1.1703102	1,644,057.32	20.00%	(328,811.30)	1,315,246.02
GREEN LEAS HEIGHTS TRUNK	2003	1.0876158	1,900,501.50	10.00%	(190,050.09)	1,710,451.41
W GARDENDALE TRUNK-PUMP STATIONS	1994	1.3462463	47,281.10	44.67%	(21,119.05)	26,162.05
GARDENDALE SANITARY SEWER CONTRACT I	1997	1.2496567	4,548,946.46	34.33%	(1,561,805.26)	2,987,141.20

EXISTING ASSETS

DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIAITIO N PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
GARDENDALE SANITARY SEWER SYSTEM II	1998	1.2298142	1,917,620.64	30.33%	(581,678.36)	1,335,942.27
BLACK CREEK TRUNK SEWER SECTION V-A	1998	1.2298142	221,550.41	28.67%	(63,511.29)	158,039.12
BLACK CREEK TRUNK SEWER EXTENSION	2003	1.0876158	1,144,415.95	8.00%	(91,553.27)	1,052,862.69
TARRANT TRUNK REPLACEMENT DESIGN	1995	1.3307439	268,531.65	40.67%	(109,202.98)	159,328.68
FIVE MILE CREEK TRUNK SWR REPLACEMENT	2000	1.1703102	10,523,291.27	20.00%	(2,104,658.32)	8,418,632.96
#2 FIVE MILE CRK REPLACE	2001	1.1478007	8,296,024.14	16.00%	(1,327,363.77)	6,968,660.37
DUCTILE IRON PIPE FIVE MILE CREEK	1999	1.2016009	77,120.43	25.00%	(19,280.29)	57,840.14
#4 FIVE MILE SWR REPLACE	2001	1.1478007	7,350,990.08	16.00%	(1,176,158.20)	6,174,831.88
5 MILE TRUNK SWR REPLACE	2001	1.1478007	2,393,053.73	16.33%	(390,865.54)	2,002,188.19
COWAN/SWANN/POE CAPPED SEWER-CONSTR	1995	1.3307439	217,813.42	40.67%	(88,577.02)	129,236.41
GDLE TRUNK SWR EXT ODUM	2001	1.1478007	2,054,452.19	15.00%	(308,167.62)	1,746,284.57
BLACK CRK TO CARSON EXT	2001	1.1478007	1,510,822.60	15.33%	(231,659.63)	1,279,162.97
MAY AVENUE CAPPED SEWER CONNECTION	2003	1.0876158	314,687.88	9.00%	(28,321.97)	286,365.91
EMERGENCY SEWER REPAIR 23RD&3RD ST NW	1998	1.2298142	14,932.51	30.00%	(4,479.40)	10,453.11
EMERGENCY SEWER REPAIR TWIN LAKE	1998	1.2298142	167,280.91	28.00%	(46,838.47)	120,442.44
EMERGENCY SEWER REPAIR HWY 79	1999	1.2016009	8,025.19	25.00%	(2,006.07)	6,019.12
EMER SWR REPAIR-MAUY ST & GREENWARD	1999	1.2016009	6,372.08	25.00%	(1,593.32)	4,778.75
EMER SWR REPAIR-TAMMY ANN DRIVE	1999	1.2016009	6,457.51	24.99%	(1,614.05)	4,843.46
EMER SWR REPAIR-617 TUPELO ROAD	1999	1.2016009	9,039.18	25.00%	(2,259.90)	6,779.28
#1 FIVE MILE CREEK CS	2001	1.1478007	55,980.63	16.33%	(9,143.30)	46,837.33
#2 FIVE MILE CREEK CS	2001	1.1478007	56,131.23	16.33%	(9,168.05)	46,963.18
#3 FIVE MILE CREEK CS	2001	1.1478007	56,280.87	15.67%	(8,817.50)	47,463.37
#4 FIVE MILE CREEK	2001	1.1478007	56,788.89	15.67%	(8,896.88)	47,892.01
SANITARY SEWER	2002	1.1135668	702,868.82	14.33%	(100,744.70)	602,124.12
FIVE MILE CREEK SANITARY SWR	2004	1.0232607	1,734,535.14	5.33%	(92,508.50)	1,642,026.64
#4FIVE MILE CREEK SANITARY SEWER	2004	1.0232607	1,595,908.52	3.00%	(47,877.27)	1,548,031.25
FIVE MILE CREEK SANITARY SWR	2004	1.0232607	74,057.14	3.67%	(2,715.48)	71,341.67
EMERGENCY SEWER REPAIR MILDRED ANN DR	1999	1.2016009	2,140.11	26.01%	(556.73)	1,583.39
EMR.SWR.REPAIR-GARDENDALE FORCE MAIN	1999	1.2016009	13,484.47	26.67%	(3,596.15)	9,888.32
EMER.SWR.REPIAR - MOUNTAIN CIRCLE	1999	1.2016009	24,526.44	26.67%	(6,540.55)	17,985.89
EMER.SWR.REPAIR-POLLY REED RD	2000	1.1703102	11,635.79	22.33%	(2,598.53)	9,037.25
EMER.SWR.REP. - MANHOLE GRAYSON VALLEY	2000	1.1703102	3,158.84	21.67%	(684.63)	2,474.21
EMER.SWR. REP. CARSON ROAD	2000	1.1703102	6,837.76	21.67%	(1,481.69)	5,356.07
EMER.SWR.REP.-612 24TH CT.NW	2000	1.1703102	7,406.34	21.67%	(1,604.74)	5,801.60
EMER SWR REP-JUNIPER DR REPLACEMENT	2000	1.1703102	54,282.01	21.00%	(11,399.32)	42,882.68
EMER SWR REP-1056 MEDINA LN-BHAM	2000	1.1703102	24,170.39	21.00%	(5,075.54)	19,094.85
EMER SWR REP-5916 AVE P & 60TH ST BHAM	2000	1.1703102	29,040.55	21.00%	(6,098.43)	22,942.12
EMER SWR REP-762 VAUGHN CIR BHAM	2000	1.1703102	31,863.95	21.00%	(6,691.69)	25,172.26
EMER SWR REP-VALLEY EAST IND PARK-BHM	2000	1.1703102	3,763.17	21.00%	(790.38)	2,972.79
EMER SWR REP-1909 WINEWOOD RD C/PONT	2000	1.1703102	4,520.30	21.00%	(949.25)	3,571.05
EMER SWR REP-820 JACKSON BLVD TARRANT	2000	1.1703102	12,719.54	21.00%	(2,671.22)	10,048.32
MISC SANITARY IMPRV-DESIGN	2001	1.1478007	46,708.34	17.67%	(8,252.06)	38,456.28
OXMOOR WENONAH	2002	1.1135668	326,098.63	12.00%	(39,131.90)	286,966.73
FULTONBROOK MANOR SEWER	2001	1.1478007	181,560.27	16.33%	(29,654.84)	151,905.42
ANNBNDALE TRUNK SEWER	2002	1.1135668	117,472.39	12.33%	(14,488.26)	102,984.13
EMER SWR REP-1405 HIGHPOINT TER BHAM	2000	1.1703102	4,850.47	20.67%	(1,002.52)	3,847.94
EMER SWR REP-1405 HIGHPOINT TER-BHAM	2000	1.1703102	12,470.52	20.67%	(2,577.30)	9,893.22
EMER SWR REP-1409 TYLER LN-BHAM	2000	1.1703102	24,520.60	20.67%	(5,067.54)	19,453.06
EMER SWR REP-908 TAMMY ANN DR-BHAM	2000	1.1703102	32,945.37	20.67%	(6,808.96)	26,136.41
EMER SWR REP-921 TOMMY ANN DR BHAM	2000	1.1703102	12,492.39	20.67%	(2,581.66)	9,910.74
EMER SWR REP-1535 JUNIPER DR-BHAM	2000	1.1703102	40,164.15	20.67%	(8,300.78)	31,863.37
EMER SWR REP-BHAM & HATCHET STREETS	2000	1.1703102	13,652.55	20.67%	(2,821.76)	10,830.79
EMER SWR REP-ARGONNE DR & BOBOLINK-	2000	1.1703102	12,064.92	20.66%	(2,493.14)	9,571.78
EMER SWR REP-E HAVEN & LAKE DR BHAM	2000	1.1703102	13,933.71	20.67%	(2,879.88)	11,053.84
EMER SWR REP-2592 COMMERCE CIR-TARRANT	2000	1.1703102	5,119.62	20.66%	(1,057.91)	4,061.70
EMER SWR REP-916-29TH AVE NW CPOINT	2000	1.1703102	6,793.94	20.33%	(1,381.38)	5,412.57
EMER SWR REP-309 ORCHID D-ROEBUCK	2000	1.1703102	9,140.86	20.33%	(1,858.77)	7,282.09
EMER SWR REP-KIMBERLY DR GARDENDALE	2000	1.1703102	10,767.42	20.33%	(2,189.50)	8,577.92
EMER SWR REP-801 SPRING LAKE CIR-BHAM	2000	1.1703102	19,518.34	20.33%	(3,968.51)	15,549.83
EMER SWR REP-176 VAUGHN CIRCLE BH	2000	1.1703102	12,526.86	20.33%	(2,547.16)	9,979.70
EMER SWR REP-1437 HICKORY LN-BHAM	2000	1.1703102	28,138.39	20.33%	(5,721.51)	22,416.88
EMER SWR REP-1433 HICKORY LN-BHAM	2000	1.1703102	10,550.60	20.33%	(2,145.24)	8,405.37
EMER SWR REPAIR - 601 VAUGHN CIR BHAM	2000	1.1703102	9,341.78	20.00%	(1,868.52)	7,473.26
EMER SWR REPAIR - 916 PINEHILL RD BHAM	2000	1.1703102	13,319.08	20.00%	(2,664.09)	10,654.98
EMER SEW REP-1757 MOLLY DRIVE	2000	1.1703102	12,441.45	20.00%	(2,488.55)	9,952.90
EMER SEW REP-1753 MOLLY DRIVE	2000	1.1703102	18,039.13	20.00%	(3,607.83)	14,431.29
EMER SEW REP-1726 MOLLY DRIVE	2000	1.1703102	9,102.22	20.00%	(1,820.55)	7,281.67
EMER SEW REP-1718 MOLLY DRIVE	2000	1.1703102	9,327.65	20.00%	(1,865.71)	7,461.94
EMER SEW REP-1704 MOLLY DRIVE	2000	1.1703102	10,220.35	20.00%	(2,044.06)	8,176.29
EMER SEW REP-1813 MOLLY DRIVE	2000	1.1703102	7,779.31	20.00%	(1,556.04)	6,223.27
EMER SWR REP 1709 MOLLY DRIVE	2000	1.1703102	7,711.10	20.00%	(1,542.00)	6,169.10
EMER SWER REPR-185 VAUGHN CIRCLE BHAM	2000	1.1703102	2,510.70	0.00%	0.00	2,510.70
EMER SWER REPR-253 GLYNN DRL RD BHAM	2000	1.1703102	1,695.51	0.00%	0.00	1,695.51
EMER SWR REP-RIDGEMONT RD & CROYDON	2000	1.1703102	11,712.75	19.67%	(2,303.45)	9,409.29
EMER SWR REP-1813 MOLLY LANE	2000	1.1703102	6,413.62	19.67%	(1,261.51)	5,152.10
EMER SWR REP-1711 MOLLY CIRCLE	2000	1.1703102	17,859.66	19.67%	(3,512.49)	14,347.17
EMER SWR REP-1734 MOLLY LANE	2000	1.1703102	11,368.22	19.67%	(2,235.78)	9,132.43
EMER SWR REP-MOLLY LANE & MOLLY DRIVE	2000	1.1703102	15,168.91	19.67%	(2,983.17)	12,185.74
EMER SWR REP-1733 BREWSTER RD	2000	1.1703102	8,835.63	19.67%	(1,737.95)	7,097.69

EXISTING ASSETS

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EMER SWR REP-1708 PATRICIA CIR	2000	1.1703102	17,866.93	19.67%	(3,513.87)	14,353.06
EMER SWR REP-1701 PATRICIA DR	2000	1.1703102	2,022.21	19.67%	(397.72)	1,624.50
EMER SWR REP-1701 PATRICIA DR	2000	1.1703102	2,022.21	19.67%	(397.72)	1,624.50
EMER SWR REP-1707 TUDOR RD	2000	1.1703102	11,628.94	19.67%	(2,286.88)	9,342.06
EMER SWR REP-1707 TUDOR RD	2000	1.1703102	11,628.94	19.67%	(2,286.88)	9,342.06
EMER SWR REP 1160 HUFFMAN RD BHAM	2000	1.1703102	9,724.34	19.67%	(1,912.64)	7,811.70
EMER SWR REP-1160 HUFFMAN RD BHAM	2000	1.1703102	19,129.27	19.67%	(3,762.07)	15,367.20
EMER SWR REPAIR-200 PINE HILL RD BHAM	2000	1.1703102	91,611.14	19.33%	(17,711.40)	73,899.73
EMER SER REP-1901 ETOWAH STREET TARRANT	2000	1.1703102	8,894.87	19.33%	(1,719.62)	7,175.25
EMER SWR REP-4317 41ST STREET N BHAM	2000	1.1703102	129,478.05	19.00%	(24,600.99)	104,877.06
EMER SWR REP-9094 PARKWAY EAST BHAM	2000	1.1703102	10,091.35	19.00%	(1,917.18)	8,174.17
EMER SWR REP-409 GLYNN DRIVE B'HAM	2001	1.1478007	10,863.45	18.67%	(2,027.93)	8,835.52
EMER SWR REP-440 DANIEL DR - BHAM	2001	1.1478007	9,967.80	18.67%	(1,860.81)	8,106.99
EMER SWR REP-1613 MARDIS DRIVE	2001	1.1478007	8,374.04	18.33%	(1,535.30)	6,838.75
EMER SWR REPAIR MOUNTAIN DR	2001	1.1478007	17,752.43	17.67%	(3,136.24)	14,616.19
EMER SWR REPAIR-1118 SUNCREST LANE	2001	1.1478007	21,789.84	16.33%	(3,559.01)	18,230.83
EMER SWR REPAIR	2001	1.1478007	18,824.18	16.00%	(3,012.01)	15,812.17
EMER SWR REPAIR BARRINGTON LANE &	2001	1.1478007	27,594.82	15.67%	(4,323.28)	23,271.53
UPPER FIVE MILE CREEK COLLECTION SYSTEM	2003	1.0876158	54,162.67	8.33%	(4,513.61)	49,649.06
FIVE MILE CREEK MANHOLE HEIGHT ADJ.	2003	1.0876158	54,030.14	8.00%	(4,322.36)	49,707.78
#14 FIVE MILE CREEK	2002	1.1135668	54,809.98	13.33%	(7,308.12)	47,501.87
EMER SWR REPAIR UPDATE	2001	1.1478007	56,821.21	15.67%	(8,901.92)	47,919.29
EMER SWR REPAIR UPDATE	2001	1.1478007	57,204.52	15.67%	(8,962.15)	48,242.36
EMER SWR REPAIR UPDATE	2001	1.1478007	56,940.03	15.67%	(8,920.62)	48,019.41
EMR SWR REPAIR UPDATE	2001	1.1478007	45,463.07	15.67%	(7,122.57)	38,340.49
EMER SWR REPAIR NORTH SMITHFIELD SEWER	2001	1.1478007	22,680.45	15.33%	(3,477.86)	19,202.59
EMR SWR REPAIR 116 REDSTONE WAY BHAM	2002	1.1135668	50,395.97	14.67%	(7,391.27)	43,004.70
EMR SWR REPAIR 2109 3RD STREET NE BHAM	2002	1.1135668	31,250.76	14.67%	(4,583.60)	26,667.16
EMR SWR REPAIR-103 SHAWNEE LANE BHAM	2002	1.1135668	14,291.48	14.00%	(2,000.81)	12,290.67
EMR SWR REPAIR 4020 40TH AVENUE NORTH	2002	1.1135668	52,699.61	13.67%	(7,202.27)	45,497.33
EMR SWR REPAIR-40TH TERRACE N	2002	1.1135668	51,101.24	12.67%	(6,473.01)	44,628.23
FIVE MILE CREEK COLLECTION SYSTEM	2003	1.0876158	54,373.72	8.00%	(4,349.90)	50,023.82
UPPER FIVE MILE CREEK HEIGHT ADJUSTMENT	2003	1.0876158	52,991.36	8.33%	(4,415.99)	48,575.37
#17 FIVE MILE CREEK COLLECTION SYSTEM	2003	1.0876158	51,501.87	8.00%	(4,120.06)	47,381.81
UPPER FIVE MILE CREEK COLLECTION SYSTEM	2003	1.0876158	53,013.11	8.33%	(4,417.76)	48,595.35
UPPER FIVE MILE CREEK COLLECTION	2002	1.1135668	54,286.38	12.33%	(6,695.32)	47,591.06
FIVE MILE CREEK #5	2003	1.0876158	53,494.38	8.33%	(4,457.87)	49,036.52
JEFFERSON CASE SETTLEMENT	2003	1.0876158	73,877.27	9.33%	(6,895.22)	66,982.05
NEWFOUND CREEK PUMP STATIONS AND	1998	1.2298142	7,061,968.08	27.67%	(1,953,811.53)	5,108,156.55
FIVE MILE CREEK REPLACEMENT ASSESSMENT	1998	1.2298142	67,179.45	28.00%	(18,810.41)	48,369.03
TARRANT TRNK REP SEWER GEOTECHNICAL	1998	1.2298142	147,883.69	27.00%	(39,928.66)	107,955.03
FIVE MILE TRUNK SEWER REPLACEMENT	2003	1.0876158	57,209.58	8.00%	(4,576.86)	52,632.72
UPPER FIVE MILE CREEK SEWER PROJECT	2003	1.0876158	175,455.81	8.00%	(14,036.51)	161,419.30
BLACK CREEK TRUNK EXT	2001	1.1478007	25,850.65	16.33%	(4,222.10)	21,628.55
DESIGN TARRANT TRUNK REPLACEMENT	1998	1.2298142	366,939.55	30.00%	(110,082.22)	256,857.33
GARDENDALE TRUNK SWR EXT DESIGN	2000	1.1703102	169,144.20	22.33%	(37,775.43)	131,368.78
DESIGN OF TARRANT SPRINGS BRANC	2002	1.1135668	621,927.08	12.00%	(74,631.38)	547,295.70
SEWER CONNECTION 15TH AVE NW & 6TH ST	2003	1.0876158	21,426.03	9.67%	(2,071.29)	19,354.74
DOGWOOD ACRES CAPPED SEWER	2004	1.0232607	80,786.43	3.00%	(2,423.62)	78,362.81
SWR SYSTEM EVAL-FIVE MILE CRK	2000	1.1703102	796,541.53	22.00%	(175,239.33)	621,302.20
SWR SYSTEM E VAL FIVE MILE CREEK	2000	1.1703102	934,438.31	22.33%	(208,691.09)	725,747.22
LOMB AVE & BORDER ST REPLACEMENT	2004	1.0232607	141,711.33	3.67%	(5,196.05)	136,515.28
FIVE MILE CREEK REPL	2001	1.1478007	474,789.64	18.33%	(87,044.85)	387,744.80
CONTRACT1/FIVE MILE REPLACEMENT	2002	1.1135668	34,177.67	12.00%	(4,101.44)	30,076.23
GARDENDALE TRUNK SEWER EXTENSION	2004	1.0232607	279,026.14	6.33%	(17,671.57)	261,354.57
FIVE MILE CREEK TV INSPECTION	2004	1.0232607	99,088.91	4.67%	(4,624.18)	94,464.74
FIVE MILE CREEK SANITARY SWR	2004	1.0232607	36,585.91	5.00%	(1,829.28)	34,756.63
FIVE MILE CREEK SANITARY SEWER	2004	1.0232607	42,450.62	5.33%	(2,264.11)	40,186.51
LEEDS WWTP CONSTRUCTION REVIEW	1994	1.3462463	40,922.66	100.00%	(40,922.66)	0.00
LEEDS WWTP-DESIGN	1993	1.3974088	526,396.92	100.00%	(526,396.92)	0.00
LEEDS WWTP EXPANSION-ENGINEERING	1994	1.3462463	27,699.76	100.00%	(27,699.76)	0.00
LEEDS WWTP 1990 MODIFICATIONS	1992	1.4604814	646,281.91	54.67%	(353,300.39)	292,981.52
WEST LEEDS SEWER PH I	2004	1.0232607	1,010,600.62	6.33%	(64,004.66)	946,595.96
NORMAN R. SKINNER WWTP ACCESS	2003	1.0876158	285,494.94	8.33%	(23,791.32)	261,703.62
EMER SER REP-CORRIDOR X EMER SWR	2000	1.1703102	518,394.94	19.33%	(100,223.22)	418,171.72
EMER SWR REP-1217 LOLLY AVE	2000	1.1703102	3,082.76	19.00%	(585.69)	2,497.07
EMR SWR REPAIR 504 PARKWAY DR LEEDS	2002	1.1135668	46,853.29	13.33%	(6,247.11)	40,606.18
LEEDS SSES	1998	1.2298142	257,745.60	27.00%	(69,591.00)	188,154.60
LEEDS & TRUSSVILLE SEWER DESIGN	1999	1.2016009	504,976.39	23.00%	(116,144.29)	388,832.10
6 PS DATA COLLECTION #6	2002	1.1135668	440,728.60	14.00%	(61,702.00)	379,026.59
LEEDS SANITARY SWR COLLECTION	2001	1.1478007	429,199.32	18.67%	(80,117.23)	349,082.09
GLENN AVE. SEWER REPLACEMENT	1992	1.4604814	513,316.57	26.83%	(137,739.73)	375,576.84
TRUSSVILLE WWTP DRYING BEDS	1994	1.3462463	10,288.35	100.00%	(10,288.35)	0.00
TRUSSVILLE WWTP DRYING BEDS-INSPECTION	1995	1.3307439	37,999.54	100.00%	(37,999.54)	0.00
TRUSSVILLE TRUNK SEWER-CONSTR REVIEW	1997	1.2496567	284,421.22	34.67%	(98,599.34)	185,821.88
GREEN DRIVE TRUNK SEWER	1998	1.2298142	435,436.62	29.33%	(127,727.71)	307,708.91
PHASE III TRUSSVILLE TRUNK SEWER	2004	1.0232607	1,186,561.87	4.00%	(47,462.52)	1,139,099.36
E TRUSSVILLE/DEERFOOT PK	2002	1.1135668	1,749,978.30	14.67%	(256,663.62)	1,493,314.68
MAPLEWOOD S/D SWR INSTALL	2000	1.1703102	103,748.00	22.67%	(23,516.21)	80,231.79

EXISTING ASSETS

DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIAITION PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
SHERMAN OAKS SEWER/TRUSSVILLE LATERAI	2003	1.0876158	1,484,513.64	8.67%	(128,657.88)	1,355,855.76
TRUSSVILLE SSCS REHAP	1999	1.2016009	4,693,421.54	23.33%	(1,095,131.51)	3,598,290.02
TRUSSVILLE SSCS TV INSPECTION	2000	1.1703102	310,229.00	20.00%	(62,045.87)	248,183.13
TRUSSVILLE PARK SEWER-DESIGN	1995	1.3307439	302,667.03	41.33%	(125,102.38)	177,564.65
TRUSSVILLE INDUSTRIAL ENG CONSTRUCTION	2003	1.0876158	266,375.81	7.33%	(19,534.21)	246,841.60
CITY OF TRUSSVILLE-SWR AGREEMENT	1999	1.2016009	28,992.65	23.00%	(6,668.49)	22,324.16
SANITARY SWR CONSTR-TRUSSVILLE	2000	1.1703102	120,655.03	21.33%	(25,739.85)	94,915.18
TRUSSVILLE WWTP DRYING BEDS-CONSTR	1995	1.3307439	2,973,599.93	40.67%	(1,209,264.01)	1,764,335.92
TRUSSVILLE WWTP EXPANSION	2000	1.1703102	16,760,717.70	21.67%	(3,631,488.57)	13,129,229.13
TRUSSVILLE WWTP EXPANSION	2000	1.1703102	162,830.62	21.67%	(35,279.82)	127,550.80
EMER SWR REPAIR - TRUSSVILLE WWTF	2000	1.1703102	14,816.47	20.33%	(3,012.61)	11,803.85
EMER SWR REP-HIDDEN TRACE SUB	2000	1.1703102	10,811.54	20.33%	(2,198.06)	8,613.47
EMER SWER REPR-107 SO MALL ST TR'VILLE	2000	1.1703102	9,863.29	0.00%	0.00	9,863.29
EMR SWR REP-JEFCO PS/COMMERCE DR W	2000	1.1703102	1,978.85	19.68%	(389.43)	1,589.42
EMER SWR REP-317 LINDEN AVE - TRUSSVILLE	2000	1.1703102	18,308.56	19.00%	(3,478.81)	14,829.75
EMER SWR REP-107 MEADOW LANE-	2000	1.1703102	8,734.52	19.00%	(1,659.69)	7,074.83
EMER SWR REP-305 PALACE DR TRUSSVILLE	2000	1.1703102	14,767.42	19.00%	(2,805.73)	11,961.69
EMER SWR REP-90 PARKWAY DR TRUSSVILLE	2001	1.1478007	2,615.92	18.67%	(488.50)	2,127.41
EMER SWR REPAIR-101 MORROW STREET	2001	1.1478007	54,626.04	16.67%	(9,104.36)	45,521.68
EMER SWR REPAIR	2001	1.1478007	57,175.91	16.00%	(9,148.10)	48,027.82
EMER SWR REPAIR NORTH SERVICE ROAD	2001	1.1478007	29,360.43	15.67%	(4,600.03)	24,760.40
TRUSSVILLE SSES	1999	1.2016009	251,832.64	23.00%	(57,921.25)	193,911.39
TRUSSVILLE EXTENTION-DEERFOOT PARKWAY	1999	1.2016009	19,401.05	23.00%	(4,462.24)	14,938.81
TRUSSVILLE WWTP EXPANSION	1999	1.2016009	576,120.42	23.67%	(136,348.30)	439,772.12
DESIGN SVCS-MISC SEWERS	2001	1.1478007	190,319.77	16.67%	(31,720.05)	158,599.72
EVALUATIONS-GPS DATA COLLECTIONS	2001	1.1478007	478,748.83	17.67%	(84,579.16)	394,169.67
TRUSSVILLE WWTP-INSPECTION SERVICES	2003	1.0876158	579,878.20	8.33%	(48,323.26)	531,554.94
TRUSSVILLE SERVICE ROAD RELIEF TUNNEL	2004	1.0232607	190,233.07	6.00%	(11,414.06)	178,819.01
ENGINEERING SER-MAPLEWOOD S/D	2000	1.1703102	27,966.12	21.67%	(6,059.18)	21,906.94
TRUSSVILLE SSCS REHAP	2000	1.1703102	284,302.16	22.33%	(63,493.92)	220,808.24
TRUSSVILLE SSCS TV INSPECTION	2002	1.1135668	117,924.78	12.00%	(14,150.81)	103,773.97
TRUSSVILLE SSCS TV INSPECTION	2002	1.1135668	117,924.78	12.00%	(14,150.81)	103,773.97
TRUSSVILLE WWTP DRYING BEDS	1998	1.2298142	222,480.46	27.33%	(60,811.41)	161,669.05
TURKEY CREEK TRUNK SEWER	1993	1.3974088	1,927,063.04	81.67%	(1,573,768.17)	353,294.87
TURKEY CREEK TRUNK GEOTECHAT SHADOW	1992	1.4604814	13,874.57	27.16%	(3,768.57)	10,106.01
7TH,8TH,9TH ST ASSESS. SEWER IMPROVEMENT	1991	1.5057911	23,151.54	71.25%	(16,495.22)	6,656.32
HOLIDAY PARK ESTATES ASSESSMENT SEWER	1992	1.4604814	303,700.62	26.67%	(80,987.42)	222,713.20
GRIST MILL RD. CAPPED SEWER EXTENSION	1991	1.5057911	67,790.72	95.00%	(64,401.13)	3,389.58
GRISTMILL ROAD SANITARY SEWER	1992	1.4604814	510,491.11	27.00%	(137,832.54)	372,658.56
MIMS ADDITION TO CENTER POINT	1991	1.5057911	64,838.33	28.50%	(18,479.26)	46,359.06
WILLOWOOD CIRCLE TO LEIGH DRIVE	1985	1.7355185	70,324.39	41.33%	(29,067.09)	41,257.30
TURKEY CREEK SOILS EVALUATION	1995	1.3307439	6,387.50	100.00%	(6,387.50)	0.00
TURKEY CREEK TRUNK EXTENSION-DESIGN	1995	1.3307439	382,599.52	40.33%	(154,315.14)	228,284.38
TURKEY CREEK TRUNK EXTENTION-CONSTR	1993	1.3974088	1,347,622.06	47.67%	(642,366.21)	705,255.84
TURKEY CREEK TRUNK SEWER (ENGINEERING)	1994	1.3462463	24,839.03	44.33%	(11,011.66)	13,827.36
TURKEY CREEK TRUNK EXTENSION	1996	1.2954626	5,824,254.91	37.33%	(2,174,388.09)	3,649,866.82
TURKEY CRK PHASE "C" LATERAL "A'	1997	1.2496567	80,294.69	34.67%	(27,835.75)	52,458.94
CHALKVILLE GIRLS SCHOOL-DESIGN	1991	1.5057911	3,406.42	93.33%	(3,179.37)	227.04
TURKEY CREEK LATERAL EXTENTION	1994	1.3462463	46,398.38	43.33%	(20,105.58)	26,292.80
TURKEY CREEK LATERAL EXTENTION	1994	1.3462463	440,275.65	43.67%	(192,253.46)	248,022.19
SWEENY HOLLOW EXTENTION (CONSTR)	1995	1.3307439	290,692.48	40.00%	(116,277.06)	174,415.42
PINSON VALLEY TRUNK EXTENSION PHASE I	1998	1.2298142	1,849,022.23	28.00%	(517,726.49)	1,331,295.74
PINSON VALLEY TRUNK SEWER EXTENTION	1999	1.2016009	1,068,950.41	24.00%	(256,548.05)	812,402.36
TURKEY CREEK LABRAL EXTENTION	2001	1.1478007	3,568,268.57	18.67%	(666,076.82)	2,902,191.75
TURKEY CREEK EXTENTION-CLAY-CH'VILLE	1999	1.2016009	390,178.32	23.67%	(92,342.12)	297,836.21
TURKEY CREEK TRUNK	2002	1.1135668	840,183.05	13.33%	(112,024.38)	728,158.67
HOLIDAY PK ESTATES SEWER-CONST	1995	1.3307439	322,516.28	39.33%	(126,856.46)	195,659.81
BEAVER CREEK TRNK SWR RELOCATION	2000	1.1703102	1,430,673.49	0.00%	0.00	1,430,673.49
MIMOSA TRAILER PK SS REL	2001	1.1478007	516,587.15	15.33%	(79,209.87)	437,377.28
25TH CT/2ND WAY NE ASSES	2001	1.1478007	78,221.67	17.00%	(13,297.46)	64,924.21
OLD SPRINGVILLE ROAD SS EXT	2002	1.1135668	682,958.58	12.00%	(81,955.13)	601,003.45
TURKEY CREEK SANITARY SEWER	2002	1.1135668	10,977,768.89	13.67%	(1,500,295.11)	9,477,473.78
TURKEY CREEK SANITARY SEWER	2004	1.0232607	1,551,614.00	4.00%	(62,064.61)	1,489,549.39
EMERGENCY SEWER REPAIR SWEENEY	1999	1.2016009	7,972.62	25.00%	(1,993.46)	5,979.17
EMERGENCY SEWER REPAIR SWEENEY	1999	1.2016009	11,993.18	25.00%	(2,998.29)	8,994.88
EMERGENCY SEWER REPAIR SWEENEY	1999	1.2016009	3,031.04	25.00%	(757.91)	2,273.13
EMERGENCY SEWER REPAIR SHOEMATER DR	1999	1.2016009	8,843.78	25.00%	(2,210.65)	6,633.14
SANITARY PUMP STATION	2000	1.1703102	188,621.36	20.67%	(38,981.72)	149,639.64
SANITARY TRUNK SWR CONSTR	2000	1.1703102	27,002.31	20.67%	(5,580.53)	21,421.78
TURKEY CREEK/WARRIOR WWTF	2003	1.0876158	193,718.49	7.00%	(13,560.30)	180,158.19
EMER SWR REPL-SLEEPY HOLLOW DR	1999	1.2016009	10,015.67	23.33%	(2,336.78)	7,678.89
EMER SWR REP-6TH ST NE & WOOD DR C'POINT	2000	1.1703102	17,763.79	21.00%	(3,730.59)	14,033.20
EMER SWR REP-1424 WINOLA DR BHAM	2000	1.1703102	55,745.12	20.67%	(11,520.91)	44,224.21
EMER SWR REPAIR - 175 SATURN LN BHAM	2000	1.1703102	5,013.38	20.00%	(1,002.72)	4,010.65
EMER SWER REPR-175 SATURN LANE PINSON	2000	1.1703102	28,915.38	0.00%	0.00	28,915.38
EMER SWR REP-100 KALEY DRIVE PINSON	2000	1.1703102	6,332.05	19.67%	(1,245.37)	5,086.67
EMER SWR REP-2520 RAINER DR NE	2000	1.1703102	3,656.29	19.66%	(718.80)	2,937.49
EMER SWR REP-301 25TH AVE NE	2000	1.1703102	2,983.05	19.67%	(586.91)	2,396.14
EMER SWR REP-2608 6TH ST NE	2000	1.1703102	3,172.69	19.67%	(624.20)	2,548.49

EXISTING ASSETS

DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIAITION PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
EMER SWR REP-2408 COVE CIRCLE NE	2000	1.1703102	3,346.79	19.66%	(658.03)	2,688.76
EMER SWR REP 475 HERITAGE WAY PINSON	2000	1.1703102	13,095.17	19.67%	(2,575.50)	10,519.67
EMER SWR REPAIR-312 MARTIN DRIVE BHAM	2000	1.1703102	25,139.34	19.33%	(4,860.06)	20,279.28
EMER SER REP-2500 WILLOW CIRCLE	2000	1.1703102	2,260.96	19.33%	(437.13)	1,823.82
EMER SWR REP - 333 25TH AVE NE	2000	1.1703102	10,949.89	19.33%	(2,117.11)	8,832.78
EMER SWR REP -2727 6TH STREET NE	2000	1.1703102	2,045.78	19.34%	(395.73)	1,650.06
EMER SWR REP-400 MARTIN DRIVE-BHAM	2000	1.1703102	30,788.67	19.00%	(5,849.60)	24,939.08
EMER SWR REP-316 MARTIN DRIVE - BHAM	2000	1.1703102	12,956.97	19.00%	(2,461.74)	10,495.24
EMER SWR REP-317 ST JOHN ST - BHAM	2000	1.1703102	4,779.75	18.99%	(907.89)	3,871.85
EMER SWR REP-200 MARTIN DRIVE -BHAM	2000	1.1703102	6,938.86	19.00%	(1,318.14)	5,620.72
EMER SWR REP-3809 VENUS AVE BHAM	2000	1.1703102	19,882.80	19.00%	(3,777.66)	16,105.14
EMER SWR REP-230 JUPITER DRIVE BHAM	2000	1.1703102	6,474.55	19.00%	(1,230.09)	5,244.46
EMER SWR REP- 195 SATURN LANE BHAM	2000	1.1703102	4,884.31	19.00%	(927.90)	3,956.41
EMER SWR REP-4023 ST JOHN'S WAY BHAM	2000	1.1703102	11,381.75	19.00%	(2,162.66)	9,219.08
EMER SWR REP-4014 ST JOHN'S WAY BHAM	2000	1.1703102	5,758.73	19.00%	(1,094.01)	4,664.73
EMER SWR REP-ARROWHEAD SUDIVISION CTR	2001	1.1478007	20,346.58	18.67%	(3,798.12)	16,548.46
EMER SWR REP-2650 SWEENEY HOLLOW RD	2001	1.1478007	1,453.35	18.66%	(271.25)	1,182.10
EMER SWR REPAIR-520 PINSON VALLEY PKWY	2001	1.1478007	18,780.46	16.00%	(3,004.85)	15,775.61
PINSON VLLY TRUNK SEWER EXT PLANS	1999	1.2016009	142,750.19	23.67%	(33,784.21)	108,965.98
GEOTECHNICAL/TURKEY CREEK DEERFOOT	1998	1.2298142	38,152.83	30.33%	(11,572.93)	26,579.90
TURKEY CREEK TRUNK #1	2000	1.1703102	210,205.37	96.67%	(203,198.52)	7,006.85
TURKEY CRK SWR TO DEWEY HGHT	2001	1.1478007	140,622.81	17.00%	(23,905.68)	116,717.12
ALDOT PROJECT SEWER RELACATION HWY 75	2003	1.0876158	296,240.39	8.00%	(23,699.23)	272,541.16
CARDINAL DRIVE CAPPED SEWER COLLECTION	2000	1.1703102	52,288.89	21.00%	(10,980.54)	41,308.35
TURKEY CREEK SANITARY COLLECTION	2003	1.0876158	361,609.70	9.33%	(33,750.11)	327,859.59
ENGINEERING SERVICES-TURKEY CRK SEWER	2000	1.1703102	11,523.46	21.67%	(2,496.62)	9,026.84
DRY RANCH TRUNK EXTENSION	1998	1.2298142	11,185.16	28.00%	(3,132.19)	8,052.97
TURKEY CRK SEWER STUDY	2001	1.1478007	53,448.49	18.00%	(9,620.73)	43,827.76
TURKEY CREEK SEWER	2001	1.1478007	53,448.49	18.00%	(9,620.73)	43,827.76
TURKEY CREEK-PHASE I	2000	1.1703102	19,674.44	21.67%	(4,262.97)	15,411.46
VALLEY CREEK WASTEWATER TREATMENT	1989	1.5775731	42,343,908.60	100.00%	(42,343,908.60)	0.00
PRINCE STREET PUMPING STATION/SEWERS	1999	1.2016009	876,814.50	16.46%	(144,309.12)	732,505.38
CONTRUCTION OF LOWER VALLEY CREEK	1987	1.6524058	33,886,363.50	100.00%	(33,886,363.50)	0.00
LOWER VALLEY CREEK INTERCEPTER SEWER	1987	1.6524058	4,612,599.94	92.92%	(4,285,874.00)	326,725.94
SOUTH BESSEMER SANITARY SEWER	1991	1.5057911	2,306,760.77	97.78%	(2,255,499.40)	51,261.38
S. BESSEMER OUTFALL MCADORY TRUNK	1993	1.3974088	515,880.03	24.50%	(126,390.30)	389,489.73
VALLEY BRICK INSPECTION	1991	1.5057911	676,924.09	28.67%	(194,051.72)	482,872.36
VALLEY CREEK BRICK SEWER REPLACEMENT	1990	1.5385672	867,671.28	29.83%	(258,854.68)	608,816.60
VALLEY CREEK OLD BRICK SEWER	1991	1.5057911	5,929,878.33	93.89%	(5,567,496.92)	362,381.41
VALLEY BK SEWER CONSTR-A,A1,F	1991	1.5057911	90,596.80	93.89%	(85,060.30)	5,536.49
VALLEY CREEK OLD BRICK SEWER	1993	1.3974088	1,480,814.24	24.50%	(362,798.96)	1,118,015.28
VALLEY CREEK OLD BRICK SEWER	1992	1.4604814	637,320.51	26.50%	(168,889.94)	468,430.57
VALLEY CREEK DIVERSION TUNNEL PHASE I	1989	1.5775731	1,311,042.15	100.00%	(1,311,042.15)	- 0.00
VALLEY CREEK DIVERSION TUNNEL PHASE II	1990	1.5385672	6,127,882.38	74.17%	(4,544,846.42)	1,583,035.96
RICE CREEK SANITARY SEWER	1991	1.5057911	1,423,893.40	95.56%	(1,360,609.28)	63,284.12
SHADES VALLEY TRANSFER EMER. GATE	1990	1.5385672	244,632.19	29.83%	(72,981.94)	171,650.25
HOPEWELL PRELIMINARY SEWER REPORT	1992	1.4604814	27,055.42	26.00%	(7,034.41)	20,021.01
SHANNON ENGINEERING DESIGN SERVICES	1993	1.3974088	18,166.31	60.00%	(10,900.01)	7,266.30
LOWER VALLEY CREEK INTERPRETER SEWER	1987	1.6524058	3,783,649.08	100.00%	(3,783,649.08)	0.00
SHADES VALLEY TRANSFER SEWER	1985	1.7355185	7,563,455.46	100.00%	(7,563,455.46)	0.00
DOLONAH RD RELOCATION (SURVEY)	1995	1.3307439	27,945.62	100.00%	(27,945.62)	0.00
ULTIMATE SLUDGE DISPOSAL PLAN	1994	1.3462463	737,457.25	44.00%	(324,481.32)	412,975.93
SLUDGE DISPOSAL-MULGA LOOP (ENG	1995	1.3307439	247,560.25	100.00%	(247,560.25)	0.00
SOUTH BESSEMER-ENGINEERING	1990	1.5385672	11,350.38	59.67%	(6,772.25)	4,578.13
SOUTH BESSEMER-DESIGN	1992	1.4604814	11,633.98	52.00%	(6,049.21)	5,584.76
BESSEMER ENGINEERING-DESIGN	1992	1.4604814	11,633.98	86.67%	(10,082.77)	1,551.21
VALLEY CREEK BRICK SEWER	1996	1.2954626	730,573.04	36.67%	(267,876.86)	462,696.18
VALLEY CREEK TRUNK (ENGINEERING	1995	1.3307439	379,181.96	40.00%	(151,672.87)	227,509.09
VALLEY CRK BRICK REPLACEMENT-REVIEW	1994	1.3462463	255,461.23	44.33%	(113,254.91)	142,206.33
VALLEY CREEK BRICK SEWER-CONSTR	1994	1.3462463	1,872,646.11	44.33%	(830,206.44)	1,042,439.67
VALLEY CRK BRICK SEWER-CV89-8388	1994	1.3462463	9,776.95	44.67%	(4,367.36)	5,409.59
VALLEY CREEK SEWER REPL (SEC C-1)	1996	1.2954626	2,796,220.15	35.67%	(997,318.86)	1,798,901.28
VALLEY CREEK BRICK SEWER REPLACEMENT	1997	1.2496567	6,118,594.81	31.67%	(1,937,555.03)	4,181,039.78
VALLEY CREEK SEC E CONSTRUCTION REVIEW	1997	1.2496567	311,544.39	31.33%	(97,616.86)	213,927.53
VALLEY CREEK BRICK SEWER REPLACEMENT	2003	1.0876158	5,727,560.21	9.33%	(534,572.25)	5,192,987.97
FAIRFIELD TRUNK REPLACEMENT DESIGN	1995	1.3307439	221,413.38	41.00%	(90,779.40)	130,633.98
FAIRFIELD SS IMPROVEMENTS	1997	1.2496567	2,381,868.47	31.67%	(754,258.13)	1,627,610.35
HOPEWELL/LOVELESS PARK (ENGINEERING	1995	1.3307439	69,864.06	39.00%	(27,246.98)	42,617.07
OXMOOR TRUNK SEWER-CONSTR	1995	1.3307439	5,984,906.35	40.67%	(2,433,861.91)	3,551,044.43
OXMOOR TRUNK SEWER	1996	1.2954626	2,091,963.60	35.33%	(739,160.90)	1,352,802.70
SAND RIDGE TRUNK SWR EXT	2000	1.1703102	438,895.41	20.67%	(90,704.85)	348,190.56
MARTIN DR OUTFALL SEWER-CONSTR	1994	1.3462463	598,256.72	46.00%	(275,198.28)	323,058.44
PIPE SHOP SS/PUMP STATION	2002	1.1135668	3,968,552.00	14.67%	(582,054.26)	3,386,497.74
JEFFERSON METRO PARK TRUNK SEWER-	1999	1.2016009	449,278.69	23.00%	(103,333.80)	345,944.90
JEFFERSON METRO PARK SEWER	2003	1.0876158	3,369,622.50	10.67%	(359,426.52)	3,010,195.99
PHASE II VALLEY CREEK TRUNK SEWER RELIEF	2004	1.0232607	2,109,400.80	6.00%	(126,564.05)	1,982,836.76
VINTAGE TRACE SWR & PUMP STA	1999	1.2016009	480,946.78	23.00%	(110,617.48)	370,329.30
ALASKA DRIVE SANITARY SEWER REHAB	2004	1.0232607	280,540.32	3.33%	(9,351.38)	271,188.94
EASTERN VALLEY ROAD SANITARY SEWER	2003	1.0876158	529,042.36	8.00%	(42,323.31)	486,719.06

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DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIAITIO N PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
#1 VALLEY CREEK SSCSR	2001	1.1478007	7,868,580.21	18.67%	(1,468,801.65)	6,399,778.56
RIVER CREEK SANITARY SWR	2001	1.1478007	117,770.70	15.33%	(18,058.26)	99,712.44
#1 W END VLY CRK SSCS RE	2001	1.1478007	7,986,350.91	15.33%	(1,224,573.90)	6,761,777.01
VALLEY CREEK SANITARY SWR COLI	2001	1.1478007	7,180,896.39	17.67%	(1,268,624.78)	5,912,271.61
#1 UPPER VALLEY CREEK	2002	1.1135668	4,977,332.48	12.00%	(597,279.97)	4,380,052.51
#2 LOWER VALLEY CREEK	2002	1.1135668	6,545,916.25	12.00%	(785,509.87)	5,760,406.38
LOWER VALLEY CRK SSC SYSTEM-#3	2001	1.1478007	5,615,714.34	16.67%	(935,952.29)	4,679,762.05
#LOWER VALLEY CRK SSC	2002	1.1135668	4,060,971.26	14.00%	(568,536.12)	3,492,435.15
UPPER VALLEY CREEK SEWER SYSTEM	2003	1.0876158	6,747,445.65	10.67%	(719,727.39)	6,027,718.26
UPPER VALLEY CREEK COLLECTION	2003	1.0876158	2,935,995.79	9.00%	(264,239.54)	2,671,756.26
#5 LOWER VALLEY CREEK	2001	1.1478007	5,550,355.06	16.00%	(888,056.73)	4,662,298.33
LOWER VALLEY CREEK SANITARY SEWER	2002	1.1135668	4,540,151.20	13.33%	(605,353.64)	3,934,797.56
#7 LOWER VALLEY CREEK	2002	1.1135668	4,368,567.24	14.33%	(626,161.31)	3,742,405.94
#9 LOWER VALLEY CREEK	2003	1.0876158	2,029,613.53	8.67%	(175,899.97)	1,853,713.57
LOWER VALLEY CREEK SANITATION	2002	1.1135668	3,565,527.62	13.00%	(463,518.42)	3,102,009.19
TV INSPECTION FOR LOWER VALLEY CREEK	2002	1.1135668	946,836.93	12.67%	(119,932.82)	826,904.11
#14 UPPER VALLEY CREEK SANITARY SEWER	2004	1.0232607	2,516,874.16	5.67%	(142,622.89)	2,374,251.27
#13 UPPER VALLEY CREEK	2002	1.1135668	744,483.73	11.33%	(84,374.98)	660,108.75
#11 & 12 UPPER VALLEY CREEK	2002	1.1135668	508,665.70	13.33%	(67,822.01)	440,843.68
#9 LOWER VALLEY CREEK SANITARY SWR	2004	1.0232607	6,879,041.35	4.67%	(321,021.92)	6,558,019.43
UPPER VALLEY CREEK SANITARY SWR	2004	1.0232607	6,440,685.17	3.67%	(236,158.46)	6,204,526.70
UPPER VALLEY CREEK SANITARY SWR COLL	2003	1.0876158	2,890,920.81	7.33%	(212,000.94)	2,678,919.87
VALLEY CREEK TV INSPECTION	2004	1.0232607	190,240.35	4.67%	(8,877.89)	181,362.45
LOWER VALLEY CREEK SWR (28 & 29)	2004	1.0232607	234,721.83	4.00%	(9,388.87)	225,332.96
26&27 LOWER VALLY CRK #20 TO 5 MILE ROAD	2004	1.0232607	233,786.01	3.00%	(7,013.56)	226,772.45
28TH STREET SOUTH EXTENSION-CONSTR	1995	1.3307439	587,289.86	41.00%	(240,788.58)	346,501.27
EMER SWR REP-SANITARY SWR REHAB DEMO	2001	1.1478007	32,133.94	18.33%	(5,891.20)	26,242.74
EMER SWR REPAIR	2004	1.0232607	268,418.31	4.00%	(10,736.75)	257,681.57
EMER SEWER REPAIR-FIVE MILE CREEK	2004	1.0232607	154,801.07	3.00%	(4,644.00)	150,157.07
LINING 24" OUTFALL AT OXMOOR & GRIFFIN	1998	1.2298142	44,273.31	29.67%	(13,134.42)	31,138.90
EMERGENCY WORK AT ALSIER ROAD	1998	1.2298142	3,295.88	29.66%	(977.42)	2,318.46
REPAIR MANHOLE BEHIND AL POWER ON	1998	1.2298142	20,027.71	29.67%	(5,941.26)	14,086.45
REPAIR SEWER AT SOUTHTRUST BANK US280	1998	1.2298142	8,685.42	29.67%	(2,576.53)	6,108.88
EMERGENCY SEWER REPAIR KENT LANE	1998	1.2298142	8,377.56	29.67%	(2,485.69)	5,891.87
EMERGENCY POINT REPAIR PARKER HIGH	1998	1.2298142	12,566.32	29.00%	(3,644.21)	8,922.11
EMERGENCY POINT REPAIR ALLEY COTTON	1998	1.2298142	16,595.49	29.00%	(4,812.58)	11,782.91
8" MAIN LINE REPLACEMENT BEECH STREET	1998	1.2298142	25,074.15	29.00%	(7,271.30)	17,802.85
MH REPLACEMENT AT HOMEWOOD PARK	1998	1.2298142	4,888.43	29.00%	(1,417.67)	3,470.76
POINT REPAIR AT MALAGA DR	1998	1.2298142	1,619.46	29.00%	(469.70)	1,149.75
POINT REPAIR AT KENT DRIVE	1998	1.2298142	6,517.17	28.66%	(1,868.09)	4,649.08
EMERGENCY POINT REPAIR 220 KENT DRIVE	1998	1.2298142	5,788.43	29.00%	(1,678.73)	4,109.69
POINT REPAIR 102 MALAGA DRIVE	1998	1.2298142	2,466.52	29.00%	(715.38)	1,751.13
RAISE MH #01 FRAME & COVER 400 SHADES CR	1998	1.2298142	2,343.64	28.99%	(679.41)	1,664.23
POINT REPAIR 105 POINCIANA DRIVE	1998	1.2298142	8,552.13	29.00%	(2,480.12)	6,072.01
EMERGENCY SEWER REPAIR 11TH PLACE	1998	1.2298142	49,107.98	28.67%	(14,077.38)	35,030.61
EMERGENCY SEWER REPAIR DIXON AVENUE	1998	1.2298142	43,592.15	28.67%	(12,496.09)	31,096.06
EMERGENCY SEWER REPAIR SHADES ROAD	1998	1.2298142	33,494.15	28.67%	(9,601.33)	23,892.82
EMERGENCY SEWER REPAIR HOLLYWOOD	1998	1.2298142	21,179.05	28.67%	(6,071.19)	15,107.86
REPAIR SEWER FOREST ROAD HUEYTOWN	1998	1.2298142	8,051.04	28.66%	(2,307.77)	5,743.27
REPAIR SEWER RED FERN ST. HOMEWOOD	1998	1.2298142	22,035.49	28.67%	(6,317.05)	15,718.44
REPAIR SEWER 16TH ST.N ALLEY	1998	1.2298142	21,599.26	28.66%	(6,191.43)	15,407.84
VALLEY CREEK BASIN SEWER REPAIR	1998	1.2298142	49,642.73	28.67%	(14,230.55)	35,412.18
EMERGENCY SEWER REPAIR ABERDEEN ROAD	1998	1.2298142	4,738.51	28.66%	(1,358.01)	3,380.50
EMERGENCY SEWER REPAIR HEMLOCK AVE	1998	1.2298142	71,651.83	28.33%	(20,301.59)	51,350.24
EMERGENCY SEWER REPAIR	1998	1.2298142	33,070.95	28.33%	(9,370.45)	23,700.50
SEWER REPAIR 6TH AVE SOUTH VALLEY	1998	1.2298142	9,318.22	28.34%	(2,640.53)	6,677.68
EMERGENCY SEWER REPAIR FULTON AVE 16TH	1998	1.2298142	18,893.60	28.33%	(5,353.20)	13,540.40
EMERGENCY SEWER REPAIR ALTALOMA	1998	1.2298142	14,948.16	0.00%	0.00	14,948.16
EMERGENCY SEWER REPAIR 423 WINDSOR DR	1998	1.2298142	2,118.66	28.32%	(600.03)	1,518.64
EMERGENCY SEWER REPAIR 3525	1998	1.2298142	2,309.31	28.34%	(654.38)	1,654.92
EMERGENCY SEWER REPAIR 508 WINDSOR DR	1998	1.2298142	2,633.03	28.35%	(746.37)	1,886.66
EMERGENCY SEWER REPAIR 508 RUNSOM RD	1998	1.2298142	8,618.02	28.34%	(2,441.92)	6,176.10
EMERGENCY SEWER REPAIR 317 WINDSOR DR	1998	1.2298142	6,411.39	28.34%	(1,816.80)	4,594.59
EMERGENCY SEWER REPAIR 307 WINDSOR DR	1998	1.2298142	8,523.14	28.33%	(2,414.74)	6,108.40
EMERGENCY SEWER REPAIR 304 WINSOR DR	1998	1.2298142	2,364.32	28.34%	(670.06)	1,694.25
EMERGENCY SEWER REPAIR 126 WINDSOR DR	1998	1.2298142	12,911.39	28.33%	(3,658.37)	9,253.02
EMERGENCY SEWER REPAIR DEO DARA DRIVE	1998	1.2298142	10,111.19	28.34%	(2,865.04)	7,246.15
EMERGENCY SEWER REPAIR WILDWOOD	1998	1.2298142	12,040.99	28.00%	(3,371.83)	8,669.16
EMERGENCY SEWER REPAIR BEVERLY DRIVE	1998	1.2298142	2,841.79	27.99%	(795.44)	2,046.35
EMERGENCY SEWER REPAIR PRINCETON	1998	1.2298142	11,307.08	28.00%	(3,166.28)	8,140.80
EMERGENCY SEWER REPAIR 13TH ST & 15TH	1998	1.2298142	11,075.20	28.00%	(3,101.20)	7,974.00
EMERGENCY SEWER REPAIR 16TH ST	1998	1.2298142	36,930.46	27.67%	(10,217.67)	26,712.79
EMERGENCY SEWER REPAIR GREENWOOD	1998	1.2298142	2,041.98	27.66%	(564.87)	1,477.12
EMERGENCY SEWER REPAIR GLENCOE DRIVE	1998	1.2298142	10,908.41	27.67%	(3,018.35)	7,890.07
EMERGENCY SEWER REPAIR HWY 150 DITCH	1998	1.2298142	27,973.10	27.67%	(7,739.29)	20,233.80
EMERGENCY SEWER REPAIR-HWY 150	1998	1.2298142	26,332.52	27.67%	(7,285.06)	19,047.46
EMERGENCY SEWER REPAIR 20TH STREET	1998	1.2298142	6,580.47	27.67%	(1,820.85)	4,759.61
EMERGENCY SEWER REPAIR 28TH ST ALLEY	1998	1.2298142	3,728.76	27.68%	(1,031.97)	2,696.79
EMERGENCY SEWER REPAIR FAIRFAX AVE &	1998	1.2298142	10,360.78	27.66%	(2,866.25)	7,494.52

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EMERGENCY SEWER REPAIR PARKER HIGH	1998	1.2298142	13,233.59	27.67%	(3,661.42)	9,572.17
EMERGENCY SEWER REPAIR 6TH AVE NORTH	1998	1.2298142	5,061.40	27.34%	(1,383.59)	3,677.81
EMERGENCY SEWER REPAIR LONG MEADOW	1998	1.2298142	3,652.55	27.67%	(1,010.54)	2,642.01
EMERGENCY SEWER REPAIR HUEYTOWN HIGH	1998	1.2298142	1,683.03	27.66%	(465.46)	1,217.57
EMERGENCY SEWER REPAIR RIDGE RD	1998	1.2298142	5,710.13	27.34%	(1,561.08)	4,149.05
EMERGENCY SEWER REPAIR BURGIN AVENUE	1998	1.2298142	27,999.35	27.33%	(7,653.11)	20,346.24
EMERGENCY SEWER REPAIR DELLEVIEW	1998	1.2298142	16,212.79	27.33%	(4,431.16)	11,781.63
EMERGENCY SEWER REPAIR MONTCLAIR	1998	1.2298142	5,061.90	27.33%	(1,383.59)	3,678.31
EMERGENCY SEWER REPAIR SALISBURY ROAD	1998	1.2298142	15,645.27	27.33%	(4,276.51)	11,368.76
EMERGENCY SEWER REPAIR 18TH AVE SOUTH	1998	1.2298142	29,074.50	27.33%	(7,946.92)	21,127.58
EMERGENCY SEWER REPAIR BAKER SCHOOL	1998	1.2298142	24,542.39	27.33%	(6,708.19)	17,834.20
EMERGENCY SEWER REPAIR 18TH ST	1998	1.2298142	8,478.79	27.33%	(2,317.41)	6,161.38
EMERGENCY SEWER REPAIR ALLEY 15TH ST	1998	1.2298142	33,557.68	27.33%	(9,172.69)	24,384.99
EMERGENCY SEWER REPAIR FULTON AVENUE	1998	1.2298142	9,384.54	27.34%	(2,565.43)	6,819.11
EMERGENCY SEWER REPAIR 17TH ST	1998	1.2298142	141,543.57	27.33%	(38,688.54)	102,855.03
EMERGENCY SEWER REPAIR 16TH STREET	1998	1.2298142	9,247.17	27.33%	(2,527.26)	6,719.91
EMERGENCY SEWER REPAIR 15TH AVE SOUTH	1998	1.2298142	14,640.68	27.33%	(4,001.52)	10,639.16
EMERGENCY SEWER REPAIR 3RD AVE WEST &	1998	1.2298142	18,302.00	27.00%	(4,941.90)	13,360.10
EMERGENCY SEWER REPAIR PRINCETON AVE	1998	1.2298142	27,783.37	27.00%	(7,501.53)	20,281.84
EMERGENCY SEWER REPAIR POINCIANA DR &	1998	1.2298142	10,720.73	27.00%	(2,894.81)	7,825.92
EMERGENCY SEWER REPAIR LEE COURT	1998	1.2298142	15,427.39	27.00%	(4,165.39)	11,262.00
FIVE MILE WEST PUMP INSTALLATION	1999	1.2016009	15,154.80	26.67%	(4,041.22)	11,113.57
EMER SWR REPAIR CHARLESTON AV BESS	1999	1.2016009	21,447.07	26.67%	(5,719.44)	15,727.63
EMER SWR REPAIR BESS VALLEYCRK BASIN	1999	1.2016009	3,676.53	26.67%	(980.51)	2,696.02
EMER SWR REPAIR VALLEY CRK BASIN	1999	1.2016009	9,478.62	26.67%	(2,527.48)	6,951.14
EMER SWR REPAIR 5TH AVE SW & 2ND ST	1999	1.2016009	8,475.92	26.00%	(2,203.47)	6,272.45
EMER SWR REPAIR 1557 MEADOW LN	1999	1.2016009	5,669.11	26.01%	(1,474.29)	4,194.81
EMER SWR REPAIR SHADES VALLEY	1999	1.2016009	3,673.50	26.00%	(955.06)	2,718.44
EMER SWR REPAIR 515 WINDSOR DR	1999	1.2016009	4,198.00	26.00%	(1,091.63)	3,106.37
EMER SWR REPAIR 1640 VALLEY AVE	1999	1.2016009	20,910.91	26.00%	(5,436.98)	15,473.93
EMER SWR REPAIR ALLEY 411 CLIFF	1999	1.2016009	30,963.75	26.00%	(8,050.80)	22,912.96
EMER SWR REPAIR 601 WARWICK RD	1999	1.2016009	4,229.98	26.00%	(1,099.61)	3,130.37
EMER SWR REPAIR 218 WINDSOR DR	1999	1.2016009	5,928.75	26.01%	(1,541.77)	4,386.97
EMER SEWER REPAIR 18 STREET S W	1999	1.2016009	2,855.98	26.66%	(761.33)	2,094.64
EMERGENCY SEWER REPAIR ISHKOODA RD	1999	1.2016009	17,551.75	26.00%	(4,563.46)	12,988.28
EMER SEWER REPAIR MIDWOOD AVE	1999	1.2016009	6,660.81	26.67%	(1,776.45)	4,884.36
EMER SEWER REPAIR MONTEVALLO RD	1999	1.2016009	9,197.05	26.66%	(2,452.23)	6,744.83
EMERGENCY SEWER REPAIR FRANCIS ST	1999	1.2016009	9,850.75	26.34%	(2,594.34)	7,256.41
EMER SWR REPAIR ALLEY BEHIND 708 FOREST	1999	1.2016009	11,563.49	26.00%	(3,006.69)	8,556.79
EMER SWR REPAIR 526 DURHAM DR	1999	1.2016009	8,048.01	26.00%	(2,092.70)	5,955.31
EMER SWR REPAIR WINDSOR DR & LAKESHORE	1999	1.2016009	6,760.45	26.00%	(1,757.45)	5,003.00
EMER SWR REPAIR ALLEY BEHIND FAIRFIELD C	1999	1.2016009	22,082.08	26.00%	(5,741.59)	16,340.50
EMER SWR REPAIR COTTON AVE &	1999	1.2016009	75,093.20	26.00%	(19,524.04)	55,569.15
EMER SEWER REPAIR CARLOS AVE ISHKOODA	1999	1.2016009	8,129.21	26.00%	(2,113.50)	6,015.72
EMER SEWER REPAIR-COURT R & 48TH ST N.	1999	1.2016009	4,227.51	26.01%	(1,099.39)	3,128.12
EMER SEWER REPAIR 8TH AVE & 34TH ST SO.	1999	1.2016009	13,663.63	26.00%	(3,552.27)	10,111.36
EMER SEWER REPAIR DURHAM DR AND	1999	1.2016009	25,349.91	26.00%	(6,590.73)	18,759.18
EMER SWR REPAIR 1673 WACO AVE AND	1999	1.2016009	40,216.51	26.00%	(10,455.95)	29,760.57
EMER SEWER REPAIR 413 WINDSOR DR	1999	1.2016009	5,215.43	26.00%	(1,356.20)	3,859.23
EMER SEWER REPAIR 701 FAIRFAX DR	1999	1.2016009	5,598.55	26.00%	(1,455.55)	4,143.00
EMER SEWER REPAIR 532 FRANCIS ST	1999	1.2016009	5,309.53	26.00%	(1,380.57)	3,928.96
EMER SEWER REPAIR 922 GRAYMONT AVE	1999	1.2016009	16,417.35	26.00%	(4,268.23)	12,149.12
EMER SEWER REPAIR 707 BRISCO DR	1999	1.2016009	4,177.33	26.00%	(1,086.27)	3,091.06
EMER SEWER REPAIR 620 MANCHESTER DR	1999	1.2016009	4,891.79	26.00%	(1,271.85)	3,619.94
EMER SEWER REPAIR 1438 18 PL SW	1999	1.2016009	2,444.01	26.00%	(635.45)	1,808.55
EMER SEWER REPAIR 910 LOMB AVE	1999	1.2016009	3,120.03	26.00%	(811.26)	2,308.77
EMER SWR REPAIR-21ST AVE 7 22ND ST SO	1999	1.2016009	5,225.14	25.33%	(1,323.68)	3,901.45
EMER SWR REPAIR-18TH AVE SOUTH	1999	1.2016009	4,961.96	25.33%	(1,256.99)	3,704.97
EMER SWR REPAIR-9TH AVE NO ALLEY	1999	1.2016009	6,417.20	25.33%	(1,625.53)	4,791.67
EMERGENCY SEWER REPAIR 515 HAMPTON DR	1999	1.2016009	12,079.57	25.33%	(3,060.19)	9,019.38
EMERGENCY SEWER REPAIR 30 SHADOW LAWN	1999	1.2016009	9,761.11	25.34%	(2,472.99)	7,288.12
EMERGENCY SEWER REPAIR 120 DEVON DR	1999	1.2016009	13,657.67	25.34%	(3,460.18)	10,197.49
EMERGENCY SEWER REPAIR 8 EDGE HILL RD	1999	1.2016009	10,648.37	25.33%	(2,697.64)	7,950.73
EMERGENCY SEWER REPAIR 607 WARVILLE RD	1999	1.2016009	17,546.05	25.33%	(4,444.76)	13,101.30
EMERGENCY SEWER REPAIRS	1999	1.2016009	5,006.16	25.34%	(1,268.46)	3,737.70
EMERGENCY SEWER REPAIR 48 GREENWAY RD	1999	1.2016009	2,005.82	25.32%	(507.95)	1,497.87
EMERGENCY SEWER REPAIR 609 WINSOR DR	1999	1.2016009	6,745.39	25.33%	(1,708.63)	5,036.76
EMERGENCY SEWER REPAIR 502 WINSOR DR	1999	1.2016009	6,938.70	25.34%	(1,757.94)	5,180.76
EMERGENCY SEWER REPAIR 533 FRANCIS ST	1999	1.2016009	5,827.51	25.34%	(1,476.56)	4,350.95
EMERGENCY SEWER REPAIR 736 SAULER LANE	1999	1.2016009	1,682.23	25.35%	(426.47)	1,255.76
EMERGENCY SEWER REPAIR 164 FAIRMONT DR	1999	1.2016009	16,994.42	25.33%	(4,304.94)	12,689.48
EMERGENCY SEWER REPAIR 703 BELMONT DR	1999	1.2016009	2,911.06	25.34%	(737.60)	2,173.46
EMERGENCY SEWER REPAIR 38 SHADOW LAWN	1999	1.2016009	3,923.67	25.33%	(993.88)	2,929.79
EMERGENCY SEWER REPAIR 509 HAMPTON DR	1999	1.2016009	5,452.62	25.34%	(1,381.60)	4,071.02
EMERGENCY SEWER REPAIR 620 MANCHESTER	1999	1.2016009	23,589.75	25.33%	(5,976.09)	17,613.66
EMERGENCY SEWER REPAIR 701 FAIRFAX DR	1999	1.2016009	3,734.85	25.33%	(946.09)	2,788.76
EMERGENCY SEWER REPAIR 1605 BERRY RD	1999	1.2016009	25,397.22	25.33%	(6,433.65)	18,963.57
EMERGENCY SEWER REPAIR 405 YORKSHIRE	1999	1.2016009	1,972.22	25.33%	(499.53)	1,472.69
EMERGENCY SEWER REPAIR 401-3 YORKSHIRE	1999	1.2016009	10,556.32	25.33%	(2,674.01)	7,882.31

EXISTING ASSETS

DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIATIO N PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
EMERGENCY SEWER REPAIR 123 DENON DR	1999	1.2016009	1,711.52	25.34%	(433.78)	1,277.75
EMERGENCY SEWER REPAIR 312 DENON DR	1999	1.2016009	3,840.14	25.33%	(972.58)	2,867.56
EMERGENCY SEWER REPAIR 703 WINDSOR DR	1999	1.2016009	3,929.16	25.33%	(995.41)	2,933.76
EMERGENCY SEWER REPAIR 421 WINDSOR DR	1999	1.2016009	3,727.09	25.34%	(944.27)	2,782.82
EMERGENCY SEWER REPAIR 1617 15TH AVE S	1999	1.2016009	6,822.92	25.34%	(1,728.72)	5,094.20
EMERGENCY SEWER REPAIR TOMWORTH RD	1999	1.2016009	2,439.85	25.01%	(610.11)	1,829.74
EMERGENCY SEWER REPAIR DENON DR	1999	1.2016009	8,658.14	25.00%	(2,164.68)	6,493.45
EMERGENCE SEWER REPAIR MANCHESTER DR	1999	1.2016009	2,989.58	24.99%	(747.10)	2,242.49
EMERGENCY SEWER REPAIR 1106 IRVING RD	1999	1.2016009	32,187.99	25.00%	(8,046.82)	24,141.17
EMERGENCY SEWER REPAIR GRASSELL RD	1999	1.2016009	1,472.25	24.98%	(367.83)	1,104.42
EMERGENCY SEWER REPAIR WINDSOR DR	1999	1.2016009	11,933.94	25.00%	(2,983.67)	8,950.27
EMERGENCY SEWER REPAIR RIDGE RD	1999	1.2016009	5,404.64	25.00%	(1,350.90)	4,053.74
EMERGENCT SEWER REPAIR WINDSOR DR	1999	1.2016009	10,573.08	25.00%	(2,643.22)	7,929.86
EMERGENCY SEWER REPAIR EDGE HILL RD	1999	1.2016009	5,850.19	25.00%	(1,462.65)	4,387.54
EMERGENCY SEWER REPAIR MELROSE PL	1999	1.2016009	2,298.93	25.01%	(574.97)	1,723.96
EMERGENCY SEWER REPAIR SAULTER RD	1999	1.2016009	1,857.74	24.98%	(464.12)	1,393.62
EMERGENCY SEWER REPAIR HAMPTON DR	1999	1.2016009	1,420.52	25.00%	(355.07)	1,065.45
EMERGENCY SEWER REPAIR YORKHINE DR	1999	1.2016009	11,510.34	25.00%	(2,877.53)	8,632.81
EMERGENCY SEWER REPAIR WINDSOR BLVD	1999	1.2016009	5,434.11	25.00%	(1,358.43)	4,075.67
EMERGENCY SEWER REPAIR FAIRMONT DR	1999	1.2016009	10,786.93	25.00%	(2,696.40)	8,090.52
EMERGENCY SEWER REPAIR 15TH AVE S	1999	1.2016009	2,630.97	25.01%	(657.88)	1,973.09
EMERGENCY SEWER REPAIR CANTERBURY	1999	1.2016009	2,876.99	25.00%	(719.16)	2,157.83
EMERGENCY SEWER REPAIR 17/18TH ALLEY	1999	1.2016009	11,681.20	25.00%	(2,920.18)	8,761.02
EMER.SWR.REPAIR 15TH & 16TH ST. BESSEMER	1999	1.2016009	23,514.19	23.33%	(5,486.63)	18,027.56
EMERGENCY SEWER REPAIR 15/16 ST ALLEY	1999	1.2016009	6,789.55	25.00%	(1,697.32)	5,092.23
EMERGENCY SEWER REPAIR 15/16TH ST ALLEY	1999	1.2016009	8,102.70	24.34%	(1,971.88)	6,130.82
EMERGENCY SEWER REPAIR LEWER LINE	1999	1.2016009	33,039.23	25.00%	(8,259.50)	24,779.73
EMER SWR REPAIR EAST HAWTHRONE	1999	1.2016009	17,995.70	25.00%	(4,498.79)	13,496.91
EMER SWR REPAIR-4767 7TH CT SO	1999	1.2016009	7,409.13	25.00%	(1,851.97)	5,557.16
EMER SWR REPAIR-425 13TH ST SW	1999	1.2016009	8,275.03	25.00%	(2,068.92)	6,206.11
EMER SWR REPAIR 1535 19TH ST SOUTH.	1999	1.2016009	14,938.16	25.00%	(3,734.58)	11,203.58
EMER SWR REPAIR-PRINCETON PKWY	1999	1.2016009	4,677.83	25.01%	(1,169.76)	3,508.07
EMER SWR REPAIR-30TH AVE NO & 22ND ST	1999	1.2016009	16,747.35	25.00%	(4,186.98)	12,560.37
EMER SWR REPAIR-400 GRAY AVE	1999	1.2016009	9,544.84	25.00%	(2,386.38)	7,158.47
EMERGENCY SEWER REPAIR WADWICK DR	1999	1.2016009	4,782.37	25.01%	(1,195.89)	3,586.48
EMERGENCY SEWER REPAIR 1518 RIDGE RD	1999	1.2016009	7,889.74	24.67%	(1,946.43)	5,943.31
EMERGENCY SEWER REPAIR 159 FAIRMONT DR	1999	1.2016009	7,578.27	24.66%	(1,869.07)	5,709.20
EMERGENCY SEWER REPAIR 400 CREST DR	1999	1.2016009	4,347.38	24.67%	(1,072.36)	3,275.02
EMERGENCY SEWER REPAIR 1424 OVERLOOK	1999	1.2016009	4,345.46	24.66%	(1,071.78)	3,273.68
EMERGENCY SEWER REPAIRS MELROSE PL	1999	1.2016009	9,446.72	24.67%	(2,330.44)	7,116.28
EMERGENCY SEWER REPAIR 6613 GRASSELLI	1999	1.2016009	10,996.21	24.67%	(2,712.22)	8,283.99
EMERGENCY SEWER REPAIR 116 FAIRMONT DR	1999	1.2016009	8,060.54	24.67%	(1,988.22)	6,072.33
EMERGENCY SEWER REPAIR 207 WINDSOR DR	1999	1.2016009	2,686.66	24.32%	(653.49)	2,033.17
EMERGENCY SEWER REPAIR 1501 WELLINGTON	1999	1.2016009	3,097.27	24.33%	(753.49)	2,343.78
EMER SWR REPAIR-CLARDEON	1999	1.2016009	6,603.70	24.33%	(1,606.97)	4,996.73
EMER SWR REPAIR-ARLINGTON BERKLEY	1999	1.2016009	5,427.15	24.34%	(1,320.70)	4,106.45
EMER SWR REPAIRS ARLINGTON AVE	1999	1.2016009	13,255.04	24.33%	(3,225.35)	10,029.69
EMER SWR REPAIR ARLINGTON & BERKLEY	1999	1.2016009	18,820.21	24.33%	(4,579.70)	14,240.51
4A SHADES CREEK COLLECTION SYSTEM	2002	1.1135668	55,103.18	12.00%	(6,612.38)	48,490.80
#5A SHADES CREEK COLLECTION SYSTEM	2002	1.1135668	54,608.76	12.00%	(6,553.05)	48,055.71
#17 MANHOLE HEIGHT/SHADES	2001	1.1478007	57,390.04	17.33%	(9,947.81)	47,442.23
#18 MANHOLE HGHT/SHADES	2001	1.1478007	51,182.57	16.33%	(8,359.85)	42,822.72
4B SHADES CREEK COLLECTION SYSTEM	2002	1.1135668	55,622.66	12.00%	(6,674.72)	48,947.94
6A SHADES CREEK COLLECTION SYSTEM	2002	1.1135668	55,639.92	12.00%	(6,676.72)	48,963.20
#9 VALLEY CREEK COLLECTION SYSTEM	2002	1.1135668	53,319.72	12.00%	(6,398.51)	46,921.21
#10 VALLEY CREEK COLLECTION SYSTEM	2002	1.1135668	55,661.64	12.00%	(6,679.53)	48,982.11
#19 SHADES CREEK COLLECTION	2002	1.1135668	54,968.44	12.00%	(6,596.15)	48,372.30
#20 SHADES CREEK CS	2002	1.1135668	55,122.12	12.00%	(6,614.59)	48,507.53
#11 VALLEY CREEK COLL SYSTEM	2001	1.1478007	57,351.81	16.33%	(9,367.66)	47,984.15
#12 VALLEY CREEK COLL SYSTEM	2001	1.1478007	57,281.00	16.33%	(9,355.90)	47,925.10
#13 VALLEY CREEK COLLECTION SYSTEM	2002	1.1135668	55,564.87	13.33%	(7,408.78)	48,156.09
#14 VALLEY CREEK COLLECTION SYSTEM	2001	1.1478007	57,390.04	16.33%	(9,373.89)	48,016.14
SAN SWR PART RIDGEWAY LLC	1999	1.2016009	155,423.05	26.00%	(40,410.13)	115,012.93
EMR.SWR.REPAIR-COOKS PEST CONTROL	2000	1.1703102	101,204.16	21.00%	(21,252.74)	79,951.42
PURCHASE-HOPEWELL SEWER	2003	1.0876158	718,162.48	7.67%	(55,059.12)	663,103.36
SANITARY TRNK. CONSTR. TUNNEL-IRONDALE	2001	1.1478007	160,459.67	18.33%	(29,417.50)	131,042.17
SANITARY TRUNK SEWER	2001	1.1478007	220,628.19	16.33%	(36,036.09)	184,592.10
SANITARY PUMP STATION.	2002	1.1135668	660,902.36	13.33%	(88,120.22)	572,782.15
SANITARY SEWER CONSTR	2002	1.1135668	257,132.38	14.00%	(35,998.72)	221,133.66
VALLEY CRK WWTP DECHLORINATION	1996	1.2954626	1,190,966.73	38.33%	(456,537.65)	734,429.08
EMER SWR REPAIR	2001	1.1478007	1,343,094.09	17.33%	(232,803.18)	1,110,290.92
VILLAGE/VALLEY SLUDGE	1996	1.2954626	1,295.46	22.88%	(296.40)	999.06
EMER SWR REPAIR 1019 FOREST CIRCLE	1999	1.2016009	9,280.56	24.67%	(2,289.21)	6,991.36
EMER SWR REP EXETER AVE & 16TH ST	1999	1.2016009	5,325.64	24.33%	(1,295.58)	4,030.06
EMER SWR RPR CAROLINA & ARLINGTON	1999	1.2016009	21,025.30	24.33%	(5,116.38)	15,908.92
EMER SWR REPA 600 KARR CIRCLE	1999	1.2016009	5,913.28	24.33%	(1,438.60)	4,474.68
EMER SWR REPAIR BLACK AVE & ALA AVE	1999	1.2016009	15,196.07	24.67%	(3,748.38)	11,447.69
EMER SWR REPAIR KENLINWORTH DR	1999	1.2016009	1,813.98	24.66%	(447.26)	1,366.72
EMER SWR REPAIR 512 10TH AVE SOUTH	1999	1.2016009	13,391.78	24.67%	(3,303.32)	10,088.46

EXISTING ASSETS

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EMERGENCY SEWER REPAIR 315 BERKLEY PL	1999	1.2016009	4,793.35	25.01%	(1,198.60)	3,594.76
EMERGENCY SEWER REPAIR ARDSLEY PL	1999	1.2016009	6,679.11	24.67%	(1,647.66)	5,031.45
EMER SWR REPAIR MIDWAY ST-MIDFIELD	1999	1.2016009	67,382.44	24.67%	(16,620.75)	50,761.69
EMER SWR REPAIR-4TH AVE 11TH ST W	1999	1.2016009	46,542.89	24.67%	(11,480.26)	35,062.63
EMERGENCY SEWER REPAIR 3405 AVALON DR	1999	1.2016009	11,237.89	24.33%	(2,734.50)	8,503.39
EMERGENCY SEWER REPAIR PARK RIDGE DR	1999	1.2016009	6,235.32	24.34%	(1,517.50)	4,717.82
EMERGENCY SEWER REPAIR 112 WOODMART	1999	1.2016009	50,545.74	24.00%	(12,131.17)	38,414.57
EMERGENCY SEWER REPAIR 1120 ALA AVE	1999	1.2016009	61,213.73	24.00%	(14,691.16)	46,522.58
EMERGENCY SEWER REPAIR TUSCALOOSA AVE	1999	1.2016009	6,110.44	24.00%	(1,466.43)	4,644.01
EMERGENCY SEWER REPAIR VALLEYVIEW	1999	1.2016009	4,394.64	24.00%	(1,054.62)	3,340.02
EMERGENCY SEWER REPAIR	1999	1.2016009	6,371.20	24.00%	(1,528.87)	4,842.33
EMERGENCY SEWER REPAIR VICKSBURG	1999	1.2016009	3,120.71	24.01%	(749.22)	2,371.49
EMERGENCY SEWER REPAIR SAMFORD UNIV	1999	1.2016009	13,979.27	24.00%	(3,355.06)	10,624.21
EMERGNCY SEWER REPAIR OVERLOOK RD	1999	1.2016009	11,341.60	24.00%	(2,721.77)	8,619.83
EMERGENCY SEWER REPAIR ARDSLEY PL	1999	1.2016009	6,448.72	24.00%	(1,547.76)	4,900.96
EMERGENCY SWER REPAIR 21ST AVE S	1999	1.2016009	1,290.12	24.01%	(309.72)	980.40
EMERGENCY SEWER REPAIR GREENSPRING	1999	1.2016009	2,044.63	23.99%	(490.54)	1,554.09
EMERGENCY SEWER REPAIR GRASSELI RD	1999	1.2016009	4,677.41	24.00%	(1,122.72)	3,554.70
EMERGENCY SEWER REPAIR LOMB AVE	1999	1.2016009	1,276.23	24.00%	(306.26)	969.97
EMERGENCY SEWER REPAIR 454 CREST LANE	1999	1.2016009	2,762.47	23.99%	(662.71)	2,099.76
EMERGENCY SEWER REPAIR PARKER HIGH	1999	1.2016009	5,084.74	24.00%	(1,220.47)	3,864.28
EMERGENCY SEWER REPAIR 1121 BREWSTER	1999	1.2016009	7,305.71	24.00%	(1,753.66)	5,552.05
EMERGENCY SEWER REPAIR 210 3RD AVE SO	1999	1.2016009	9,668.08	24.00%	(2,320.34)	7,347.74
EMERGENCYSEWER REPAIR 903 9TH ST SO	1999	1.2016009	8,119.78	24.00%	(1,948.72)	6,171.06
EMERGENCY SEWER REPAIR 1414 ARDSLEY PL	1999	1.2016009	1,781.83	23.99%	(427.39)	1,354.44
EMERGENCY SEWER REPAIR 700 COLONIAL CIR	1999	1.2016009	2,215.94	24.01%	(532.07)	1,683.88
EMERGENCY SEWER REPAIR 909 COLLEGE AVE	1999	1.2016009	1,859.31	24.01%	(446.42)	1,412.89
EMERGENCY SEWER REPAIR 120010TH AVE W	1999	1.2016009	2,166.97	23.99%	(519.96)	1,647.01
EMERGENCY SEWER REPAIR 721 EUCLID AV	1999	1.2016009	1,595.04	24.00%	(382.75)	1,212.30
EMERGENCY SEWER REPAIR 2045 MT.ROYAL	1999	1.2016009	18,041.41	24.00%	(4,330.09)	13,711.32
EMERGENCY SEWER REPAIR 504 RUMSON RD	1999	1.2016009	1,336.28	24.02%	(320.97)	1,015.30
EMERGENCY SEWER REPAIR 114 SUGAR BUSH	1999	1.2016009	63,882.21	24.00%	(15,331.50)	48,550.71
EMER SWR FUEL SPILL-SHADES VALLEY	1999	1.2016009	4,408.67	23.33%	(1,028.69)	3,379.98
EMR SWR REPR-OVERFLOW OF UST	1999	1.2016009	16,953.16	23.67%	(4,012.30)	12,940.86
EMER SWR REPR-1855 PRINCETON AVE	1999	1.2016009	26,831.88	23.33%	(6,260.46)	20,571.42
EMER SWR REPR-WREN AVE,HUEYTOWN	1999	1.2016009	14,838.58	23.33%	(3,462.05)	11,376.53
EMER SWR REP-512 MCMILLAN AVE	1999	1.2016009	9,064.46	23.33%	(2,115.18)	6,949.28
EMER SWR REPA-3907 CLAIRMONT AVE	1999	1.2016009	5,962.66	23.33%	(1,391.21)	4,571.44
EMER SWR REPA-1500 51ST PLACE NORTH	1999	1.2016009	5,677.84	23.33%	(1,324.77)	4,353.08
EMER SWR REPL-1418 BENHEIM PLACE	1999	1.2016009	7,513.74	23.33%	(1,752.90)	5,760.85
EMER SWR REPA-3118 OVERLOOK RD	1999	1.2016009	9,660.32	23.33%	(2,254.20)	7,406.12
EMER SWR REPR-726 RALEIGH VILLA DR	1999	1.2016009	2,569.18	23.34%	(599.72)	1,969.46
EMER SWR REPA-408 CLIFF PLACE	1999	1.2016009	4,698.92	23.33%	(1,096.46)	3,602.46
EMER SWR REPA-108 TUSC AVE	1999	1.2016009	2,491.81	23.33%	(581.21)	1,910.59
EMER SWR REPA-14TH AVE & 20TH ST ALLEY	1999	1.2016009	52,865.95	23.33%	(12,335.17)	40,530.78
EMER SWR REPA-SUNSET DRIVE	1999	1.2016009	17,134.25	23.00%	(3,940.73)	13,193.52
EMER SWR REPR-2ND AVE ALLEY-IRONDALE	1999	1.2016009	27,902.59	23.00%	(6,417.31)	21,485.29
EMER SWR REPR-SOUTHCREST RD	1999	1.2016009	38,974.21	23.00%	(8,964.28)	30,009.94
EMER SWR REPA-6TH ALLEY & 30TH ST NO	1999	1.2016009	31,386.56	23.00%	(7,219.01)	24,167.55
EMER.SWR.REPAIR - HAZEL AVENUE	2000	1.1703102	15,427.79	22.67%	(3,496.79)	11,931.00
EMER.SWR.REPAIR-13TH STREET BESSEMER	2000	1.1703102	30,245.63	22.67%	(6,855.91)	23,389.72
EMER.SWR.REPAIR-VALLEY VIEW-HOMEWOOD	2000	1.1703102	78,388.55	22.67%	(17,768.07)	60,620.48
EMER SWR. REPAIR-CATEBERRY ROAD	2000	1.1703102	19,321.33	22.67%	(4,379.35)	14,941.98
EMR. SWR. REPAIR - MT. RIDGE ROAD	2000	1.1703102	11,613.60	22.67%	(2,632.54)	8,981.05
EMER.SWR.REPAIR -	2000	1.1703102	58,397.65	22.67%	(13,236.72)	45,160.93
EMER. SWR. REPAIR - CULVER ROAD	2000	1.1703102	8,939.48	22.67%	(2,026.13)	6,913.35
EMER. SWR. REPAIR	2000	1.1703102	39,639.15	22.67%	(8,984.71)	30,654.44
EMER. SWR. REPAIR-GRASSELL ROAD	2000	1.1703102	25,942.66	22.67%	(5,880.25)	20,062.42
EMER.SWR.REP.-ADAMSVILLE PUMP STATION	2000	1.1703102	22,485.97	22.00%	(4,947.08)	17,538.89
EMER.SWR.REP.-SHAD.VALLEY TANK LEAK	2000	1.1703102	1,422.51	21.99%	(312.82)	1,109.69
EMER.SWR.REP-624 8TH TERR.SO	2000	1.1703102	5,190.89	22.00%	(1,141.98)	4,048.91
EMER.SWR.REP-140 E.EDGEWOOD-HOMEWOOD	2000	1.1703102	3,271.13	22.01%	(719.88)	2,551.25
EMER.SWR.REP-711 MORRIS BLVD.	2000	1.1703102	1,394.24	21.99%	(306.64)	1,087.59
EMER.SWR.REP-439A CAPPA DR	2000	1.1703102	1,281.51	22.00%	(281.93)	999.59
EMER.SWR.REP-821 GREEN SPRINGS HWY	2000	1.1703102	3,269.55	21.99%	(719.11)	2,550.45
EMER.SWR.REP-5951 GREENWOOD PARKWAY	2000	1.1703102	6,068.75	22.00%	(1,335.21)	4,733.54
EMER.SWR.REP-632 TUSCALOOSA AVENUE	2000	1.1703102	26,539.64	22.00%	(5,838.61)	20,701.03
EMER.SWR.REP-813 GREENSPRINGS HWY	2000	1.1703102	7,123.53	22.00%	(1,567.21)	5,556.32
EMER.SWR.REP-22ND ST & 5TH AVENUE	2000	1.1703102	47,648.41	22.00%	(10,482.50)	37,165.91
EMER.SWR.REP-457 IODA AVENUE	2000	1.1703102	42,184.14	22.00%	(9,280.44)	32,903.69
EMER.SWR.REP-2ND/3RD ST.SO.@ 28TH	2000	1.1703102	5,978.27	22.00%	(1,315.41)	4,662.87
EMER.SWR.REP-457 IODA AVENUE	2000	1.1703102	38,597.43	22.00%	(8,491.44)	30,105.99
EMER.SWR.REP-GREENSPRINGS & BROADWAY	2000	1.1703102	18,146.35	22.00%	(3,992.28)	14,154.07
EMER.SWR.REP-5147 HILLSIDE DRIVE	2000	1.1703102	9,209.86	22.00%	(2,026.02)	7,183.84
EMER.SWR.REP-2198 COLUMBINA RD	2000	1.1703102	15,836.52	22.00%	(3,484.32)	12,352.20
EMER.SWR.REP-2198 COLUMBINA RD	2000	1.1703102	3,662.91	21.99%	(805.62)	2,857.29
EMER.SWR.REP-1631 15TH AVENUE SOUTH	2000	1.1703102	6,549.66	22.00%	(1,440.94)	5,108.72
EMER.SWR.REP-44 CHURCH STREET	2000	1.1703102	1,332.54	22.01%	(293.27)	1,039.27
EMER.SWR.REP-LUCERNE BLVD & RIVERIA DR	2000	1.1703102	5,563.39	22.00%	(1,224.19)	4,339.19

EXISTING ASSETS

DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIAITION PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
EMER.SWR.REP-1220 GLOVERDALE GDNS	2000	1.1703102	2,220.80	22.00%	(488.69)	1,732.12
EMER.SWR.REP-632 LOMB AVENUE	2000	1.1703102	30,938.56	22.00%	(6,806.43)	24,132.12
EMER.SWR.REP-EDGE HILL DRIVE	2000	1.1703102	60,311.91	22.00%	(13,268.37)	47,043.55
EMER.SWR.REP-ASCOT ROAD-HOMWOOD	2000	1.1703102	9,034.84	22.00%	(1,987.40)	7,047.44
EMER.SWR.REP-23RD ST. IRONDALE	2000	1.1703102	34,237.77	22.00%	(7,532.49)	26,705.27
EMER.SWR.REP-ERIE ST., WYLAM	2000	1.1703102	65,864.26	22.00%	(14,490.31)	51,373.95
EMER.SWR.REP-ERIE ST., WYLAM	2000	1.1703102	1,284.64	22.01%	(282.70)	1,001.94
EMER.SWR.REP-5TH AVENUE IRONDALE	2000	1.1703102	25,198.41	22.00%	(5,543.55)	19,654.86
EMER.SWR.REP.-18 SPRING ST.,MT.BROOK	2000	1.1703102	11,233.54	22.00%	(2,471.63)	8,761.91
EMER.SWR.REP.-516 TUSCALOOSA AVENUE	2000	1.1703102	43,946.16	22.00%	(9,668.19)	34,277.97
EMER.SWR.REP. - #42 MUNGER	2000	1.1703102	1,301.56	21.68%	(282.22)	1,019.34
EMER.SWR.REP.-646 39TH STREET SOUTH	2000	1.1703102	113,061.25	21.67%	(24,496.88)	88,564.37
EMER.SWR.REP. 20TH AVE & CENTER WAY	2000	1.1703102	13,556.22	21.67%	(2,937.07)	10,619.15
EMER.SWR.REP.-2161 AVENUE I, ENSLEY	2000	1.1703102	6,624.48	21.67%	(1,435.44)	5,189.04
EMER.SWR.REP.-806 NEW AV. MUSCODA	2000	1.1703102	5,030.25	21.67%	(1,090.09)	3,940.17
EMER.SWR.REP.-462 RIDGEWOOD AVE	2000	1.1703102	14,530.21	21.67%	(3,148.39)	11,381.82
EMER.SWR.REP.-508 EUCLID AVENUE	2000	1.1703102	8,972.90	21.67%	(1,944.35)	7,028.54
EMER.SWR.REP.-641 19TH AVE. SO	2000	1.1703102	8,168.44	21.67%	(1,770.04)	6,398.40
EMER.SWR.REP.-14 WINTHROP AVENUE	2000	1.1703102	1,306.86	21.65%	(282.98)	1,023.88
EMER.SWR.REP.-AVE H & 61ST ST.FAIRFIELD	2000	1.1703102	11,060.37	21.66%	(2,396.21)	8,664.16
EMER.SWR.REP.-FRANCIS PLACE	2000	1.1703102	4,900.45	21.67%	(1,061.94)	3,838.51
EMER SWR-REP-1311 ROSELAND DR	2000	1.1703102	6,300.03	21.33%	(1,343.74)	4,956.29
EMER SWR-REP-1737 WINDSOR DR	2000	1.1703102	9,470.95	21.34%	(2,020.63)	7,450.31
EMER SWR-REP-457-475-SPRINGS HWY	2000	1.1703102	9,139.20	21.33%	(1,949.64)	7,189.56
EMER SWR-REP-312 LAPRADO PLACE	2000	1.1703102	4,093.18	21.34%	(873.33)	3,219.85
EMER SWR-REP-1742 WINDSOR DR	2000	1.1703102	4,240.43	21.34%	(904.79)	3,335.64
EMER SWR-REP-609 DEVON DR	2000	1.1703102	5,559.38	21.33%	(1,185.86)	4,373.52
EMER SWR-REP-3422 WAVERLY DR	2000	1.1703102	2,670.02	21.33%	(569.57)	2,100.45
EMER SWR-REP-808 SYLVIA DR	2000	1.1703102	1,407.37	21.34%	(300.35)	1,107.02
EDGEWOOD SCHOOL SS REPAIRS	2000	1.1703102	58,455.83	20.67%	(12,081.11)	46,374.71
EMER SWR REP-AVENUE T ENSLEY	2000	1.1703102	21,796.52	21.33%	(4,649.78)	17,146.74
EMER SWR-REP-ENGLISH VILLAGE LANE	2000	1.1703102	11,986.76	21.33%	(2,557.08)	9,429.68
EMER SWR-REP-CHERRY STREET	2000	1.1703102	15,940.53	21.33%	(3,400.45)	12,540.07
EMER SWR REP-306-319 LEXINGTON BLVD	2000	1.1703102	14,759.39	21.33%	(3,148.79)	11,610.60
EMER SWR. REP-404 CREST DR. F.F	2000	1.1703102	4,349.01	21.34%	(928.01)	3,421.00
EMER SWR REP-1506 MANHATTEN. H'WOOD	2000	1.1703102	1,239.26	21.33%	(264.40)	974.87
EMER SWR REPAIR- 5TH TERRACE SOUTH	2000	1.1703102	1,859.99	21.01%	(390.77)	1,469.22
EMER SWR REPAIR-AVE I-ENSLEY	2000	1.1703102	1,343.73	21.01%	(282.38)	1,061.34
EMER SWR REPAIR-VANN ST-MIDFIELD	2000	1.1703102	1,629.67	20.99%	(342.11)	1,287.56
EMER SWR REPAIR-OAKMONT ST	2000	1.1703102	5,833.00	21.00%	(1,224.65)	4,608.35
EMER SWR REPAIR-POINCIANNA DR	2000	1.1703102	32,716.76	21.00%	(6,870.65)	25,846.11
EMER SWR REPAIR-ALABAMA ST	2000	1.1703102	50,201.64	21.00%	(10,542.59)	39,659.05
EMER SWR REPAIR-EDWARDS ST	2000	1.1703102	53,423.14	21.00%	(11,218.69)	42,204.45
EMER SWR REPAIR-OWEN & CENTER ST	2000	1.1703102	51,873.52	21.00%	(10,893.54)	40,979.98
EMER SWR REPAIR-RAY ST & JEFF AVE	2000	1.1703102	55,958.34	21.00%	(11,751.01)	44,207.32
EMER SWR REP-FAIRFAX AV-BESSEMER	2000	1.1703102	15,877.25	21.00%	(3,334.05)	12,543.20
EMER SWR REP-3762 JACKSON BLVD-MT	2000	1.1703102	15,740.18	21.00%	(3,305.30)	12,434.89
EMER SWR REPR 4326 CHEROKEE BLVD APTS	2000	1.1703102	3,855.36	21.00%	(809.55)	3,045.81
EMER SWR REPR-8TH AVE & 12TH ST SO UAB	2000	1.1703102	5,516.67	21.00%	(1,158.29)	4,358.38
EMER SWR REP-DWAINE AV & NOVEL DR	2000	1.1703102	18,457.23	21.00%	(3,875.96)	14,581.27
EMER SWR REP-125 LAKE DE-CENTERPOINT	2000	1.1703102	3,725.79	21.00%	(782.27)	2,943.52
EMER SWR REP-715 5TH AVE NO-BESS	2000	1.1703102	9,400.41	21.00%	(1,974.01)	7,426.40
EMER SWR REP-414 MEADOWBROOK LN MT	2000	1.1703102	6,061.77	21.00%	(1,273.10)	4,788.68
EMER SWR REP-6129 JESSE OWENS AV BESS	2000	1.1703102	6,283.88	21.00%	(1,319.76)	4,964.12
EMER SWR REP-217 GLORIA RD-BHAM	2000	1.1703102	5,366.11	20.99%	(1,126.61)	4,239.50
EMER SWR RPR-#2 RICHMAR DR-MT BROOK	2000	1.1703102	4,203.53	21.00%	(882.54)	3,320.99
EMER SWR REPAIR-TIN MILL RD HUEYTOWN	2000	1.1703102	36,567.92	21.00%	(7,679.13)	28,888.79
EMER SWR REP-CRESTHILL RD-BHAM	2000	1.1703102	112,383.60	21.00%	(23,600.83)	88,782.78
EMER SWR REP-HANOVER CIRCLE-BHAM	2000	1.1703102	28,333.33	21.00%	(5,949.97)	22,383.35
EMER SWR REP-9TH AV N & 4TH ST BHAM	2000	1.1703102	58,428.70	21.00%	(12,270.07)	46,158.63
EMER SWR RPR-MT PARK DR MT BROOK	2000	1.1703102	21,047.60	21.00%	(4,420.09)	16,627.51
EMER SWR RPR-18TH AV SO BHAM	2000	1.1703102	52,041.95	21.00%	(10,928.93)	41,113.02
EMER SWR RPR-FOREST BROOK CIR H'WOOD	2000	1.1703102	29,591.62	21.00%	(6,214.04)	23,377.58
EMER SWR RPR-FIVE MILE WEST-BESS	2000	1.1703102	16,240.57	21.00%	(3,410.73)	12,829.84
EMER SWR REP-401 KENILWORTH DR	2000	1.1703102	2,272.02	21.00%	(477.03)	1,794.99
EMER SWR REP- 503 KENILWORTH DR	2000	1.1703102	5,096.39	21.00%	(1,070.46)	4,025.93
EMER SWR REP-710 COLONY CIRCLE	2000	1.1703102	6,042.16	21.00%	(1,268.89)	4,773.27
EMER SWR REP-7740 CRESTWOOD BLVD	2000	1.1703102	23,685.29	21.00%	(4,973.80)	18,711.49
EMER SWR REP-500 PRINCETON AV SW	2000	1.1703102	53,611.63	21.00%	(11,258.50)	42,353.13
EMER SWR REP-1ST AVE SO & 55TH ST SO	2000	1.1703102	1,514.70	20.99%	(317.88)	1,196.82
EMER SWR REP-940 9TH CT SO	2000	1.1703102	9,767.51	21.00%	(2,051.16)	7,716.36
EMER SWR REP-#5-18TH ST	2000	1.1703102	7,868.86	21.00%	(1,652.28)	6,216.58
EMER SWR REP-660 ST CHARLES AVE	2000	1.1703102	5,554.68	21.00%	(1,166.40)	4,388.28
#22 SHADES CREEK COLL SY	2002	1.1135668	55,166.10	14.33%	(7,906.98)	47,259.12
#15 VALLEY CREEK COLLECTION SYSTEM	2002	1.1135668	55,565.40	13.33%	(7,408.78)	48,156.62
#16 VALLEY CREEK COLLECTION SYSTEM	2002	1.1135668	55,166.10	13.33%	(7,355.33)	47,810.77
#17 VALLEY CREEK COLLECTION SYSTEM	2002	1.1135668	55,643.04	13.33%	(7,419.03)	48,224.01
#18 VALLEY CREEK COLLECTION SYSTEM	2001	1.1478007	57,354.48	16.00%	(9,176.53)	48,177.95
#1 UPPER SHADES VALLEY	2001	1.1478007	57,236.23	15.33%	(8,776.22)	48,460.01

EXISTING ASSETS

DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIATION PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
# UPPER SHADES VALLEY	2001	1.1478007	56,819.58	15.33%	(8,712.34)	48,107.24
#19 VALLEY CREEK COLLECTION SYSTEM	2002	1.1135668	55,161.87	13.33%	(7,354.89)	47,806.98
#20 VALLEY CREEK COLLECTION SYSTEM	2001	1.1478007	57,268.81	16.00%	(9,162.89)	48,105.91
#3 UPPER SHADES VALLEY	2002	1.1135668	55,583.69	14.33%	(7,966.84)	47,616.85
#21 VALLEY CREEK COLLECTION SYSTEM	2001	1.1478007	57,298.71	16.00%	(9,167.71)	48,130.99
UPPER SHADES CREEK #1	2003	1.0876158	1,359.52	9.01%	(122.45)	1,237.07
VALLEY CREEK SYSTEM #25	2002	1.1135668	55,582.75	13.00%	(7,225.73)	48,357.02
VALLEY CRK COLL SYSTEM #26	2002	1.1135668	55,623.22	13.00%	(7,230.95)	48,392.27
#5 UPPER SHADES VALLEY	2002	1.1135668	55,632.69	14.33%	(7,974.02)	47,658.67
#6 UPPER SHADES VALLEY	2002	1.1135668	55,594.82	14.33%	(7,968.75)	47,626.07
#28 VALLEY CREEK	2003	1.0876158	53,486.22	9.67%	(5,170.34)	48,315.88
CONSTRUCTION OF SANITARY SEWERS	2002	1.1135668	557,616.37	13.00%	(72,490.13)	485,126.24
BROOKS RIDGE CONSTRUCTION	2002	1.1135668	862,323.89	12.67%	(109,227.83)	753,096.06
SEWER REPLACEMENT BELLVIEW	2003	1.0876158	572,987.53	10.00%	(57,298.86)	515,688.67
ROSEDALE STREET CONSTRUCTION	2003	1.0876158	278,060.94	9.67%	(26,879.12)	251,181.82
IRVING RD STORM DRAINAGE IMPROVEMENTS	2004	1.0232607	250,273.70	3.33%	(8,342.44)	241,931.26
TRUNK EXTENSION TO HARLEM AVENUE	2003	1.0876158	526,013.06	7.00%	(36,820.94)	489,192.12
EMR SWR REP-MCADORY AV BESSEMER	2000	1.1703102	2,956.91	20.66%	(610.95)	2,345.96
EMER SWR REP-3028-20TH ST H'TOWN	2000	1.1703102	9,960.62	20.67%	(2,058.51)	7,902.11
EMER SWR REP-5705 MONTE SANO DR-BHAM	2000	1.1703102	3,133.62	20.67%	(647.71)	2,485.91
EMER SWR REP-FOREST & WARRIOR RIVER RDS	2000	1.1703102	1,563.64	20.65%	(322.89)	1,240.75
EMER SWR REP-1510 OXMOOR RD-H'WOOD	2000	1.1703102	1,493.43	20.65%	(308.38)	1,185.06
EMER SWR REP #6 OFFICE PARK MT BROOK	2000	1.1703102	7,585.81	20.67%	(1,568.01)	6,017.81
EMER SWR REP-218-5TH AVE SO BHAM	2000	1.1703102	2,639.23	20.67%	(545.65)	2,093.58
EMER SWR REP-5321 CRESTWOOD BLVD-BH	2000	1.1703102	3,208.86	20.33%	(652.49)	2,556.37
EMER SWR REP-24 MONTCREST DR MT BR	2000	1.1703102	11,910.32	20.33%	(2,421.51)	9,488.81
EMER SWR REP-1430-12TH ST SO BHAM	2000	1.1703102	52,218.92	20.33%	(10,617.67)	41,601.24
EMER SWR REP-1933 MONTGOMERY HWY	2000	1.1703102	16,078.07	20.33%	(3,269.03)	12,809.05
EMER SWR REP-176 ROSS DR-MT BR	2000	1.1703102	57,047.84	20.33%	(11,599.99)	45,447.85
EMER SWR REPAIR - 1600A STERLING PL BHAM	2000	1.1703102	9,300.83	20.00%	(1,860.09)	7,440.74
EMER SWR REPAIR - 506 18TH ST BESSEMER	2000	1.1703102	1,421.77	20.00%	(284.39)	1,137.39
EMER SWR REPAIR - 1185 14TH AVE S BHAM	2000	1.1703102	9,396.10	20.00%	(1,879.05)	7,517.05
EMER SWR REPAIR - 816 24TH ST BESSEMER	2000	1.1703102	98,881.98	20.00%	(19,776.37)	79,105.61
EMER SWR REPAIR - 814 24TH ST BESSEMER.	2000	1.1703102	57,467.18	20.00%	(11,493.38)	45,973.80
EMER SWR REPAIR - 2300 9TH AVE N BESSEMR	2000	1.1703102	57,741.01	20.00%	(11,548.15)	46,192.86
EMER SWR REPAIR - 140 INDUSTRIAL DR	2000	1.1703102	8,263.99	20.00%	(1,652.95)	6,611.05
EMER SWR REPAIR - 460 GSPRINGS HWY	2000	1.1703102	9,457.96	20.00%	(1,891.69)	7,566.27
EMER SWR REPAIR - 4807 HUNTSVILLE AVE	2000	1.1703102	15,634.88	20.00%	(3,126.83)	12,508.04
EMER SWR REPAIR - 1114 FOREST BROOK DR	2000	1.1703102	12,144.67	20.00%	(2,428.86)	9,715.81
EMER SWR REPAIR - 58 MAIN ST MT BROOK	2000	1.1703102	13,158.80	20.00%	(2,631.79)	10,527.01
EMER SWR REPAIR - 1373 ORLANDO CIR BHAM	2000	1.1703102	56,085.63	20.00%	(11,217.34)	44,868.29
EMER SWR REPAIR - 824 18TH AVE BESSEMER	2000	1.1703102	52,113.45	20.00%	(10,422.55)	41,690.90
EMER SWR REPAIR - 1905 CRSTWD BLVD IRNDL	2000	1.1703102	1,835.81	20.00%	(367.24)	1,468.56
EMER SWR REPAIR - 85 GSPRINGS HWY	2000	1.1703102	9,146.37	20.00%	(1,829.19)	7,317.18
EMER SWR REPAIR - 1253 24TH ST SW BHAM	2000	1.1703102	4,755.09	19.99%	(950.76)	3,804.33
EMER SWR REPAIR - 11 CT S & 21 ST BHAM	2000	1.1703102	2,019.04	20.00%	(403.76)	1,615.29
EMER SWR REPAIR - 1700 28TH AVE HUEYTOWN	2000	1.1703102	2,345.85	20.00%	(469.06)	1,876.79
EMER SWR REPAIR - 1650 28TH CT HOMEWOOD	2000	1.1703102	1,185.18	20.02%	(237.23)	947.95
EMER SWR REP-1420 BRANCH WATER CIRCLE	2000	1.1703102	6,695.33	20.00%	(1,339.07)	5,356.26
EMER SWR REP-FOREST DRIVE	2000	1.1703102	6,309.84	20.00%	(1,261.83)	5,048.02
EMER SWR REP-414 NORFOLK DRIVE	2000	1.1703102	12,185.15	20.00%	(2,437.29)	9,747.87
EMER SWR REP-1321 SAULER ROAD	2000	1.1703102	11,401.70	20.00%	(2,280.30)	9,121.40
EMER SWR REP-1512 VALLEY PLACE	2000	1.1703102	25,038.97	20.00%	(5,007.99)	20,030.98
EMER SWR REP-704 CREST DRIVE	2000	1.1703102	23,711.54	20.00%	(4,742.57)	18,968.97
EMER SWR REP-431 DEVON DRIVE	2000	1.1703102	7,966.04	20.00%	(1,593.26)	6,372.78
EMER SWR REP-2710 27TH CT SO	2000	1.1703102	14,073.98	20.00%	(2,815.06)	11,258.91
EMER SWR REP-410 MAPLE STREET	2000	1.1703102	7,993.23	20.00%	(1,598.88)	6,394.35
EMER SWR REP-GLENN MIDDLE SCHOOL	2000	1.1703102	20,650.91	20.00%	(4,130.26)	16,520.65
EMER SWR REP-419 EDGEWOOD BLVD	2000	1.1703102	6,354.42	20.00%	(1,270.96)	5,083.46
EMER SWR REP-COURTHOUSE SEWER REPAIR	2000	1.1703102	131,630.42	20.00%	(26,326.36)	105,304.06
EMER SWR REP-GRN SPRGS HWY & BROADWAY	2000	1.1703102	29,956.52	20.00%	(5,991.05)	23,965.47
EMER SWR REP-1607 OXMOOR ROAD	2000	1.1703102	39,621.74	20.00%	(7,924.17)	31,697.57
EMER SWR REP-COOPER GREEN PARK	2000	1.1703102	2,036.12	20.00%	(407.27)	1,628.85
EMER SWR REP-2 SPRING STREET	2000	1.1703102	14,251.93	20.00%	(2,850.17)	11,401.76
EMER SWR REP-3206 WHITEHALL DRIVE	2000	1.1703102	1,741.15	20.00%	(348.28)	1,392.87
EMER SWR REP-1512 GROVE PLACE	2000	1.1703102	6,754.82	20.00%	(1,351.01)	5,403.81
EMER SWR REP-1406 ROSELAND DRIVE	2000	1.1703102	4,791.91	20.00%	(958.48)	3,833.42
EMER SWR REP-405 CHERRY STREET	2000	1.1703102	11,014.75	20.00%	(2,202.76)	8,811.99
EMER SWR REP-HILLSDALE ROAD	2000	1.1703102	8,925.71	20.00%	(1,784.96)	7,140.75
EMER SWR REP-9031 HILLSDALE ROAD	2000	1.1703102	2,282.99	19.99%	(456.42)	1,826.57
EMER SWR REP-1931 MAYFAIR DRIVE	2000	1.1703102	8,799.47	20.00%	(1,759.68)	7,039.79
EMER SWR REP-714 OXMOOR CIRCLE	2000	1.1703102	1,268.18	19.99%	(253.49)	1,014.69
EMER SWR REP-328 LANTHROP ROAD	2000	1.1703102	6,425.21	20.00%	(1,285.00)	5,140.21
EMER SWR REP-315 E. GLENWOOD DRIVE	2000	1.1703102	7,903.56	20.00%	(1,580.62)	6,322.94
EMER SWR REP-317 E. GLENWOOD DRIVE	2000	1.1703102	15,777.76	20.00%	(3,155.62)	12,622.14
EMER SWR REP-322 E GLENWOOD DRIVE	2000	1.1703102	2,327.58	20.00%	(465.55)	1,862.03
EMER SWR REP-1308 PALMETTO DRIVE	2000	1.1703102	6,794.26	20.00%	(1,358.73)	5,435.53
EMER SWR REP-1820 25TH COURT SOUTH	2000	1.1703102	2,239.59	20.00%	(447.99)	1,791.59
EMER SWR REP-1747 KINGSINGTON DRIVE	2000	1.1703102	12,331.10	20.00%	(2,466.08)	9,865.02

EXISTING ASSETS

DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIAITION PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
EMER SWR REP-AVE A & 5TH ST HUEYTOWN	2000	1.1703102	5,709.90	20.00%	(1,141.75)	4,568.14
EMER SWR REP-1000 GREEN SPRINGS HWY	2000	1.1703102	4,252.66	20.00%	(850.35)	3,402.31
EMER SWR REP-TIN MILL RD & ALLISON BONNE	2000	1.1703102	5,689.67	20.00%	(1,138.10)	4,551.57
EMER SWR REP-1600 29TH COURT SOUTH	2000	1.1703102	45,595.98	20.00%	(9,119.29)	36,476.69
EMER SWR REP-1612 29TH COURT SOUTH	2000	1.1703102	44,990.07	20.00%	(8,997.81)	35,992.26
EMER SWR REP-314 LAUHUNE DRIVE	2000	1.1703102	17,905.35	20.00%	(3,581.15)	14,324.20
EMER SWR REP-1601 OXMOOR ROAD	2000	1.1703102	5,774.46	20.00%	(1,155.10)	4,619.37
EMER SWR REPAIR-201 EAST LINWOOD DRIVE	2000	1.1703102	6,651.47	20.00%	(1,330.30)	5,321.17
EMER SWR REPAIR-312 EAST LINWOOD DRIVE	2000	1.1703102	5,203.69	20.00%	(1,040.64)	4,163.05
EMER SWR REPAIR-645 HAMBOUGH TERR	2000	1.1703102	6,227.48	20.00%	(1,245.68)	4,981.80
EMER SWR REPAIR-1412 RAFORD AVENUE	2000	1.1703102	5,491.60	20.00%	(1,098.22)	4,393.38
EMER SWR REPAIR-1905 MONTGOMERY HWY	2000	1.1703102	71,902.75	20.00%	(14,380.77)	57,521.98
EMER SWR REPAIR-413 BERRY AVENUE	2000	1.1703102	7,950.94	20.00%	(1,590.45)	6,360.48
EMER SWER REPA-1600 29TH CT SOUTH	2000	1.1703102	54,711.59	20.00%	(10,942.17)	43,769.43
EMER SWR REP- 1600-29TH CT SO	2000	1.1703102	4,308.63	20.00%	(861.58)	3,447.04
EMER SWER REPR-318 GREENWOOD STREET	2000	1.1703102	12,638.92	0.00%	0.00	12,638.92
EMER SWER REPR-ACTON AVENUE	2000	1.1703102	5,790.03	0.00%	0.00	5,790.03
EMER SWR REP 3450 MANOR DRIVE	2000	1.1703102	16,762.88	20.00%	(3,352.53)	13,410.35
EMER SWER REPR-1607 PRIMROSE DRIVE	2000	1.1703102	4,518.84	0.00%	0.00	4,518.84
EMER SWER REPR-4585 LITTLE RIVER ROAD	2000	1.1703102	10,662.45	0.00%	0.00	10,662.45
EMER SWER REPR-1117 SIMS AVE - MT BROOK	2000	1.1703102	2,810.76	0.00%	0.00	2,810.76
EMER SWR REP-5209 BEACON DR IRONDALE	2000	1.1703102	4,534.82	0.00%	0.00	4,534.82
EMER SWR REP-513 60TH ST FAIRFIELD	2000	1.1703102	1,200.00	0.00%	0.00	1,200.00
EMER SWR REPAIR 237 ALLEN AVE	2000	1.1703102	1,965.01	19.68%	(386.67)	1,578.34
EMER SWR REP-101 ACTON RD	2000	1.1703102	60,955.30	19.67%	(11,988.11)	48,967.20
EMER SWR REP-21ST ST & 10TH AVE SO	2000	1.1703102	1,416.03	19.65%	(278.26)	1,137.76
EMER SWR REP-213 GREEN SPRINGS HWY	2000	1.1703102	5,104.92	19.67%	(1,003.96)	4,100.95
EMER SWR REP-4585 LITTA RIVER RD	2000	1.1703102	2,024.73	19.68%	(398.41)	1,626.32
EMER SWR. REP. 1715 12TH ST. SO.	2000	1.1703102	70,497.14	19.67%	(13,864.21)	56,632.93
EMER SWR REP-1114 FOREST BROOK DR H/WD	2000	1.1703102	51,635.42	19.67%	(10,154.93)	41,480.49
EMER SWR REP-4601 MONTEVALLO RD	2000	1.1703102	52,216.39	19.67%	(10,269.29)	41,947.10
EMER SWR REP-GREEN SPRINGS	2000	1.1703102	869,250.42	19.33%	(168,055.05)	701,195.37
EMER SWR REP-1316A-16TH ST SO BHAM	2000	1.1703102	27,095.09	19.33%	(5,238.14)	21,856.95
EMER SER REP-5028 JANET LANE	2000	1.1703102	17,158.16	19.33%	(3,317.20)	13,840.97
EMER SER REP-821 GREEN SPRINGS HWY	2000	1.1703102	57,030.96	19.33%	(11,026.10)	46,004.86
EMER SWR REPA-244 KENT AVENUE	2000	1.1703102	3,664.10	19.34%	(708.65)	2,955.45
EMER SWR REP-6136 INDUSTRIAL DR BHAM	2000	1.1703102	7,761.91	19.00%	(1,474.91)	6,287.00
EMER SWR REP-1812 FOREST BROOK CIR-BHAM	2000	1.1703102	13,337.14	19.00%	(2,534.22)	10,802.91
EMER SWR REP-616 - 16TH ST N-BHAM	2000	1.1703102	31,903.97	19.00%	(6,061.73)	25,842.24
EMER SWR REP-718 8TH AVENUE W - BHAM	2000	1.1703102	17,820.64	19.00%	(3,386.08)	14,434.56
EMER SWR REP-6TH STREET WEST BHAM	2000	1.1703102	4,255.90	19.00%	(808.50)	3,447.41
EMER SWR REP-334 ALA AVE SW BHAM	2000	1.1703102	1,348.84	18.99%	(256.16)	1,092.68
EMER SWR REPA-27TH PL S & HANOVER CIR BH	2000	1.1703102	3,759.84	19.00%	(714.44)	3,045.40
EMER SWR REP-236 & 245 KENT DRIVE	2000	1.1703102	3,307.00	19.00%	(628.39)	2,678.62
EMER SWR REP-244 HALL AVENUE	2000	1.1703102	2,216.98	18.99%	(421.09)	1,795.89
EMER SWR REP-1600 29TH CT SO	2000	1.1703102	21,871.97	19.00%	(4,155.89)	17,716.09
EMER SWR REP-12TH ST & FINLEY AVE BHAM	2000	1.1703102	12,395.62	19.00%	(2,355.40)	10,040.22
EMER SWR REP-3937 FOREST DR HOMEWOOD	2000	1.1703102	17,410.56	19.00%	(3,308.03)	14,102.53
EMER SWR REP-SAMFORD UNIV SANITARY	2000	1.1703102	1,028,485.82	19.00%	(195,412.15)	833,073.66
EMER SWR REP-705 MILGRAY LANE BESSEMER	2001	1.1478007	5,120.97	18.66%	(955.80)	4,165.17
EMER SWR REP-27TH AV & CIRCLE DR H/TOWN	2001	1.1478007	6,109.71	18.66%	(1,140.27)	4,969.44
EMER SWR REP-100 CARLTON RD BHAM	2001	1.1478007	6,111.21	18.34%	(1,120.54)	4,990.67
EMER SWR REP-VINESVILLE RD & TERR J BHAM	2001	1.1478007	4,143.29	18.33%	(759.44)	3,383.84
EMER SWR REPAIR GWIN AVENUE	2001	1.1478007	14,218.53	17.67%	(2,511.81)	11,706.72
EMER SWR REPAIR JEFFERSON AVE	2001	1.1478007	62,358.41	17.67%	(11,016.75)	51,341.65
EMER SWR REPAIR 1ST AVE WEST	2001	1.1478007	24,850.56	17.67%	(4,390.35)	20,460.21
EMER SWR REPAIR 1911 5TH BHAM	2001	1.1478007	16,208.32	17.67%	(2,863.43)	13,344.89
EMER SWR REPAIR JEFFERSON AVE	2001	1.1478007	21,475.40	17.67%	(3,794.18)	17,681.22
EMER SWR REPAIR JEFFERSON AVE	2001	1.1478007	13,381.73	17.67%	(2,363.99)	11,017.74
EMER SWR REPAIR JEFFERSON AVE	2001	1.1478007	35,923.64	17.67%	(6,346.75)	29,576.88
EMER SWR REPAIR JEFFERSON AVE	2001	1.1478007	28,786.35	17.67%	(5,085.68)	23,700.67
EMER SWR REPAIR JEFFERSON AVE	2001	1.1478007	66,487.48	17.67%	(11,746.33)	54,741.15
EMER SWR REPAIR 1226 25TH STREET N BHAM	2001	1.1478007	14,627.66	17.00%	(2,486.69)	12,140.98
EMER SWR REPAIR 733 29TH ST SW BHAM	2001	1.1478007	22,272.46	17.00%	(3,786.23)	18,486.24
EMER SWR REPAIR-MORRIS YARD & 21ST	2001	1.1478007	267,890.38	16.67%	(44,648.30)	223,242.08
EMER SWR REPAIR NORRIS YARD & 21ST ST	2001	1.1478007	129,831.52	16.33%	(21,205.62)	108,625.90
EMER SWR REPAIR NORRIS YARD 21ST	2001	1.1478007	220,808.16	17.00%	(37,537.39)	183,270.78
EMER SWR REPAIR MELROSE PLACE	2001	1.1478007	73,438.70	17.00%	(12,484.36)	60,954.34
EMER SWR REPAIR-501 SWANN DR MIDFIELD	2001	1.1478007	12,048.42	16.33%	(1,967.92)	10,080.50
EMER SWR REPAIR-612 LEWIS AVENUE	2001	1.1478007	24,698.17	16.33%	(4,034.26)	20,663.91
EMER SWR REPAIR-5301 TERRACE O-BHAM	2001	1.1478007	52,838.70	16.33%	(8,630.37)	44,208.33
EMER SWR REPAIR-1442 WOODWARD RD	2001	1.1478007	15,738.63	16.33%	(2,570.83)	13,167.80
EMER SWR REPAIR-40 PHILLIPS DR	2001	1.1478007	20,261.59	16.33%	(3,309.29)	16,952.29
EMER SWR REPAIR-3829 SOUTH COVE DR	2001	1.1478007	11,964.65	16.33%	(1,954.42)	10,010.23
EMER SWR REPAIR-2045 BROOKWOOD MED	2001	1.1478007	31,777.78	16.33%	(5,190.60)	26,587.19
EMER SWR REPAIR 737 BEACON DR	2001	1.1478007	47,646.03	16.33%	(7,782.24)	39,863.80
EMER SWR REPAIR-965 WESTFIELD DR	2001	1.1478007	31,365.55	16.33%	(5,123.11)	26,242.44
EMER SWR REPAIR 5300 QUINCBY CT	2001	1.1478007	55,596.45	16.33%	(9,080.87)	46,515.58
EMER SWR REPAIR-708 BESSEMER HIGHWAY	2001	1.1478007	56,781.62	16.33%	(9,274.34)	47,507.28

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EXISTING ASSETS

DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIAITION PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
EMER SWR REPAIR-921 4TH CT WEST	2001	1.1478007	56,290.71	16.33%	(9,193.92)	47,096.79
EMER SWR REPAIR-5301 AVENUE R	2001	1.1478007	41,330.22	16.33%	(6,750.76)	34,579.46
EMER SWR REPAIR-5517 SUGAR RAY DR	2001	1.1478007	25,435.85	16.33%	(4,154.61)	21,281.24
EMER SWR REPAIR 1550 MONTGOMERY	2001	1.1478007	57,291.06	16.33%	(9,357.58)	47,933.48
EMER SWR REPAIR-249 MCMILLIAN AVENUE	2001	1.1478007	13,352.56	16.67%	(2,225.59)	11,126.98
EMER SWR REPAIR-1800 50TH ST NORTH	2001	1.1478007	13,139.51	16.67%	(2,190.00)	10,949.50
EMER SWR REPAIR	2001	1.1478007	65,424.64	16.00%	(10,467.94)	54,956.70
EMER SWR REPAIR 19TH STREET ALLEY SW	2001	1.1478007	32,564.40	100.00%	(32,564.40)	0.00
EMER SWR REPAIR 19TH ST ALLEY SW	2001	1.1478007	69,522.37	16.00%	(11,123.57)	58,398.80
EMER SWR REPAIR-219 RICHMAR DR	2001	1.1478007	14,674.40	16.00%	(2,348.12)	12,326.28
EMER SWR REPAIR-CANTEBERRY UMC-MT	2001	1.1478007	11,788.60	16.00%	(1,886.27)	9,902.33
EMER SWR REPAIR-3529 MOUNTAIN PARK DR	2001	1.1478007	13,053.91	16.00%	(2,088.63)	10,965.28
EMER SWR REPAIR-3114 OVERBROOK RD	2001	1.1478007	13,366.31	16.00%	(2,138.77)	11,227.55
EMER SWR REPAIR-1884 WINDSOR BLVD	2001	1.1478007	14,412.61	16.00%	(2,306.23)	12,106.38
EMER SWR REPAIR-SHADES CREEK TRUNK	2001	1.1478007	14,825.60	16.00%	(2,372.13)	12,453.48
EMER SWR REPAIR-1934 BESSEMER RD BHAM	2001	1.1478007	15,147.26	16.00%	(2,423.60)	12,723.66
EMER SWR REPAIR-3351 OLD MONTGOMERY	2001	1.1478007	19,357.46	16.00%	(3,097.41)	16,260.05
EMER SWR REPAIR-3715 OLD LEEDS RD	2001	1.1478007	21,046.05	16.00%	(3,367.37)	17,678.68
EMER SWR REPAIR-3913 RICHARD SCHRUSY	2001	1.1478007	55,215.31	16.00%	(8,834.39)	46,380.92
EMER SWR REPAIR-106 LINDBURG RD	2001	1.1478007	55,576.51	16.00%	(8,892.24)	46,684.27
EMER SWR REPAIR-5500 AVENUE O CENTRAL	2001	1.1478007	18,299.43	16.00%	(2,927.72)	15,371.71
EMER SWR REPAIR-1ST & 2ND ALLEY-13TH & 1	2001	1.1478007	53,500.28	16.00%	(8,560.02)	44,940.26
EMER SWR REPAIR-BROOKWOOD MALL	2001	1.1478007	14,288.04	16.00%	(2,285.87)	12,002.17
EMER SWR REPAIR-1521 19TH ST SW BHAM	2001	1.1478007	13,238.18	16.00%	(2,118.13)	11,120.05
EMER SWR REPAIR 18TH AVE SOUTH BHAM	2001	1.1478007	17,298.63	16.00%	(2,767.94)	14,530.69
EMER SWR REPAIR 1200 2ND AVE N BESSEMER	2001	1.1478007	56,931.94	15.67%	(8,919.54)	48,012.40
EMER SWR REPAIR 28TH AVE W BHAM	2001	1.1478007	17,472.81	15.67%	(2,737.25)	14,735.56
#29 VALLEY CREEK COLL SYSTEM	2003	1.0876158	54,311.88	9.67%	(5,250.29)	49,061.59
#30 VALLEY CREEK COLL SYSTEM	2003	1.0876158	54,134.27	9.67%	(5,232.94)	48,901.33
UPPER SHADES CREEK #2	2003	1.0876158	1,359.52	9.01%	(122.45)	1,237.07
UPPER SHADES CREEK #3	2003	1.0876158	1,359.52	9.01%	(122.45)	1,237.07
#31 VALLEY CREEK COLL SYSTEM	2003	1.0876158	54,160.59	9.67%	(5,235.47)	48,925.12
#32 VALLEY CREEK COLL SYSTEM	2003	1.0876158	54,335.47	9.67%	(5,252.50)	49,082.97
#33 VALLEY CREEK COLL SYSTEM	2003	1.0876158	54,378.82	9.67%	(5,256.60)	49,122.22
#1B VALLEY CREEK COLLECTION SYSTEM	2003	1.0876158	52,270.81	9.00%	(4,704.37)	47,566.44
VALLEY CREEK #1B	2003	1.0876158	1,359.52	9.01%	(122.45)	1,237.07
VALLEY CREEK MANHOLE #34	2003	1.0876158	1,359.52	9.67%	(131.53)	1,227.99
UPPER SHADES CREEK #5	2003	1.0876158	1,359.52	9.01%	(122.45)	1,237.07
#35 VALLEY CREEK COLL SYSTEM	2003	1.0876158	54,095.88	9.67%	(5,229.16)	48,866.72
2B VALLEY CREEK COLLECTION SYSTEM	2003	1.0876158	52,800.48	9.00%	(4,751.95)	48,048.54
VALLEY CREEK #2B	2003	1.0876158	1,359.52	9.01%	(122.45)	1,237.07
EMER SWR REPAIR 200 EDGEVIEW AVE	2001	1.1478007	19,053.94	15.67%	(2,985.02)	16,068.92
EMER SWR REPAIR 301 ENGLISH CIRCLE	2001	1.1478007	17,211.10	15.67%	(2,696.25)	14,514.85
EMER SWR REPAIR OAK COURT	2001	1.1478007	12,160.70	15.67%	(1,905.40)	10,255.30
EMER SWR REPAIR 323 EAST GLENWOOD DR	2001	1.1478007	20,478.44	15.67%	(3,208.21)	17,270.23
EMER SWR REPAIR 249 MCMILLAN	2001	1.1478007	21,268.56	15.67%	(3,332.28)	17,936.28
EMER SWR REPAIR 1842 WINDSOR BVLD	2001	1.1478007	13,693.96	15.67%	(2,145.46)	11,548.51
EMER SWR REPAIR 3319 OLD MONTOGOMERY	2001	1.1478007	18,709.36	15.67%	(2,930.92)	15,778.44
EMER SWR REPAIR 648 ROEBUCK PARKWAY	2001	1.1478007	25,965.55	15.67%	(4,068.12)	21,897.43
EMER SWR REPAIR 1120 SIMS AVE	2001-	1.1478007	19,496.24	15.67%	(3,054.46)	16,441.79
EMER SWR REPAIR 7716 AVE SOUTH	2001	1.1478007	16,800.77	15.67%	(2,632.06)	14,168.72
EMER SWR REPAIR 7741 5TH AVE SOUTH	2001	1.1478007	33,110.14	15.67%	(5,187.35)	27,922.79
EMER SWR REPAIR 4TH AVE SOUTH	2001	1.1478007	37,409.67	15.67%	(5,860.76)	31,548.91
EMER SWR REPAIR 1905 ALABAMA AVE	2001	1.1478007	34,450.86	15.67%	(5,397.36)	29,053.50
EMER SWR REPAIR KELIWORTH DR	2001	1.1478007	12,408.35	15.67%	(1,944.02)	10,464.33
EMER SWR REPAIR 1426 OVERLOOK RD	2001	1.1478007	13,709.31	15.67%	(2,147.62)	11,561.69
EMER SWR REPAIR 25TH COURT & 17TH ST	2001	1.1478007	39,661.20	15.33%	(6,081.37)	33,579.83
EMR SWR REPAIR UPDATE	2001	1.1478007	57,300.71	15.67%	(8,977.26)	48,323.46
EMR SWR REPAIR UPDATE	2001	1.1478007	57,379.43	15.67%	(8,989.67)	48,389.76
EMR SWR REPAIR UPDATE	2001	1.1478007	56,929.03	15.67%	(8,919.00)	48,010.04
EMER SWR REPAIR 3203 ARLINGTON AVE	2001	1.1478007	13,040.55	15.67%	(2,042.96)	10,997.60
EMR SWR REPAIR UPDATE	2001	1.1478007	57,223.26	15.67%	(8,964.85)	48,258.41
EMR SWR REPAIR 837 AVE N BHAM	2001	1.1478007	19,638.87	15.33%	(3,011.12)	16,627.75
EMR SWR REPAIR REDFERN STREET	2002	1.1135668	14,682.13	14.67%	(2,153.42)	12,528.72
EMR SWR REPAIR 2303 9TH AVENUE BESSEMER	2002	1.1135668	19,015.65	14.67%	(2,788.91)	16,226.74
EMR SWR REPAIR 25 HOADLEY STREET	2002	1.1135668	13,825.49	14.67%	(2,027.74)	11,797.75
EMER SWR REPAIR 1923 8TH AVENUE NORTH	2002	1.1135668	55,226.41	14.67%	(8,099.68)	47,126.73
EMR SWR REPAIR-KENILWORTH DRIVE SEWER	2002	1.1135668	67,906.55	14.00%	(9,506.90)	58,399.65
EMR SWR REPAIR KENILWORTH DR SEWER	2001	1.1478007	52,162.96	17.33%	(9,041.78)	43,121.19
EMR SWR REPAIR WALLACE DR & MAPLES DR	2002	1.1135668	14,808.82	14.67%	(2,172.03)	12,636.79
EMR SWR REPAIR 2008 TIMBER COVE	2002	1.1135668	31,086.16	14.67%	(4,559.17)	26,527.00
EMR SWR REPAIR-FOREST GLEN MOUNTAIN	2002	1.1135668	12,286.70	14.00%	(1,720.19)	10,566.50
EMR SWR REPAIR 400 19TH ST N	2002	1.1135668	55,526.99	14.67%	(8,143.78)	47,383.20
EMR SWR REPAIR-BERKLEY & 24TH BESSEMER	2002	1.1135668	27,868.88	14.00%	(3,901.54)	23,967.34
EMR SWR REPAIR-703 ROSE AVE BHAM	2002	1.1135668	54,104.74	14.00%	(7,574.84)	46,529.90
WMR SWR REPAIR-700 ALABAMA AVE BHAM	2002	1.1135668	29,488.73	14.00%	(4,128.37)	25,360.36
EMR SWR REPAIR-712 18TH ST N BESSEMER	2002	1.1135668	55,570.77	14.00%	(7,779.81)	47,790.96
EMR SWR REPAIR-814 9TH ST N BESSEMER	2002	1.1135668	55,484.35	14.00%	(7,768.00)	47,716.35
EMR SWR REPAIR-2106 9TH AVE N BESSEMER	2002	1.1135668	54,662.51	14.00%	(7,652.94)	47,009.57

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DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIATIO N PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
EMR SWR REPAIR-716 17TH ST N BESSEMER	2002	1.1135668	54,429.05	14.00%	(7,620.20)	46,808.85
EMR SWR REPAIR-400 FOREST GLEN DR MT BRC	2002	1.1135668	21,992.42	14.00%	(3,078.86)	18,913.57
EMR SWR REPAIR-231 3RD ST N BESSEMER	2002	1.1135668	54,414.71	14.00%	(7,617.87)	46,796.84
EMR SWR REPAIR 2016 CENTERWAY SOUTH BIR	2002	1.1135668	43,156.91	13.67%	(5,898.17)	37,258.73
EMR SWR REPAIR 1917 EXETER AVE BESSEMER	2002	1.1135668	47,192.33	13.67%	(6,449.56)	40,742.77
EMR SWR REPAIR 1901 FAIRFAX AVE	2002	1.1135668	36,302.84	13.67%	(4,961.46)	31,341.37
EMR SWR REPAIR 1240 PRINCETON AVE BIR	2002	1.1135668	42,703.91	13.67%	(5,836.24)	36,867.67
EMR SWR REPAIR 2500 FAIRFAX AVE BESSEMR	2002	1.1135668	45,252.85	13.67%	(6,184.59)	39,068.26
EMR SWR REPAIR 526 25TH STREET N BESSEME	2002	1.1135668	52,973.90	13.67%	(7,239.71)	45,734.19
EMR SWR REPAIR 334 BIRWOOD AVE MIDFIELD	2002	1.1135668	49,424.29	13.67%	(6,754.84)	42,669.45
EMR SWR REPAIR 3129 CAROLINA AVE	2002	1.1135668	22,175.15	13.67%	(3,030.66)	19,144.49
EMR SWR REPAIR 204 ELMORE ST BESSEMER	2002	1.1135668	24,396.57	13.67%	(3,334.28)	21,062.29
EMR SWR REPAIR 2320 8TH AVE N BESSEMER	2002	1.1135668	53,929.40	13.67%	(7,370.29)	46,559.11
EMR SWR REPAIR 810 24TH ST N BESSEMER	2002	1.1135668	55,543.79	13.67%	(7,590.81)	47,952.98
EMR SWR REPAIR 2102 9TH AVE N BESSEMER	2002	1.1135668	55,517.50	13.67%	(7,587.45)	47,930.04
EMR SWR REPAIR 111 2ND AVE N BIR	2002	1.1135668	49,582.32	13.67%	(6,776.30)	42,806.02
EMR SWR REPAIR 1209 DANIEL DR MIDFIELD	2002	1.1135668	52,372.27	13.67%	(7,157.53)	45,214.74
EMR SWR REPAIR ROCKLEDGE LANE	2002	1.1135668	37,836.18	13.67%	(5,171.03)	32,665.16
EMR SWR REPAIR 32 SHADES ST BESSEMER	2002	1.1135668	53,801.04	13.67%	(7,352.94)	46,448.10
EMR SWR REPAIR 33 ALABAMA ST BESSEMER	2002	1.1135668	52,482.47	13.67%	(7,172.60)	45,309.88
EMR SWR REPAIR 1872 COLLIER DR MIDFEILD	2002	1.1135668	31,763.08	13.67%	(4,341.00)	27,422.08
EMR SWR REPAIR 512 PINE PLACE FAIRFEILD	2002	1.1135668	49,640.29	13.67%	(6,784.06)	42,856.23
EMR SWR REPAIR 524 OAK PLACE FAIRFIELD	2002	1.1135668	44,511.85	13.67%	(6,083.24)	38,428.61
EMR SWR REPAIR 1426 3RD AVE N BESSEMER	2002	1.1135668	25,020.23	13.67%	(3,419.49)	21,600.75
EMR SWR REPAIR 233 JEFFERSON AVE	2002	1.1135668	12,207.75	13.67%	(1,668.28)	10,539.48
EMR SWR REPAIR 1316 1ST COURT W BIR	2002	1.1135668	46,950.61	13.67%	(6,416.53)	40,534.08
EMR SWR REPAIR 2366 9TH AVE N BESSEMER	2002	1.1135668	51,231.70	13.67%	(7,001.84)	44,229.86
EMR SWR REPAIR 21 MONTCREST DR MT	2002	1.1135668	55,433.44	13.67%	(7,575.74)	47,857.70
EMR SWR REPAIR 1300 CHALET DR BIR	2002	1.1135668	51,978.19	13.67%	(7,103.65)	44,874.54
EMR SWR REPAIR 35 WEST MONTCREST DR MT	2002	1.1135668	53,768.57	13.67%	(7,348.37)	46,420.20
EMR SWR REPAIR 2633 6TH ST CENTER POINT	2002	1.1135668	12,598.90	13.67%	(1,721.70)	10,877.20
EMR SWR REPAIR 126 13TH ST W BHAM	2002	1.1135668	50,526.63	13.33%	(6,737.06)	43,789.57
EMR SWR REPAIR-108 TUSCALOOSA AVE	2002	1.1135668	14,083.80	12.67%	(1,784.02)	12,299.78
EMR SWR REPAIR-210 BLACK AVE	2002	1.1135668	55,369.47	12.67%	(7,013.38)	48,356.09
EMR SWR REPAIR-1301 2ND AVE WEST	2002	1.1135668	44,106.72	12.67%	(5,586.92)	38,519.80
EMR SWR REPAIR-1318 HUEYTOWN DR	2002	1.1135668	50,652.26	12.67%	(6,415.88)	44,236.38
EMR SWR REPAIR-213 GREEN SPRING AVE	2002	1.1135668	13,816.91	12.33%	(1,704.11)	12,112.80
#36 VALLEY CREEK COLL SYSTEM	2003	1.0876158	54,035.62	9.67%	(5,223.48)	48,812.14
UPPER SHADES CREEK	2003	1.0876158	1,359.52	9.01%	(122.45)	1,237.07
UPPER SHADES CREEK #6	2003	1.0876158	1,359.52	9.01%	(122.45)	1,237.07
#1 LOWER VALLEY CREEK COLL SYSTEM	2003	1.0876158	53,206.16	9.67%	(5,143.37)	48,062.80
3B VALLEY CREEK COLLECTION SYSTEM	2003	1.0876158	52,488.34	9.00%	(4,724.05)	47,764.29
VALLEY CREEK #3B	2003	1.0876158	1,359.52	9.01%	(122.45)	1,237.07
UPPER SHADES CREEK #7	2003	1.0876158	1,359.52	9.01%	(122.45)	1,237.07
VALLEY CREEK MANHOLE #2	2003	1.0876158	1,359.52	9.67%	(131.53)	1,227.99
4B VALLEY CREEK COLLECTION SYSTEM	2003	1.0876158	51,270.21	9.00%	(4,614.22)	46,655.99
VALLEY CREEK #4B	2003	1.0876158	1,359.52	9.01%	(122.45)	1,237.07
LOWER VALLEY CREEK MANHOLE #3	2003	1.0876158	1,359.52	9.67%	(131.53)	1,227.99
UPPER SHADES CREEK #8	2003	1.0876158	1,359.52	9.01%	(122.45)	1,237.07
LOWER VALLEY CREEK MANHOLE #4	2003	1.0876158	1,359.52	9.67%	(131.53)	1,227.99
5B VALLEY CREEK COLLECTION	2003	1.0876158	51,506.76	9.00%	(4,635.66)	46,871.11
VALLEY CREEK #5B	2003	1.0876158	1,359.52	9.01%	(122.45)	1,237.07
VALLEY CREEK COLL SYSTEM MANHOLE	2003	1.0876158	1,359.52	9.34%	(126.99)	1,232.53
#5 LOWER VALLEY CREEK	2003	1.0876158	54,246.01	9.67%	(5,243.67)	49,002.34
#6 LOWER VALLEY CREEK COLL SYSTEM	2003	1.0876158	53,727.02	9.67%	(5,193.52)	48,533.51
6-B VALLEY CREEK COLLECTION SYSTEM	2003	1.0876158	52,406.77	9.00%	(4,716.71)	47,690.06
VALLEY CREEK #6B	2003	1.0876158	1,359.52	9.01%	(122.45)	1,237.07
#7 LOWER VALLEY CREEK COLL SYSTEM	2003	1.0876158	54,028.68	9.67%	(5,222.85)	48,805.83
VALLEY CREEK MANHOLE-CONTRACT 8	2003	1.0876158	53,226.13	9.67%	(5,145.26)	48,080.87
VALLEY CREEK #7B	2003	1.0876158	53,567.80	9.00%	(4,821.11)	48,746.69
VALLEY CREEK COLLECTION-5C	2003	1.0876158	46,722.01	9.33%	(4,360.60)	42,361.41
VALLEY CREEK COLL SYSTEM-5C	2003	1.0876158	53,693.11	9.33%	(5,011.39)	48,681.73
VALLEY CREEK MANHOLE #10	2003	1.0876158	30,712.26	9.67%	(2,968.94)	27,743.32
SHADES CREEK COLL SYSTEM CONSTRUCTION	2004	1.0232607	56,623.16	5.67%	(3,208.59)	53,414.57
SHADES CREEK CONTRACT 2	2004	1.0232607	77,085.30	4.00%	(3,083.41)	74,001.89
FAIRFIELD TRUNK CONSTRUCTION REVIEW	1998	1.2298142	197,604.24	30.33%	(59,939.64)	137,664.60
VALLEY CREEK SSES	1998	1.2298142	932,199.16	27.00%	(251,694.10)	680,505.05
VALLEY CREEK PH I SEWER SYSTEM	2003	1.0876158	2,058,496.51	8.33%	(171,541.48)	1,886,955.03
GEOTECHNICAL TESTING/HOPEWELL PUMP	2003	1.0876158	18,478.54	8.00%	(1,478.20)	17,000.34
MAGNOLIA & PRINCE STREET TRUNK SEWER	2004	1.0232607	11,211.25	6.00%	(672.65)	10,538.60
JOHS RD TRUNK SEWER (BESSEMER)	2003	1.0876158	79,586.56	10.00%	(7,958.74)	71,627.82
PHASE 2 GEOTECHNICAL SERVICES	2002	1.1135668	5,252.56	12.00%	(630.19)	4,622.37
VALLEY CREEK BRICK SWR REPLACEMENT	2000	1.1703102	231,209.12	21.67%	(50,095.25)	181,113.88
RICE CREEK DESIGN ENGINEERING	1999	1.2016009	74,651.26	26.33%	(19,658.32)	54,992.94
HOPEWELL SSS DESIGN	2004	1.0232607	308,580.64	5.67%	(17,486.24)	291,094.40
LINDSEY LOOP ROAD SEWER EXTENSION	2003	1.0876158	47,093.76	8.00%	(3,767.41)	43,326.35
OXMOOR VALLEY TRK SWR	2000	1.1703102	354,150.69	21.67%	(76,732.74)	277,417.96
OXMOOR VALLEY TRNK SWR DESIGN	2000	1.1703102	57,956.69	21.67%	(12,557.29)	45,399.40
OXMOOR TRUNK SEWER EXTENSION	2003	1.0876158	65,894.69	9.33%	(6,150.04)	59,744.65

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SAND RIDGE TRUNK SEWER	2004	1.0232607	35,886.42	6.00%	(2,153.15)	33,733.27
MCCALLA AREA SANITARY SEWER	2003	1.0876158	1,615,597.55	9.33%	(150,789.23)	1,464,808.32
MCCALLA AREA SANITARY SEWER	2003	1.0876158	1,962,014.27	9.33%	(183,121.43)	1,778,892.83
OPOSSUM CREEK TRUNK SEWER DESIGN	1997	1.2496567	406,162.50	31.67%	(128,618.42)	277,544.08
VALLEY CREEK TRUNK RELIEF	1998	1.2298142	483,603.79	29.67%	(143,469.41)	340,134.38
VISION LAND PARKWAY	2000	1.1703102	102,619.87	21.00%	(21,550.41)	81,069.46
ACADEMY DR & POWDER PLANT ROAD	2000	1.1703102	165,806.10	19.33%	(32,056.06)	133,750.04
BESSEMER REPLACEMENT SEWERS	2003	1.0876158	314,770.66	8.67%	(27,280.08)	287,490.58
33RD & BERKLEY	2002	1.1135668	60,884.27	13.33%	(8,117.90)	52,766.36
VALLEY CRK SSCS REHAB	2002	1.1135668	2,705,962.93	14.00%	(378,834.97)	2,327,127.96
LOMB AVE. & BORDER ST. SANITARY SEWER	2003	1.0876158	37,225.61	8.00%	(2,978.07)	34,247.54
#8 TV INSPECTION	2002	1.1135668	49,300.00	12.00%	(5,915.85)	43,384.15
LOWER VALLEY SS COLLECTION	2002	1.1135668	48,337.14	12.00%	(5,800.39)	42,536.75
#9 TV INSPECTION/LOWER VALLEY CREEK	2003	1.0876158	233,772.06	8.00%	(18,701.86)	215,070.20
UPPER VALLEY SANITARY SEWER	2004	1.0232607	110,722.35	6.00%	(6,643.25)	104,079.09
UPPER VALLEY CREEK DESIGN	2003	1.0876158	157,538.72	10.00%	(15,754.01)	141,784.71
#10,11, AND 12 LOWER	2002	1.1135668	136,408.82	12.00%	(16,368.90)	120,039.92
#3 VALLEY CREEK	2002	1.1135668	3,062,308.67	12.33%	(377,684.89)	2,684,623.77
VALLEY CREEK COLL SYS	2001	1.1478007	2,582,551.54	15.33%	(395,991.25)	2,186,560.29
UPPER VALLEY CREEK SANITARY SEWER	2003	1.0876158	132,907.43	8.00%	(10,632.71)	122,274.72
WASHINGTON ELEMENTARY SCHOOL SEWERS	2003	1.0876158	17,573.15	8.00%	(1,405.90)	16,167.26
#2 VALLEY CREEK COLL SYS	2002	1.1135668	2,505,525.39	14.00%	(350,773.55)	2,154,751.84
# SHADES CREEK COLLECTION SYSTEM	2002	1.1135668	3,062,308.69	13.33%	(408,307.99)	2,654,000.70
MIDWAY STREET SANITARY SEWER	2003	1.0876158	3,784.00	8.00%	(302.79)	3,481.21
CANTEBURY LANE SANITARY SWR	2004	1.0232607	20,010.52	5.67%	(1,134.01)	18,876.51
HARLEM AVE DESIGN	2002	1.1135668	81,179.02	13.67%	(11,094.47)	70,084.56
OXMOUR TRUNK SWR	2001	1.1478007	20,660.41	18.67%	(3,856.61)	16,803.80
ENGINEERING DESIGN SERVICES	2003	1.0876158	160,967.13	8.00%	(12,877.28)	148,089.85
12TH AVENUE SEWER EXT	2002	1.1135668	32,901.56	13.67%	(4,496.68)	28,404.87
ENGINEERING REPORT MCCALLA SS SYSTEM	1997	1.2496567	59,195.35	31.67%	(18,745.48)	40,449.88
VISONLAND INTERCHANGE	1999	1.2016009	24,032.02	24.00%	(5,767.97)	18,264.05
EMR SWR REPAIR-BE BETTERMENT ON	2002	1.1135668	2,766.80	14.33%	(396.47)	2,370.33
EMR SWR REPAIR-BETTERMEMT ON PROJECTS	2002	1.1135668	2,551.29	14.34%	(365.83)	2,185.46
POWER PLANT RD SERVICE AREA STDY	2001	1.1478007	56,476.63	18.00%	(10,165.54)	46,311.08
GRIFFIN BRANCH	2003	1.0876158	58,249.74	8.00%	(4,659.87)	53,589.87
GRIFFIN BRANCH INTERCEPTOR IMF	2004	1.0232607	6,626.29	6.67%	(441.84)	6,184.44
SHADES GAS TO ENERGY FACILITY	2003	1.0876158	414,807.48	7.67%	(31,801.97)	383,005.50
OLD GRANTS MILL ROAD	2002	1.1135668	18,061.24	13.67%	(2,468.18)	15,593.06
BLACK CREEK SEWER SYSTEM MANHOLE	1998	1.2298142	4,181.37	27.33%	(1,142.57)	3,038.80
WEST END TRENCHLESS SEWER LINE	1999	1.2016009	259,100.01	24.00%	(62,183.71)	196,916.29
EVALUCTION-PIPELINE RECONSTR VALLEY	2000	1.1703102	45,642.10	21.67%	(9,889.12)	35,752.98
CIPP PRODUCT LINE RECONSTRUCTION	2000	1.1703102	36,504.32	20.33%	(7,422.31)	29,082.01
NATIONAL LINER PIPE-CONTRACT	2001	1.1478007	77,367.51	18.67%	(14,441.72)	62,925.79
SSES UPPER VALLEY #2	1998	1.2298142	914,981.20	27.00%	(247,045.07)	667,936.13
VALLEY CREEK TRUNK SEWER	2003	1.0876158	557,229.76	10.00%	(55,722.91)	501,506.86
HUEYTOWN TRUNK SWR REPLACEMENT	2004	1.0232607	460,467.32	5.00%	(23,023.37)	437,443.96
RICE CREEK SSCS REHAB	2001	1.1478007	253,313.88	16.67%	(42,218.98)	211,094.90
#1 W END VLY CRK SSCS RE	2001	1.1478007	192,820.49	16.00%	(30,851.23)	161,969.26
VALLEY CREEK SANITARY SEWER SYSTEM	2003	1.0876158	159,785.85	8.00%	(12,782.79)	147,003.06
LWR VLY CRK SAN SWR COL	2001	1.1478007	186,894.58	16.00%	(29,903.06)	156,991.52
UPPER VALLEY CREEK	2001	1.1478007	168,721.52	16.00%	(26,995.42)	141,726.09
LOWER VALLEY CRK #2	2001	1.1478007	78,047.97	16.00%	(12,487.70)	65,560.27
LOWER VALLEY CREEK SSCS #3	2001	1.1478007	204,882.31	16.00%	(32,781.19)	172,101.13
#5 LOWER VALLEY CREEK SANITARY SEWER	2004	1.0232607	228,715.92	5.67%	(12,960.64)	215,755.28
#5 UPPER VALLEY CREEK SANITARY SEWER	2004	1.0232607	243,559.48	5.67%	(13,801.71)	229,757.77
#6 UPPER VALLEY CREEK SANITARY SEWER	2004	1.0232607	385,272.85	6.00%	(23,116.38)	362,156.46
#7 UPPER VALLEY CREEK	2004	1.0232607	492,474.33	5.67%	(27,906.82)	464,567.52
UPPER VALLEY CREEK	2003	1.0876158	327,896.56	10.33%	(33,882.65)	294,013.91
VALLEY CREEK SANITARY SEWER	2004	1.0232607	630,452.22	6.00%	(37,827.21)	592,625.02
PH II VALLEY CREEK SSCS	2002	1.1135668	533,732.59	14.00%	(74,722.72)	459,009.87
#33 LOWER VALLEY CREEK SANITARY SEWER	2004	1.0232607	349,781.41	5.67%	(19,820.88)	329,960.53
#9 UPPER VALLEY CREEK SANITARY SEWER	2004	1.0232607	261,434.90	6.67%	(17,429.00)	244,005.90
VALLEY CREEK SWR COLL	2004	1.0232607	2,446,365.15	4.00%	(97,854.59)	2,348,510.57
#22 LOWER VALLEY CREEK SANITARY SEWER	2003	1.0876158	325,000.61	9.33%	(30,333.26)	294,667.35
#19 & 20 LOWER VALLEY CREEK SANITARY	2003	1.0876158	32,811.74	7.33%	(2,406.15)	30,405.58
IDA LANE TO PIPLINE RD SANITARY SWR	2004	1.0232607	71,524.10	3.67%	(2,622.50)	68,901.60
#22 LOWER VALLEY CREEK SANITARY SEWER	2004	1.0232607	71,522.72	6.33%	(4,529.78)	66,992.94
#28 & 29 LOWER VALLEY CREEK SSCS	2004	1.0232607	33,243.14	4.33%	(1,440.52)	31,802.63
30&31 LOWER VALLY CRK	2005	1	65,497.65	2.33%	(1,528.31)	63,969.34
VALLEY CREEK WWTP PHASE I	1998	1.2298142	430,134.14	28.67%	(123,304.98)	306,829.16
SHADES CREEK COLL SYSTEM #10	2005	1	167,479.13	2.33%	(3,907.82)	163,571.31
VILLAGE CREEK SEWAGE TREATMENT	1987	1.6524058	1,303,087.22	100.00%	(1,303,087.22)	0.00
CORBET BRANCH TRUNK SEWERS	1991	1.5057911	666,046.21	93.89%	(625,343.32)	40,702.89
2ND CREEK EXT MERRYWOOD EST TRUNK	1993	1.3974088	202,453.42	84.44%	(170,960.71)	31,492.70
FORESTVIEW ESTATES ASSESSMENT SANITARY	1990	1.5385672	587,660.51	98.89%	(581,130.94)	6,529.57
FORESTVIEW ESTATES ASSESSMENT SANITARY	1991	1.5057911	75,290.70	93.89%	(70,689.56)	4,601.14
FORESTVIEW ESTATES ASSESSMENT SANITARY	1991	1.5057911	842,654.07	93.89%	(791,158.61)	51,495.47
DELANEY DRIVE TO CHERRYDALE ASSEMENT	1991	1.5057911	15,810.81	97.22%	(15,371.61)	439.19
VILLAGE CK TRUNK SWR REPLACE-ROBBERTS	1993	1.3974088	102,541.86	84.44%	(86,590.97)	15,950.89

EXISTING ASSETS

DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIAITION PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
REBA STREET ASSESSMENT SEWER	1992	1.4604814	136,407.35	25.67%	(35,011.10)	101,396.25
VILLAGE CK TRUNK SWR RELOCATION	1993	1.3974088	811,430.56	83.89%	(680,700.02)	130,730.54
LOWER VILLAGE CREEK SANITARY SEWER	1986	1.6951106	3,455,506.68	100.00%	(3,455,506.68)	0.00
MIAMI DRIVE ASSESSMENT SEWER	1985	1.7355185	170,234.42	41.33%	(70,363.35)	99,871.07
VILLAGE CREEK 1989 MODIFICATIONS	1992	1.4604814	1,208,184.74	87.22%	(1,053,805.71)	154,379.02
VILLAGE WWTP MODIFICATIONS-DESIGN	1994	1.3462463	75,928.29	100.00%	(75,928.29)	0.00
VILLAGE CREEK SLUDGE DRYING BEDS	1995	1.3307439	19,469.06	100.00%	(19,469.06)	0.00
SECOND CREEK-ENGINEERING DESIGN	1992	1.4604814	17,927.53	86.67%	(15,537.19)	2,390.34
UPPER SECOND CREEK SS EXTENSION	2002	1.1135668	1,595,207.23	14.67%	(233,963.82)	1,361,243.40
VILLAGE CREEK SANITARY SEWER	1999	1.2016009	74,865.26	24.00%	(17,967.49)	56,897.77
VILLAGE CREEK EMERGENCY REPAIRS	1993	1.3974088	4,057,302.75	82.78%	(3,358,544.94)	698,757.81
VILLAGE CREEK TRUNK SEWER REPLACEMENT	1998	1.2298142	16,749,439.85	30.00%	(5,024,831.71)	11,724,608.14
13TH AVE N SANITARY SEWER-CONSTR	1996	1.2954626	519,487.49	38.67%	(200,868.40)	318,619.09
W ENSLEY TRUNK-PRELIM ENGINEERING	1996	1.2954626	58,295.82	38.33%	(22,346.73)	35,949.09
WEST ENSLEY TRUNK SEWER	2001	1.1478007	1,486,542.27	16.33%	(242,801.68)	1,243,740.59
VILLAGE CREEK BRICK SEWER	2000	1.1703102	1,200,793.90	19.00%	(228,150.95)	972,642.94
EAST VILLAGE CRK SSCS REHAB	2000	1.1703102	3,847,485.23	22.33%	(859,271.66)	2,988,213.57
#1 WEST VILLAGE CREEK SSCS REHAB	1999	1.2016009	2,473,520.10	25.00%	(618,380.00)	1,855,140.10
#2 EAST VILLAGE CRK	2000	1.1703102	7,114,247.07	22.00%	(1,565,134.57)	5,549,112.50
WEST VILLAGE CREEK SSCS #2	1999	1.2016009	3,211,313.09	25.00%	(802,828.33)	2,408,484.76
VILLAGE CREEK-SEWER SYSTEMS-CONTRACT 3	1999	1.2016009	2,169,307.84	24.33%	(527,865.20)	1,641,442.64
#5 E VILLSSCS REHAB	2000	1.1703102	4,963,626.87	22.33%	(1,108,543.47)	3,855,083.41
VILLAGE CREEK SEWER SYSTEM-CONTRACT 5	1999	1.2016009	4,428,462.38	24.33%	(1,077,692.54)	3,350,869.84
#6 E VLG CRK SSCS REHAB	1999	1.2016009	5,104,880.99	23.00%	(1,174,122.44)	3,930,758.56
VILLAGE CREEK SEWER SYSTEMS-CONTRACT (	1999	1.2016009	3,165,871.77	23.67%	(749,256.18)	2,416,615.60
#7 EAST VILLAGE CREEK SSCS PART C	1999	1.2016009	2,850,027.79	24.67%	(703,007.17)	2,147,020.62
VILLAGE CREEK #7 WEST	2000	1.1703102	9,110,750.23	19.33%	(1,761,411.54)	7,349,338.69
VILLAGE CREEK SWR SYSTEM REHAB	2000	1.1703102	6,231,831.55	20.67%	(1,287,911.91)	4,943,919.64
VILLAGE CREEK SSCS REHAB	1999	1.2016009	4,640,820.55	23.33%	(1,082,857.88)	3,557,962.67
VILLAGE CREEK SANITARY COLL SYS REHAB	2000	1.1703102	10,354,268.41	20.33%	(2,105,367.90)	8,248,900.51
SANITARY SWR. COLLECTION VILLAGE CRK	2000	1.1703102	5,919,631.42	19.67%	(1,164,194.46)	4,755,436.97
GLENRIDGE DR. SWR. REPLACEMENT	2000	1.1703102	285,503.03	20.00%	(57,100.37)	228,402.66
VILLAGE CREEK SSS REHAB	2001	1.1478007	5,075,311.31	15.67%	(795,132.04)	4,280,179.26
#12 VILLAGE CREEK SANTARY SWR	2000	1.1703102	5,026,876.98	19.00%	(955,106.61)	4,071,770.37
#12 VILLAGE CREEK SANITARY SWR	2001	1.1478007	3,983,834.38	15.00%	(597,575.07)	3,386,259.31
VILLAGE CRK SSCS REHAP #13	2001	1.1478007	4,901,074.65	17.33%	(849,519.41)	4,051,555.24
VILLAGE CREEK SANITARY SWR COLL	2001	1.1478007	3,002,581.66	16.67%	(500,430.21)	2,502,151.45
VILLAGE CRK CONTRACT 14	2001	1.1478007	7,077,553.77	15.67%	(1,108,816.96)	5,968,736.81
VILLAGE CRK SS COLL	2001	1.1478007	3,606,500.94	18.00%	(649,170.41)	2,957,330.53
83RD STREET NS SEWER REPLACEMENT	2002	1.1135668	1,317,347.01	13.33%	(175,646.46)	1,141,700.55
#19 EAST VILLAGE CREEK SANITARY SEWER	2003	1.0876158	5,064,077.34	7.33%	(371,365.58)	4,692,711.76
#20 EAST VILLAGE CREEK	2002	1.1135668	3,494,670.40	14.33%	(500,902.71)	2,993,767.69
DALTON DRIVE SEWER	2001	1.1478007	106,521.26	15.67%	(16,688.39)	89,832.86
VALLEY DRIVE SEWER REPLACEMENT	2002	1.1135668	288,708.96	13.33%	(38,494.67)	250,214.29
CRESTWOOD BLVD SEWER	2003	1.0876158	355,878.06	9.67%	(34,401.61)	321,476.45
#25 EAST VILLAGE CREEK	2002	1.1135668	1,866,608.28	11.33%	(211,549.10)	1,655,059.17
EAST VILLAGE CREEK SANITARY SEWER	2003	1.0876158	3,281,254.08	7.33%	(240,625.22)	3,040,628.86
ROEBUCK PARKWAY SEWER	2003	1.0876158	1,394,864.32	9.67%	(134,836.85)	1,260,027.47
SHERMAN HEIGHTS PUMP STATION REPL	2002	1.1135668	917,724.95	11.33%	(104,008.70)	813,716.25
EMER SEWER REPAI-7825 3RD AVE SOUTH	2005	1	142,706.96	0.67%	(951.38)	141,755.58
PUMP FOR SHERMAN HEIGHTS STATION	1998	1.2298142	31,993.99	29.00%	(9,278.51)	22,715.48
REPAIR SEWER COOSA STREET 15TH AVENUE	1998	1.2298142	18,238.62	28.67%	(5,228.31)	13,010.31
REPAIR SEWER 40TH STREET SOUTH	1998	1.2298142	10,652.59	28.66%	(3,053.41)	7,599.18
EMERGENCY SEWER REPAIR 37TH CT W	1998	1.2298142	4,870.88	28.33%	(1,379.85)	3,491.02
EMERGENCY SEWER REPAIR AVE E ENSLEY	1998	1.2298142	33,184.24	28.33%	(9,401.88)	23,782.36
EMERGENCY SEWER REPAIR 86TH PL S	1998	1.2298142	2,460.50	28.00%	(689.04)	1,771.46
EMERGENCY SEWER REPAIR 8TH AVE & 82ND	1998	1.2298142	12,427.06	27.66%	(3,437.87)	8,989.19
EMERGENCY SEWER REPAIR 22ND ST NORTH	1998	1.2298142	24,680.60	27.67%	(6,828.36)	17,852.24
EMERGENCY SEWER REPAIR GEORGIA ROAD	1998	1.2298142	6,346.94	27.66%	(1,755.68)	4,591.25
EMERGENCY SEWER REPAIR 21ST ST LIBRARY	1998	1.2298142	107,938.91	27.33%	(29,503.14)	78,435.77
EMERGENCY SEWER REPAIR 21ST ALLEY BHAM	1998	1.2298142	77,957.27	27.33%	(21,308.50)	56,648.77
EMERGENCY SEWER REPAIR CASTLEBERRY	1998	1.2298142	31,224.82	27.33%	(8,534.49)	22,690.33
EMERGENCY SEWER REPAIR PINSON	1998	1.2298142	35,624.91	27.00%	(9,618.82)	26,006.09
EMER SWR REPAIR PHASE II 2ND AVE 47TH PL	1998	1.2298142	34,845.09	27.00%	(9,408.29)	25,436.80
EMER SEWER REPAIR PH I 2ND AVE 47TH PL	1998	1.2298142	56,856.79	27.00%	(15,351.66)	41,505.13
EMER SWR REPAIRS 1ST AVE N & 41ST	1999	1.2016009	6,495.21	26.00%	(1,688.92)	4,806.28
EMER SWR REPAIR 1601 AVE G	1999	1.2016009	6,986.13	26.00%	(1,816.39)	5,169.74
EMER SEWER REPAIR 32ND ST S OFF CLIFF RD	1999	1.2016009	7,122.09	26.67%	(1,899.49)	5,222.60
EMER SEWER REPAIR 5TH AVE S AND 77TH ST	1999	1.2016009	3,217.84	26.68%	(858.42)	2,359.42
EMER SEWER REPAIR 5TH AVE S AND 77TH ST	1999.	1.2016009	2,388.47	26.68%	(637.14)	1,751.33
EMR.SWR.REPAIR 1ST CT. & 13TH ST	1999	1.2016009	12,249.07	26.00%	(3,184.77)	9,064.30
EMER.SWR.REPAIR-8TH AVE. N & 47TH PL	1999	1.2016009	44,229.58	26.00%	(11,500.03)	32,729.55
EMER SWR REPAIR 8TH AVE N & 47TH PL	1999	1.2016009	29,437.65	26.00%	(7,653.57)	21,784.08
EMER SWR REPAIR 8TH AVE N AIRPORT HWY	1999	1.2016009	10,477.89	26.00%	(2,724.58)	7,753.31
EMER SWR REPAIR 18TH ST & AVE P	1999	1.2016009	16,236.82	26.00%	(4,221.37)	12,015.46
EMER SWR REPAIR 8TH AVE N & AIRPORT HWY	1999	1.2016009	18,078.01	26.00%	(4,700.30)	13,377.71
EMER SWR REPAIR 206 2ND AVE WEST	1999	1.2016009	7,500.14	26.00%	(1,950.29)	5,549.85
EMER SWR REPAIR 15TH AVE & 12TJ ST S	1999	1.2016009	14,296.28	26.00%	(3,717.13)	10,579.15
EMER SWR REPAIR 5TH AVE & 23RD ST N	1999	1.2016009	25,100.25	26.00%	(6,526.06)	18,574.19

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EXISTING ASSETS

DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIAITIO N PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
EMER SWR REPAIR 8TH AVE & 20TH ST	1999	1.2016009	5,020.81	26.00%	(1,305.59)	3,715.22
EMER SEWER REPAIR 40TH ST & 35TH AVE	1999	1.2016009	3,455.42	26.00%	(898.57)	2,556.85
EMER SEWER REPAIR 17TH AVE & 32 PL NO	1999	1.2016009	8,887.26	26.00%	(2,310.40)	6,576.85
EMER SWR REP-2512 32ND AVE N	1999	1.2016009	19,758.60	25.33%	(5,005.34)	14,753.26
EMER SWR REPAIR-5TH AVE S 5 5TH PL	1999	1.2016009	14,124.01	25.33%	(3,577.98)	10,546.03
EMERGENCY SEWER REPAIR SUNDALE DR	1999	1.2016009	1,414.79	25.00%	(353.63)	1,061.16
EMERGENCY SEWER REPAIR 11TH CT WEST	1999	1.2016009	3,952.68	25.00%	(988.18)	2,964.49
EMER SWR REPAIR-FINLEY BLVD	1999	1.2016009	32,891.90	25.00%	(8,222.89)	24,669.01
EMER SWR REPAIR-13TH AVE NORTH	1999	1.2016009	5,882.52	25.00%	(1,470.76)	4,411.76
EMER SWR REPAIR-2801 21ST AVE NO	1999	1.2016009	2,942.84	24.99%	(735.38)	2,207.46
EMER SEWER REPAIR 14TH AVE & 11TH ST	1999	1.2016009	13,116.92	25.67%	(3,366.92)	9,749.99
EMER SWR REPAIR 31ST ST & AVE H	1999	1.2016009	32,997.40	24.67%	(8,139.60)	24,857.81
EMERGENCY SEWER REPAIR 1ST AVE/59TH ST	1999	1.2016009	22,498.60	24.67%	(5,549.40)	16,949.19
EMERGENCY SEWER REPARI FOREST AVE	1999	1.2016009	16,885.16	24.67%	(4,164.94)	12,720.22
EMERGENCY SEWER REPAIR 18TH ST ALLEY	1999	1.2016009	4,259.96	24.67%	(1,051.02)	3,208.95
EMER SWR REP-224 2ND ST NO & OHIO AVE	1999	1.2016009	11,141.40	24.67%	(2,748.47)	8,392.93
EMER SWR REP- FLORIDA AVE & 2ND ST NO	1999	1.2016009	4,796.06	24.66%	(1,182.93)	3,613.13
EMERGENCY SEWER REPAIR 10TH AVE N	1999	1.2016009	34,863.61	24.67%	(8,599.51)	26,264.10
BURGUNDY PUMP STATION RE	2001	1.1478007	96,542.90	17.67%	(17,055.87)	79,487.03
VILLAGE CREEK PH III	1997	1.2496567	69,617.13	32.00%	(22,277.88)	47,339.25
VILLAGE CREEK BOUNDRY SURVEY	1997	1.2496567	53,735.24	34.00%	(18,269.57)	35,465.67
VILLAGE WWTP DESIGN	1996	1.2954626	1,151,898.09	36.00%	(414,683.34)	737,214.75
PCB REMEDIATION AT VILLAGE CREEK	1994	1.3462463	88,796.63	56.67%	(50,318.46)	38,478.17
VILLAGE CREEK WWTP DECHLORINATION	1997	1.2496567	1,286,514.29	34.33%	(441,703.60)	844,810.69
VILLAGE CREEK WWTP '96 MODS/ADDS	1999	1.2016009	18,356,025.81	25.00%	(4,589,006.75)	13,767,019.06
VILLAGE CREEK ACCESS ROAD	1999	1.2016009	1,335,068.42	25.67%	(342,667.34)	992,401.09
CON 1 VILL CRK PK FLW PR	2002	1.1135668	26,270,486.41	14.67%	(3,853,004.78)	22,417,481.62
HAZARDOUS WASTE DISPOSAL	1998	1.2298142	14,320.88	28.33%	(4,057.81)	10,263.07
ACCESS ROAD HAZARDOUS WASTE DISPOSAL	1998	1.2298142	7,285.57	28.67%	(2,088.84)	5,196.73
HAZARDOUS WASTE DISPOSAL	1998	1.2298142	6,822.69	28.33%	(1,932.84)	4,889.85
HAZARDOUS WASTE DISPOSAL	1998	1.2298142	7,914.94	28.33%	(2,242.26)	5,672.68
HAZARDOUS WASTE DISPOSAL	1998	1.2298142	7,030.92	28.34%	(1,992.42)	5,038.50
HAZARDOUS WASTE DISPOSAL	1998	1.2298142	14,631.91	28.33%	(4,145.83)	10,486.08
HAZARDOUS WASTE DISPOSAL	1998	1.2298142	7,231.63	28.33%	(2,048.87)	5,182.76
#4 VILLAGE CREEK PEAK FLOW	2003	1.0876158	20,518,260.74	8.00%	(1,641,460.96)	18,876,799.78
VILL CRK WWTP METHANE GAS MONITORING	2000	1.1703102	33,349.16	21.33%	(7,114.74)	26,234.42
EDGEWATER OAKS SUBDIVISION	2002	1.1135668	832,614.47	13.33%	(111,015.25)	721,599.22
EMERGENCY SEWER REPAIR VILLAGE CREEK	1999	1.2016009	3,925.26	24.34%	(955.24)	2,970.02
EMERGENCY SEWER REPAIR 9AVE/36TH WAY	1999	1.2016009	4,077.79	24.00%	(978.49)	3,099.30
EMERGENCY SEWER REPAIR HIXON/ARMORY	1999	1.2016009	14,225.16	24.00%	(3,413.89)	10,811.27
EMERGENCY SEWER REPAIR 812 21ST ST ENSLE	1999	1.2016009	11,244.52	24.00%	(2,698.41)	8,546.11
EMERGENCY SEWER REPAIR 69TH ST N/47TH	1999	1.2016009	5,508.28	24.00%	(1,321.95)	4,186.33
EMERGENCY SEWER REPAIR AVE I/57TH ST	1999	1.2016009	1,786.47	24.01%	(428.97)	1,357.50
EMERGENCY SEWER REPAIR 233 KENT DR	1999	1.2016009	80,446.88	24.00%	(19,307.48)	61,139.40
EMER SWR REPAIR-64TH ST SO	1999	1.2016009	4,982.89	23.33%	(1,162.43)	3,820.47
EMER SWR REPAIR-929 52ND ST NORTH	1999	1.2016009	5,940.20	23.34%	(1,386.17)	4,554.03
EMER SWR REPA-5420 AVE K ENSLEY	1999	1.2016009	6,251.91	23.33%	(1,458.50)	4,793.40
EMER SWR REPR-27TH ST-ENSLEY	1999	1.2016009	7,583.65	23.34%	(1,769.72)	5,813.93
EMER SWR REPA-25TH AVE & 16TH ST N	1999	1.2016009	2,502.80	22.99%	(575.40)	1,927.40
EMER SWR REP-AVE P-28TH ST ENSLEY	1999	1.2016009	51,541.93	23.00%	(11,854.54)	39,687.39
EMR.SWR.REPAIR 108 5TH ST - DOCENA	1999	1.2016009	6,785.79	26.66%	(1,809.36)	4,976.43
EMER.SWR.REPAIR-VILLAGE CONTRACT 10	1999	1.2016009	2,570.90	26.66%	(685.39)	1,885.50
EMER.SWR.REPAIR-VILLAGE CONTRACT 10	1999	1.2016009	2,306.83	26.67%	(615.22)	1,691.61
EMER. SWR. REPAIR-VILLAGE CONTRACT 3 EAS	1999	1.2016009	4,307.87	26.67%	(1,148.73)	3,159.14
EMER. SWR. REPAIR-15TH AVE N BIRMINGHAM	2000	1.1703102	20,953.21	22.67%	(4,749.40)	16,203.81
EMER.SWR.REPAIR-1793 51ST ST.ENSLEY	2000	1.1703102	17,946.03	22.33%	(4,007.88)	13,938.15
EMER.SWR.REPAIR-3009 33RD COURT NORTH	2000	1.1703102	34,378.83	22.33%	(7,677.98)	26,700.85
EMER.SWR.REPAIR-8030 3RD AVE.NORTH	2000	1.1703102	117,994.60	22.33%	(26,352.30)	91,642.30
EMER.SWR.REP-4730 DONALD STREET	2000	1.1703102	2,960.70	21.99%	(651.14)	2,309.56
EMER.SWR.REP-541 BELLVIEW STREET	2000	1.1703102	5,201.39	22.00%	(1,144.26)	4,057.13
EMER.SWR.REP-541 BELLVIEW STREET	2000	1.1703102	7,105.84	22.00%	(1,563.35)	5,542.50
EMER.SWR.REP-541 BELLVIEW STREET	2000	1.1703102	12,315.70	22.00%	(2,709.60)	9,606.11
EMER.SWR.REP-AVENUE I, ENSLEY	2000	1.1703102	7,553.57	22.00%	(1,661.63)	5,891.94
EMER.SWR.REP.23RD ST. & 5TH AVENUE	2000	1.1703102	24,205.77	22.00%	(5,325.01)	18,880.77
EMER.SWR.REP.-36 AVE.F PRATT CITY	2000	1.1703102	3,568.24	21.66%	(772.87)	2,795.37
EMER.SWR.REP.-609 80TH PL SO	2000	1.1703102	7,836.05	21.67%	(1,697.89)	6,138.16
EMER.SWR.REP.-AVENUE T BIRMINGHAM	2000	1.1703102	7,206.71	21.67%	(1,561.72)	5,644.99
EMER.SWR.REP.-1705.ST.CHARLES AVE	2000	1.1703102	6,694.13	21.67%	(1,450.66)	5,243.47
EMER.SWR.REP.-1561 COTTON AVE SO	2000	1.1703102	34,067.22	21.67%	(7,381.09)	26,686.13
EMER.SWR.REP.-1908 24TH ST. NO	2000	1.1703102	1,964.20	21.66%	(425.45)	1,538.75
EMER.SWR.REP.-1120 4TH WAY NORTH	2000	1.1703102	6,966.68	21.66%	(1,509.23)	5,457.45
EMER.SWR.REP.-1908 24TH PL NORTH	2000	1.1703102	6,708.77	21.67%	(1,453.70)	5,255.07
EMER.SWR.REP.-12TH STREET WEST	2000	1.1703102	20,808.85	0.00%	0.00	20,808.85
EMER.SWR.REP.-1309 11TH ST. NO	2000	1.1703102	15,678.17	21.67%	(3,397.02)	12,281.14
EMER.SWR.REP.-20TH STREET NORTH	2000	1.1703102	19,826.93	21.67%	(4,295.68)	15,531.25
EMER.SWR.REP.-4789 7TH CT.SO	2000	1.1703102	10,035.32	21.66%	(2,174.09)	7,861.23
EMER.SWR.REP.-6TH ST & AVE D	2000	1.1703102	7,167.42	21.67%	(1,552.84)	5,614.59
EMER.SWR.REP.-6TH ST. & 9TH CT. NO.	2000	1.1703102	8,436.37	21.67%	(1,827.97)	6,608.40
EMER.SWR.REP.-14TH AVE. & 12TH ST. SOUTH	2000	1.1703102	11,356.37	21.67%	(2,460.76)	8,895.61

EXISTING ASSETS

DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIAITION PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
EMER.SWR.REP.-3RD PL & 13TH AVE NO	2000	1.1703102	12,030.27	21.67%	(2,606.62)	9,423.65
EMER.SWR.REP.-MAGNOLIA AVENUE	2000	1.1703102	42,437.67	21.67%	(9,194.60)	33,243.07
EMER SWR REP-FLYGT 3127	2000	1.1703102	5,790.70	21.33%	(1,235.10)	4,555.60
EMER SWR REP-23RD ST NO & FINLEY AVE	2000	1.1703102	25,061.37	21.33%	(5,346.35)	19,715.02
EMER SWR REP-34TH ST NO/SHUTTLESWORTH	2000	1.1703102	2,755.68	21.34%	(587.96)	2,167.72
EMER SWR REPAIR-47TH PLACE BHAM	2000	1.1703102	56,880.59	21.00%	(11,944.92)	44,935.66
EMER SWR REPAIR-5TH AVE NORTH	2000	1.1703102	70,788.80	21.00%	(14,865.39)	55,923.42
EMER SWR REP-HIGHPOINT TER BHAM	2000	1.1703102	54,330.28	21.00%	(11,409.65)	42,920.64
EMER SWR REP-1485 JUNIPER DR BHAM	2000	1.1703102	8,151.73	21.00%	(1,712.00)	6,439.73
EMER SWR REP-817 WOODVALE RD-AVONDALE	2000	1.1703102	3,655.65	21.00%	(767.52)	2,888.13
EMER SWR RPR-2075 CHERRY AVE-HUEYTOWN	2000	1.1703102	3,884.14	20.99%	(815.45)	3,068.69
EMER SWR REP-3515 24TH ST NO-BHAM	2000	1.1703102	5,346.69	21.00%	(1,122.90)	4,223.79
EMER SWR REP-1642 MARLIN ST F'DALE	2000	1.1703102	4,444.90	21.00%	(933.42)	3,511.48
SOUTHLAND TUBE	2002	1.1135668	332,154.16	12.00%	(39,858.50)	292,295.66
CHERRY AVE. TRUNK SWR	2001	1.1478007	491,698.18	18.33%	(90,144.48)	401,553.70
EMER SWR REP-6633 AVE N-BHAM	2000	1.1703102	44,093.23	20.67%	(9,112.71)	34,980.51
EMER SWR REP-5808-5TH TER SO BHAM	2000	1.1703102	9,064.71	20.67%	(1,873.48)	7,191.23
EMER SWR REP-824 LIBBY LN ROEBUCK	2000	1.1703102	5,717.59	20.33%	(1,162.61)	4,554.98
EMER SWR REP-7TH AVE & 84TH PL BHAM	2000	1.1703102	6,360.96	20.34%	(1,293.57)	5,067.40
EMER SWR REP-3440-33RD CT N BHAM	2000	1.1703102	4,786.87	20.33%	(973.11)	3,813.76
EMER SWR REPAIR - 9016 PKWY E ROEBUCK	2000	1.1703102	4,544.83	20.00%	(908.91)	3,635.92
EMER SWR REPAIR - 2021 AVE G BHAM	2000	1.1703102	6,532.37	20.00%	(1,306.70)	5,225.67
EMER SWR REPAIR - 3615 15TH AVE N BHAM	2000	1.1703102	43,437.60	20.00%	(8,687.45)	34,750.15
EMER SWR REPAIR - 4172 CLIFF RD BHAM	2000	1.1703102	5,471.77	20.00%	(1,094.35)	4,377.43
EMER SWR REPAIR - 1500 20TH ST N BHAM	2000	1.1703102	3,129.57	19.99%	(625.65)	2,503.93
EMER SWER REPR-1700 VANDERBILT RD BHAM	2000	1.1703102	16,186.14	0.00%	0.00	16,186.14
EMER SWER REPR-1013 PINEHILL RD BHAM	2000	1.1703102	22,498.76	0.00%	0.00	22,498.76
EMER SWER REPR-947 46TH ST NO BHAM	2000	1.1703102	2,953.23	0.00%	0.00	2,953.23
EMER SWR REPAIR 7709 1ST AVE SOUTH	2000	1.1703102	3,940.18	19.66%	(774.72)	3,165.46
EMER SWR REP-INTERSE 8TH AVE & INDIANA S	2000	1.1703102	19,903.21	19.67%	(3,914.35)	15,988.86
EMER SWR REP-INTER 16TH AVE N & 1ST ST W	2000	1.1703102	12,329.41	19.67%	(2,424.98)	9,904.43
EMER SWR REP-1721 27TH ST	2000	1.1703102	11,006.49	19.67%	(2,164.66)	8,841.82
EMER SER REP-16H AVE W & ARKADELPHIA RD	2000	1.1703102	2,972.25	19.34%	(574.83)	2,397.42
EMER SWR REP -1412 RAYFIELD STREET	2000	1.1703102	4,322.34	19.33%	(835.58)	3,486.76
EMER SWR REP -2709 6TH ST NE	2000	1.1703102	3,364.03	19.33%	(650.27)	2,713.76
EMER SWR REP-6910 GEORGIA ROAD	2000	1.1703102	133,363.35	19.33%	(25,783.46)	107,579.89
EMER SWR REP-1525 FINLEY BLVD BHAM	2000	1.1703102	21,230.17	19.00%	(4,033.81)	17,196.35
EMER SWR REP-7529 1ST AVE NO - BHAM	2000	1.1703102	16,854.53	19.00%	(3,202.61)	13,651.91
EMER SWR REP-1730 VANDERBILT ROAD -	2000	1.1703102	13,850.17	19.00%	(2,631.62)	11,218.55
EMER SWR REP-6TH ST SW TO 5TH PLACE SW	2000	1.1703102	52,798.83	19.00%	(10,031.54)	42,767.29
EMER SWR REP-1ST AVE N & 84TH ST NORTH	2000	1.1703102	19,391.24	19.00%	(3,684.27)	15,706.98
EMER SWR REP-1807 50TH ST N	2000	1.1703102	1,939.52	18.99%	(368.30)	1,571.22
EMER SWR REP-1ST AVE N & 75TH ST N	2000	1.1703102	31,183.88	19.00%	(5,924.98)	25,258.90
EMER SWR REP-2716 35TH AVE N BHAM	2001	1.1478007	38,189.81	18.67%	(7,128.94)	31,060.86
EMER SWR REP-1709 36TH AVE N BHAM	2001	1.1478007	15,220.15	18.67%	(2,841.04)	12,379.11
EMER SWR REP-429 19TH AVE NE BHAM	2001	1.1478007	1,148.97	18.35%	(210.85)	938.12
EMER SWR REP-141 36TH PL NO & SHUTTLESWO	2001	1.1478007	3,808.08	18.33%	(698.21)	3,109.87
EMER SWR REPAIR	2001	1.1478007	56,674.99	16.33%	(9,256.91)	47,418.08
EMER SWR REPAIR-4317 OVERLOOK RD	2001	1.1478007	13,409.39	16.33%	(2,190.07)	11,219.32
EMER SWR REPAIR 4TH AVENUE N & 23RD ST	2001	1.1478007	13,559.44	16.33%	(2,214.82)	11,344.62
EMER SWR REPAIR-4729 AVENUE T	2001	1.1478007	14,765.96	16.33%	(2,411.67)	12,354.30
EMER SWR REPAIR-905 ELIZABETH DR	2001	1.1478007	57,204.74	16.33%	(9,343.52)	47,861.21
EMER SWR REPAIR-344 ROEBUCK DR	2001	1.1478007	18,053.71	16.33%	(2,948.78)	15,104.93
EMER SWR REPAIR 525 6TH AVENUE	2001	1.1478007	15,743.82	16.67%	(2,623.87)	13,119.95
EMER SWR REPAIR/3412 15TH AVENUE N	2001	1.1478007	12,699.11	16.67%	(2,116.54)	10,582.56
EMER SWR REPAIR-1800 50TH ST N	2001	1.1478007	51,812.96	16.67%	(8,635.48)	43,177.49
EMER SWR REPAIR-52ND WAY & 10TH AVE N	2001	1.1478007	57,562.52	16.67%	(9,593.89)	47,968.62
EMER SWR REPAIR-6TH AVE & 48TH ST SOUTH	2001	1.1478007	56,272.89	16.00%	(9,003.53)	47,269.36
EMER SWR REPAIR-9TH ST & 7TH ALLEY WEST	2001	1.1478007	19,781.01	16.00%	(3,165.18)	16,615.84
EMER SWR REPAIR-2ND ST N & 8TH AVE N	2001	1.1478007	19,477.02	16.00%	(3,116.14)	16,360.88
EMR SWR REPAIR 535 CAMBRIDGE ST	2001	1.1478007	24,416.37	15.67%	(3,825.36)	20,591.02
EMR SWR REPAIR 515 CAMBRIDGE ST	2001	1.1478007	54,024.62	15.67%	(8,463.69)	45,560.93
EMER SWR REPAIR 1400 34TH ST BHAM	2001	1.1478007	55,673.91	15.67%	(8,722.09)	46,951.82
EMR SWR REPAIR VILLAGE EMERGENCY	2001	1.1478007	34,868.14	15.67%	(5,462.64)	29,405.51
EMR SWR 1637 27TH STREET N	2001	1.1478007	18,502.73	15.67%	(2,898.55)	15,604.18
EMR SWR REPAIR 914 ALBANY STREET	2001	1.1478007	22,553.32	15.67%	(3,533.50)	19,019.82
EMER SWR REPAIR 406 22ND AVE BHAM	2001	1.1478007	12,240.81	15.33%	(1,877.00)	10,363.81
EMR SWR REPAIR UPDATE	2001	1.1478007	36,243.52	15.67%	(5,678.15)	30,565.37
EMR SWR REPAIR 24TH ST N BETWEEN 31ST	2002	1.1135668	13,346.60	14.67%	(1,957.43)	11,389.17
EMR SWR REPAIR 44TH PLACE NORTH	2002	1.1135668	19,118.35	14.67%	(2,804.09)	16,314.26
EMR SWR REPAIR-6013 84TH ST S BHAM	2002	1.1135668	47,127.73	14.00%	(6,597.82)	40,529.91
EMR SWR REPAIR VANDERBILT RD BIR	2002	1.1135668	55,462.68	13.67%	(7,579.85)	47,882.83
EMR SWR REPAIR-108 81ST ST WEST	2002	1.1135668	48,609.61	12.67%	(6,157.33)	42,452.27
EMR SWR REPAIR-603 6TH AVE	2002	1.1135668	14,834.47	12.33%	(1,829.67)	13,004.80
VILLAGE CREEK ACCESS ROAD BRIDGE	1998	1.2298142	192,033.47	30.33%	(58,250.04)	133,783.43
VILLAGE CREEK ACCESS ROAD BRIDGE	1998	1.2298142	80,213.89	30.00%	(24,064.08)	56,149.81
GEOTECH/VILLAGE CREEK DRYING BEDS	1998	1.2298142	64,859.87	30.33%	(19,674.32)	45,185.55
MINOR PUMP STATION-GEOTECHNICAL	1997	1.2496567	47,419.72	34.00%	(16,123.05)	31,296.68
MATERIAL TESTING VILLAGE	1998	1.2298142	2,799.67	27.34%	(765.41)	2,034.26

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VILLAGE CRK WWTP-GEO TECH TESTS	2000	1.1703102	46,981.54	21.67%	(10,179.36)	36,802.18
VILLAGE CREEK PEAK FLOW	2003	1.0876158	38,280.00	8.00%	(3,062.38)	35,217.62
DELANEY DR/CHERRYDALE DESIGN C/O #2	1999	1.2016009	20,335.51	23.00%	(4,676.98)	15,658.53
MINOR PUMP WEST ENSLEY TRUNK	2002	1.1135668	561,878.27	12.00%	(67,425.49)	494,452.77
VILLAGE CREEK BRICK SWR EVALUATION	2000	1.1703102	262,238.96	21.67%	(56,818.33)	205,420.64
REMOVAL OF VLG CRL BRICK	2002	1.1135668	445,950.90	13.67%	(60,946.52)	385,004.39
VILLAGE CREEK SSES REHABILITATION	1998	1.2298142	1,045,321.01	29.33%	(306,627.83)	738,693.18
VILLAGE CRK WWTP ADDITIONS	2003	1.0876158	1,036,993.72	9.67%	(100,242.84)	936,750.88
DESIGN SERVICES-VILLAGE CREEK WASTE	1999	1.2016009	1,056,987.39	23.67%	(250,153.49)	806,833.90
WEST JEFF CO ENGINEER SER SWR SHADY	2000	1.1703102	90,373.52	21.67%	(19,581.22)	70,792.30
CAHABA RIVER & VILLAGE CREEK SSCS	2003	1.0876158	244,577.60	8.00%	(19,566.12)	225,011.48
GPS DATA COLLECTION V	2000	1.1703102	917,441.31	21.33%	(195,720.81)	721,720.49
#21 EAST VILLAGE CREEK SEWER	2003	1.0876158	84,150.66	10.00%	(8,415.21)	75,735.45
#23 & 24 VILLAGE CREEK	2002	1.1135668	136,383.01	13.33%	(18,184.55)	118,198.46
GEOTECHNICAL VILLAGE CREEK ROBERTS	1998	1.2298142	77,765.48	27.33%	(21,256.06)	56,509.42
VILLAGE/ROBERT'S FIELD INSPECTION	1998	1.2298142	483,031.75	29.67%	(143,299.76)	339,731.99
VILLAGE CREEK BRICK SEWER REPLACEMENT	2001	1.1478007	110,988.83	16.33%	(18,128.00)	92,860.83
#1 WEST VILLAGE CREEK SSCS REHAB	1999	1.2016009	121,298.42	24.67%	(29,920.18)	91,378.24
VILLAGE CREEK CONSTR 2	2001	1.1478007	417,175.65	16.33%	(68,138.59)	349,037.05
CONTRACT 2 (WEST) VALLEY CREEK SSCS	2002	1.1135668	163,682.68	12.00%	(19,641.96)	144,040.72
CON #3 EAST VILLAGE CRK S	2001	1.1478007	467,593.91	16.33%	(76,373.58)	391,220.32
CONTRACT 4 VILLAGE CRK SSCS EAST	2002	1.1135668	200,995.50	12.00%	(24,119.59)	176,875.91
CONTRACT 5 VILLAGE CRK SSCS EAST	2002	1.1135668	215,728.46	12.00%	(25,887.49)	189,840.98
#5 WEST VILLAGE CREEK SSCS REHAB	2002	1.1135668	127,966.45	12.00%	(15,355.86)	112,610.58
#6 WEST VILLAGE CREEK SSCS REHAB	2002	1.1135668	148,644.28	12.00%	(17,837.34)	130,806.94
#7 EAST VALLEY CREEK SSCS	2003	1.0876158	142,794.60	10.00%	(14,279.53)	128,515.07
VILLAGE CREEK SSCS CONTRA	2002	1.1135668	246,665.08	12.00%	(29,599.68)	217,065.40
#9 EAST VLG CRK SSCS REH	2002	1.1135668	469,912.40	13.33%	(62,655.06)	407,257.34
VILLAGE CREEK SSCS REHAB	2001	1.1478007	214,529.14	18.67%	(40,045.46)	174,483.68
WEST VILLAGE CREEK SSCS REHAB	2001	1.1478007	168,663.57	18.67%	(31,484.08)	137,179.48
#10 WEST VALLEY CREEK SSCS REHAB	2001	1.1478007	168,726.12	18.67%	(31,495.65)	137,230.47
VILLAGE CREEK SSCS	2001	1.1478007	375,315.62	18.33%	(68,808.09)	306,507.52
#11 EAST VILLAGE CREEK SANITARY SEWER	2004	1.0232607	179,695.52	6.00%	(10,781.75)	168,913.77
VILLAGE CREEK SSCS REHAB	2001	1.1478007	168,527.15	100.00%	(168,527.15)	0.00
#12 E VLG CRK SSCS REHAB	2001	1.1478007	168,597.44	16.33%	(27,537.47)	141,059.97
#12 WEST VILLAGE CREEK REHAB	2001	1.1478007	168,716.36	18.67%	(31,493.72)	137,222.64
#13 E VILL CRK SSCS REHAB	2001	1.1478007	168,710.47	16.33%	(27,555.88)	141,154.58
VILLAGE CREEK SANITARY SEWER	2002	1.1135668	219,932.07	12.00%	(26,391.80)	193,540.27
VILLAGE CREEK SSCS #15	2001	1.1478007	203,032.94	16.33%	(33,162.11)	169,870.83
VILLAGE CRK SSCS	2001	1.1478007	219,803.18	17.67%	(38,831.81)	180,971.38
VILLAGE CREEK SS COLL SYSTEM	2003	1.0876158	268,635.56	10.00%	(26,863.67)	241,771.89
#18 EAST VILLAGE CREEK SANITARY SEWER	2004	1.0232607	313,373.50	6.00%	(18,802.35)	294,571.15
PH II WEST VILLAGE CREEK	2002	1.1135668	1,112,787.34	14.33%	(159,499.52)	953,287.82
#20 EAST VILLAGE CREEK	2002	1.1135668	265,746.82	11.00%	(29,232.06)	236,514.76
PH II VILLAGE CREEK EAST	2001	1.1478007	1,074,779.14	15.00%	(161,216.82)	913,562.32
#25 EAST VILLAGE CREEK SANITARY SEWER	2003	1.0876158	256,844.76	7.33%	(18,835.29)	238,009.47
#21 VILLAGE CREEK SANITARY SEWER	2003	1.0876158	372,163.90	8.33%	(31,013.64)	341,150.27
#2 VILLAGE CREEK SANITARY SEWER	2003	1.0876158	900,533.99	8.33%	(75,044.40)	825,489.58
VILLAGE CREEK-WWTP ACCESS ROAD	1999	1.2016009	170,826.44	23.33%	(39,859.69)	130,966.75
VILLAGE CREEK ACCESS ROAD	1999	1.2016009	116,569.91	24.33%	(28,365.05)	88,204.86
VILLAGE CRK WWTP ENG SERVICES	2000	1.1703102	43,600.81	21.67%	(9,447.10)	34,153.71
#2 VILLAGE CREEK PEAK FLOW HANDLING	1999	1.2016009	62,114.24	26.67%	(16,563.83)	45,550.41
VILL CRK WWTP PK FLW	2001	1.1478007	309,906.20	16.33%	(50,618.01)	259,288.18
EDGEWATER OAKS S/D PUMP STATION	2003	1.0876158	171,834.15	10.33%	(17,756.24)	154,077.90
#4 VILLAGE CREEK WWTP	2003	1.0876158	1,072,500.09	10.33%	(110,825.12)	961,674.97
VILLAGE CREEK-WWTP PEAK	2001	1.1478007	286,945.42	16.33%	(46,867.78)	240,077.64
TESTING AT VILLAGE CREEK WWTP PEAK	2003	1.0876158	283,483.32	7.67%	(21,733.67)	261,749.65
GRAYSVILLE SS PHASE VI	1999	1.2016009	330,493.12	25.67%	(84,826.26)	245,666.86
CONSTRUCTION OF THE WARRIOR RD	1985	1.7355185	70,754.05	100.00%	(70,754.05)	0.00
MORGAN GREENWOOD SANITARY SEWER	1989	1.5775731	391,634.23	100.00%	(391,634.23)	0.00
ADAMSVILLE TRUNK SEWER	1990	1.5385672	2,090,446.32	100.00%	(2,090,446.32)	0.00
PLEASANT GROVE TRUNK SEWER SYSTEM	1992	1.4604814	223,453.66	87.78%	(196,142.66)	27,311.00
WARRIOR SEWER SYSTEM IMPROVEMENTS	1987	1.6524058	2,261,440.46	100.00%	(2,261,440.46)	0.00
RIVER CHASE PUMP STA-RELIEF SYSTEM	2000	1.1703102	3,471,683.78	21.67%	(752,198.16)	2,719,485.62
PRUDES CREEK SANITARY SWR COLL SYSTEM	2002	1.1135668	4,037,372.38	11.00%	(444,111.09)	3,593,261.29
WARRIOR SANITARY SEWER COLLECTION	2003	1.0876158	1,357,014.00	7.33%	(99,514.43)	1,257,499.58
RIVERCHASE PUMPING STA REHAB	1999	1.2016009	2,413,052.91	23.33%	(563,045.48)	1,850,007.43
RIVERCHASE PUMPING STATION REHAB	2000	1.1703102	14,443.50	21.67%	(3,129.53)	11,313.97
RIVERCHASE PUMPING STATION	2001	1.1478007	314,903.26	18.33%	(57,732.14)	257,171.12
EMER.SWR.REP.-GRAYSVILLE PUMP STATION	2000	1.1703102	30,373.71	21.67%	(6,580.83)	23,792.88
SHANNON AREA TRUNK DESIGN	2003	1.0876158	244,920.63	8.33%	(20,409.96)	224,510.67
CONSTR ENGINEERING-BLUE RIDGE PUMP STA	2000	1.1703102	26,296.08	21.67%	(5,697.66)	20,598.42
RIDGEWOOD/HEATHERWOOD DESIGN	2003	1.0876158	81,929.01	8.33%	(6,827.51)	75,101.50
PRUDES CREEK SANITARY SEWER	2004	1.0232607	268,054.28	5.67%	(15,189.69)	252,864.59
SAMPLING ANALYSIS BELTORA & SHARIT	2003	1.0876158	16,583.30	9.67%	(1,602.95)	14,980.35
MILL RUN ESTATES CAPPED CONNECTION	1990	1.5385672	132,615.17	98.33%	(130,404.92)	2,210.24
CHAPEL HILLS OUTFALL RELIEF SANITARY	1986	1.6951106	340,717.87	100.00%	(340,717.87)	0.00
HURRICANE BRANCH-ENGINEERING	1993	1.3974088	496,767.66	47.33%	(235,136.32)	261,631.34
PATTON TRUNK SEWER (ENGINEERING)	1995	1.3307439	436,555.16	40.00%	(174,621.83)	261,933.33

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PATTON CREEK SWR REPLACEMENT	2000	1.1703102	421,958.86	21.67%	(91,424.17)	330,534.69
PATTON CREEK TRUNK SWR REPLACEMENT	2000	1.1703102	531,357.32	21.67%	(115,127.63)	416,229.68
PATTON CRK TRNK SWR-PHASE II CONST	1999	1.2016009	11,905,798.25	23.33%	(2,778,019.63)	9,127,778.62
AL SIER/HURRICANE BRANCH-CONSTR	1997	1.2496567	11,805,777.23	33.33%	(3,935,258.96)	7,870,518.27
AL SEIER RD-GEOTECH TESTING	1995	1.3307439	9,989.56	40.33%	(4,028.72)	5,960.84
BLUFF PARK TUNNEL (ENGINEERING	1995	1.3307439	322,445.41	40.00%	(128,977.84)	193,467.57
BLUFF TUNNELL-CONSTRUCTION	1997	1.2496567	10,710,520.25	34.33%	(3,677,278.22)	7,033,242.04
PATTON CREEK TRK SWR-GEO TECH SERV	2000	1.1703102	5,190.62	21.66%	(1,124.41)	4,066.21
PATTON CREEK TRNK CONSTR TESTING	2000	1.1703102	32,205.77	21.67%	(6,977.92)	25,227.85
BLUFF TUNNEL GEOTECHNICAL SERVICE	1998	1.2298142	17,397.33	27.33%	(4,755.10)	12,642.23
PATTON CREEK LATERAL SEWER RE-	1998	1.2298142	447,526.15	29.67%	(132,765.96)	314,760.19
VESTAVIA TRUNK SEWER DESIGN	1998	1.2298142	407,970.36	29.33%	(119,671.55)	288,298.81
AL SEIER ROAD CONSTRUCTION REVIEW	1998	1.2298142	385,152.49	27.33%	(105,274.87)	279,877.62
BLUFF TUNNEL CONSTRUCTION REVIEW	1998	1.2298142	427,352.47	27.67%	(118,234.00)	309,118.47
SHADES VALLEY CORROSION-CONSTRUCTION	1994	1.3462463	1,661,671.81	46.00%	(764,368.67)	897,303.14
FURNANCE BRANCH TRUNK SEWER	1991	1.5057911	2,447,267.84	27.67%	(677,077.69)	1,770,190.15
SEWER CROSSING HIGHWAY 149	1988	1.6110865	4,855,136.14	84.17%	(4,086,406.45)	768,729.69
SHADES CREEK-WATKINS BRANCH-	1994	1.3462463	391,053.20	44.00%	(172,063.56)	218,989.63
SHADES CREEK TRUNK SECION 9	1992	1.4604814	4,460,394.47	26.33%	(1,174,571.20)	3,285,823.27
BERRY HIGH SCHOOL SANITARY SEWER	1990	1.5385672	1,242,269.96	100.00%	(1,242,269.96)	0.00
LANDSCAPE/ARCHITECT-WATKINS BRANCE	1991	1.5057911	12,738.99	100.00%	(12,738.99)	0.00
WATKINS BRANCH REPLACEMENT	1991	1.5057911	56,821.03	29.33%	(16,667.17)	40,153.86
WATKINS BRANCH REPLACEMENT SEWER	1991	1.5057911	1,700,481.81	29.33%	(498,808.50)	1,201,673.31
SCOTTS BRANCH SEWER REPLACEMENT	1989	1.5775731	539,036.69	100.00%	(539,036.69)	0.00
CHEROKEE BK-KILGORE TRUNK SEWER	1992	1.4604814	337,765.46	85.56%	(288,977.04)	48,788.42
SCOTT'S BRANCH/SHADES TRANSFER (REVIEW	1994	1.3462463	555,030.08	100.00%	(555,030.08)	0.00
SHADES VALLEY/CATHOLIC-ENGINEERING	1994	1.3462463	478,900.20	44.33%	(212,312.80)	266,587.39
SHADES VALLEY SOILS EVALUATION	1994	1.3462463	10,728.34	100.00%	(10,728.34)	0.00
FURNACE BR TK-INSPECTION	1996	1.2954626	245,020.20	36.67%	(89,841.11)	155,179.09
SHADES CR TK SEC 9 DESIGN	1992	1.4604814	27,876.55	86.67%	(24,159.63)	3,716.91
GRIFFIN BRANCH/SHADES VALLEY (CONSTR	1995	1.3307439	15,471,552.93	39.00%	(6,033,905.68)	9,437,647.25
SHADES TRUNK EXTENTION DESIGN	1992	1.4604814	79,470.18	51.33%	(40,794.87)	38,675.32
GRIFFIN BRANCH TUNNELS (GEOTECHNICAL	1994	1.3462463	34,966.12	43.33%	(15,152.41)	19,813.72
EAST IRONDALE TRUNK SEWER EXTENTION	1996	1.2954626	1,613,327.85	35.67%	(575,420.68)	1,037,907.17
PLEASANT GROVE TRUNK SEWER (CONSTR)	1995	1.3307439	2,592,071.19	40.00%	(1,036,828.89)	1,555,242.30
PLEASANT GROVE SYSTEM-ENGINEERING	1994	1.3462463	30,963.66	44.33%	(13,727.61)	17,236.06
PLEASANT GROVE WATER MAIN	1993	1.3974088	9,718.13	47.33%	(4,599.71)	5,118.42
FAIRFIELD SEWER (GEOTECHNICAL	1994	1.3462463	36,268.86	44.67%	(16,199.72)	20,069.14
TRUSSVILLE INDUSTRIAL PARK-	1997	1.2496567	5,283,025.24	34.67%	(1,831,449.09)	3,451,576.15
SLUDGE ALTERN - ENGINEER EVALUATION	1996	1.2954626	44,363.07	36.67%	(16,266.48)	28,096.59
SCOTT'S BRANCH AERATION	1998	1.2298142	867,170.22	30.00%	(260,151.08)	607,019.14
SHADES VALLEY-INSPECTION	1996	1.2954626	627,849.58	36.00%	(226,025.95)	401,823.63
TRUSSVILLE INDUSTRIAL PK MATLS TESTING	1996	1.2954626	4,044.76	35.34%	(1,429.49)	2,615.27
CAHABA TRUNK REPL GEOTECHNICAL SER	2003	1.0876158	3,898.83	9.67%	(376.91)	3,521.92
SHADES CREEK FLOODWAY STUDY	1999	1.2016009	11,651.08	100.00%	(11,651.08)	0.00
SHADES CREEK-PH II & III-DESIGN	2000	1.1703102	565,329.60	21.67%	(122,488.18)	442,841.42
AIRPORT DUMP STATION-DESIGN	1994	1.3462463	38,859.40	100.00%	(38,859.40)	0.00
REHAB INFILTRATION/INFLOW ENGINEERING	1993	1.3974088	206,358.16	60.83%	(125,534.55)	80,823.61
INFILT./INFLOW(VILLAGE,PATTON,CAHABA	1993	1.3974088	1,001,928.16	60.83%	(609,506.61)	392,421.55
REHAB INFILTRA/INFLOW MGMT-CAHABA	1994	1.3462463	116,409.92	57.92%	(67,420.47)	48,989.45
REHAB INFILTRA/INFLOW MGMT	1994	1.3462463	457,589.12	57.50%	(263,113.74)	194,475.38
EDWARDS LAKE ROAD SEWER	1991	1.5057911	108,767.81	28.83%	(31,361.74)	77,406.07
WESTWOOD AUTO PARTS OUTFALL	1992	1.4604814	29,209.63	27.33%	(7,983.27)	21,226.36
COBBLESTONE GARDENS TRUNK SEWER	1992	1.4604814	16,065.30	85.00%	(13,655.36)	2,409.94
JASMINE WAY SEWER EXTENSION	1993	1.3974088	49,235.63	60.83%	(29,951.85)	19,283.78
UTILITIES RIGHT OF WAY RELOCATION	2000	1.1703102	607,657.53	21.33%	(129,633.67)	478,023.86
ALLEN ROAD OUTFALL	2001	1.1478007	319,259.50	18.67%	(59,594.92)	259,664.58
CORRIDOR X PROJECT 37	2002	1.1135668	976,366.27	14.33%	(139,945.86)	836,420.41
CORRIDOR X SWR CROSSING WEST OF US 78	2002	1.1135668	1,093,931.87	13.00%	(142,211.22)	951,720.66
40TH ST SEPTIC DUMP STATION MODICATIONS	1996	1.2954626	514,421.73	96.67%	(497,274.34)	17,147.39
PREPARE NPDES PERMITS	1994	1.3462463	203,874.10	43.33%	(88,345.77)	115,528.33
2002 SEWER REHAP CONTRACT 2	2004	1.0232607	2,947,044.95	4.67%	(137,528.82)	2,809,516.13
SNOW DRIVE EMERGENCY 16" CLAY SEWER	1998	1.2298142	26,604.05	30.33%	(8,070.05)	18,534.00
SNOW DRIVE EMERGENCY 10" CLAY SEWER	1998	1.2298142	13,343.57	30.34%	(4,047.90)	9,295.67
VALLEY WWTP EMERGENCY GATE REPAIR	1998	1.2298142	3,162.09	30.33%	(959.10)	2,202.99
VILLAGE CREEK PUMP STATION EMERGENCY	1998	1.2298142	26,105.56	29.67%	(7,744.93)	18,360.63
CAHABA SLUDGE LINE REPAIR	1998	1.2298142	2,199.15	29.66%	(652.34)	1,546.81
PIPELINE & MANHOLE REHABILITATION	1998	1.2298142	3,381,083.57	27.33%	(924,162.59)	2,456,920.98
ANNUAL CURDINE SEWER LINE REHAP	1999	1.2016009	4,140,423.29	23.00%	(952,297.15)	3,188,126.14
EMERGENCY SEWER REPAIR #2 PS HUEYTOWN	1999	1.2016009	6,355.27	25.00%	(1,588.82)	4,766.45
EMERGENCY SEWER REPAIR PS LEEDS	1999	1.2016009	1,976.63	24.98%	(493.86)	1,482.78
LAUREL LANE TRUNK SEWER	2003	1.0876158	569,361.08	8.00%	(45,548.83)	523,812.26
MANHOLE 2-3 ALEIGHT ADJ	2001	1.1478007	56,629.62	17.00%	(9,627.13)	47,002.49
MANHOLE HEIGHT ADJUSTMENT-VALLEY	2001	1.1478007	57,131.78	18.00%	(10,283.93)	46,847.85
#5 MANHOLE HEIGHT ADJ/VALLEY CREEK	2002	1.1135668	55,496.63	12.00%	(6,659.49)	48,837.14
#6 MANHOLE HGHT/VAL CREEK	2001	1.1478007	57,390.04	16.00%	(9,182.59)	48,207.45
VALLEY CREEK COLLECTION SYSTEM	2002	1.1135668	55,674.27	12.00%	(6,680.76)	48,993.51
#8 VALLEY CREEK COLLECTION SYSTEM	2002	1.1135668	54,879.36	12.00%	(6,585.52)	48,293.83
MANHOLE LIDS	2002	1.1135668	54,595.96	12.00%	(6,551.65)	48,044.31

EXISTING ASSETS

DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIAITION PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
MANHOLE LID & OR SEWER INSPECTIONS	1999	1.2016009	58,912.09	23.67%	(13,942.81)	44,969.28
#1 MAINTENANCE MANHOLE HEIGHT ADJ	2002	1.1135668	55,151.62	12.00%	(6,618.19)	48,533.43
ASPHALT RESURFACING & REPL	2000	1.1703102	58,515.51	20.33%	(11,898.39)	46,617.12
CAHABA RIVER SEWER COLLECTION SYSTEM	1996	1.2954626	644,619.62	37.67%	(242,806.72)	401,812.89
LONG-TERM FLOW MONITORING-LDS/TVI	1995	1.3307439	948,847.03	22.40%	(212,528.20)	736,318.83
LONG-TERM FLOW MONITORING-BARTON	1995	1.3307439	116,732.86	100.00%	(116,732.86)	0.00
LONG-TERM FLOW MONITORING	1995	1.3307439	123,519.65	58.60%	(72,388.10)	51,131.55
LONG TERM FLOW MONITORING-VILLAGE	1995	1.3307439	667,820.53	67.42%	(450,216.15)	217,604.38
VILLAGE CRK SEWER SYSTEM EVALUATION	1997	1.2496567	1,034,559.37	34.33%	(355,198.35)	679,361.03
VILLAGE CRK EVALUATION SURVEY PHASE IV	1997	1.2496567	1,103,829.43	34.33%	(378,981.14)	724,848.29
INFILTRATION/INFLOW MGMT	1996	1.2954626	393,924.28	37.67%	(148,378.14)	245,546.13
VILLAGE CRK SEWER COLLECTION-PHASE II	1997	1.2496567	2,020,195.01	34.33%	(693,600.69)	1,326,594.33
LONG-TERM FLOW MONITOR-SVC/MAINT	1997	1.2496567	204,351.36	34.33%	(70,161.05)	134,190.31
LONG-TERM FLOW MONITORING 1996,CNTRCT	1997	1.2496567	718,390.15	34.33%	(246,646.88)	471,743.27
FLOW-TERM FLOW MONITORING 1996,CNTRCT	1997	1.2496567	165,579.51	34.33%	(56,849.38)	108,730.13
LONG-TERM FLOW MONITORING II	1997	1.2496567	266,614.26	34.33%	(91,537.98)	175,076.28
MISC CAPPED SEWERS-DESIGN	1995	1.3307439	131,743.65	40.33%	(53,136.60)	78,607.04
PINCHGUT CREEK TRUNK SEWER	1993	1.3974088	28,290.82	47.67%	(13,485.08)	14,805.74
MISC CAPPED-TUNNELS-ENGINEERING	1993	1.3974088	8,181.66	47.34%	(3,872.93)	4,308.73
MISC SEWERS-ROW NEEDS/PROP PLATS-DESIGN	1995	1.3307439	72,392.47	41.67%	(30,163.15)	42,229.32
LATERAL SEWER PIPELINE	1994	1.3462463	4,386.74	44.66%	(1,959.15)	2,427.59
ENSLEY-ADAMSVILLE RD SWR RELOCATION	1995	1.3307439	112,315.65	42.33%	(47,547.08)	64,768.57
MISC ASSESSMENT SEWERS-DESIGN	1995	1.3307439	82,140.17	40.67%	(33,403.67)	48,736.50
LATERAL SEWER EXTENSION-WESTCHESTER	1994	1.3462463	36,348.65	45.67%	(16,599.22)	19,749.43
EMR SWR REPR-SEWER LINE POINT REPAIR	1999	1.2016009	107,580.28	23.67%	(25,460.94)	82,119.34
SEWER SYSTEM EVALUATION	2000	1.1703102	3,218,353.16	19.00%	(611,487.32)	2,606,865.84
PIPE REHAP ANN SUPPLY SWR REPAIRS	2001	1.1478007	4,591,157.36	17.67%	(811,104.40)	3,780,052.95
CURELINE SWR REHAB	2000	1.1703102	3,218,353.10	19.67%	(632,943.02)	2,585,410.08
ANNISH SWR LINE REHAB	2001	1.1478007	3,156,334.92	16.67%	(526,056.01)	2,630,278.91
#4 MANHOLE MAINTENANCE	2002	1.1135668	55,589.50	14.33%	(7,967.79)	47,621.71
#2 MANHOLE HEIGHT ADJUSTMENT	2002	1.1135668	54,656.64	12.00%	(6,558.86)	48,097.78
MANHOLE CONSTRUCTION #5	2000	1.1703102	58,515.51	22.33%	(13,068.73)	45,446.79
ANNUAL CURELINE SUPLY 01	2001	1.1478007	5,738,955.95	15.33%	(879,973.34)	4,858,982.61
PIPELINE/MANHOLE FY 2001	2001	1.1478007	5,739,002.80	15.67%	(899,110.23)	4,839,892.57
SANITARY SWR REHAB CONTRACT 1, 2001	2001	1.1478007	13,930,240.46	15.67%	(2,182,404.34)	11,747,836.11
VALLEY CREEK COLL SYSTEM	2001	1.1478007	57,367.08	18.67%	(10,708.52)	46,658.56
EMER. SEWER-CAPITAL IMPROVEMENTS	2003	1.0876158	885,764.96	8.67%	(76,766.31)	808,998.64
40TH STREET CONSTRUCTION REVIEW	1998	1.2298142	14,207.38	27.33%	(3,883.53)	10,323.85
SMALL CONTRACTORS DEVELOPMENT PLAN	1998	1.2298142	140,198.82	28.67%	(40,190.33)	100,008.49
MASTER PLANFOR SEP SUPP ENVIR PROJECTS	2003	1.0876158	1,740,331.09	8.33%	(145,027.58)	1,595,303.51
INFILTRATION/INFLOW MANAGEMENT	1998	1.2298142	228,059.82	29.33%	(66,897.37)	161,162.45
INFILTRATION/INFLOW MGMT	1998	1.2298142	2,862,109.67	27.00%	(772,769.94)	2,089,339.73
DESIGN MISCELLANEOUS SEWER SYSTEMS	1998	1.2298142	137,001.30	28.00%	(38,360.02)	98,641.28
SEWER DRAWINGS	2000	1.1703102	317,488.89	21.67%	(68,789.49)	248,699.40
MORRIS/KIMBERLY WWTF	2003	1.0876158	28,559.97	8.33%	(2,379.98)	26,180.00
GEOTECH EXP CORRIDOR X	2002	1.1135668	13,400.94	14.67%	(1,965.27)	11,435.67
MORRIS/KIMBERLY WWTF	2004	1.0232607	53,286.30	6.00%	(3,197.12)	50,089.19
MORRIS/KIMBERLY SANITARYT SEWER	2004	1.0232607	135,950.93	6.00%	(8,157.09)	127,793.84
CORRIDOR "X" RIGHT OF WAY	1999	1.2016009	45,660.84	25.00%	(11,415.51)	34,245.33
#2 CORRIDOR X RIGHT OF WAY	2003	1.0876158	87,276.25	8.00%	(6,982.08)	80,294.17
REVIEW & EVALUATION-SEWER	2004	1.0232607	2,151,221.58	6.67%	(143,414.70)	2,007,806.89
DESIGN-MISC SANITARY SEWERS	2000	1.1703102	164,428.59	21.67%	(35,625.94)	128,802.65
DESIGN-MISC SANITARY SEWERS	2000	1.1703102	165,745.19	21.67%	(35,911.20)	129,833.98
DESIGN-MISC SANITARY SERVICES	2000	1.1703102	109,787.62	21.67%	(23,787.14)	86,000.48
SIMS SEWER DEED MAPPING	2003	1.0876158	584,141.02	10.00%	(58,414.10)	525,726.92
SEWER INSFRASTUCTURE MGT	2002	1.1135668	1,107,408.17	14.67%	(162,419.96)	944,988.21
PROFESSIONAL SERVICES AGREEMENT	2003	1.0876158	532,931.61	9.00%	(47,963.76)	484,967.85
SANITARY SEWER BASE MAPPING CONTROL	2003	1.0876158	206,417.13	8.67%	(17,889.52)	188,527.61
EVALUATION OF CIPP PROCESS	2000	1.1703102	40,960.86	100.00%	(40,960.86)	0.00
PROJECT MGMT AGREEMENT	1997	1.2496567	1,615,784.33	31.33%	(506,278.87)	1,109,505.46
INFILTRATION AND INFLOW IMPROVEMENTS	1998	1.2298142	1,181,871.85	28.00%	(330,924.26)	850,947.59
INFILTRATION/INFLOW MGMT PROGRAM	1999	1.2016009	677,135.72	24.33%	(164,770.00)	512,365.72
JEFF CO IN FLOW IMPROVEMENTS PROJ MGMT	1999	1.2016009	1,780,744.00	23.67%	(421,442.68)	1,359,301.31
ENVIRONMENTAL SERVICES RECORD	2000	1.1703102	266,721.28	19.00%	(50,677.16)	216,044.12
SSES UPPER VALLEY COLL SYSTEM	2000	1.1703102	949,403.53	21.00%	(199,375.01)	750,028.52
VALLEY CREEK PHASE II CONTRACT 2	1997	1.2496567	763,227.84	32.33%	(246,776.60)	516,451.24
1997 CONTRACT I FLOW MONITORING	1998	1.2298142	882,411.36	30.33%	(267,664.78)	614,746.58
FIVE MILE CREEK SWR SYSTEM SURVEY	2000	1.1703102	805,729.34	21.33%	(171,889.18)	633,840.17
UPPER VALLEY SEWER COLLECTION SEWER	1998	1.2298142	433,386.52	29.00%	(125,682.45)	307,704.07
SEWER SYSTEM SURVEY-SHADES VALLEY	2000	1.1703102	797,730.10	20.67%	(164,864.01)	632,866.08
FIVE MILE VALLEY CREEK	2000	1.1703102	128,935.50	22.33%	(28,795.58)	100,139.92
SHADES VALLEY PH 1 #2SSES	2002	1.1135668	444,206.32	12.00%	(53,304.75)	390,901.57
WARRIOR & PRUDES CRK COLL SYSTEM	2003	1.0876158	218,736.67	10.00%	(21,873.80)	196,862.87
CONTRACT 2 PHASE II FIVE MILE WW	2002	1.1135668	759,746.73	12.00%	(91,169.45)	668,577.28
LONG TERM FLOW MONITORING	2003	1.0876158	715,281.09	10.00%	(71,528.14)	643,752.95
LONG TERM FLOOR-MONITORING	2000	1.1703102	509,664.82	22.33%	(113,825.02)	395,839.80
SANITARY SWR TV INSPECTION	2000	1.1703102	58,461.40	21.33%	(12,471.57)	45,989.82
#3 MISC SS TV INSPECTION FOR SEWER	2000	1.1703102	58,480.79	21.33%	(12,476.07)	46,004.72
SWR SURVEY INSPECTION	2000	1.1703102	57,696.52	21.33%	(12,308.30)	45,388.21

EXISTING ASSETS

DESCRIPTION	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIAITION PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
LONG TERM FLOW #2	2003	1.0876158	584,531.64	10.00%	(58,453.26)	526,078.38
ANALYSIS-BIOLOSLIDS-LAND APPLICATION!	2000	1.1703102	20,649.06	21.67%	(4,473.69)	16,175.37
BELTONE SITE SAMPLING	2001	1.1478007	19,178.11	17.33%	(3,324.27)	15,853.84
RISK MGMT PROGRAM	1999	1.2016009	115,113.37	24.67%	(28,394.33)	86,719.03
RISK MGMT PLAN RULE	2000	1.1703102	8,075.14	22.33%	(1,803.45)	6,271.69
JEFFERSON CO INFLOW IMPV (Y2K)	2000	1.1703102	2,377,633.38	19.33%	(459,675.88)	1,917,957.49
EMER.SWR.REPAIR-	2000	1.1703102	172,540.16	22.33%	(38,534.20)	134,005.96
EMR.SWR.SERVICES INSPECTION	2000	1.1703102	172,540.16	22.00%	(37,959.06)	134,581.10
PROFESSIONAL SVS-ENGINEERING FY0(	2001	1.1478007	513,625.31	16.67%	(85,604.13)	428,021.18
I & I IMP PROGRAM FY 2001	2002	1.1135668	3,393,535.71	14.67%	(497,718.77)	2,895,816.95
LONG TERM FLOW 2001	2003	1.0876158	340,072.49	10.00%	(34,007.35)	306,065.14
LONG TERM FLOW 2001	2003	1.0876158	1,051,151.71	10.00%	(105,115.24)	946,036.47
LONG TERM FLOW MONITORING DATA	2003	1.0876158	634,053.88	7.67%	(48,610.72)	585,443.17
#3 LONG TERM FLOW MONITORING	2003	1.0876158	610,396.07	9.33%	(56,970.40)	553,425.66
LONG TERM FLOW MONITORING-200:	2004	1.0232607	841,803.73	6.33%	(53,314.31)	788,489.43
CONSTRUCTED DRAWINGS-DRAFTING	1999	1.2016009	12,448.59	23.00%	(2,862.90)	9,585.69
EMERGENCY SS EVAL FY 2001	2001	1.1478007	3,156,451.99	16.33%	(515,554.01)	2,640,897.98
#2 SS EVALUATION FY 2001	2001	1.1478007	2,582,551.41	16.33%	(421,816.77)	2,160,734.65
SANITARY SEWER BASE MAPPING	2000	1.1703102	497,559.43	19.67%	(97,853.19)	399,706.25
RECORDS CONVERSION FY01	2001	1.1478007	133,884.15	15.00%	(20,082.44)	113,801.71
PROFESSIONAL SVCS 2001	2002	1.1135668	528,929.61	13.67%	(72,287.07)	456,642.54
RECORDS & DATA MNAGEMENT	2003	1.0876158	221,873.43	9.00%	(19,968.63)	201,904.81
I/I IMPROVEMENT PROGRAM	2003	1.0876158	3,497,644.98	9.00%	(314,788.06)	3,182,856.93
WASTE WATER COLLECTION SYSTEM	2003	1.0876158	90,621.96	10.00%	(9,062.23)	81,559.73
REVENUE STUDEY SWR LINES-OTHER PROF	2004	1.0232607	52,338.11	5.00%	(2,616.84)	49,721.27
ENGINEERING SERVICES AGREEMENT-200:	2004	1.0232607	250,698.62	6.00%	(15,041.99)	235,656.63
CON II VALLEY CRK WEST END	2002	1.1135668	206,257.58	12.00%	(24,750.98)	181,506.60
CONSTR REVIEW GRIFFIN BR	2001	1.1478007	585,662.54	15.67%	(91,753.88)	493,908.66
CORRIDOR X CROSSINGS	2001	1.1478007	79,198.25	17.67%	(13,991.69)	65,206.56
CORRIDOR X SANITARY SEWER CROSSINGS	2003	1.0876158	32,395.04	10.00%	(3,239.38)	29,155.66
MISC. SANITARY SEWER IMPROVEMENTS	2004	1.0232607	420,586.78	6.67%	(28,039.19)	392,547.59
SANITARY SWR MAINTENANCE	2002	1.1135668	352,505.38	13.67%	(48,175.55)	304,329.83
SEWER MANHOLE REHABILITATION	1996	1.2954626	25,680.47	37.00%	(9,502.06)	16,178.41
EMER SEW REP-1943 CROYDON CIRCLE	2000	1.1703102	7,107.33	20.00%	(1,421.22)	5,686.10
EMER SEW REP-1937 CROYDON CIRCLE	2000	1.1703102	10,782.68	20.00%	(2,156.41)	8,626.26
EMER SEW REP-1729 MOLLY DRIVE	2000	1.1703102	12,409.24	20.00%	(2,481.74)	9,927.51
EMER SEW REP-1745 MOLLY DRIVE	2000	1.1703102	13,587.42	20.00%	(2,717.46)	10,869.96
EMER SEW REP-1700 PATRICIA LANE	2000	1.1703102	10,967.90	20.00%	(2,193.63)	8,774.27
EMER SEW REP-1747 MOLLY DRIVE	2000	1.1703102	7,618.01	20.00%	(1,523.74)	6,094.26
EMER SEW REP-1945 CROYDON CIRCLE	2000	1.1703102	8,366.70	20.00%	(1,673.31)	6,693.39
EMER SEW REP-1742 TUDOR ROAD	2000	1.1703102	10,977.49	20.00%	(2,195.74)	8,781.75
EMER SEW REP-1751 TUDOR ROAD	2000	1.1703102	5,397.92	20.00%	(1,079.47)	4,318.44
EMER SEW REP-1957 CROYDON CIRCLE	2000	1.1703102	10,153.45	20.00%	(2,030.72)	8,122.73
EMER SEW REP-1794 CHER BROUG DRIVE	2000	1.1703102	1,450.12	20.00%	(290.00)	1,160.12
EMER SEW REP-1953 PEBBLE LAKE DRIVE	2000	1.1703102	7,052.66	20.00%	(1,410.69)	5,641.97
EMER SEW REP-1851 TUDOR ROAD	2000	1.1703102	6,043.82	20.00%	(1,208.57)	4,835.25
EMER SEW REP-1941 RIDGEMONT ROAD	2000	1.1703102	9,092.47	20.00%	(1,818.66)	7,273.81
EMER SEW REP-RIDGEMONT RD & CREELY	2000	1.1703102	8,649.27	20.00%	(1,729.93)	6,919.34
EMER SEW REP-1921 RIDGEMONT RD	2000	1.1703102	8,767.10	20.00%	(1,753.36)	7,013.74
EMER SEW REP-1707 PATRICIA DRIVE	2000	1.1703102	10,695.01	20.00%	(2,138.86)	8,556.15
EMER SEW REP-RIDGEMONT RD & CREELY	2000	1.1703102	8,465.19	20.00%	(1,692.97)	6,772.22
EMER SEW REP-1713 MOLLY DRIVE	2000	1.1703102	13,185.34	20.00%	(2,637.10)	10,548.24
EMER SEW REP-1717 MOLLY DRIVE	2000	1.1703102	11,226.81	20.00%	(2,245.59)	8,981.22
EMER SWR REPAIR JOEL LANE NORTH	2001	1.1478007	15,034.65	15.33%	(2,305.20)	12,729.45
BROWSER ROAD TRUNK SEWER-ENGINEERING	1997	1.2496567	61,233.18	34.00%	(20,818.87)	40,414.31
TRUSSVILLE TRUNK SEWER-PHASE 1	1996	1.2954626	5,846,551.19	35.00%	(2,046,292.55)	3,800,258.64
EMER SWER REPR-110 SO MALL ST TR'VILLE	2000	1.1703102	13,206.56	0.00%	0.00	13,206.56
T'VILL SER RD SWR LINE CONSTRUCTION	2004	1.0232607	4,579.58	5.00%	(229.01)	4,350.58
SWEETWATER PARK SEWER RELOCATION	1996	1.2954626	286,640.54	38.00%	(108,923.41)	177,717.13
EMERGENCY SEWER REPAIR HWY 150 PUMP	1998	1.2298142	7,200.32	28.34%	(2,040.36)	5,159.96
EMER SWR RPR-RIDGE RD	1999	1.2016009	1,760.59	24.98%	(439.88)	1,320.70
MAN HOLE HEIGHT ADJ-VALLEY CREEK #27	2003	1.0876158	54,223.80	9.67%	(5,241.78)	48,982.03
EMR SWR REPAIR-548 19TH ST SW	2002	1.1135668	14,707.63	12.67%	(1,863.14)	12,844.49
VALLEY CREEK BRICK SEWER REPLACEMENT	2004	1.0232607	291,364.02	5.67%	(16,510.70)	274,853.32
DUMP BODY (E903215)	1990	1.5385672	8,446.73	100.00%	(8,446.73)	0.00
DUMP BODY (E903216)	1990	1.5385672	8,446.73	100.00%	(8,446.73)	0.00
DELL 2650 SERVER FOR CAW SERVER	2005	1	5,170.90	10.00%	(517.08)	4,653.82
SINGLE PHASE NON-CLOP PUMP	1998	1.2298142	4,160.46	69.16%	(2,877.51)	1,282.95
3 PHASE GRINDER PUMP	1998	1.2298142	3,490.21	69.17%	(2,414.06)	1,076.15
SINGLE PHASE NON-CLOP PUMP	1998	1.2298142	4,160.46	69.16%	(2,877.51)	1,282.95
3 PHASE GRINDER PUMP	1998	1.2298142	3,490.21	69.17%	(2,414.06)	1,076.15
CENTERA DATA STORAGE SYSTEM	2005	1	227,672.00	10.00%	(22,767.18)	204,904.82
			$ 2,120,651,818		$ (809,806,034)	$ 1,310,845,784

CONSTRUCTION IN PROGRESS

PROJECT	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
1A04O			141,305	0	141,305
1A04P			(0)	0	(0)
1A04S			242,576	0	242,576
1A04T			5,162,623	0	5,162,623
1A04U			389,324	0	389,324
1A06B			19,334	0	19,334
1A06F			3,760	0	3,760
1A06G			951,481	0	951,481
1A07C			309,712	0	309,712
1A07E			187,995	0	187,995
1A09C			416,657	0	416,657
1A09D			439,000	0	439,000
1A09E			306,800	0	306,800
1A09G			62,560	0	62,560
1A09I			9,996,590	0	9,996,590
1A09I			1,745,711	0	1,745,711
1A09K			56,194	0	56,194
1A09L			10,000	0	10,000
1A09M			286,952	0	286,952
1A19I			6,709	0	6,709
1A10C			2,713,049	0	2,713,049
1A11C			45,000	0	45,000
1A12D			1,869,647	0	1,869,647
1A13A			155,283	0	155,283
1A12E			58,279	0	58,279
1A16A			258,134	0	258,134
1A16C			47,152	0	47,152
1A16D			40,490	0	40,490
1A19G			313,209	0	313,209
1A19H			21,907	0	21,907
1A19I			88,288	0	88,288
1A19J			3,768,584	0	3,768,584
1A19K			337,089	0	337,089
1A23A			158,926	0	158,926
1A24B			145,779	0	145,779
1A24C			27,771,182	0	27,771,182
1A24D			386,074	0	386,074
1A24E			661,049	0	661,049
1A24G			350,454	0	350,454
1A24H			23,926,600	0	23,926,600
1A25D			245,827	0	245,827
1A28B			112,510	0	112,510
1A29A			62,215	0	62,215
1A30A			437,761	0	437,761
1A30B			299,409	0	299,409
1A30C			72,297	0	72,297
1A30E			88,127	0	88,127
1A30G			49,685	0	49,685
1A31A			198,161	0	198,161
1A31B			3,193	0	3,193
1A33A			0	0	0
1A33B			158,388	0	158,388
1A34A			0	0	0
1A35A			283,127	0	283,127
1A37A			784,401	0	784,401
1A38A			222,879	0	222,879
1A38B			17,240	0	17,240
1A38C			199,986	0	199,986
1A39A			30,801	0	30,801
1A41A			25,805	0	25,805
1A50C			4,762,053	0	4,762,053
1A50D			56,928	0	56,928
1A50E			(6,957,959)	0	(6,957,959)
1A50I			104,459	0	104,459
1A50K			3,330,070	0	3,330,070
1A50M			3,007,030	0	3,007,030
1A50R			100,000	0	100,000
1A50V			14,341,549	0	14,341,549
1A50W			129,675	0	129,675
1A50X			186,401	0	186,401
1A50Y			445,250	0	445,250
1A51B			221,549	0	221,549
1A51C			22,608,843	0	22,608,843

CONSTRUCTION IN PROGRESS

PROJECT	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
1A51H			247,488	0	247,488
1A51J			909,282	0	909,282
1A51L			3,358,675	0	3,358,675
1A51O			295,761	0	295,761
1A51Q			5,242,910	0	5,242,910
1A51R			36,723	0	36,723
1A51T			162,905	0	162,905
1A51V			(301,482)	0	(301,482)
1A51W			2,098,635	0	2,098,635
1A51Z			290,625	0	290,625
1A52A			65,992	0	65,992
1A52B			212,783	0	212,783
1A52D			9,741	0	9,741
1A52J			272,509	0	272,509
1A52L			205,106	0	205,106
1A52P			4,294,226	0	4,294,226
1A52Q			844,736	0	844,736
1A52T			853,229	0	853,229
1A52U			704,146	0	704,146
1A52V			812,654	0	812,654
1A52X			67,726	0	67,726
1A52Y			47,497	0	47,497
1A53A			67,777	0	67,777
1A53C			21,493	0	21,493
1A53D			2,091,447	0	2,091,447
1A53E			445,377	0	445,377
1A53F			0	0	0
1A53G			0	0	0
1A53I			0	0	0
1A53J			19,345	0	19,345
1A53K			311,068	0	311,068
1A53L			788,931	0	788,931
1A53M			856,634	0	856,634
1A53N			231,962	0	231,962
1A53O			77,657	0	77,657
1A53P			248,154	0	248,154
1A53Q			184,871	0	184,871
1A53R			1,321,683	0	1,321,683
1A53S			1,207,200	0	1,207,200
1A53T			0	0	0
1A53U			1,057,697	0	1,057,697
1A53V			209,636	0	209,636
1A53W			857,481	0	857,481
1A53X			0	0	0
1A53Z			39,494	0	39,494
1A54A			58,626	0	58,626
1A54B			0	0	0
1A54C			1,638,038	0	1,638,038
1A54D			1,915,277	0	1,915,277
1A54F			142,637	0	142,637
1A54G			254,677	0	254,677
1A54H			0	0	0
1A54I			2,060,229	0	2,060,229
1A54J			258,235	0	258,235
1A54K			34,099	0	34,099
1A54L			169,225	0	169,225
1A54M			884,758	0	884,758
1A54N			144,907	0	144,907
1A54O			1,476,876	0	1,476,876
1A54Q			255,389	0	255,389
1A54R			319,907	0	319,907
1A54S			2,411,463	0	2,411,463
1A54T			0	0	0
1A54U			871,686	0	871,686
1A54V			57,829	0	57,829
1A54W			0	0	0
1A54X			0	0	0
1A54Y			1,443,180	0	1,443,180
1A54Z			89,097	0	89,097
1A55A			137,519	0	137,519
1A55B			321,459	0	321,459
1A55C			0	0	0
1A55D			1,358,525	0	1,358,525

CONSTRUCTION IN PROGRESS

PROJECT	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
1A55E			261,982	0	261,982
1A55F			369,050	0	369,050
1A55G			44,671	0	44,671
1A55H			89,648	0	89,648
1A55I			29,871	0	29,871
1A55J			64,326	0	64,326
1A55L			975,207	0	975,207
1B05A			19,500	0	19,500
1B06C			1,776	0	1,776
1B10A			170,355	0	170,355
1B10B			4,000	0	4,000
1B10D			108,592	0	108,592
1B12D			1,032,225	0	1,032,225
1B13A			207,097	0	207,097
1B13D			1,296,699	0	1,296,699
1B15D			294,376	0	294,376
1B15G			55,907	0	55,907
1B15K			255,709	0	255,709
1B15N			341,091	0	341,091
1B15P			102,027	0	102,027
1B15Q			1,225,838	0	1,225,838
1B15R			106,984	0	106,984
1B16A			379,843	0	379,843
1B18B			394,121	0	394,121
1B18C			468,664	0	468,664
1B21A			276,530	0	276,530
1B21B			200,497	0	200,497
1B21D			469,687	0	469,687
1B24A			239,251	0	239,251
1B25A			105,601	0	105,601
1B27A			196,012	0	196,012
1B28A			232,989	0	232,989
1B28B			641,660	0	641,660
1B51D			82,793	0	82,793
1B51E			55,075	0	55,075
1B51F			1,697,581	0	1,697,581
1B51G			246,171	0	246,171
1C06A			2,269	0	2,269
1C08B			254,512	0	254,512
1C09A			356,066	0	356,066
1C14E			553,498	0	553,498
1C20B			911,151	0	911,151
1C24A			240,499	0	240,499
1C24B			140,250	0	140,250
1C25A			141,714	0	141,714
1C50B			2,254,852	0	2,254,852
1C50D			202,752	0	202,752
1C50K			219,453	0	219,453
1C50M			146,993	0	146,993
1C50N			9,413,677	0	9,413,677
1C50Q			180,497	0	180,497
1C50R			3,875,318	0	3,875,318
1C50S			(33,586)	0	(33,586)
1C50V			70,569	0	70,569
1C50Y			4,193,546	0	4,193,546
1C51A			471,033	0	471,033
1C51B			245,871	0	245,871
1C51I			1,081,622	0	1,081,622
1C51M			296,191	0	296,191
1C51N			4,763,429	0	4,763,429
1C51T			5,978,069	0	5,978,069
1C51X			5,573,670	0	5,573,670
1C52E			32,124	0	32,124
1C52M			173,052	0	173,052
1C52Q			933,088	0	933,088
1C52R			206,000	0	206,000
1C52S			5,846,047	0	5,846,047
1C52U			8,096,771	0	8,096,771
1C52V			7,749,673	0	7,749,673
1C52W			580	0	580
1C52X			862,167	0	862,167
1C52Z			39,403	0	39,403
1C53A			493,706	0	493,706

CONSTRUCTION IN PROGRESS

PROJECT	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
1C53C			935,345	0	935,345
1C53I			226,943	0	226,943
1C53J			257,797	0	257,797
1C53K			87,209	0	87,209
1C53L			93,007	0	93,007
1C53M			408,407	0	408,407
1C53N			(185,255)	0	(185,255)
1C53O			53,914	0	53,914
1C53P			115,214	0	115,214
1C53Q			336,366	0	336,366
1C53R			134,027	0	134,027
1C53S			86,262	0	86,262
1C53U			171,983	0	171,983
1Z53W			1,847,249	0	1,847,249
1C53X			345,899	0	345,899
1C53Z			278,574	0	278,574
1C54B			278,281	0	278,281
1C54E			303,447	0	303,447
1C54G			30,362	0	30,362
1C54I			5,406,127	0	5,406,127
1C54J			215,667	0	215,667
1C54K			648,158	0	648,158
1C54L			540,108	0	540,108
1C54M			115,469	0	115,469
1C54N			6,887,042	0	6,887,042
1C54O			262,083	0	262,083
1C54P			21,500	0	21,500
1C54Q			522,329	0	522,329
1C54R			128,038	0	128,038
1C54S			123,081	0	123,081
1C54U			160,385	0	160,385
1C54T			47,019	0	47,019
1C54V			52,527	0	52,527
1C54W			71,703	0	71,703
1D07C			241,275	0	241,275
1D11C			470,968	0	470,968
1D11G			331,650	0	331,650
1D15C			(81,932)	0	(81,932)
1D160			7,943	0	7,943
1D18A			695,770	0	695,770
1D26F			269	0	269
1D18D			192,419	0	192,419
1D21E			7,543,678	0	7,543,678
1D21G			9,780,206	0	9,780,206
1D23A			158,139	0	158,139
1D26A			874,751	0	874,751
1D26B			14,065	0	14,065
1D26E			4,672	0	4,672
1D26F			284,037	0	284,037
1D27A			122,105	0	122,105
1D28A			11,324	0	11,324
1D29A			48,972	0	48,972
1D30A			53,475	0	53,475
1D31A			14,868	0	14,868
1D50R			2,284,447	0	2,284,447
1D50S			138,745	0	138,745
1D50W			116,096	0	116,096
1D50Z			272,126	0	272,126
1D51B			629,414	0	629,414
1D51C			81,932	0	81,932
1D51D			1,532,296	0	1,532,296
1D51E			125,239	0	125,239
1D51F			0	0	0
1D51G			810,709	0	810,709
1D51I			51,236	0	51,236
1E03C			6,492,822	0	6,492,822
1E03F			16,241	0	16,241
1E04B			40,352	0	40,352
1E04E			10,920	0	10,920
1E050			9,000	0	9,000
1E07A			62,428	0	62,428
1E07B			(2,455)	0	(2,455)
1E07D			71,379	0	71,379

CONSTRUCTION IN PROGRESS

PROJECT	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
1E10A			35,000	0	35,000
1E10C			0	0	0
1F50A			19	0	19
1F05D			785,394	0	785,394
1F05E			10,816,668	0	10,816,668
1F05F			427,469	0	427,469
1F05G			265,817	0	265,817
1F05H			65,681	0	65,681
1F05I			100	0	100
1F05J			0	0	0
1F05K			64,838	0	64,838
1F05L			133,259	0	133,259
1F07A			171,233	0	171,233
1F08C			103,968	0	103,968
1F10A			30,000	0	30,000
1F10C			163,966	0	163,966
1F11A			165,410	0	165,410
1F50F			118,060	0	118,060
1G01A			37,618	0	37,618
1G09A			135,670	0	135,670
1G10A			(19,800)	0	(19,800)
1G10B			(46,449)	0	(46,449)
1G11A			249,400	0	249,400
1G17A			16,569	0	16,569
1G18A			132,516	0	132,516
1G24A			(46,566)	0	(46,566)
1G25A			244,647	0	244,647
1G26A			75,744	0	75,744
1G50C			350,627	0	350,627
1G50D			0	0	0
1G50E			262,688	0	262,688
1G50F			71,550	0	71,550
1H03A			(149,085)	0	(149,085)
1H04A			191,891	0	191,891
1H05A			49,816	0	49,816
1H50B			8,810,831	0	8,810,831
1H06A			56,211	0	56,211
1J01D			168,500	0	168,500
1J05C			349,754	0	349,754
1J10A			30,692	0	30,692
1J10B			224,573	0	224,573
1J11A			0	0	0
1J11B			347,732	0	347,732
1J11C			173,803	0	173,803
1J12A			84,980	0	84,980
1J12B			19,192	0	19,192
1J14A			245,171	0	245,171
1J15A			126,003	0	126,003
1J16A			223,903	0	223,903
1J17A			43,075	0	43,075
1J50A			839,413	0	839,413
1J50C			689,400	0	689,400
1J50D			781,954	0	781,954
1J50E			177,496	0	177,496
1J50F			2,692,978	0	2,692,978
1J50G			1,308,159	0	1,308,159
1J50H			262,000	0	262,000
1J50I			2,090,544	0	2,090,544
1J50J			1,856,937	0	1,856,937
1J50K			298,436	0	298,436
1J50L			18,850	0	18,850
1J50M			288,804	0	288,804
1J50N			1,142,430	0	1,142,430
1J50O			253,220	0	253,220
1J50P			734,395	0	734,395
1J50Q			110,747	0	110,747
1J50R			765,080	0	765,080
1J50S			144,418	0	144,418
1J50U			130,968	0	130,968
1K05B			0	0	0
1K05E			242,453	0	242,453
1K05I			0	0	0
1K50A			158,621	0	158,621

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CONSTRUCTION IN PROGRESS

PROJECT	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
1K50B			779,934	0	779,934
1K50D			0	0	0
1K50E			58,051	0	58,051
1K06A			78,976	0	78,976
1K09A			393,802	0	393,802
1W01F			0	0	0
1W02A			50,370	0	50,370
1W50B			185,188	0	185,188
1Z09C			11,438	0	11,438
1Z13A			35,226	0	35,226
1Z14A			17,671	0	17,671
1Z16A			128,606	0	128,606
1Z16D			171,867	0	171,867
1Z16P			92,612	0	92,612
1Z16Q			36,500	0	36,500
1Z17B			544,801	0	544,801
1Z17C			634,233	0	634,233
1Z19A			95,414	0	95,414
1Z19B			253,558	0	253,558
1Z19C			175,870	0	175,870
1Z19D			64,921	0	64,921
1Z25A			670,697	0	670,697
1Z40B			0	0	0
1Z40D			697,721	0	697,721
1Z40E			735,005	0	735,005
1Z40G			628,042	0	628,042
1Z40H			0	0	0
1Z50A			47,652	0	47,652
1Z50B			188,500	0	188,500
1Z50C			1,960	0	1,960
1Z50D			15,849	0	15,849
1Z50G			734,611	0	734,611
1Z56F			4,348	0	4,348
1Z56G			4,129	0	4,129
1Z56H			5,341	0	5,341
1Z56I			10,053	0	10,053
1Z56J			8,123	0	8,123
1Z56K			11,366	0	11,366
1Z56L			8,862	0	8,862
1Z56M			14,602	0	14,602
1Z56N			4,166	0	4,166
1Z56R			1,669	0	1,669
1Z56S			5,614	0	5,614
1Z56T			5,775	0	5,775
1Z56U			935	0	935
1Z56V			4,850	0	4,850
1Z56W			1,400	0	1,400
1Z56X			14,143	0	14,143
1Z56Y			2,423	0	2,423
1Z56Z			3,265	0	3,265
1Z57A			4,538	0	4,538
1Z57B			19,632	0	19,632
1Z57C			3,108	0	3,108
1Z57D			21,136	0	21,136
1Z57E			1,641	0	1,641
1Z57F			8,785	0	8,785
1Z57G			1,424	0	1,424
1Z57H			3,196	0	3,196
1Z57I			3,270	0	3,270
1Z57J			3,102	0	3,102
1Z57K			3,290	0	3,290
1Z57L			5,678	0	5,678
1Z57M			2,031	0	2,031
1Z57N			7,206	0	7,206
1Z57T			2,488	0	2,488
1Z57U			26,788	0	26,788
1Z57V			49,575	0	49,575
1Z57W			1,225	0	1,225
1Z57X			9,932	0	9,932
1Z57Y			4,498	0	4,498
1Z57Z			8,799	0	8,799
1Z58A			4,869	0	4,869
1Z58B			1,913	0	1,913

CONSTRUCTION IN PROGRESS

PROJECT	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
1Z58C			1,546	0	1,546
1Z58D			1,465	0	1,465
1Z58E			1,182	0	1,182
1Z58F			9,579	0	9,579
1Z58G			4,522	0	4,522
1Z58H			8,977	0	8,977
1Z58I			802	0	802
1Z58J			2,190	0	2,190
1Z58L			2,394	0	2,394
1Z58M			9,721	0	9,721
1Z58N			12,394	0	12,394
1Z58O			27,496	0	27,496
1Z58P			25,003	0	25,003
1Z58Q			27,373	0	27,373
1Z58R			4,896	0	4,896
1Z58T			14,976	0	14,976
1Z58U			6,166	0	6,166
1Z58X			6,887	0	6,887
1Z58Y			12,432	0	12,432
1Z58Z			3,893	0	3,893
1Z59A			11,267	0	11,267
1Z59B			7,943	0	7,943
1Z59C			2,449	0	2,449
1Z59D			3,980	0	3,980
1Z59E			6,566	0	6,566
1Z59E			10,916	0	10,916
1Z59F			6,307	0	6,307
1Z59G			3,618	0	3,618
1Z59H			3,616	0	3,616
1Z59I			7,862	0	7,862
1Z59J			9,151	0	9,151
1Z59K			6,708	0	6,708
1Z59L			27,461	0	27,461
1Z59M			18,724	0	18,724
1Z59N			14,052	0	14,052
1Z59O			3,545	0	3,545
1Z59Q			9,272	0	9,272
1Z59R			3,991	0	3,991
1Z59S			29,014	0	29,014
1Z59U			2,236	0	2,236
1Z59V			2,578	0	2,578
1Z59W			5,496	0	5,496
1Z59X			4,517	0	4,517
1Z59Y			11,031	0	11,031
1Z59Z			15,663	0	15,663
1Z80E			0	0	0
1Z80I			279,883	0	279,883
1Z80J			324,686	0	324,686
1Z80K			424,241	0	424,241
1Z80L			(523,495)	0	(523,495)
1Z80M			188,839	0	188,839
1Z80O			508,562	0	508,562
1Z80P			138,373	0	138,373
1Z80Q			0	0	0
1Z80R			74,548	0	74,548
1Z83A			42,392	0	42,392
1Z85A			49,358	0	49,358
1Z85O			2,000	0	2,000
1Z85Z			49,248	0	49,248
1Z90A			141,070	0	141,070
1Z90B			295,849.	0	295,849
1Z90C			82,000	0	82,000
1Z90D			442,509	0	442,509
1Z90E			750,000	0	750,000
1Z90G			93,081	0	93,081
1Z90K			12,120	0	12,120
1Z90P			49,425	0	49,425
1Z90Q			48,797	0	48,797
1Z90R			230,381	0	230,381
1Z90U			105,068	0	105,068
1Z90W			19,021	0	19,021
1Z91D			1,000	0	1,000
1Z91E			250,124	0	250,124

CONSTRUCTION IN PROGRESS

PROJECT	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
1Z91K			314,465	0	314,465
1Z91L			976,130	0	976,130
1Z91O			201,116	0	201,116
1Z91S			49,990	0	49,990
1Z91U			(0)	0	(0)
1Z91W			414,095	0	414,095
1Z91X			525,796	0	525,796
1Z91Y			537,443	0	537,443
1Z91Z			636,504	0	636,504
1Z95F			111,405	0	111,405
1Z95G			(134,669)	0	(134,669)
1Z95I			3,900	0	3,900
1Z95N			96,929	0	96,929
1Z95O			104,432	0	104,432
1Z95P			576,535	0	576,535
1Z95T			8,665	0	8,665
1Z95U			15,480	0	15,480
1Z95V			442,482	0	442,482
1Z95W			115,834	0	115,834
1Z95X			518,890	0	518,890
1Z95Y			542,714	0	542,714
1Z96O			100,324	0	100,324
1Z96D			218,086	0	218,086
1Z96U			12,300	0	12,300
1Z96V			20,000	0	20,000
1Z96Z			482,352	0	482,352
1Z96Z			(24,961)	0	(24,961)
1Z96Z			221,830	0	221,830
1Z96Z			1,524	0	1,524
1Z96Z			29,471	0	29,471
1Z96Z			59,504	0	59,504
1Z96Z			69,988	0	69,988
1Z96Z			(25,793)	0	(25,793)
1Z96Z			(17,374)	0	(17,374)
1Z96Z			(1,847)	0	(1,847)
1Z97H			(4,191)	0	(4,191)
1Z97Q			(49,200)	0	(49,200)
1Z97U			894,249	0	894,249
1Z97V			377,852	0	377,852
1Z97X			554,285	0	554,285
1Z98M			90,122	0	90,122
1Z98N			152,347	0	152,347
1Z98O			12,341	0	12,341
1Z98Q			144,972	0	144,972
1Z98R			236,313	0	236,313
1Z98S			4,150	0	4,150
1Z98T			192,057	0	192,057
1Z98U			232,322	0	232,322
1Z98V			375,950	0	375,950
1Z98W			52,796	0	52,796
1Z98X			94,030	0	94,030
1Z98Y			53,304	0	53,304
1Z98Z			292,623	0	292,623
1Z99B			28,211	0	28,211
1Z99C			26,350	0	26,350
1Z99L			63,798	0	63,798
2A17E			10,393	0	10,393
2A17F			2,022,621	0	2,022,621
2A17G			61,804	0	61,804
2A17H			11,596,807	0	11,596,807
2A17I			274,075	0	274,075
2A17N			723,989	0	723,989
2A17P			68,998	0	68,998
2A17T			334,990	0	334,990
2A17U			79,057,687	0	79,057,687
2A17Z			(0)	0	(0)
2A19B			447,646	0	447,646
2A20A			1,342,559	0	1,342,559
2B22A			(0)	0	(0)
2B22B			2,130,000	0	2,130,000
2B50A			512,405	0	512,405
2B50B			722,518	0	722,518
2B50C			4,323,675	0	4,323,675

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CONSTRUCTION IN PROGRESS

PROJECT	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
2B50D			1,386,903	0	1,386,903
2B50E			346,950	0	346,950
2B50F			0	0	0
2B50G			247,245	0	247,245
2B50H			337,839	0	337,839
2B50I			170,995	0	170,995
2B50J			241,827	0	241,827
2B50K			47,075	0	47,075
2B50L			3,622,908	0	3,622,908
2B50M			226,144	0	226,144
2B50N			29,978	0	29,978
2B50O			0	0	0
2B50P			0	0	0
2B50Q			1,085,706	0	1,085,706
2B50R			121,562	0	121,562
2B50T			122,700	0	122,700
2B50U			1,191,914	0	1,191,914
2B50V			0	0	0
2B50W			187,041	0	187,041
2B50X			1,651,127	0	1,651,127
2B50Y			227,830	0	227,830
2B50Z			1,393,298	0	1,393,298
2B51A			1,311,757	0	1,311,757
2B51B			0	0	0
2B51C			121,001	0	121,001
2B51D			0	0	0
2B51E			1,222,134	0	1,222,134
2B51F			117,802	0	117,802
2B51G			2,075,808	0	2,075,808
2B51H			264,998	0	264,998
2B51I			1,337,005	0	1,337,005
2B51J			189,496	0	189,496
2B51K			1,596,543	0	1,596,543
2B51L			249,878	0	249,878
2C15I			462,851	0	462,851
2C15M			94,209	0	94,209
2C15O			44,295,063	0	44,295,063
2C15R			503,563	0	503,563
2C15T			5,933	0	5,933
2C15W			968,809	0	968,809
2C15X			23,549	0	23,549
2C15O			(66,865)	0	(66,865)
2C16D			5,169,047	0	5,169,047
2C18F			890	0	890
2C18H			589,273	0	589,273
2C18I			6,914,100	0	6,914,100
2C21E			38,739	0	38,739
2C22A			231,066	0	231,066
2C22C			9,094	0	9,094
2C23A			195,801	0	195,801
2C26A			936,749	0	936,749
2D02A			199,986	0	199,986
2D050			53,743,638	0	53,743,638
2D05H			26,612,398	0	26,612,398
2D05J			24,695	0	24,695
2D05K			808,931	0	808,931
2D05N			970,315	0	970,315
2D05P			2,237,234	0	2,237,234
2D05Q			617,606	0	617,606
2F03C			2,000	0	2,000
2F03G			(533,165)	0	(533,165)
2F03K			242,946	0	242,946
2F03L			906,638	0	906,638
2F03M			34,521	0	34,521
2G14C			(106,531)	0	(106,531)
2G14L			1,467,905	0	1,467,905
2G14M			33,919,298	0	33,919,298
2G14N			242,611	0	242,611
2H01G			13,582,391	0	13,582,391
2J08L			7,413,882	0	7,413,882
2J080			872,115	0	872,115
2J08P			907,123	0	907,123
2J08S			3,372,148	0	3,372,148

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CONSTRUCTION IN PROGRESS

PROJECT	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
2J08O			9,808	0	9,808
2J08T			122,312	0	122,312
2J08U			49,977	0	49,977
2J08W			846	0	846
2J08Z			1,481,527	0	1,481,527
2K08B			0	0	0
2K08C			0	0	0
2K08D			3,836,013	0	3,836,013
2K08E			252,955	0	252,955
2K08F			48,685	0	48,685
2M01B			477,001	0	477,001
2M01C			944,704	0	944,704
2M01F			332,553	0	332,553
2M01G			2,295,901	0	2,295,901
2M01H			800,477	0	800,477
2M01H			0	0	0
2M01L			253,788	0	253,788
2W01E			17,200	0	17,200
2W01G			14,998	0	14,998
2W01H			3,657,932	0	3,657,932
2W01I			248,138	0	248,138
2W01J			23,174	0	23,174
2Z05H			582	0	582
2Z05K			2,000	0	2,000
2Z05N			13,920	0	13,920
2Z05U			23,646	0	23,646
2Z05V			22,301	0	22,301
2Z05W			233,570	0	233,570
2Z05X			22,978	0	22,978
2Z18C			64,588	0	64,588
2Z96Z			9,874	0	9,874
2Z96Y			(3)	0	(3)
2Z91A			566,967	0	566,967
3Z51H			0	0	0
3Z85F			48,632	0	48,632
3Z85G			49,749	0	49,749
3Z85M			49,920	0	49,920
3Z85O			49,896	0	49,896
3Z85P			47,481	0	47,481
3Z85Q			49,930	0	49,930
3Z85R			49,975	0	49,975
3Z85S			49,733	0	49,733
3Z85V			48,510	0	48,510
3Z90A			495,304	0	495,304
3Z90C			20,059	0	20,059
3Z90D			432,494	0	432,494
3Z90E			153,028	0	153,028
3C52F			222,111	0	222,111
3Z90H			49,970	0	49,970
3Z90K			48,583	0	48,583
3Z90M			87,020	0	87,020
3Z90Q			49,805	0	49,805
3Z90R			49,042	0	49,042
3Z90S			81,378	0	81,378
3Z90V			72,362	0	72,362
3Z90V			20,320	0	20,320
3Z90V			240,903	0	240,903
3Z90X			48,750	0	48,750
3Z90Y			49,733	0	49,733
3Z91C			251,566	0	251,566
3Z91G			550,762	0	550,762
3Z91H			1,281,788	0	1,281,788
3Z95B			451,562	0	451,562
3Z95F			19,678	0	19,678
3Z95I			0	0	0
3Z98A			34,372	0	34,372
3Z98D			95,520	0	95,520
3Z98E			473,565	0	473,565
3Z98I			38,966	0	38,966
3Z98N			933,180	0	933,180
3Z98R			0	0	0
3Z98S			0	0	0
3Z98V			65,949	0	65,949

CONSTRUCTION IN PROGRESS

PROJECT	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
3Z98W			49,935	0	49,935
4A17A			994,635	0	994,635
4A17D			19,315	0	19,315
4A17E			50,271,483	0	50,271,483
4A17F			1,308,489	0	1,308,489
4A17G			457,591	0	457,591
4A17I			804,998	0	804,998
4A17J			0	0	0
4A17K			0	0	0
4A17M			546,885	0	546,885
4A17P			2,742,994	0	2,742,994
4a17Q			111,088,536	0	111,088,536
4A17R			446,831	0	446,831
4A17S			0	0	0
4A17T			3,800	0	3,800
4C15A			9,345,500	0	9,345,500
4C15B			864,999	0	864,999
4C15D			(0)	0	(0)
4C15I			748,636	0	748,636
4C15M			250,065	0	250,065
4C15N			288,326	0	288,326
4C15P			1,421,983	0	1,421,983
4C15R			1,495,916	0	1,495,916
4C15S			71,488,343	0	71,488,343
4C15T			1,229,248	0	1,229,248
4C15U			539,346	0	539,346
4C15V			671,355	0	671,355
4C15X			993,302	0	993,302
4C15Y			317,686	0	317,686
4C15Z			3,962,816	0	3,962,816
4J08A			749,387	0	749,387
4J08B			6,365,642	0	6,365,642
4J08C			48,740	0	48,740
4J08D			1,194,998	0	1,194,998
4J08E			456,074	0	456,074
4J08F			486,603	0	486,603
4J08G			0	0	0
4J08H			489,489	0	489,489
4J08I			274,460	0	274,460
4J08J			232,843	0	232,843
4J08K			759,971	0	759,971
4Z05A			22,985	0	22,985
4Z05B			24,280	0	24,280
4Z05C			5,525	0	5,525
4Z52K			8,082	0	8,082
4Z52L			13,360	0	13,360
4Z52M			10,377	0	10,377
4Z52N			11,244	0	11,244
4Z52P			44,530	0	44,530
4Z52Q			1,569	0	1,569
4Z52R			7,815	0	7,815
4Z52S			4,063	0	4,063
4Z52T			867	0	867
4Z52U			4,675	0	4,675
4Z52V			1,725	0	1,725
4Z52W			5,635	0	5,635
4Z52X			2,674	0	2,674
4Z52Y			2,004	0	2,004
4Z52Z			1,013	0	1,013
4Z53H			0	0	0
4A58J			(2,148,092)	0	(2,148,092)
4Z96B			93,062	0	93,062
4Z96G			(22)	0	(22)
5Z52M			300	0	300
5Z53V			346,508	0	346,508
5Z53Y			10,497	0	10,497
5Z53Z			21,518	0	21,518
5Z54S			49,377	0	49,377
5Z54T			18,984	0	18,984
5Z54U			11,683	0	11,683
5Z54V			11,813	0	11,813
5Z54W			46,035	0	46,035
5Z54X			13,712	0	13,712

CONSTRUCTION IN PROGRESS

PROJECT	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
5Z54Y			12,865	0	12,865
5Z54Z			17,653	0	17,653
5Z55O			10,424	0	10,424
5Z55P			27,686	0	27,686
5Z55Q			49,839	0	49,839
5Z55R			41,511	0	41,511
5Z55S			15,729	0	15,729
5Z55T			27,327	0	27,327
5Z55U			48,437	0	48,437
5Z55V			49,470	0	49,470
5Z55W			49,042	0	49,042
5Z55X			36,008	0	36,008
5Z55Y			22,161	0	22,161
5Z55Z			49,914	0	49,914
5Z56D			13,717	0	13,717
5Z56E			11,633	0	11,633
5Z56F			11,064	0	11,064
5Z56G			11,448	0	11,448
5Z56H			45,141	0	45,141
5Z56I			50,150	0	50,150
5Z56J			57,000	0	57,000
5Z56X			12,785	0	12,785
5Z56Z			10,271	0	10,271
5Z57A			11,373	0	11,373
5Z57B			11,645	0	11,645
5Z57C			12,557	0	12,557
5Z57D			12,917	0	12,917
5Z57E			13,197	0	13,197
5Z57F			16,865	0	16,865
5Z57I			18,336	0	18,336
5Z57J			49,027	0	49,027
5Z57K			36,929	0	36,929
5Z57L			47,592	0	47,592
5Z57M,			48,105	0	48,105
5Z57O			17,234	0	17,234
5Z57P			1	0	1
5Z57Q			49,813	0	49,813
5Z57R			16,362	0	16,362
5Z57S			15,943	0	15,943
5Z57T			46,611	0	46,611
5Z57U			16,400	0	16,400
5Z57V			12,448	0	12,448
5Z58D			11,534	0	11,534
5Z58E			15,071	0	15,071
5Z58F			16,969	0	16,969
5Z59T			7,851,271	0	7,851,271
5Z85C			48,425	0	48,425
5Z85D			49,765	0	49,765
5Z85E			49,978	0	49,978
5Z85F			48,215	0	48,215
5Z85K			46,193	0	46,193
5Z85M			49,468	0	49,468
5Z85O			49,953	0	49,953
5Z85P			49,364	0	49,364
5Z85R			46,817	0	46,817
5Z85S			48,695	0	48,695
5Z85U			49,951	0	49,951
5Z85V			48,105	0	48,105
5Z85Y			49,973	0	49,973
5Z85Z			49,827	0	49,827
5Z90C			15,582	0	15,582
5Z90H			251,351	0	251,351
5Z90L			450,000	0	450,000
5Z90M			0	0	0
5Z90O			0	0	0
5Z90P			160,834	0	160,834
5Z90Q			399,999	0	399,999
5Z90R			84,975	0	84,975
5Z90S			73,325	0	73,325
5Z90T			154,002	0	154,002
5Z90U			940,014	0	940,014
5Z90W			322,614	0	322,614
5Z90X			3,185,272	0	3,185,272

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PROJECT	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
5Z90Z			80,145	0	80,145
7F90G			51,444	0	51,444
7Z51V			3,981,163	0	3,981,163
7Z85B			48,630	0	48,630
7Z85C			49,880	0	49,880
7Z85D			49,980	0	49,980
7Z85E			46,190	0	46,190
7Z85F			49,525	0	49,525
7Z85G			49,052	0	49,052
7Z85I			(1,250)	0	(1,250)
7Z85K			48,265	0	48,265
7Z85L			47,900	0	47,900
7Z85M			1,250	0	1,250
7Z85N			48,850	0	48,850
7Z85O			49,975	0	49,975
7Z85P			48,222	0	48,222
7Z85Q			49,330	0	49,330
7Z85S			49,812	0	49,812
7Z85T			47,999	0	47,999
7Z85V			48,455	0	48,455
7Z85W			45,400	0	45,400
7Z85X			1,250	0	1,250
7Z85Y			48,142	0	48,142
7Z85Z			1,250	0	1,250
7Z90A			658,013	0	658,013
7Z90D			2,405,802	0	2,405,802
7Z90E			468,790	0	468,790
7Z90F			91,569	0	91,569
7Z90G			762,481	0	762,481
9Z85A			48,573	0	48,573
9Z85B			49,033	0	49,033
9Z85C			47,603	0	47,603
9Z85F			1,250	0	1,250
9Z85M			48,831	0	48,831
9Z85Q			0	0	0
9Z85R			0	0	0
9Z85S			0	0	0
9Z85T			44,647	0	44,647
9Z85U			39,542	0	39,542
9Z85V			97,510	0	97,510
True-up			(245,318)	0	(245,318)
			$ 1,026,459,722	$ 0	$ 1,026,459,722

Jeffco-000449

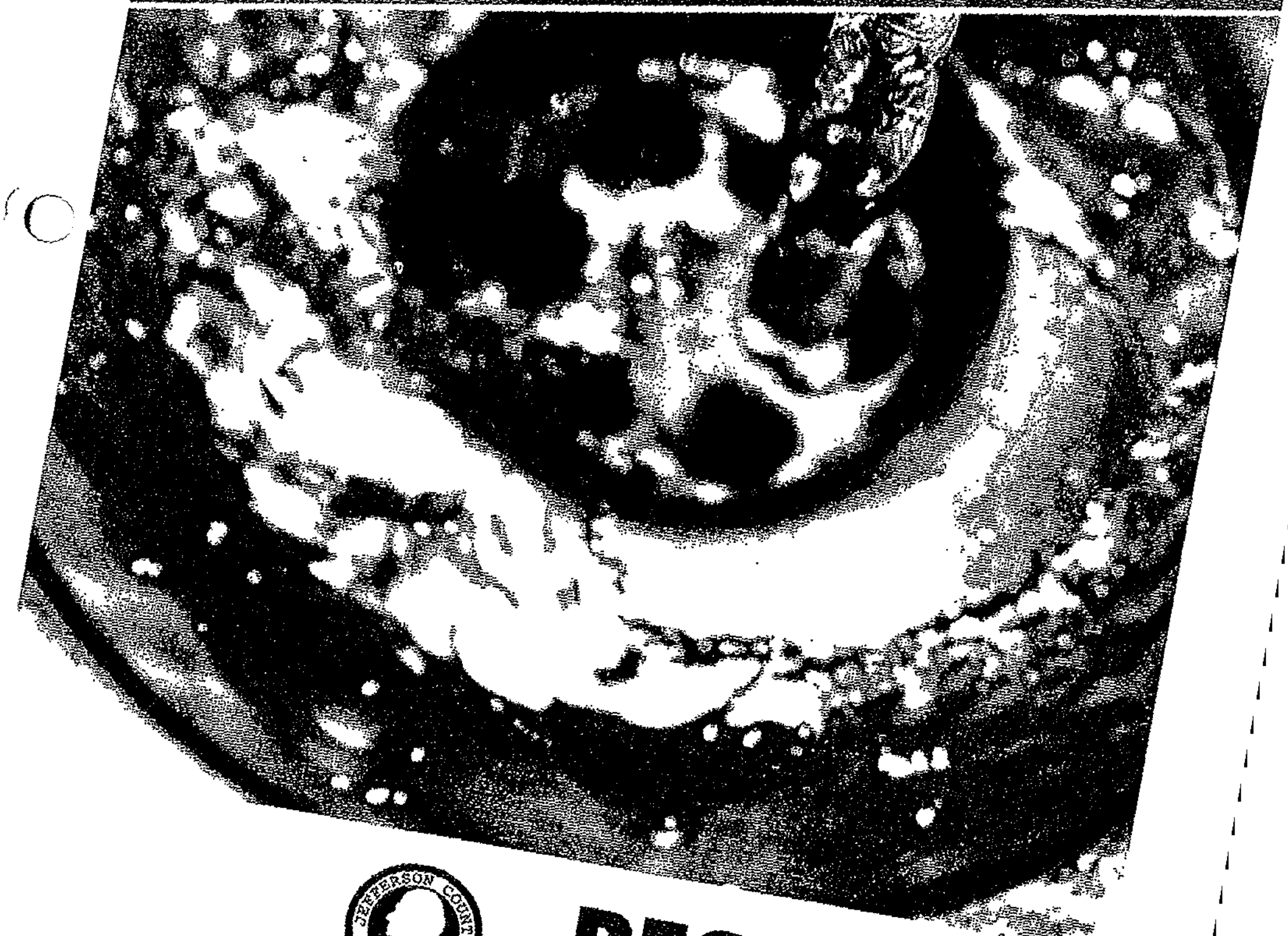
Asset	IN SERVICE YEAR	ENR INDEX	REPLACEMENT COST	DEPRECIATION PERCENTAGE	ACCUMULATED DEPRECIATION	REPLACEMENT COST LESS ACCUMULATED DEPRECIATION
Graysville, Adamsville	1998	1.229814	14,910,921	18.75%	(2,795,798)	12,115,124
Fultondale, Gardendale, Tarrant	1998	1.229814	161,718,502	18.75%	(30,322,219)	131,396,283
Adamsville, Birmingham, Fairfield	1998	1.229814	441,532,581	17.71%	(78,188,061)	363,344,520
Birmingham, Trussville	1998	1.229814	27,643,592	18.75%	(5,183,174)	22,460,419
Warrior	1998	1.229814	4,257,777	17.71%	(753,981)	3,503,796
Birmingham	1998	1.229814	5,817,303	17.71%	(1,030,147)	4,787,156
Bessemer, Birmingham, Brighton, Fairfield, Hueytown,	1998	1.229814	582,445,532	18.75%	(109,208,537)	473,236,995
Birmingham, Hoover, Mountain Brook, Vestavia Hills	1998	1.229814	196,070,640	18.75%	(36,763,245)	159,307,395
Leeds	1998	1.229814	29,589,827	17.71%	(5,239,865)	24,349,962
Birmingham, Homewood, Hoover, Irondale, Mountain B	1998	1.229814	277,196,879	18.75%	(51,974,415)	225,222,464
			$ 1,741,183,554		$ (321,459,443)	$ 1,419,724,114

Jeffco-000450

JEFFERSON COUNTY COMMISSION

PLAINTIFF'S EXHIBIT 104 Brandt

COMPREHENSIVE WASTEWATER COST OF SERVICE AND RATE STUDY REPORT
FEBRUARY 3, 2010



JEFFERSON COUNTY ALABAMA

RFC
RAFTELIS FINANCIAL CONSULTANTS, INC.

JEFFCOST-25056

RFC
RAFTELIS FINANCIAL
CONSULTANTS, INC.

February 3, 2010

Mr. David Denard
Director
Environmental Services Department
716 Richard Arrington, Jr. Blvd. N, Suite A-300
Birmingham, Alabama 35203

Dear Mr. Denard:

Raftelis Financial Consultants, Inc. has concluded a comprehensive cost of service and rate study (Study) for the Jefferson County Commission. The objective of the Study was to evaluate the County's current wastewater rates and charges and calculate recommended rates for fiscal year 2009-2010. This report summarizes the Study, our analyses, and our recommendations. It includes the following sections.

We have enjoyed the opportunity to work on this important project, and we hope that it helps the County continue to operate a financially sustainable wastewater utility. We appreciate the assistance provided by ESD staff, particularly Daniel White and yourself. Should you or anyone from the County have any questions regarding our report or recommendations, please contact me.

Very truly yours,
RAFTELIS FINANCIAL CONSULTANTS, INC.

Peiffer A. Brandt

Peiffer A. Brandt
Chief Operating Officer

1031 S. Caldwell Street / Suite 100
Charlotte, NC 28203
p: 704.373.1199 / f: 704.373.1113
www.raftelis.com

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EXECUTIVE SUMMARY

ES.1 Objectives

The Jefferson County (County) Commission (Commission) engaged Raftelis Financial Consultants, Inc. (RFC) to perform a comprehensive wastewater cost of service and rate study (Study) for the County's Environmental Services Department (ESD).

The Study was undertaken to satisfy a number of objectives. The primary objectives included:

1. Conduct cost of service analysis
2. Compare customer class costs
3. Evaluate current rate structure
4. Verify residential return factor
5. Calculate rates and charges
6. Calculate industrial surcharges
7. Calculate impact fees
8. Analyze affordability

This report summarizes the Study and the resulting recommendations.

ES.2 Wastewater System

The County owns and operates a wastewater system (System) which serves the majority of the people in the County. The ESD's service area covers 21 of the 35 municipalities within Jefferson County. Overall, the County serves nearly 500,000 people, about 75% of the County's population, with 3,100 miles of pipe and 9 treatment plants. The combined treatment capacity across the system is approximately 200 million gallons per day (mgd), with an average daily flow slightly above 100 mgd. The System is subject to the requirements of the Clean Water Act and the conditions set forth in the National Pollutant Discharge Elimination System (NPDES) permit applicable to each of the wastewater treatment plants. In addition, the System is subject to regulation by the Alabama Department of Environmental Management (ADEM) and a consent decree with the United States Department of Justice and the Environmental Protection Agency (EPA).

ES.3 Revenue Requirements

The County annually adopts an operating budget and a capital improvement program (CIP) for the ESD. The County's annual revenue requirements are a function of the operating budget, the pay-as-you-go (PAYGO) portion of the CIP, transfers to reserve funds, and debt service obligations. The operating budget for fiscal year (FY) 2009-2010 is $61.34 million. The County anticipates using PAYGO to fund inflationary costs associated with the CIP and needs to make a transfer to the Operating Fund to meet the operating reserve target. Together, PAYGO and the transfer total $0.58 million for FY 2009-2010. The County has significant debt obligations; however it is unclear how much debt service the County will pay in FY 2009-2010. For the cost of service analysis, RFC included debt service of $111.47 million, resulting in total revenue requirements of $173.39 million for FY 2009-2010.

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ES.4 Cost of Service

RFC allocated ESD's revenue requirements for FY 2009-2010 between two classes of customers, residential and non-residential. Residential customers received a 42% share of costs, or $73.03 million, while non-residential customers received an allocation of the remaining 58%, or $100.35 million. Based on a projection of billable flows and industrial waste surcharge units, revenues for FY 2009-2010 are projected to be $173.39 million, with $66.63 million (38%) coming from residential customers and $106.76 million (62%) coming from non-residential customers under the recommended rates. There is a material difference between the cost of service and recommended rates for FY 2009-2010. RFC recommends minimizing this difference in future years by implementing cost of service rates.

ES.5 Rate Design

The County currently has a uniform volumetric rate and minimum charges that increase by meter size. The volumetric rate is the same for residential and non-residential customers, but residential customers have a return factor of 85% applied to their water usage to determine volume upon which they are charged to account for usage that is not returned to the sewer such as irrigation. There were other rate structures that were evaluated during the Study.

ES.6 Study Recommendations

Based on the study, RFC has developed two sets of recommendations. The primary objective of the study was to develop recommendations for FY 2009-2010. The first set of recommendations listed below (FY 2009-2010 Recommendations) includes rate and charge modifications for FY 2009-2010 which are recommended for immediate implementation. Appendix A summarizes the current and recommended rates and charges. The second set of recommendations (Future Recommendations) includes more policy-oriented issues and should be considered for implementation in future years as appropriate.

FY 2009-2010 Recommendations

1. Implement a 6.76% across-the-board volumetric rate increase
2. Increase the minimum charge for 5/8-inch meter to the equivalent of the charge of approximately 2 hundred cubic feet (Ccf), and scale up the charge for larger meters
3. Maintain the residential return factor at current level of 85%
4. Update industrial waste surcharges and add nitrogen as a surcharge parameter
5. Maintain impact fees at the current level, but change the restaurant factor from one fixture unit for every two seats to one fixture unit per seat

Future Recommendations

1. Shift to cost of service rates with different volumetric rates for residential and non-residential customers
2. Replace the minimum charge with a base charge
3. Collect additional data to justify future rate adjustments
4. Consider implementing an affordability program

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SECTION I – INTRODUCTION

1.1 County Background

Jefferson County (County) is located in central Alabama and is the most populous county in the state. Act No. 714 of the Alabama Legislature, enacted February 28, 1901, authorized the construction, maintenance and operation of a sewage disposal system in Jefferson County by the Jefferson County Sanitary Commission. As a result, the County owns and operates, through the Environmental Services Department (ESD), a wastewater system (System) which serves the majority of the County population. The ESD's service area covers 21 of the 35 municipalities within Jefferson County. Overall, the County serves nearly 500,000 people, approximately 75% of the County's population, through 3,100 miles of pipe and 9 treatment plants. The combined treatment capacity across the System is approximately 200 million gallons per day (mgd), with an average daily flow slightly above 100 mgd.

The ESD is organized into four divisions, Administration; Maintenance and Construction; Wastewater Treatment Plants; and Barton Lab/Industrial Pretreatment. The System is subject to the requirements of the Clean Water Act and the conditions set forth in the National Pollutant Discharge Elimination System (NPDES) permit applicable to each of the wastewater treatment plants. In addition, the System is subject to regulation by the Alabama Department of Environmental Management (ADEM).

The County has direct billing relationships with the two largest water utilities in the County, the Birmingham Water Works Board and the City of Bessemer. These utilities bill their customers, who are also County sewer customers, for sewer service, collect payments, and remit the collections less the cost of performing the billing to the County. Approximately 92%, or 135,000, of the County's customers are billed by Birmingham Water Works Board (approximately 120,000) and the City of Bessemer (approximately 15,000). The County also receives water consumption data from smaller utilities that serve as the water providers for the remainder of County sewer customers. Using this data, the County directly bills approximately 11,000 customers. The County's customers are separated into two classes, residential and non-residential. A subset of the non-residential customers, significant industrial dischargers (SIDs), includes those industrial customers with significant discharge strength.

In 1996, the County entered into a consent decree with the United States Department of Justice and the Environmental Protection Agency (EPA) to repair, replace, and upgrade the System to control or otherwise eliminate sewer overflows and automatic bypasses and to meet the conditions of the Clean Water Act. The County has completed the repairs, replacements, and upgrades and is in the process of meeting the requirements of the consent decree. Project costs with the consent decree were significant, and as a result, the County has considerable debt obligations. The majority (68%) of the debt obligations are auction rate debt, with a portion (25%) in variable rate, and the remainder (7%) in fixed rate. Based on recent estimates, the County has outstanding principal of $3.182 billion, with $535 million (principal only) due in fiscal year (FY) 2009-2010. After auctions for the County's auction rate warrants failed, and holders of the County's variable rate demand notes tendered those notes to the County, the County's debt service obligations increased to the point where the net revenues from the operation of the sewer system were insufficient to meet them. This led the Trustee for the County's sewer warrants, and the insurance companies who insured the County's sewer debt obligations, to file suit to attempt to force the ESD into receivership. The Commission decided to conduct a cost of service and rate study (Study) to attempt to manage the financial challenges facing the ESD, which was consistent with a recommendation from the Special Masters appointed during the litigation.

1.2 Study Objectives

The County initially identified a number of objectives for the Study. A description of each of the objectives follows.

Conduct cost of service analysis
Cost of service is the benchmark approach in the industry for establishing rates and charges. RFC utilized the process identified by the Water Environment Federation (WEF) to allocate ESD's revenue requirements (costs) to the different customer classes.

Compare customer class costs
Once RFC allocated costs to customer classes, RFC compared the cost of serving each customer class to the revenue recovered from that customer class.

Evaluate current rate structure
There are a number of alternative rate structures that were considered, each with specific positives and negatives. RFC determined whether the current rate structure was most appropriate for the County.

Verify residential return factor
Residential water usage is multiplied by 85% to determine the volume to be charged at the volumetric rate. This return factor accounts for the fact that a portion of residential usage does not return to the sewer system (i.e. outdoor water use). RFC evaluated the appropriateness of the residential return factor.

Calculate rates and charges
The volumetric sewer rate is the primary revenue source for the system, and a primary goal of the Study was to develop recommended rates for the Commission's consideration. Following the financial plan development, cost of service analysis, and rate structure evaluation recommended rates were calculated.

Calculate industrial waste surcharges
Certain industrial customers discharge waste that is high in certain pollutant loadings, such as biochemical oxygen demand (BOD), total suspended solids (TSS), and nutrients, which must be removed during the treatment process. The removal of these constituents requires the utility to incur certain costs which should be recovered through industrial waste surcharges assessed to these customers. RFC calculated updated industrial waste surcharges.

Calculate impact fees

Impact fees are one-time charges to new customers which help a utility recover the cost required to develop the capacity necessary for growth. RFC calculated impact fees under the relevant approach and compared the calculated fees to the existing fees.

Analyze affordability

Affordability has become one of the most important issues within the wastewater industry. The County has one of the highest charges for a typical residential customer in the country, so any rate increase could adversely impact the affordability of the rates. RFC analyzed the affordability impact of the recommended rates on residential customers.

1.3 Pricing Objectives

To facilitate the prioritization of the objectives of the County, RFC held a pricing objectives workshop with ESD staff. The goal of the workshop was to determine the pricing objectives that were most important. RFC identified 12 potential objectives which are listed in Exhibit 1-1 with definitions for each objective.

Exhibit 1-1: Pricing Objectives

Pricing Objective	Description
Affordable to Disadvantaged Customers	The rate structure should incorporate practices or procedures that help ensure that economically disadvantaged customers can afford water and wastewater service.
Conservation/Demand Management	The rate structure should support regional water conservation efforts and help manage water demand (and growth).
Cost of Service Recovery	The rate structure should ensure that each customer class (residential and non-residential) is contributing equitably towards revenue requirements based upon the costs of providing service to each customer class.
Defensible	The rate structure should be consistent with accepted industry standards, local and state statues, and contractual obligations. It should also minimize the potential for litigation and be consistent with bond covenants.
Easy to Implement	The rate structure should be compatible with current billing systems. In addition, the rate structure should allow for the continuation of existing management and system reports.
Easy to Understand	The rate structure should be easy for County customers to understand.

Easy to Update	The rate structure should be able to be effectively maintained by ESD staff in future years.
Economic Development	The rate structure should not provide a barrier to attract economic development to the County.
Equitable Contributions from New Customers	The rate structure should implement impact fees that ensure that growth pays for growth and intergenerational equity is promoted.
Minimize Customer Impacts	The rate structure should be developed such that adverse rate impacts on each customer class are minimized.
Rate Stability	The rate structure should minimize dramatic rate increases or decreases over the planning period.
Revenue Stability	The rate structure should provide for a steady and predictable stream of revenues to the utility such that the utility is capable of meeting its financial requirements.

RFC used this prioritization of pricing objectives as a guide during the Study.

1.4 Data Sources

The Study is based primarily on data provided by the County and data compiled and collected by RFC during the Study. The County was able to provide the majority of data requested. In those areas where the County was unable to provide data, RFC utilized its experience within the industry along with ESD staff input to make various assumptions, which are identified in this report.

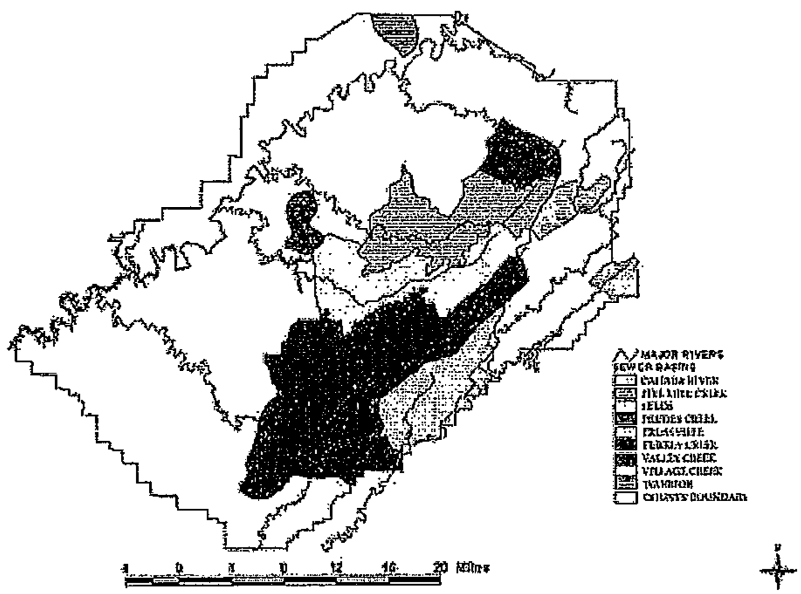
SECTION II – WASTEWATER SYSTEM

The County provides wastewater service to nearly 500,000 people in 21 of the 35 municipalities within the county limits. Approximately 180 pumping stations assist in collecting and moving wastewater through more than 3,100 miles of pipe. There are more than 78,000 manholes throughout the entire collection system managed by ESD. Nine wastewater treatment plants (WWTPs) receive customer flows and treat an average of 106 mgd of wastewater a day.

2.1 Wastewater Treatment Plants

The treatment capacities of the nine WWTPs the County currently operates range from 0.1 mgd to 85.0 mgd, with a combined total treatment capacity of 199 mgd. Exhibit 2-1 shows the nine drainage basins denoted by the nine treatment facilities that serve them.

Exhibit 2-1: County Drainage Basins by WWTP



Cahaba River WWTP

The Cahaba River WWTP is located at 3900 Veona Daniels Road in Birmingham. The plant was originally constructed in 1970, but it has been upgraded several times. The current treatment capacity is 12 mgd. Cahaba River WWTP is the County's fourth largest treatment facility, serving an equivalent population of approximately 75,000.[1] The treatment process at Cahaba River WWTP consists of a five-stage biological nutrient removal (BNR) process.

[1] The equivalent population represents a measure of treatment based on per capita usage. The equivalent population takes into account industrial customers and transient workers, and it is the value reported to ADEM.

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Five Mile Creek WWTP
The Five Mile Creek WWTP is the third largest treatment facility in the System and is located on Coalburg Road in Fultondale. The plant was originally placed into service in 1978, and the current treatment capacity is 30 mgd. This facility accepts influent from an equivalent population of approximately 73,000. A modified conventional activated sludge process is used as the treatment process at Five Mile Creek WWTP.

Leeds WWTP
The Leeds WWTP serves an equivalent population of approximately 5,500 and is the County's seventh largest treatment facility. The average capacity for wastewater treatment is 2 mgd for this plant. The plant is located at 800 Helen Street in Leeds. The treatment process incorporates an extended aeration activated sludge process. This process is followed by sand filtration and ultraviolet disinfection. The current Leeds WWTP was constructed in 1995.

Prudes Creek WWTP
The Prudes Creek WWTP is the second smallest treatment facility. The plant serves less than an equivalent population of 2,000 with a capacity of 0.9 mgd. Prudes Creek WWTP is located at 500 Fifth Street NE in Graysville. The plant was originally constructed in 1988 and uses an extended aeration activated sludge process and ultraviolet disinfection.

Trussville WWTP
The Trussville WWTP is located at 325 City Hall Drive in Trussville. The plant has an average capacity of 4 mgd and is the fifth largest treatment plant in the System. The current plant, constructed in 1998, serves an equivalent population of nearly 13,000 people. Trussville WWTP uses an extended aeration activated sludge process, followed by sand filtration and ultraviolet disinfection are applied.

Turkey Creek WWTP
The current Turkey Creek WWTP was constructed in 1981 and has the capacity to receive and process 5 mgd of influent. The facility serves an equivalent population of approximately 30,000 and is located at 7137 Disposal Plant Road in Pinson. An extended aeration activated sludge treatment process and ultraviolet disinfection are used in the treatment of influent at the Turkey Creek WWTP.

Valley Creek WWTP
The Valley Creek WWTP is the County's largest treatment facility. The plant receives influent from a collection of communities and serves an equivalent population of approximately 220,000. Valley Creek is located at 3923 Clear Water Drive in Bessemer. Valley Creek WWTP has a capacity of 85 mgd and treats wastewater by a step-feed, two-stage activated sludge treatment process. Also, the plant utilizes a two-stage anaerobic sludge digestion and belt filter presses for sludge dewatering.

Village Creek WWTP
The Village Creek WWTP serves the highest population, more than 230,000 people, of all the County's facilities, with a current capacity of 60 mgd. The treatment process at Village Creek

includes a conventional, two-stage activated sludge treatment process. The plant also employs an anaerobic digester and centrifuges for sludge dewatering. Village Creek WWTP is located at 1440 Pleasant Hill Rd. in Birmingham.

Warrior WWTP

The Warrior WWTP is the County's smallest treatment plant. The facility serves an equivalent population of 900 in the city of Warrior in northern Jefferson County. The WWTP has a daily treatment capacity of 0.1 million gallons. The Warrior treatment facility was originally constructed in 1987 and is located at 700 Blackburn Lane in Warrior. The treatment process used at this location is extended aeration.

Plant Summary

The nine wastewater treatment plants are listed below. The plant classifications, capacities, and five-year average daily flows are presented below in Exhibit 2-2. The plant classifications are based on Section 335-10-1-.03, Classification of Systems, contained within the Alabama Department of Environmental Management's "Water Division – Operator Certification Program," Section 335-10.

Exhibit 2-2: WWTP Summary

WWTP	Class	Capacity (MGD)	Five-Year Avg MGD
Valley Creek	IV	85	40.2
Village Creek	IV	60	38.2
Five Mile Creek	IV	30	12.5
Cahaba River	IV	12	8.5
Turkey Creek	III	5	3.3
Trussville	III	4	1.9
Leeds	III	2	1.0
Prudes Creek	II	0.9	0.3
Warrior	II	0.1	0.1
Total		199.0	106.0

2.2 Pollutant Loadings

The cost of service for the various pollutant loadings was calculated to determine appropriate and equitable industrial waste surcharges. The detailed explanation of the cost of service analysis and industrial waste surcharges is provided in Section IV. However, Exhibit 2-3 below shows the mass balance of the individual pollutant loadings for each of the WWTPs.

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Exhibit 2-3: FY 2008-2009 Mass Balance of the System

	Pollutant Loadings				
Treatment Plant	Influent Volume	Influent BOD	Influent TSS	Total Phosphorous	Total Nitrogen
	CCF	Pounds	Pounds	Pounds	Pounds
Cahaba River	4,139,163	2,695,831	3,199,688	65,455	764,407
Five Mile Creek	6,118,259	2,409,469	4,184,115	116,628	1,307,723
Leeds	486,588	452,347	438,087	7,686	82,974
Trussville	910,599	586,527	710,489	12,967	185,487
Turkey Creek	1,591,064	728,188	1,420,407	72,230	355,360
Valley Creek	19,617,112	9,731,943	11,569,484	384,224	3,185,639
Village Creek	18,656,848	7,874,108	9,911,587	408,265	2,035,744
Warrior	155,030	345,145	51,250	585	1,466,116
Prudes Creek	39,653	38,152	97,273	2,325	9,384
Total	51,714,317	24,861,710	31,582,379	1,070,364	9,392,835

The one surcharge parameter for which there is no influent data is fats, oils, and grease (FOG). Therefore, the FOG loading was estimated by adding the individual estimated FOG loadings for the residential, non-residential, and SID customer classes. These estimates are discussed in Section IV.

SECTION III – FINANCIAL PLANNING AND COST OF SERVICE ANALYSIS

The primary objective of the Study was to develop appropriate rates and charges for consideration by the Commission. RFC utilized a financial planning approach consistent with industry standards, which consists of identifying revenue requirements, determining revenue sufficiency, and calculating needed rate increases. It was necessary to make an assumption regarding debt service because of the County's current situation. Following the financial planning exercise, RFC performed a cost of service analysis using the assumed debt service, and again following an approach supported by WEF.

3.1 Expenses

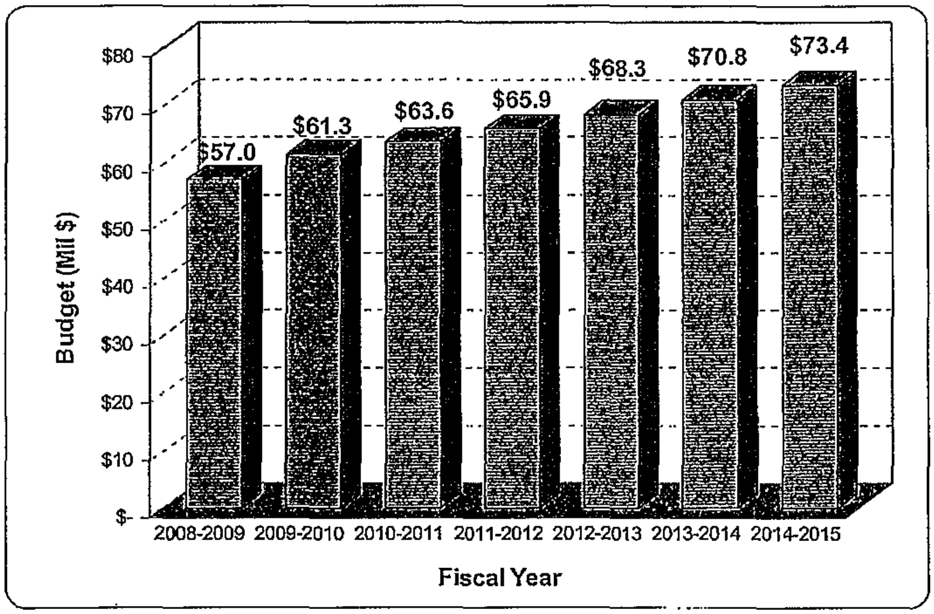
Operating and Maintenance Costs
The approved operating budget for FY 2009-2010 is $61.34 million. This budget represents the projected costs for the daily operation and maintenance of the System. The FY 2009-2010 operating and maintenance (O&M) budget summarized by cost center is included in Exhibit 3-1. More than half of the operating costs are related to personnel, including salary and benefits, followed by electricity expenses. Wastewater treatment processes and collection system lift stations use a significant amount of electricity, projected to be $9.05 million this year.

Exhibit 3-1: FY 2009-2010 O&M Budget by Cost Center

O&M Cost Category		Budget
SEWER BILLING	$	7,170,996
ESD ADMINISTRATION		9,342,696
ENGINEERING & CONSTRUCTION		1,270,531
ENGINEERING & CONSTRUCT ADMIN		177,369
SURVEY		740,253
INSPECTION		1,515,337
SEWER LINE CONSTRUCTION		1,454,454
LINE MAINTENANCE ADMINISTRATION		1,207,958
VILLAGE LINE MAINTENANCE		1,289,043
SHADES LINE MAINTENANCE		2,050,992
TV INSPECTION		1,631,835
CAHABA RIVER WWTP		3,119,185
FIVE MILE CREEK WWTP		2,680,285
LEEDS WWTP		887,142
TRUSSVILLE WWTP		862,980
TURKEY CREEK WWTP		833,349
VALLEY CREEK WWTP		7,073,477
VILLAGE CREEK WWTP		7,555,679
FIVE MILE CREEK MAINTENANCE SHOP		369,595
VALLEY CREEK MAINTENANCE		486,690
VILLAGE CREEK MAINTENANCE		537,905
ELECTRICAL SHOP		981,221
INSTRUMENT SHOP		680,719
PUMP STATION OPERATIONS		3,808,007
BIOSOLIDS		949,132
BARTON LABORATORY		2,659,456
INDIRECT		-
	$	61,336,284

The overall budget reflects a 7.7% increase from the FY 2008-2009 requested budget. Together, RFC and ESD staff concluded that moving forward from FY 2009-2010, most budget items should be escalated 2.0% annually, with the exception of personnel expenses, which are projected to escalate 5.0% annually. These escalations are consistent with projections in the industry. As a result, the FY 2010-2011 budget is projected at just below $63.56 million, or a 3.62% increase from FY 2009-2010. The projected budgets through FY 2014-2015 along with the actual budgets for FY 2008-2009 and FY 2009-2010 are presented below in Exhibit 3-2.

Exhibit 3-2: Forecasted Fiscal Year O&M Budget



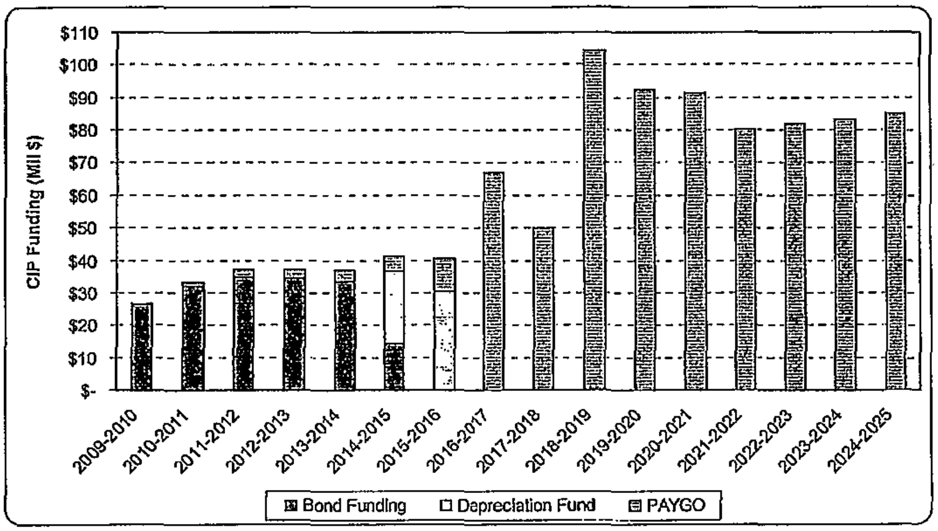
Capital Improvement Program

Due to issues with the collection system and treatment facilities, the County implemented an aggressive capital improvement program (CIP) over the past decade. The majority of work is completed, but ESD staff has identified 83 projects in the CIP requiring funding over the next twelve years. The CIP includes roughly $25-$40 million (un-escalated) a year through FY 2015-2016, after which annual CIP costs begin to increase significantly. These project totals are presented in FY 2008-2009 dollars. An annual inflation factor of 2.0% has been applied through the life of the forecast. This provides a more accurate projection of anticipated expenditures in future years and provides a more accurate profile of revenue requirements for calculating necessary future rate increases. With the inflation factor, the CIP includes $30-$45 million per year for future repair and replacement through FY 2015-2016.

The County has a sufficient amount of bond funds remaining for CIP expenditures through FY 2013-2014. Beginning in FY 2014-2015, the County must use funds from the Depreciation

Fund, and in FY 2015-2016, the County must begin using pay-as-you-go (PAYGO), or rate-funded capital, as the primary funding source of the CIP. Beyond FY 2018-2019, an amount of funding per year has been forecasted but is not allocated to specific projects. The escalated costs are presented in Exhibit 3-3, whereas the un-escalated costs are presented in Exhibit B-1 of Appendix B. Until FY 2015-2016, PAYGO will be used to pay any inflationary costs for scheduled projects. After FY 2015-2016, PAYGO will be the primary source of funding for project and inflationary costs.

Exhibit 3-3: Escalated CIP Costs



Contributions to Reserves

An annual contribution to the operating reserve has been incorporated into the financial plan. The target of the operating reserve is 20% of the annual O&M budget. To reach this target for FY 2009-2010, the County needs to transfer approximately $55,000. Due to increasing annual O&M costs, the County must set aside an average of $500,000 annually to maintain the target.

3.2 Revenue

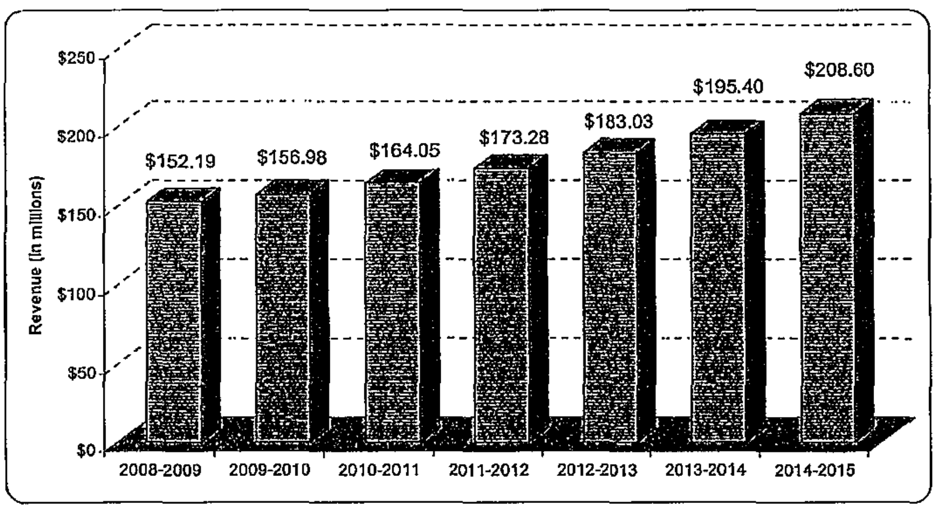
User Charges

The largest source of wastewater revenue for the County is generated from user charges, primarily from volumetric charges. The County does assess a minimum charge, which is applied mostly to residential accounts with zero usage and non-residential accounts with very low usage relative to meter size; however, this charge provides a very small percentage of overall revenue. The uniform volumetric rate is currently assessed at $7.40 per 100 cubic feet or $9.89 per 1,000 gallons of the customer's water consumption. Residential customers receive a 15% discount assessed to their total water usage to reflect that not all water use is returned to the System.

The user charge revenue collected for FY 2008-2009 was $152.19 million. This total reflects the revenue after private meter credits were remitted to customers. The County remits a private meter credit for customers who have a secondary water meter for water uses such as irrigation or cooling devices, which do not return water to the sewer system. This credit is normally remitted twice per year, directly to the customer's account. The credits are substantial and have totaled approximately $9 million per year in recent years. While the County receives user charges from these customers and the credit effectively lowers the customer's bill, this credit has been included as negative revenue when determining revenue collected for FY 2008-2009. For conservative financial planning purposes, the private meter credits are escalated for future years at the same rate increase applied to user charges.

For future years, the number of accounts and water usage, which directly impact the projected amount of revenues collected, are escalated by different factors to incorporate customer growth patterns. The number of accounts is projected to increase by 0.5% for each year of the forecast, while water consumption is projected to decrease by 2.0% for the next two years, decrease by 1.0% for the following two years, and remain flat at 0.0% for FY 2013-2014 through FY 2017-2018. After FY 2017-2018, water usage is projected to escalate 0.5% each year. Using escalated growth projections, private meter credits, and a rate increase of 6.76% implemented for nine months of FY 2009-2010, the total user charge revenue projected for FY 2009-2010 is $156.98 million.[2] The revenues projected for the next five years, with rate increases occurring on January 1 of each year, are presented in Exhibit 3-4.

Exhibit 3-4: User Charge Revenue Projections



[2] The FY 2009-2010 rate increase was assumed to occur on January 1, 2010. Since the County's fiscal year is from October 1 to September 30, the increase would be in effect for nine months.

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Additional Revenue
Aside from user charge revenue, the County typically receives approximately $16 million in additional revenue per year. This revenue is the result of permit and other fees. The County earns a nominal amount of interest per year on fund balances. The interest received is calculated based on projected annual fund balances at a conservative interest rate of 0.5% through FY 2011-2012, after which the interest rate is raised to 2.0% for future years. The County collects ad valorem revenue and revenue from other government charges. Any contributions to the utility are considered additional miscellaneous revenue. For future years, most of the miscellaneous revenues are projected to increase by 2.0% per year.

Industrial Waste Surcharges
Some industrial or commercial customers discharge wastewater that has a higher strength of chemicals, nutrients, or suspended solids than domestic (residential) strength. The County must incur additional costs to treat this influent, and has established industrial waste surcharges for approximately 30 customers. The County collects approximately $1 million from the current industrial waste surcharges. The industrial waste surcharges have been recalculated to reflect cost of service and are explained in greater detail in Section IV. For financial planning purposes, industrial waste surcharge revenue is escalated 3.5% annually.

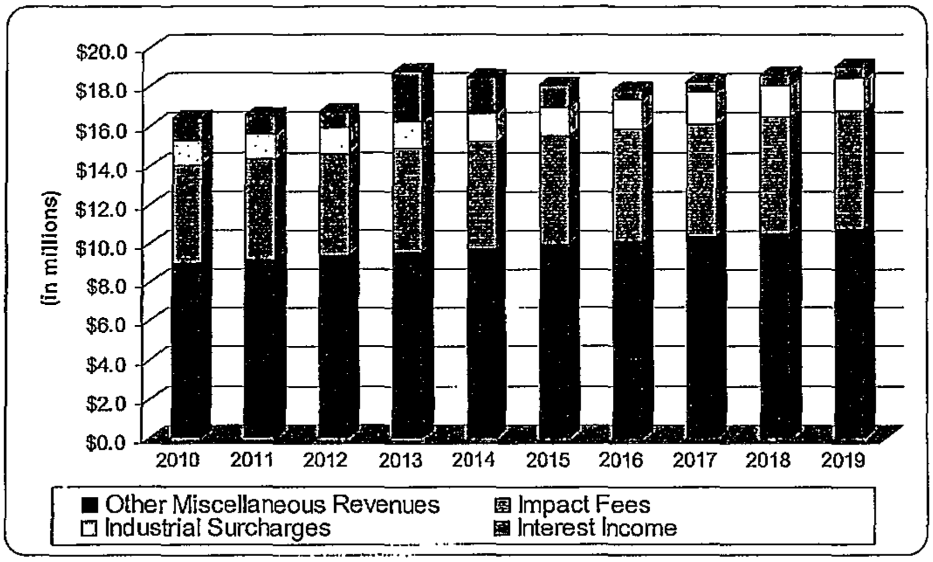
Impact Fees
The County collects impact fees for new connections to the wastewater system. Impact fees help the utility recover the costs expended to provide capacity to accommodate growth. Typically, impact fees are established through one of two approaches. If a utility has adequate capacity to treat influent from new customers, the impact fees are determined through the system buy-in approach. Since the utility has already satisfactorily upgraded the system, the new customers must pay a proportionate amount of that cost. The other method is the marginal-incremental approach. This scenario concerns a utility that must expand its system to accommodate growth, with the new customers paying for their share of the expanded capacity. Presently, the System has adequate capacity to accommodate growth, and therefore the impact fees are based on the system buy-in approach.

As part of this Study, a thorough analysis was conducted of the current impact fees. This analysis is provided in greater detail in Section V. This analysis determined that the current impact fee rate is satisfactory, and RFC recommends that the County continue assessing the charge of $225 per fixture. Revenue collected from impact fees is projected to increase at 2.0% per year over the forecast period.

Interest Income
The County generates a certain amount of revenue from interest earned on cash balances. This revenue is recognized in the financial plan as miscellaneous revenue to offset additional burden on ratepayers. Because the County is required to invest conservatively, the interest rate is usually low, and is estimated currently at 0.5% due to the slow recovery from the national economic recession. Beginning in FY 2012-2013, the interest rate is forecasted to increase to 2.0% annually, which causes the increase in Exhibit 3-5 below. The exhibit also shows the level of interest income decreasing over the first 5 years of the forecast because the County is spending down its reserves on capital projects through FY 2014-2015. From FY 2015-2016

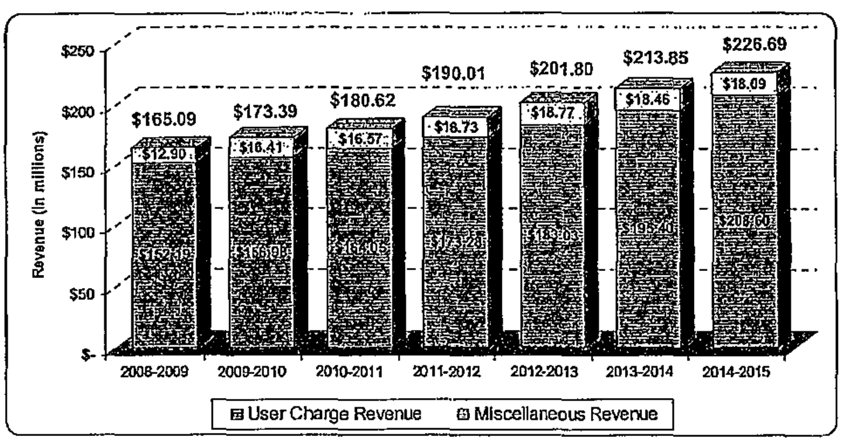
onward, the County is projected to maintain a consistent amount with only minor increases each year to the operating reserve to reflect the annual increases in the O&M budget.

Exhibit 3-5: Additional Revenue



Revenue Required for Operation and Debt Funding
Total revenue per year through FY 2014-2015 is provided in Exhibit 3-6. These annual revenues are the minimum amount of revenue required to be collected to maintain projected operating and maintenance costs, to contribute to reserve funds, and to maintain payment on debt service (based on debt service assumption discussed below).

Exhibit 3-6: Total Projected Revenue



3.3 Debt Service

The County has a significant amount of outstanding debt due to substantial CIPs over the past 14 years to satisfy the EPA consent decree. Additionally, due to the failed auctions for auction rate warrants and the tendering of variable rate demand notes, the interest cost has increased considerably in recent years. As a result, the County is unable to repay the debt according to the original bond covenants. The County currently owes approximately $3.18 billion of outstanding principal.

Over the past two years, the County has attempted to reach agreement on the debt (amount and repayment schedule) with its bond holders. To this point, these efforts have not been successful and it is unclear what future debt payments will be. Therefore, RFC considered several scenarios for restructuring the repayment of the debt, including:

1) Full debt service recovery according to current repayment schedules,
2) Full refinancing at an interest rate of 6% with equal annual payments over 30 years,
3) Outstanding principal at direct interest rate of 6% repaid over 20 years structured to allow uniform annual increases, and
4) Outstanding principal at direct interest rate of 6% repaid over 30 years structured to allow uniform annual rate increases.

The first debt scenario assumes the County would increase its rates to pay the principal and interest payments scheduled for this fiscal year. Because of debt structuring and default penalties, the total principal and interest payment for FY 2009-2010 equals just over $700 million. Rates would need to be raised by approximately 527% to cover this payment and budgeted O&M expenses, assuming no impact on demand elasticity. Since water demand is not inelastic, such an increase would result in lower billable flow, which would necessitate an even greater rate increase. Due to debt acceleration in the first year, next year's debt payment would be much lower so the County would then need to have a substantial rate reduction for FY 2010-2011. This rate increase is neither practical nor affordable for the customers of Jefferson County.

The second debt scenario assumes the County would have the option to refinance the outstanding principal and structure the debt payments as uniform annual payments over a 30-year period. The interest rate applied is 6.00% and the annual principal and interest payments would be approximately $230 million. The rate increase for FY 2009-2010 necessary to enable the County to pay O&M expenses and a debt service payment of $230 million is approximately 109%, again assuming no impact on demand elasticity. This rate increase is still neither practical nor affordable.

The third debt scenario assumes the County would have the option to refinance the outstanding principal at a rate of 6.00% and structure the debt payments in an incremental approach. The incrementally increasing principal and interest payments would be structured to allow for a uniform rate increase applied each year during a 20-year repayment period. The necessary annual rate increase to repay the outstanding principal according to this method is 10.16%. In other words, a rate increase of 10.16% would be implemented in FY 2009-2010, in FY 2010-

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2011, in FY 2011-2012, and so on for 20 years. No impact on demand elasticity has been assumed, but this rate increase is low enough so the impact would be limited. This rate increase is more reasonable than the previous two, but it is still high considering the County's current rates.

The fourth debt scenario is similar to the previous scenario, but schedules the repayment over a longer time period. This scenario assumes the County would have the option to refinance the outstanding principal at a rate of 6.00% and could structure the debt payments in an incremental approach over 30 years. The necessary uniform annual rate increase to repay the outstanding principal according to this method is 6.76%. This analysis also has not considered the impact on demand elasticity, but again the rate increase is small enough that the elasticity impact would be minimal in the initial year. Based on this analysis, the Commission should consider a 6.75% rate increase for FY 2009-2010. Assuming the implementation of that increase, rate increases for future years should be evaluated annually until a permanent debt solution is reached.

Exhibit 3-7 presents the comparison of necessary rate increases for FY 2009-2010 for each of the debt scenarios. Debt Scenario 4 reflects the lowest rate increase for FY 2009-2010 and is recommended for the purposes of this Study. The resulting debt service payment for FY 2009-2010 is $111.47 million.

Exhibit 3-7: Projected Rate Increases for FY 2009-2010

Recovery Scenarios		Projected Rate Increases
		2009-2010
1	Full Cost Recovery, Existing Rate Structure	527.00%
2	Full Cost Recovery, Fixed Refunding	109.00%
3	Recovery over 20 Years	10.16%
4	Recovery over 30 Years	6.76%

3.4 Revenue Proof

Using the components discussed above, RFC prepared a revenue proof for FY 2009-2010 to confirm that the recommended rate increase, as projected, should generate a sufficient level of revenue based on the debt service assumptions. Exhibit 3-8 shows the revenue proof.

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Exhibit 3-8: FY 2009-2010 Revenue Proof

		2009-2010
Rate Revenue (1)		
Current Rates	$	148,970,164
Increase (2)		8,011,632
Miscellaneous Revenue		16,405,494
Total Revenue	$	173,387,290
O&M Expenses	$	61,336,284
Net Revenue Available for Capital	$	112,051,006
PAYGO/Transfers	$	581,399
Debt Service	$	111,469,607
Coverage		1.01

(1) Revenue generated after private meter credits assessed.
(2) Revenue generated from 9 months (Jan-Sept) of rate increase.

RFC also prepared a pro-forma for five years assuming equal annual rate increases, which is summarized in Exhibit 3-9. This pro-forma should be reviewed at least annually and more frequently if the debt service situation changes or is resolved.

Exhibit 3-9: Five-Year Pro-forma

		2009-2010		2010-2011		2011-2012		2012-2013		2013-2014
Rate Revenue (1)										
Current Rates (2)	$	148,970,164	$	145,196,032	$	142,991,020	$	140,757,009	$	140,007,653
Increase (3)		8,011,632		18,850,970		30,288,106		42,272,681		55,390,130
Miscellaneous Revenue		16,405,494		16,572,124		16,730,583		18,770,209		18,455,871
Total Revenue	$	173,387,290	$	180,619,126	$	190,009,708	$	201,799,899	$	213,853,654
O&M Expenses	$	61,336,284	$	63,556,760	$	65,871,332	$	68,284,369	$	70,800,446
Net Revenue Available for Capital	$	112,051,006	$	117,062,367	$	124,138,376	$	133,515,530	$	143,053,208
PAYGO/Transfers	$	581,399	$	1,736,532	$	2,609,663	$	3,329,402	$	3,993,565
Debt Service	$	111,469,607	$	115,325,835	$	121,528,713	$	130,186,128	$	139,059,643
Coverage		1.01		1.02		1.02		1.03		1.03

(1) Revenue generated after private meter credits assessed.
(2) Decreases due to declining water usage projections over the 5-year period
(3) Cumulative revenue generated from rate increases generate January 1 of each year.

3.5 Rate Structure

Existing Rate Structure

The County currently has a uniform volumetric rate structure, which is the most prevalent wastewater rate structure in the industry. Residential and non-residential customers are charged the same rate of $7.40 per Ccf of metered water consumption. It is assumed that all non-residential customers' water use is returned to the wastewater system.[3] However, the County

[3] Those non-residential customers with irrigation systems or cooling towers are expected to have separate water-only accounts or deduct meters.

acknowledges that residential customers do irrigate and therefore, not all metered water use is returned. To account for this, the County assesses a return factor of 85% for residential customers, meaning that only 85% of the metered water usage is billed for wastewater service. The rate structure is presented below in Exhibit 3-10.

The County has a minimum charge that varies by water meter size. The County's monthly user charge is based on a comparison of the minimum charge with the calculated volumetric charge (water volume times return factor times volumetric rate) where the higher amount is used. Since the County's minimum charge is currently $2.00 for a 5/8-inch meter (the typical meter for residential customers), which is less than the charge for one Ccf of water usage, the minimum charge is only assessed to accounts with zero metered water usage for the billing cycle. Therefore, this practice results in a minimal amount of revenue from this charge.

Exhibit 3-10: Existing Rate Structure

Charge	Meter Size	Unit Charge	Unit
Volumetric*		$ 7.40	per Ccf
Minimum			
	5/8"	$ 2.00	per Month
	3/4"	2.50	
	1"	5.00	
	1.25"	7.00	
	1.5"	9.00	
	2"	14.00	
	3"	28.00	
	4"	45.00	
	6"	85.00	
	8"	170.00	
	10"	200.00	
	12"	250.00	

*Return factor of 85% is applied for Residential Customers.

Alternative Rate Structures

RFC and the County have discussed options for alternative rate structures. The following highlights the five alternatives.

<u>Alternative 1</u> – Retain Existing Rate Structure

The County could choose to retain the existing rate structure. A uniform volumetric charge would be assessed to the metered water usage of residential and non-residential customers. The return factor would remain the same for residential billed demand. The minimum charge, based on meter size, would continue to be assessed only if the volumetric charge is less than the value of the minimum charge. The only recommended modification would be a rate increase to raise revenue to an appropriate level to cover revenue requirements.

<u>Alternative 2</u> – Raise Minimum Charge

Additionally, the County could raise the minimum charge. This would result in additional revenue and would provide a more stable revenue stream for the County.

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Alternative 3 – True Cost of Service Rates
The County could choose to retain the existing rate structure, but instead of a consistent uniform volumetric rate for the customer classes, the County could use a different residential and non-residential volumetric rate based on cost of service allocations.

Alternative 4 – Implement Base Charge
The County could assess a base charge to every customer, regardless of metered water usage. The base charge could be uniform or a function of meter size. A base charge would help the County stabilize its revenue stream by guaranteeing a fixed portion of revenue collected every billing cycle. The minimum charge would no longer be assessed under this alternative, and customers, regardless of class, would continue to be charged a volumetric rate based on water usage.

Alternative 5 – Hybrid
The County could choose to implement a hybrid of two or more of the alternatives listed above.

3.6 Recommendations

FY 2009-2010 Recommendations
RFC recommends the County implement Alternative 2 for FY 2009-2010. The County would raise the volumetric rate for FY 2009-2010 by 6.76%, an increase recommended earlier in this Section. This recommendation would increase the volumetric rate for both residential and non-residential customers from $7.40 to $7.90. The residential return factor would remain at 85% of the metered water usage. Another significant modification would be raising the minimum charge for a 5/8-inch meter to $13.50, or the approximate cost of 2 Ccf, and scaling it up by meter size based on cost of service differentials. A summary of the recommendations is presented below in Exhibit 3-11. The benefit of this alternative is twofold; it includes a rate structure familiar to customers and increases revenue stability.

Exhibit 3-11: Proposed Alternative Rates and Rate Structure for FY 2009-2010

Charge	Meter Size	Unit Charge	Unit
Volumetric*		$ 7.90	per Ccf
Minimum			
	5/8"	$ 13.50	per Month
	3/4"	17.23	
	1"	24.69	
	1.25"	32.14	
	1.5"	43.33	
	2"	65.70	
	3"	117.90	
	4"	192.47	
	6"	378.90	
	8"	602.62	
	10"	863.63	
	12"	1,609.35	

*Return factor of 85% is applied for Residential Customers.

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Future Recommendations
RFC recommends the County consider a hybrid of Alternatives 3 and 4 for future years. Specifically, RFC recommends the County institute different rates for residential and non-residential customers based on the cost to serve these customers. Additionally, the County should consider replacing the minimum charge with a base charge that is not a function of the customer's water usage.

These changes to the existing rate structure would be advantageous to the County. The recommended methodology is more consistent with current industry standards. Additionally, different volumetric rates per customer class based on cost of service are a more equitable way to charge customers. A base charge would provide greater revenue stability and allow for the collection of revenue for fixed costs, like billing and collection, customer service, and a portion of debt service.

3.7 Rate Impacts and Comparisons

Customer Impacts
Implementing the new minimum charge and 6.76% increase to the uniform volumetric rate will result in rates and charges listed in Exhibit 3-11. As a result of these rates and charges, all customers will experience an increase in their monthly bills.

Exhibit 3-12 presents residential customer impacts at various metered water consumptions. Both the monthly bills calculated based on the existing rates and based on the recommended rates reflect the 85% return factor standard for residential customers. From the chart, customers below two (2) Ccf have a considerable increase in their bills. For two (2) Ccf of water usage and greater, the impact is nominal, but the impact increases with each additional unit of service. A typical customer for the County has eight (8) Ccf of monthly metered water consumption. At that level of consumption, the difference in the monthly bill is an increase of $3.40.

Exhibit 3-12: Residential Customer Impacts based on Recommended Rates at Various Levels of Metered Water Usage (5/8-inch meter)

Residential Monthly Bill			
Metered Water Consumption (Ccf)	Monthly Bill Existing Rates	Monthly Bill Recommended Rates	Monthly Bill Difference $
0	$ 2.00	$ 13.50	$ 11.50
2	$ 12.58	$ 13.50	$ 0.92
5	$ 31.45	$ 33.58	$ 2.12
8	$ 50.32	$ 53.72	$ 3.40
10	$ 62.90	$ 67.15	$ 4.25
15	$ 94.35	$ 100.73	$ 6.37

Impacts on the monthly bills for non-residential customers are presented in Exhibit 3-13. Commercial customers are billed at 100% of metered water usage. Similar to the residential charges, the 0-10 Ccf customers experience a significant increase. From ten (10) Ccf, the implementation of the recommended rates causes an incremental difference from the bills based on existing rates.

Exhibit 3-13: Commercial Customer Impacts from Recommended Rates at Various Metered Water Consumptions (2-inch meter)

Commercial Monthly Bill			
Metered Water Consumption (Ccf)	Monthly Bill Existing Rates	Monthly Bill Recommended Rates	Monthly Bill Difference $
0	$ 14.00	$ 65.70	$ 51.70
10	$ 74.00	$ 79.00	$ 5.00
20	$ 148.00	$ 158.00	$ 10.00
50	$ 370.00	$ 395.00	$ 25.00
250	$ 1,850.00	$ 1,975.00	$ 125.00
500	$ 3,700.00	$ 3,950.00	$ 250.00

Customer Bill Comparisons

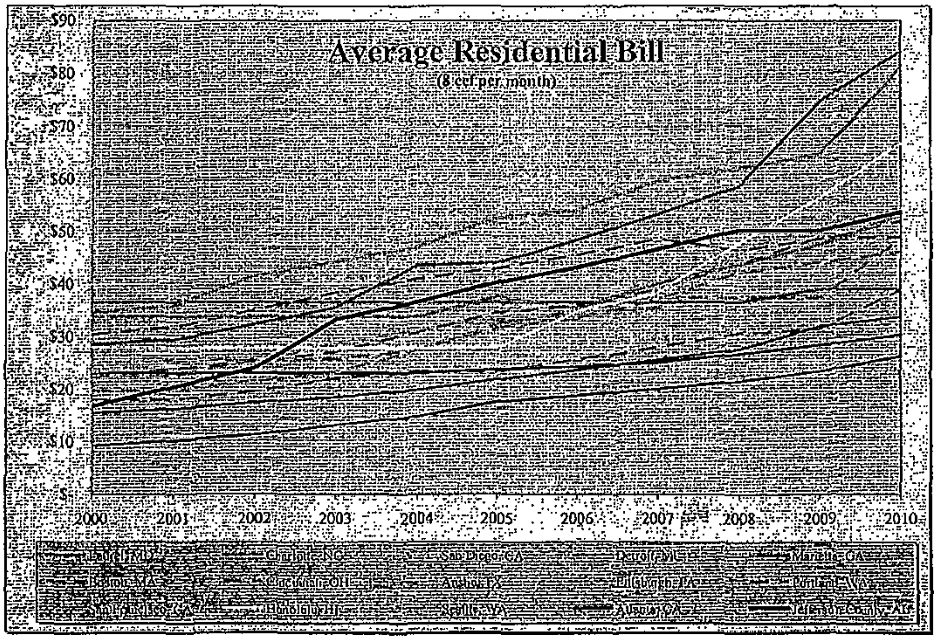
In the subsection above, residential and commercial customers' monthly bills were compared between existing and recommended rates. The exhibits below show the comparison of a residential monthly bill calculated at 8 Ccf of metered water usage of Jefferson County among "peer" utilities (herein defined as the 15 utilities with the highest charges of 60 of the largest wastewater utilities in the US). As observed in Exhibit 3-14, Jefferson County's existing charge is the seventh highest monthly bill at this level of usage. The recommended rates would place Jefferson County fourth highest on the list.

Exhibit 3-14: Residential Customer Bill Comparison with the Peer Utilities

City	State	Service Provider	2008 Monthly Bill 8 ccf 5,984 gal	2009 Monthly Bill 8 ccf 5,984 gal	Percent Change
Laurel	MD	Washington Suburban Sanitary Commission	$ 28.14	$ 31.56	12.12%
Charlotte	NC	Charlotte-Mecklenburg Utilities	27.56	33.80	22.64%
San Diego	CA	San Diego Metropolitan Wastewater	32.18	37.97	18.00%
Marietta	GA	City of Marietta	36.55	39.12	7.01%
Boston	MA	Boston Water & Sewer Commission	38.88	40.23	3.48%
Detroit	MI	Detroit Water and Sewerage Dept	34.02	41.19	21.06%
Austin	TX	City of Austin	42.07	46.16	9.73%
Cincinnati	OH	MSD of Greater Cincinnati	43.69	48.94	12.01%
Jefferson Co. Existing	AL	Jefferson County	50.32	50.32	0.00%
Portland	OR	City of Portland	45.60	52.00	14.04%
Pittsburgh	PA	Pittsburgh Water and Sewer Authority	52.05	52.05	0.00%
San Francisco	CA	San Francisco Public Utilities	44.81	53.22	18.76%
Jefferson Co. Recommended	AL	Jefferson County	50.32	53.72	6.76%
Honolulu	HI	City and County of Honolulu	47.94	66.77	39.26%
Seattle	WA	City of Seattle	62.00	71.12	14.71%
Atlanta	GA	City of Atlanta	76.21	85.79	12.57%

Exhibit 3-14 also indicates that many large wastewater utilities have recently implemented significant rate increases. RFC expects this trend to continue. Therefore, annual 6.76% rate increases for the County may actually result in other utilities having higher charges for a typical residential customer five or ten years from now as those utilities implement greater rate increases, particularly utilities that have not satisfied consent decrees with the EPA. The chart in Exhibit 3-15 shows how the typical residential charge has changed over the last ten years. It indicates that the charge of other utilities is accelerating upward.

Exhibit 3-15: Average Residential Monthly Bills at 8 Ccf



The recommended minimum charge of $13.50 is significantly higher than the existing minimum charge. To validate that this minimum charge is not unreasonably high, existing and recommended minimum charges were compared to the minimum or base charges of peer utilities. The comparison is presented in Exhibit 3-16. The new minimum charge would place Jefferson County among the higher end of peer utilities, but would still be considerably less than Honolulu and Cincinnati.

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Exhibit 3-16: Comparison of Minimum or Base Charges with Peer Utilities

City	State	Provider	Monthly Bill 0 gal	Allowance
Laurel	MD	Washington Suburban Sanitary Commission	3.67	
Charlotte	NC	Charlotte-Mecklenburg Utilities	1.80	
San Diego	CA	San Diego Metropolitan Wastewater	11.07	
Detroit	MI	Detroit Water and Sewerage Dept	15.97	
Marietta	GA	City of Marietta	13.06	2,000 gal
Boston	MA	Boston Water & Sewer Commission	-	
Cincinnati	OH	MSD of Greater Cincinnati	37.39	3,750 gal
Austin	TX	City of Austin	8.50	
Jefferson Co. Existing	**AL**	**Jefferson County**	2.00	
Pittsburgh	PA	Pittsburgh Water and Sewer Authority	14.67	1,000 gal
Portland	OR	City of Portland	-	
Jefferson Co. Recommended	**AL**	**Jefferson County**	13.50	1,500 gal
San Francisco	CA	San Francisco Public Utilities	-	
Honolulu	HI	City and County of Honolulu	59.47	2,000 gal
Seattle	WA	City of Seattle	8.89	750 gal
Atlanta	GA	City of Atlanta	5.21	

3.8 Cost of Service

Allocation of Costs

<u>O&M Allocations</u>

The O&M budget for FY 2009-2010 is approximately $61.34 million. The total budget is comprised of separate budgets for individual cost centers within the County's system. There are 27 cost centers in total, including the WWTPs, ESD Administration, Pump Station Operations, etc. The breakdown of the total budget by cost center is presented in Exhibit 3-1.

Each cost center's budget was allocated to categories, such as flow, industrial waste surcharge components, billing and collection, and administration and general. These allocations were determined in consultation with ESD staff. Totals for these allocations are provided in Exhibit 3-17. Administration and general (Admin & General) are overhead costs shared by all other allocation categories. Therefore, the Admin & General costs are re-allocated to the other allocation categories based on their percentage of the total budget. Exhibit 3-18 shows the re-allocation of Admin & General and the resulting categorical allocation of the overall budget.

Exhibit 3-17: O&M Budget by Allocation Categories

Total O&M **$ 61,336,284**

Allocation Categories	Allocated Costs	Percent
Flow	27,481,265	44.80%
BOD/COD	7,119,678	11.61%
TSS	4,675,495	7.62%
FOG	844,317	1.38%
Total Nutrients	2,256,885	3.68%
Direct to Grease	582,610	0.95%
Direct to Septic	591,811	0.96%
Billing & Collection	7,170,996	11.69%
Admin & General	10,613,227	17.30%

Exhibit 3-18: Re-allocation of Admin & General Costs

Total O&M **$ 61,336,284**

Allocation Categories	Allocated Costs	Percent	
Flow	33,367,701	54.40%	Admin & General
BOD/COD	8,644,700	14.09%	
TSS	5,676,977	9.26%	
FOG	1,025,168	1.67%	
Total Nutrients	2,740,305	4.47%	
Direct to Grease	582,610	0.95%	
Direct to Septic	591,811	0.96%	
Billing & Collection	8,707,010	14.20%	

Costs associated with the cost categories "Direct to Grease" and "Direct to Septic" are recovered from septic fees and grease control program permits, calculated separately from flow and industrial waste surcharges. For this reason, the two cost categories have not received the Admin & General reallocation and are removed from the total budget. Exhibit 3-19 shows the adjusted budget of approximately $60.16 million.

Exhibit 3-19: Allocation Categories, with Removal of Two Categories

Total O&M **$ 60,161,863**

Allocation Categories	Allocated Costs	Percent
Flow	33,367,701	55.46%
BOD/COD	8,644,700	14.37%
TSS	5,676,977	9.44%
FOG	1,025,168	1.70%
Total Nutrients	2,740,305	4.55%
Direct to Grease	-	0.00%
Direct to Septic	-	0.00%
Billing & Collection	8,707,010	14.20%

A potion of miscellaneous revenue (ad valorem revenues, various fee and charge revenue, etc.) is allocated to offset O&M costs. Approximately $8.13 million is allocated to O&M. This total includes a small negative offset of which represents the FY 2009-2010 forecasted transfer to the Operating Fund to meet the operating reserve target established by the County. As previously discussed, the private meter credits have a negative impact on revenue and therefore can be considered an additional revenue requirement as shown in Exhibit 3-20. The net O&M costs are $61.16 million and are presented in Exhibit 3-20.

Exhibit 3-20: Net O&M Costs by Cost Category

	O&M Costs	Offsets	Private Meter Credits	Net O&M Costs
Total	$ 60,161,863	$ (8,125,407)	$ 9,126,049	$ 61,162,505
Allocation Categories	Allocation	Allocation	Allocation	Allocation
Flow	33,367,701	(4,506,612)	9,126,049	36,098,579
BOD/COD	8,644,700	(1,167,545)		7,477,155
TSS	5,676,977	(766,727)		4,910,250
FOG	1,025,168	(138,458)		886,710
Total Nutrients	2,740,305	(370,103)		2,370,202
Direct to Grease	-	-		-
Direct to Septic	-	-		-
Billing & Collection	8,707,010	(1,175,961)		9,419,609

Capital Allocations

Capital expenditures are costs incurred by the utility which are separate from the utility's O&M budget. These costs pertain to expenditures incurred for repairing, upgrading, or expanding the utility's infrastructure. A large component of capital costs is debt service payments for bond issues used to fund capital projects. PAYGO, which is the amount a utility will fund capital projects through rate generated revenue, is also included in capital expenditures.

Capital expenditures are allocated to cost categories using the allocations of the fixed assets to the cost categories. Therefore, the first step in the process was to allocate the fixed assets to each cost category. The percentage of total assets of each cost category was applied to allocate the capital expenditures. For the County, the fixed assets were assigned to cost centers, shown in Exhibit B-2 of Appendix B. The cost centers, with the exception of a few additions, are the same cost centers that are included in the O&M budget. The assets total approximately $3.15 billion dollars.

The value of the assets of each cost center was allocated to cost categories. The cost categories represent the general costs associated with providing wastewater service. The cost categories used for the capital analysis were flow and the industrial waste surcharge components. The allocation percentages were determined by an initial breakdown between collection and treatment, provided by ESD staff. Collection assets were allocated 100% to flow. Treatment assets were allocated in a manner consistent with the O&M allocation of treatment. The resulting allocation percentages are provided in Exhibit 3-21, along with the total asset values per cost center under each cost category.

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Exhibit 3-21: Asset Values per Allocation Categories

Total Assets **$ 3,150,308,232**

Allocation Categories	Allocated Costs	Percent
Flow	2,290,274,084	72.70%
BOD/COD	463,725,372	14.72%
TSS	216,426,176	6.87%
FOG	65,841,442	2.09%
Total Nutrients	114,041,158	3.62%
Direct to Grease	-	0.00%
Direct to Septic	-	0.00%
Billing & Collection	-	0.00%

The consequential percent allocations provided in Exhibit 3-21 are used to allocate capital expenditures for FY 2009-2010 to the cost categories. Exhibit 3-22 below shows how the $111.47 million of debt service and $0.53 million of PAYGO capital expenditures are allocated to the cost categories.

Exhibit 3-22: Allocation of Capital Expenditures for FY 2009-2010

Total Capital Expenditures **$ 111,995,807**

Allocation Categories	Percent	Allocated Costs
Flow	72.70%	81,420,952
BOD/COD	14.72%	16,485,783
TSS	6.87%	7,694,112
FOG	2.09%	2,340,712
Total Nutrients	3.62%	4,054,248
Direct to Grease	0.00%	1,140
Direct to Septic	0.00%	-
Billing & Collection	0.00%	-

Similar to the O&M allocation, a portion of the miscellaneous/non-user charge revenue (impact fee revenue) is allocated to offset capital expenses. The level of miscellaneous revenue allocated is approximately $6.18 million. The breakdown of the capital costs, miscellaneous revenue, and net capital costs is provided in Exhibit 3-23.

Exhibit 3-23: Net Capital Costs

	Capital Costs		Offsets		Net Capital Costs
Total	$ 111,995,807		$ (6,176,754)		$ 105,819,117
<u>Allocation Categories</u>	<u>Allocation</u>		<u>Allocation</u>		<u>Allocation</u>
Flow	81,420,952		(4,490,454)		76,930,498
BOD/COD	16,485,783		(909,209)		15,576,574
TSS	7,694,112		(424,339)		7,269,773
FOG	2,340,712		(129,093)		2,211,620
Total Nutrients	4,054,248		(223,596)		3,830,652
Direct to Grease	-		-		-
Direct to Septic	-		-		-
Billing & Collection	-		-		-

Comparison of Customer Class Costs

In the previous subsection, the net O&M and capital costs were established and allocated categorically. The next phase in the cost of service analysis was to determine the respective expenses per customer class.

<u>Determination of Customer Class Units</u>

The first step was accomplished by assessing the number of units for each customer class per cost component. The easiest allocation was overall customer class flow, since it is recorded for billing purposes. The allocations for the strength component represent the breakdown from the industrial waste surcharge analysis, which is discussed in the next section. Similarly, a portion of the inflow and infiltration (I&I) needed to be allocated to each class. I&I is not billed, but the cost of treating I&I still must be recovered. Therefore, a set of allocation factors were established to determine the appropriate allocations. The I&I allocation factors are provided in Exhibit B-3 of Appendix B, and the unit allocations are provided in Exhibit 3-24.

Exhibit 3-24: Customer Class Unit Allocations

	Cost Component - Test Year 2009-2010								
	Volume			Strength				Billing & Collection	
	Billed	I&I	Total	BOD/COD	TSS	FOG	Total Nutrients	I&I	Accounts
	Ccf	Ccf	Ccf	lb	lb	lb	lb	Ccf	#
Residential	8,185,620	9,320,455	17,506,075	6,672,421	10,853,265	3,107,569	3,921,497	4,157,378	132,227
Non-Residential	13,154,858	14,978,616	28,133,474	14,704,289	20,289,345	4,413,476	6,275,555	1,917,390	14,117
	21,340,478	24,299,071	45,639,549	21,376,710	31,142,610	7,521,045	10,197,052	6,074,768	146,345

<u>Establishing Unit Costs</u>

The unit costs per cost component must be determined. These unit costs were applied to the number of units per customer class, described above, to determine the cost of service by customer class. The unit costs were calculated by dividing the sum of the O&M and capital costs per cost component by the total units of service per cost component. These total units of service per cost components are the sums of the customer class units per cost components already established. The result was a cost per unit for each cost component. Also in this step, I&I units are no longer distinguished. The total I&I units are combined with the total billable flow units to establish an overall unit cost per flow unit. The unit costs are presented in Exhibit 3-25.

Exhibit 3-25: Unit Costs

	Cost Component - Test Year 2009-2010								
	Volume			Strength				Billing & Collection	
	Billed	I&I	Total	BOD/COD	TSS	FOG	Total Nutrients	I&I	Accounts
	Ccf	Ccf	Ccf	lb	lb	lb	lb	Ccf	#
O&M	$37,987,139	$0	$0	$7,477,155	$4,910,250	$886,710	$2,370,202	$0	$7,531,049
Capital	$76,930,498	$0	$0	$15,576,574	$7,269,773	$2,211,620	$3,830,652	$0	$0
	$114,917,637	$0	$0	$23,053,729	$12,180,023	$3,098,329	$6,200,854	$0	$7,531,049
Units of Service	51,714,317	0	0	21,376,710	31,142,610	7,521,045	10,197,052	0	146,345
Unit Cost	$ 2.22 /Ccf	$ -	$ -	$ 1.08 /lb	$ 0.39 /lb	$ 0.41 /lb	$ 0.61 /lb	$ -	$ 51.46 / Account

Cost Allocation Summary

The individual cost of service components for each customer class was determined by multiplying the cost component unit costs by the respective number of units per cost component per customer class. The detail of these values is provided in Exhibit B-4 of Appendix B. The sums of the individual costs represent the total cost of service per customer class. A summary of the cost of service calculations is provided in Exhibit 3-26.

Exhibit 3-26: Cost of Service by Expense Category and by Customer Class

By Category	
O&M Expenses	$ 61,162,505
Capital Expenses	105,819,117
	$ 166,981,622
By Class	
Residential	$ 70,049,771
Commercial	$ 96,931,850
	$ 166,981,622

3.9 Rate Calculation

At this point, the cost of service per customer class had been determined, so the next step was rate calculation. This calculation could be approached a number of different ways. Some utilities, like the County, assess a uniform rate. Other utilities assess different uniform rates per class based on the cost of service. Still others apply a different rate structure to each of the customer classes. One example of an alternative rate structure is provided below in Exhibit 3-27. The rates were calculated assuming a January 1, 2010 implementation date, therefore only applicable for nine months of the fiscal year. A base charge with no demand allowance is assessed based on meter size to both residential and commercial customers. For example, for a 5/8-inch customer, the base charge would be $9.88. However, since the costs of service for residential and non-residential customers are different, the uniform rate per demand unit is

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different for each class. In this example, the residential rate per Ccf (after the 85% return factor is applied) is $6.72 per Ccf. For commercial customers, the volumetric rate is $7.01 per Ccf. This reflects that the cost to serve residential customers is lower than commercial customers due to concentrations of pollutants. The revenue proof for this example is provided in Exhibit 3-28.

Exhibit 3-27: Example of Alternative Rate Structure and Rate Calculation Based on Cost of Service

Charge	Meter Size	Unit Charge	Unit
Volumetric			
Residential*		$ 6.72	per Ccf
Non-Residential		$ 7.01	per Ccf
Base Charge			
	5/8"	$ 9.88	per Month
	3/4"	12.76	
	1"	18.52	
	1.25"	24.28	
	1.5"	32.93	
	2"	50.21	
	3"	90.55	
	4"	148.17	
	6"	292.23	
	8"	465.09	
	10"	666.77	
	12"	1,242.99	

*Return factor of 85% is applied for Residential Customers.

Exhibit 3-28: Revenue Proof based on Example Cost of Service Rates

	FY2009-2010
Revenue	
Fixed	$ 15,817,527
Volumetric	$ 149,913,993
Other Revenue	$ 15,607,297
Total Revenue	$ 181,338,817
Revenue Requirements	
O&M	$ 69,343,111
Capital	$ 111,995,807
Total	$ 181,338,919
Surplus/(Deficit)	$ (101)

* Deficit due to rounding.

The rate structure example is not a recommendation of rates or rate structure for FY 2009-2010. It is consistent with RFC's future recommendations; however, it is only presented to provide the County with a demonstration of how different rate structure approaches could be implemented. The County will need to determine the appropriate rate structure and corresponding rates based on its objectives and constraints.

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Return Factor

RFC evaluated whether the current return factor was appropriate. The billed sewer usage for residential customers is calculated as 85% of metered water consumption. This return factor was determined on the basis that 15% of residential water consumption is not returned to the sewer system. The primary reason is outdoor water use, particularly irrigation. To validate this return factor, it was necessary to analyze the pattern of Jefferson County residential users' monthly water consumption levels. It is generally accepted within the wastewater industry that an average of the months representing the lowest billed water consumption, typically winter months, is a good indicator of indoor water consumption, which is assumed to be returned to the sewer system. By comparing this average to the annual average monthly metered water usage for the County, it was possible to arrive at the calculated ratio of metered water usage to the wastewater that is returned to the sewer.

The data for this analysis was collected from monthly billing data for Jefferson County residents from the Birmingham Water Works Board. These users provide an excellent sample for all of Jefferson County as over 80 percent of County customers are also customers of the Birmingham Water Works Board. Residential consumption data was pulled from two years of monthly statements, and compiled to show total monthly consumption across 2007 and 2008.

RFC examined two scenarios, which are summarized in Exhibit 3-29, to estimate monthly indoor water use. In the first scenario, the consecutive three-month period with the lowest aggregate consumption was evaluated. In the second scenario, the grouping of the three months with the lowest aggregate consumption was selected. The final column of Exhibit 3-29 shows the arithmetic mean of the 2007 and 2008 ratios.

Exhibit 3-29: Analysis of Return Factor

	2007				2008				2007 & 2008
	3 month Average	Annual average	Ratio		3 month average	Annual average	Ratio		Ratio
3 lowest consecutive months	703,835	753,608	107.07%		657,499	740,686	112.65%		109.77%
3 lowest months	654,840	753,608	115.08%		648,248	740,686	114.26%		114.67%

These ratios indicated that for 2007 and 2008 a reasonable estimate of residential water usage that was not returned to the sewer system is between 10% and 15%. Therefore, it is appropriate for this portion of water usage to not be charged to residential sewer customers. This data validates the continued utilization of the percent of metered water use billing system, and supports an 85% return factor as reasonable.

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SECTION IV – INDUSTRIAL WASTE SURCHARGES

4.1 Overview

An important component of the Study was the development of an industrial waste surcharge model (Surcharge Model) that would provide the ESD with the necessary information required for an update to all rates in the County's industrial waste surcharge program. Some data from the Surcharge Model was also utilized for cost of service allocations.

The approach RFC took in updating these charges was to identify and allocate the costs associated with treating the different components of wastewater influent to the ESD's treatment plants with an emphasis on labor, chemical, and energy (particularly electricity) costs. The first step in the study was to conduct a site visit to the County to interview ESD staff and visit a selected sample of WWTPs. The site visits were conducted on September 1-2, 2009. The following table shows the WWTPs included in the System and those that were visited by RFC. The size or class of treatment plant is also included with Class II being the smallest and Class IV being the largest. An adequate spectrum of plants was visited by RFC in order to gain a grasp of the processes and allocations for the larger and smaller WWTPs within the system.

Exhibit 4-1: ESD Treatment Plants

Treatment Plant	Class	RFC Visit
Valley Creek	IV	Yes
Village Creek	IV	Yes
Cahaba River	IV	
Five Mile Creek	IV	Yes
Leeds	III	
Trussville	III	Yes
Turkey Creek	III	
Warrior	II	
Prudes Creek	II	

RFC toured four of the WWTPs, interviewed personnel, and analyzed labor, chemical, and energy usage provided by each plant. Since RFC did not visit all of the WWTPs, the data from the treatment plant in a particular class was applied to those WWTPs in the same class. The following subsections outline the methodology used in the Surcharge Model and explain the reasoning behind the allocations. These subsections are followed by the surcharge and charge calculations and RFC's recommendations.

4.2 Distribution of Cost Centers to Surcharge Parameters

RFC used the FY 2009-2010 O&M budget as the basis for the costs to be recovered from the industrial waste surcharges, utilizing each cost center in the ESD budget that included treatment operations. With input from ESD staff, RFC reviewed the budget to determine what line items of each cost center had a direct relationship with the treatment of the specific parameters. Exhibit 4-2 summarizes the percentages from each cost center that were allocated to each parameter. The Surcharge Model includes an allocation of costs to flow which represents those activities that are not involved in the treatment of the surcharge parameters. These activities include pumping, flow equalization, grit screening, clarification etc. The costs allocated to flow are recovered from the volumetric rate. A portion of the remaining allocated costs are recovered by industrial waste surcharges. The County currently surcharges for excessive BOD/COD, TSS, FOG, and phosphorous. The County requested that RFC explore the possibility of adding an additional surcharge for total nitrogen. The allocations between these activities will be shown later in the report in the subsection "Distribution of Costs to Process Functions."

Exhibit 4-2: Summary of Cost Center Budget Allocation Percentages to Pollutant Loading Surcharge Parameters

	Pollutant Loading Surcharge Parameters Allocation Percentages							
Cost Center	**Flow**	**BOD**	**TSS**	**FOG**	**Total Nutrients**	**Direct to Grease**	**Direct to Septic**	**Total**
ESD Administration	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Cahaba River	50.7%	28.9%	14.1%	1.2%	5.1%	0.0%	0.0%	100.0%
Five Mile Creek	52.6%	27.2%	13.7%	1.2%	5.4%	0.0%	0.0%	100.0%
Leeds	53.2%	28.1%	11.7%	1.8%	5.2%	0.0%	0.0%	100.0%
Trussville	49.5%	31.7%	11.0%	1.5%	6.3%	0.0%	0.0%	100.0%
Turkey Creek	54.3%	25.5%	12.1%	1.7%	6.4%	0.0%	0.0%	100.0%
Valley Creek	55.0%	21.9%	14.0%	1.6%	4.4%	0.0%	3.1%	100.0%
Village Creek	52.6%	21.3%	15.4%	0.7%	5.0%	1.4%	3.5%	100.0%
Five Mile Creek Maintenance	69.3%	14.9%	10.5%	4.6%	0.7%	0.0%	0.0%	100.0%
Valley Creek Maintenance	67.1%	14.9%	10.1%	4.4%	0.7%	0.0%	2.8%	100.0%
Village Creek Maintenance	62.7%	13.9%	9.4%	4.1%	0.6%	2.6%	6.6%	100.0%
Electrical Shop	51.3%	22.4%	16.4%	1.9%	4.2%	0.0%	3.7%	100.0%
Instrument Shop	50.3%	24.3%	16.0%	1.8%	4.5%	0.0%	3.1%	100.0%
Pump Station Operations	83.3%	6.0%	8.2%	1.0%	1.5%	0.0%	0.0%	100.0%
Biosolids	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Barton Laboratory *	10.0%	15.1%	8.1%	16.2%	33.1%	17.5%	0.0%	100.0%

*The Direct to Grease allocation for Barton Lab is allocated to the grease control program.

As shown in Exhibit 4-3, a significant portion of costs are allocated to the flow parameter while other cost centers such as ESD Administration are allocated entirely to "Direct to Septic." Further information regarding each cost center is provided below. First, Exhibit 4-3 shows a summary of the budget allocations in terms of dollars once the allocation percentages from Exhibit 4-2 are applied. Each column under the parameter heading is the cost involved in actually treating the wastewater influent in order to develop the unit cost that was described previously. To develop the unit costs, RFC used O&M costs only, excluding capital costs which would include debt service or CIP contributions.

Exhibit 4-3: Summary of Cost Center Budget Allocations to Pollutant Loading Surcharge Parameters

	Pollutant Loading Surcharge Parameters							
	Allocation Percentages							
Cost Center	**Flow**	**BOD**	**TSS**	**FOG**	**Total Nutrients**	**Direct to Grease**	**Direct to Septic**	**Total**
ESD Administration	$0	$0	$0	$0	$0	$0	$63,000	$63,000
Cahaba River	1,565,721	892,335	434,963	37,167	158,998	0	0	3,089,185
Five Mile Creek	1,408,933	728,419	367,357	30,950	144,625	0	0	2,680,285
Leeds	471,606	249,511	104,013	16,199	45,812	0	0	887,142
Trussville	426,871	273,389	95,139	13,321	54,260	0	0	862,980
Turkey Creek	452,612	212,464	100,656	14,501	53,116	0	0	833,349
Valley Creek	3,892,043	1,548,852	989,327	115,084	308,181	0	219,991	7,073,477
Village Creek	3,976,283	1,610,093	1,166,586	54,395	378,311	103,204	265,466	7,554,337
Five Mile Creek Maintenance	256,174	55,146	38,817	16,915	2,542	0	0	369,595
Valley Creek Maintenance	326,710	72,326	49,172	21,606	3,334	0	13,542	486,690
Village Creek Maintenance	236,138	52,276	35,540	15,616	2,410	9,788	24,765	376,534
Electrical Shop	473,921	207,248	151,737	17,992	38,411	0	34,319	923,628
Instrument Shop	338,815	163,467	107,924	12,454	30,653	0	20,721	674,034
Pump Station Operations	3,178,530	228,480	314,212	38,097	57,120	0	0	3,816,439
Biosolids	0	379,653	474,566	0	94,913	0	0	949,132
Barton Laboratory *	266,663	400,624	215,986	431,796	878,982	465,405	0	2,659,456

*Direct to Grease is allocated to the Grease Program.

4.3 Distribution of Costs to Process Functions

Exhibits C-1A through C-16A of Appendix C present the percent allocations of the costs associated with each cost center's treatment process category to the treatment parameters. Exhibits C-1B through C-16B of Appendix C summarize the allocated costs. RFC developed a list of treatment processes that best described the processes found at all of the WWTPs. Consistency between the cost centers was vital in order to develop a proper allocation of costs. The treatment processes that RFC developed with input from ESD staff are shown in Exhibit 4-4.

Exhibit 4-4: List of Treatment Process Categories for the Allocation of ESD Treatment Costs

Flow Equalization	Biological Treatment	Dewatering
Grit Screening and Comminuters	Filters	Sludge Digesters
Pumping	Disinfection	Water Reuse
Clarifiers	Thickening	

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In addition to costs related specifically to the treatment processes, costs from line items within each costs center's budget that RFC identified as General & Admin were allocated according to a weighted percentage of the total costs for each treatment process. These General & Admin costs, while not specific to a treatment process, are necessary for the treatment function of each cost center and should, therefore, be recovered through the unit cost calculated for each parameter.

For the cost allocations, RFC was able to isolate the WWTPs by cost center since several of the cost centers are listed by treatment plant. Two of the smaller Class II WWTPs, Warrior and Prudes Creek, are not represented as a separate cost center but are included in the cost center for the Five Mile Creek (7302) WWTP. Other cost centers shown in Exhibits 4-2 and 4-3 that are not specifically associated with a treatment plant are included since their functions include the treatment of wastewater and the recovery of such costs should be included in the calculation of industrial waste surcharges.

The allocation of costs for the ESD Administration cost center is related to a station for septage receiving overseen by one ESD employee. The cost shown here reflects the salary and benefits related to this position and allocated accordingly to septage.

Barton Laboratory's primary function is to confirm the success of the treatment processes through sampling of wastewater effluent for permitting purposes. In addition, the Barton Laboratory cost center also includes the grease control program and pretreatment administration. Since Barton Laboratory's functions are not related to the treatment processes in the same manner as in the other cost centers, RFC allocated the costs to three primary areas: grease control, pretreatment, and the remainder of the budget which would involve sampling and other lab functions. In order to allocate the percentages to the three primary areas: pretreatment, grease control, and the remainder of the budget (sampling and testing), RFC employed a two-step method. The first step was applied to the pretreatment and grease control areas. RFC calculated the percentage of employees within the Barton Laboratory cost center that are dedicated to these two areas. Of twenty-two (22) employees, four (4) are dedicated to pretreatment and seven (7) are dedicated to grease control resulting in allocation percentages of 18% and 32%, respectively resulting in the total dollar amounts for pretreatment and grease control. RFC further allocated these amounts to the wastewater parameters with input from ESD staff. The second step involved the number and types of tests taken during the most recent fiscal year and allocating the total cost to the various wastewater parameters. The results of this are shown in Exhibit C-16C of Appendix C.

4.4 Mass Balance

RFC conducted a mass balance of the System with data provided by ESD staff. The main purpose of the mass balance was to provide a comparison of wastewater discharged by residential, commercial, and industrial customers with the influent measured at each treatment plant. This information included a reasonable estimate of the amount of I&I within the System and that the level of wastewater mass being discharged into the System is not greater than that measured at the treatment plants. Another benefit of the mass balance was that it provided an estimate of the levels of influent concentration of the wastewater parameters. The mass of these parameters was included in the calculation of the industrial waste surcharges. Exhibit 4-5 shows the mass balance that RFC developed for this study for FY 2008-2009.

Exhibit 4-5: FY 2008-2009 Mass Loadings of Treatment Plants

	Total Comparison						
	Influent Volume	Billed Volume	Influent BOD	Influent TSS	FOG	Total Phosphorous	Total Nitrogen
	CCF	CCF	Pounds	Pounds	Pounds	Pounds	Pounds
Treatment Plant Influent	51,714,317	24,255,018	24,861,710	31,582,379	7,705,945	1,070,363	9,392,834
Inflow & Infiltration	27,459,299		2,562,502	9,150,080		14,370	4,188,649
Surcharged Loadings		689,201	6,134,107	439,769	184,900	20,722	245,424
Remaining Customers		24,255,018	16,165,101	21,992,530	7,521,045	1,035,271	4,958,762
Total	27,459,299	~~24,944,219~~	24,861,710	31,582,379	7,705,945	1,070,364	9,392,835

4.5 Plant Loadings

The summary of loadings was provided by data obtained at the treatment plants. Exhibit 4-6 shows the summary of these loadings by treatment plant.

Exhibit 4-6: FY 2009 Summary of Loadings by Treatment Plants

	Treatment Plant Loadings				
Treatment Plant	Influent Volume	Influent BOD	Influent TSS	Total Phosphorous	Total Nitrogen
	CCF	Pounds	Pounds	Pounds	Pounds
Cahaba River	4,139,163	2,695,831	3,199,688	65,455	764,407
Five Mile Creek	6,118,259	2,409,469	4,184,115	116,628	1,307,723
Leeds	486,588	452,347	438,087	7,686	82,974
Trussville	910,599	586,527	710,489	12,967	185,487
Turkey Creek	1,591,064	728,188	1,420,407	72,230	355,360
Valley Creek	19,617,112	9,731,943	11,569,484	384,224	3,185,639
Village Creek	18,656,848	7,874,108	9,911,587	408,265	2,035,744
Warrior	155,030	345,145	51,250	585	1,466,116
Prudes Creek	39,653	38,152	97,273	2,325	9,384
Total	51,714,317	24,861,710	31,582,379	1,070,364	9,392,835

Influent data was not available for the FOG parameter. Therefore, the FOG loading was estimated by adding the individual estimated FOG loadings for the residential, commercial, and

SID customer classes. The discharge of FOG by the residential and non-residential classes was estimated by multiplying the billed volume of wastewater discharged by each customer class by an assumption of the concentration of FOG, in this case 50 mg/l for both customer classes. The FOG loading for the SIDs is estimated by multiplying the billed volume of wastewater discharged for each customer by their respective sampled FOG strength as provided by ESD. Exhibit 4-7 shows the estimate of FOG mass loadings.

Exhibit 4-7: Estimate of FOG Loadings by Customer Class

Customer Class	Fats, Oils, and Grease (pounds)
Residential	3,107,569
Commercial	4,244,966
Industrial (Non-Surcharged Amount)	168,510
Industrial (Surcharged Amount)	184,900
Total	**7,705,945**

4.6 Customers

In order to determine the amount of loadings that would be surcharged, RFC reviewed the loadings data of those customers that are participants in the industrial waste surcharge program. ESD staff provided a list of customers that are currently active in the program and provided the most recent sampling data. RFC looked for trends in the data and projected an overall concentration for FY 2008-2009 and used this concentration for FY 2009-2010. Exhibits D-1 and D-2 of Appendix D show the list of customers and their respective mass loadings separated into surcharged and non-surcharged amounts. This list includes only those customers with loadings that are significant according to the ESD. This data was used to develop the mass loadings found in Exhibits 4-5, 4-6, and 4-7.

4.7 Labor, Electricity, and Chemicals

As mentioned earlier, RFC visited Jefferson County on September 1-2, 2009 to interview ESD staff and visit the WWTPs. ESD staff took RFC staff on tours of the Valley Creek, Village Creek, Five Mile Creek, and Trussville WWTPs. The main topics of discussion during these visits were chemicals, labor, and electricity and how these areas could be allocated by process at these plants. The resulting cost allocations were then applied to the budget line items for each cost center. Appendix E provides the detail for the labor, electricity and chemicals allocations.

4.8 Existing Rates

The rates of the County's industrial waste surcharge program were last updated in 1991. The County has the following rates to recover the costs for the treatment of industrial wastes in its current program:

- Biochemical Oxygen Demand (BOD) surcharge: Two-tier structure of $0.195 per pound for concentrations of 300 mg/l to 1,200 mg/l and $0.2925 per pound for concentrations above 1,200 mg/l.
- Chemical Oxygen Demand (COD) surcharge: Same as the above BOD surcharge except that the first tier rate applies to the range of COD concentration from 750 mg/l to 3,000 mg/l and the second tier applies to all concentrations above 3,000 mg/l. The ESD has a policy that if the COD concentration of an industrial customer is in excess of 2.5 times the BOD concentration then the COD concentrations apply and the surcharge is based on the COD parameters.
- Total Suspended Solids (TSS) surcharge: Two-tier structure of $0.15 per pound for concentrations of 300 mg/l to 1,000 mg/l and $0.30 per pound for concentrations above 1,000 mg/l.
- Total Phosphorous (TP) surcharge: Single-tier rate of $2.00 per pound for concentrations above 4 mg/l.
- Fats, Oils, and Grease (FOG) surcharge: Single-tier of $0.10 per pound for concentrations above 50 mg/l.

In addition to these surcharges the ESD has charges in place for the receipt and handling of FOG and septic waste (septage) at its larger plants.

- A Septage handling rate is $30 per 1,000 gallons.
- A FOG handling rate is $30 per 1,000 gallons.

Currently, FOG is received at the Village Creek treatment plant and septage is received at both the Village Creek and Valley Creek treatment plants. The County also has a grease control program which is funded through annual grease control permits. Most food service facilities must obtain a grease control program permit. The annual permit fee ranges from $200 to $800 depending on the number of grease traps or interceptors.

4.9 Industrial Waste Surcharge and Revenue Calculations

In order to update the industrial waste surcharges, two components are required: 1) the allocated costs to the various wastewater strength parameters and 2) the mass and flow of these parameters. Exhibit 4-8 shows the costs allocated to the pollutant loading parameters and the associated mass and volume. The mass and volume is based on data from FY 2008-2009. ESD staff anticipates these amounts will remain consistent for FY 2009-2010.

Exhibit 4-8: Summary of Costs and Loadings per Parameter

Component	BOD	TSS	FOG System	Grease*	Septage	Total Phosphorous	Total Nitrogen
Costs	$7,074,283	$4,645,994	$836,092	$112,992	$641,805	$225,167	$2,026,501
Amount of Parameter	24,861,710 pounds	31,582,379 pounds	7,705,945 pounds	4,433 (1,000 gallons)	8,880 (1,000 gallons)	86,107 pounds	9,426,271 pounds

*Does not include $465,405 allocated to grease control program.

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Recommended Rates
RFC recommends revisions to the industrial waste surcharge structure. These recommendations include the removal of the two-tier rate structure currently in place for BOD, COD, and TSS, resulting in a uniform industrial waste surcharge. Going forward, the same industrial waste surcharge would be applied to all concentrations exceeding 300 mg/l for the BOD and TSS parameters and 750 mg/l for the COD parameter. The argument for a one tier structure is that the cost associated with removal of these pollutant loadings does not vary by the concentration of these parameters in the wastewater. Exhibit 4-9 includes the proposed industrial waste surcharge for each parameter along with the current surcharges. In addition, the projected level of revenue that may be generated given the current levels of industrial waste discharge is provided.

Exhibit 4-9: Proposed and Current Surcharge Rates

	COD	BOD	TSS	FOG	Grease*	Septage	Total Phos-phorous	Total Nitrogen
Proposed Industrial Waste Surcharge	$0.290 per pound	$0.290 per pound	$0.150 per pound	$0.110 per pound	$75.00 per 1,000 gallons	$60.00 per 1,000 gallons	$2.62 per pound	$0.22 per pound
Threshold for Surcharge	750 mg/l	300 mg/l	300 mg/l	50 mg/l	N/A	N/A	4 mg/l	40 mg/l
Projected Revenue Generated	$239,419	$1,010,650	$65,938	$20,330	$332,468	$532,826	$54,092	$53,973
Current Industrial Waste Surcharge	Tier 1: $0.1950 per pound	Tier 1: $0.1950 per pound	Tier 1: $0.15 per pound	$0.10 per pound	$30 per 1,000 gallons	$30 per 1,000 gallons	$2.00 per pound	None
	Tier 2: $0.2925 per pound	Tier 2: $0.2925 per pound	Tier 2: $0.30 per pound					

*Does not include $465,405 allocated to grease control program.

As shown in Exhibit 4-9, the proposed COD and BOD industrial waste surcharges are the same. RFC applied the same method currently in place of using the COD data for a customer to calculate a surcharge if the COD concentration is at least 2.5 times the BOD concentration of the customer for the same sampling period. The specific customers and to whom this applied is shown in the Appendix. Furthermore, the proposed BOD/COD rate is approximately the same level as the current Tier 2 rate while the proposed TSS rate is approximately the same level as the current Tier 1 rate.

Of further note is the calculation of the direct to grease and septage rates. These rates apply to those customers that haul FOG and septic waste to the treatment plants. RFC calculated the unit costs for the three components by multiplying the proposed industrial waste surcharges for BOD, TSS, and FOG by the number of pounds present in 1,000 gallons of FOG and septic waste based on standard industry concentrations (mg/l).[4] Using the cost allocations, proposed surcharges, and assumed loadings, the calculated costs are approximately $292 per 1,000 gallons and $114 per 1,000 gallons for a grease load and a septage load, respectively, as shown in Exhibit 4-10. RFC believes immediate increases to the calculated costs are too great, so RFC recommends proposed rates of $75 per 1,000 gallons and $60 per 1,000 gallons for a grease load and septage load, respectively.

Exhibit 4-10: Grease and Septage Load Charge Calculation

	Grease (per 1,000 gallons)		Septage (per 1,000 gallons)	
	Charge Breakdown	Mass in pounds	Charge Breakdown	Mass in pounds
Hauling and Physical Handling	$25.49		$72.28	
BOD	$140.37	484.03	$16.94	58.42
TSS	$70.52	470.12	$21.66	144.38
FOG	$55.39	503.51	$3.21	29.21
Total Calculated Surcharge Rate	**$291.76**		**$114.09**	

There are over 2,100 food service facilities in the ESD database. Approximately 1,900 of the facilities are on the County's System. Some facilities are excluded because they do not use grease (e.g., Subway Restaurants), resulting in approximately 1,550 facilities that are required to obtain annual grease control program permits. Based on the cost allocation to the program of approximately $465,000, the calculated cost for a permit is $300. RFC believes an immediate increase from $200 to $300 would be too great, so RFC recommends increasing the lowest rate to $220 and scaling up the rates accordingly. The current and proposed fees are summarized in Exhibit 4-11.

Exhibit 4-11: Grease Control Program Permit Fees

Number of Grease Interceptors or Traps	Current Rates	Proposed Rates
1 – 5	$200.00	$220.00
6 – 10	$400.00	$440.00
11 – 15	$600.00	$660.00
16 – 20	$800.00	$880.00

As mentioned earlier, the ESD's current industrial waste surcharge program does not include total nitrogen. In order to account for this, RFC incorporated total nutrients as a parameter that included total phosphorous and total nitrogen in the cost allocation in the Surcharge Model. RFC

[4] From Water Environment Federation and EPA.

assumed that the cost respective to the treatment of total nutrients be 10% for total phosphorous and 90% for total nitrogen. These percentages were partially based on the level of phosphorous measured in the wastewater influent relative to the level of total nitrogen.

4.10 Recommendations

RFC recommends that the Commission consider updating the industrial waste surcharges and other industrial charges as outlined in this section. The changes include new rates and charges, the removal of a second tier surcharge for BOD/COD and TSS, and the inclusion of total nitrogen as a surcharge parameter.

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SECTION V – IMPACT FEE ANALYSIS

An impact fee is a one-time fee that is charged for new or additional connections to the County's System. Impact fees recover the costs associated with providing capacity to new users and existing users requiring additional capacity. RFC has reviewed the approach used to develop the current impact fees, which is based on expansion-related capital improvements costs, and the method of charging the fees to different classes and types of customers. Based on our review and the County's current capital planning objectives, RFC has calculated updated impact fees based on the system buy-in approach which determines the current equity investment in existing capacity and sewer facilities that are available to serve new customers. RFC has identified the relevant sanitary sewer facilities and system characteristics necessary to update the sanitary sewer impact fees based on the buy-in approach which is appropriate, defensible, and consistent with accepted industry practices.

This section outlines the updated calculation of the sanitary sewer impact fees, including a description of the calculation and the industry accepted system buy-in approach. It also discusses the mechanism for determining impact fees for specific customers.

5.1 Background of Impact Fee

New sewer customers are required to pay impact fees in proportion to their anticipated use of the sanitary sewer system. Though impact fees are a form of user charges, they are not treated as operating revenues and are instead considered capital revenues and are often restricted to use in capital funding for projects and/or debt service that provide additional capacity.

Philosophical Objectives and Regulatory Requirements
The primary objectives of establishing impact fees are to achieve equity in distributing costs and to provide a mechanism by which new users can pay for the cost of the facilities required to serve them without burdening existing users. In short, the goal of impact fees is to promote inter-generational equity and to ensure that growth pays its own way.

Computational Methods for Impact Fee Determination
There are several methods that can be used to calculate impact fees, but in general there are two computational approaches used to determine impact fees, the system buy-in method and the marginal-incremental method. Both approaches are discussed briefly below.

System Buy-in Method
The system buy-in concept is based on the premise that new users are buying into an existing system that already has the capacity to serve them, and by doing so they achieve a financial position comparable with the existing users of the system who originally provided and paid for that capacity. To foster equity between existing and new users under the buy-in method, new users pay for the cost or value associated with the portion of existing system capacity that they will use. This method is applicable in situations where the existing system has adequate surplus capacity and does not require major expansions.

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Marginal-Incremental Cost Method

The marginal-incremental cost method specifically focuses on the cost of adding additional facilities to serve new customers. It is most appropriate in situations where existing facilities do not have available capacity to serve new customers and the cost for new capacity can be tied to an approved CIP or master plan. This method is designed to minimize the need to increase user fees and charges for existing customers over the planning period to pay for expanded facilities to serve new customers.

5.2 Recommended Approach for Determination of County Impact Fees

The approach used in determining impact fees should reflect system characteristics in addition to meeting regulatory requirements and policy considerations. Since the County's System has existing capacity available to serve new customers, the system buy-in approach is the method used to update the calculation of impact fees for the County. After reviewing the current methodology and gaining an understanding of the County's system, capital funding needs, and impact fee objectives, RFC believes the system buy-in approach is appropriate.

5.3 Calculation of County's Impact Fees

The impact fees are determined on a cost per gpd by dividing the rate payer equity of the System by the total mgd of capacity available. The first step was to identify the rate payer equity of the System, which included the current value of the existing assets less accumulated depreciation and the present value of outstanding debt principal which will be recovered through rates. The next step was to determine the cost of capacity per plumbing fixture unit by dividing the rate payer equity by the total mgd of available wastewater treatment capacity and multiplying the cost per gpd by the design flow factor per fixture unit. The design flow factor per fixture unit represents the design flow per household divided by the typical number of plumbing fixtures per household in Jefferson County. Exhibit 5-1 demonstrates the system buy-in approach used to develop the updated sanitary sewer impact fees.

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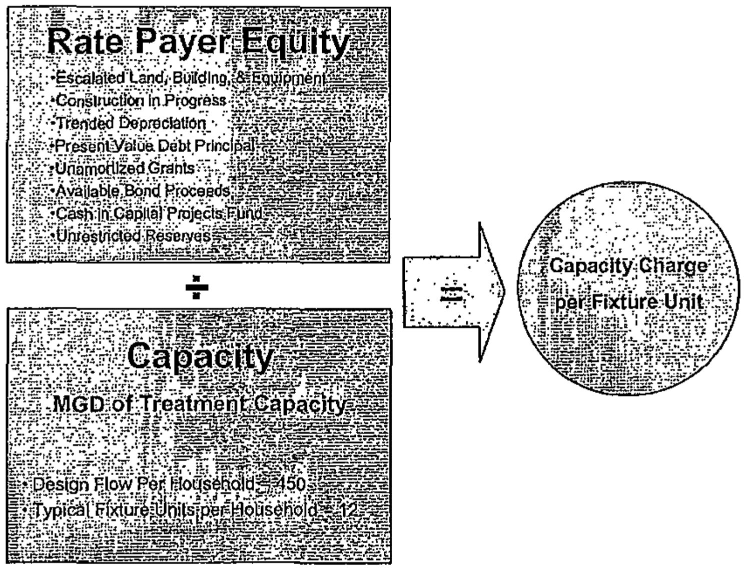
Exhibit 5-1: Impact Fee System Buy-In Calculation Approach



The approach to determine the sanitary sewer impact fees is described in more detail below.

Rate Payer Equity

Under the system buy-in approach, rate payer equity is comprised of the net capital asset equity and available reserves.

1) Net capital asset equity represents the current value of the System facilities, including construction work-in-progress, that were provided through investments by existing rate payers less accumulated depreciated. Adjustments are also made to exclude the present value of outstanding principal on capital items financed through bonds that will be recovered through user rates and those capital items that were obtained through grant funding. To ensure the net capital asset equity reflects the current value of existing rate payer investments, the original cost of the system assets are trended to FY 2008-2009 dollars using the Engineering News-Record (ENR) Construction Cost Index for 20 cities.

2) Available reserves represent those funds contributed or made available by existing rate payer investments. These funds include available bond proceeds that will be used to construct or replace capital assets, cash in capital projects funds which are earmarked for capital projects, and cash in unrestricted funds that are available to meet the System expenditure needs.

Capacity

The next step in determining the average equity of the system contributed by existing rate payers was to divide the rate payer equity by the total 199 mgd of sanitary sewer flows the County's current treatment facilities can treat to determine a cost per gpd of capacity. The cost per gpd is then allocated to single-family residential customers based on an estimated design wastewater flow per household and to plumbing fixture units based on the typical number of plumbing fixture units per household.

1) The design flow per household is 450 gpd and is estimated based on EPA Standards. This flow factor is based on a peak wastewater flow of 180 gpd per person and an average household size of 2.5 persons.

2) The estimated flow per plumbing fixture unit is estimated based on the design flow per household divided by the typical number of plumbing fixture units per household. The typical number of plumbing fixtures for residential properties within the County's service area is 12 plumbing fixture units. This represents the median number of fixture units in new single-family residential units based on a previous five-year analysis of over 7,000 residential impact fee records. Thus, the estimated design flow per fixture unit is 37.5 gpd.

Impact Fee Calculation

The impact fee is determined by dividing the FY 2008-2009 rate payer equity by the total existing 199 mgd of wastewater treatment capacity available to serve both existing and new customers. The total rate payer equity of almost $1.155 billion is divided by the total 199 mgd of treatment capacity to arrive at an impact fee of $5.80 per gpd. This cost per gpd is distributed among the design flow per household of 450 gpd to arrive at a typical residential household impact fee of $2,612. When distributed among the 37.5 gpd per fixture unit flow factor, the impact fee per plumbing fixture unit is $218 which is similar to the current impact fee per fixture unit of $225.

The rate payer equity represents the net capital assets consisting of fixed asset original cost and construction work-in-progress reduced by accumulated depreciation, outstanding principal on debt, and unamortized grants. Assets and accumulated depreciation have been escalated by the 20-city ENR Construction Cost Index to reflect the current trended value and appropriate fund balances on September 30, 2008 were added to the net capital assets to determine the rate payer equity of the System. The outstanding principal on debt is expressed in terms of the current value of all future debt principal payments, which have been discounted by an assumed average cost of debt of 6.0%.

The detailed impact fee calculation is show in Exhibit 5-2.

Exhibit 5-2: Impact Fee Calculation

Line		Rate Payer Equity: Original Cost	Rate Payer Equity: Trended Original Cost (1)
1	**Land, Buildings, & Equipment**	$4,243,503,428	$5,705,520,550
2	Plus: Construction Work in Progress	163,003,561	163,003,561
3	Less: Accumulated Depreciation	(1,254,568,877)	(1,935,071,369)
4	Less: PV of Outstanding Bonds & Loans (2)	(1,569,616,166)	(1,569,616,166)
5	Less: Contributed Capital (3)	(1,415,810,266)	(1,396,959,030)
6	Less: Unamortized Grants	0	0
7	**Net Capital Assets**		$966,877,546
8	Plus: Available Bond Proceeds (4)	26,968,448	26,968,448
9	Plus: Cash in Capital Project Fund (4)	148,807,984	148,807,984
10	Plus: Unrestricted Reserves (4)	12,344,394	12,344,394
11	**Fund Balances**		$188,120,826
12	**Total Ratepayer Equity**		$1,154,998,372
13	Total System Treatment Capacity (gpd) (5)		199,000,000
14	Cost Per Gallon Per Day		$5.80
15	Design Flow Per Household (gpd) (6)		450
16	Typical Residential Impact Fee		$2,612
17	Fixture Count per Typical Residence		12
18	Impact Fee per Fixture		$217.65

(1) The original cost, accumulated depreciation, and fixed assets obtained through unamortized grants were escalated by the 20-city ENRCCI to reflect the current trended value.
(2) Represents the present value of all principal payments on all County outstanding bonds & loans required to fund wastewater system assets. The present value was determined by discounted annual principal payments to a current value based on the County's 6.0% cost of debt.
(3) The trended original cost of contributed capital reflects the original cost less accumulated depreciation for each contributed asset escalated by the 20-City ENRCCI factors.
(4) All ending fund balances are as of 9/18/09.
(5) Represents the maximum treatment capacity of all County wastewater treatment plants.
(6) Design flow per household is based on U.S. Environmental Protection Agency Standards.
(7) Represents the typical number of plumbing fixtures for residential properties within the County's service area. Based on a five-year analysis on over 7,000 residential impact fee records.

The asset values are reduced by the present value of outstanding principal on debt to determine rate payer equity to ensure that new users are not paying twice for the same capacity, e.g. once through payment of impact fee and a second time through user fees which include debt service payments. By deducting the principal value of the debt from the cost of the facilities, new users in fact pay only for the equity portion of the existing facilities via the impact fee. It is expected that new users will be sharing in a portion of the cost of the principal on debt once they join the system and begin paying user rates and charges. However, since impact fee revenues will also be used to pay for a portion of the outstanding debt service, reducing the asset values by the present value of all outstanding principal on debt is a conservative approach.

5.4 Mechanism for Charging Impact Fees

There are five typical approaches for applying impact fees to different classes and types of customers:

1. Meter size
2. Square footage
3. Fixture units
4. Equivalent residential units
5. Per 1,000 gallons of estimated usage

As mentioned previously, the County calculated impact fees for customers using fixture units. RFC has reviewed the County's fee schedule and agrees with the approach used by the County with one exception, the assumption of fixture units for restaurants. Of the wastewater utilities that charge on a per seat basis for restaurants, the assumption is typically between 25 and 40 gpd per seat. The County currently assumes one seat equals one-half of a fixture unit, which equates to an assumption of 18.75 gpd per seat. RFC believes the County is underestimating the capacity of restaurants and should change the assumption to one fixture unit for each seat, which would equate to an assumption of 37.5 gpd per seat.

5.5 Recommendations

Based on the results of our updated impact fee calculations, RFC recommends the County maintain the current impact fees at $225 per plumbing fixture, as the cost per gpd determined under the system buy-in approach was only slightly below the current cost per gpd. In addition, RFC recommends maintaining the same residential and non-residential wastewater design flow rates and household plumbing fixture counts used to assess the impact fees to new customers, with the exception of restaurants. For restaurants, RFC recommends changing to one (1) fixture unit per seat from one (1) fixture unit per two (2) seats.

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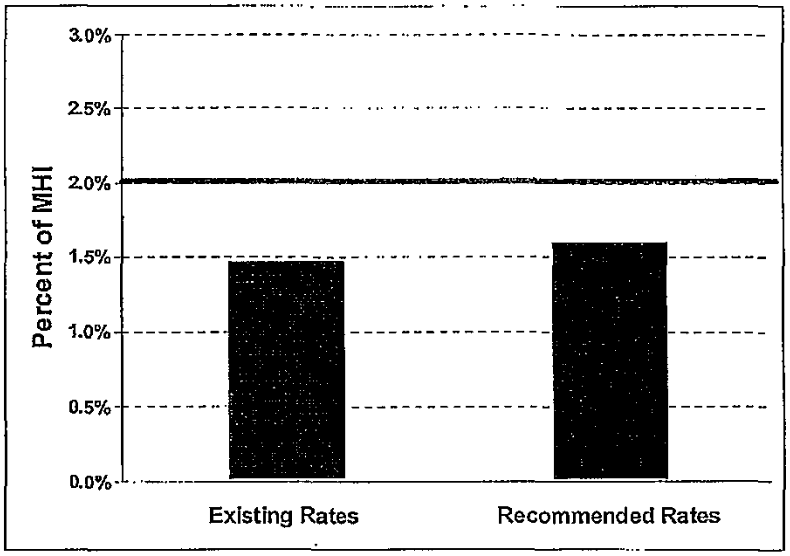
SECTION VI – AFFORDABILITY ANALYSIS

Affordability has become one of the most important issues within the wastewater industry. In general, wastewater rates are increasing more quickly than the CPI. As the trend continues, wastewater charges will become a more significant portion of the expenses of a household or business. This trend has led utilities to contemplate how to assist their customers. Once recommended rates for the County were calculated, RFC analyzed these rates from an affordability perspective through two tests.

6.1 Median Household Income Analysis

The first test was to determine the percentage of median household income (MHI) of the charge for a typical residential customer using 8 Ccf per month. A metric for the percentage of MHI has evolved within the water and wastewater industry. A charge that results in greater than 2% of the MHI is considered to be unaffordable. Under the current charges and recommended charges the average customer bill will be less than 2% of the MHI. Exhibit 6-1 illustrates that the percentage of MHI calculations are below 2% of the MHI.

*Exhibit 6-1: Percent of Annual Customer Cost for 8 Ccf per Month to MHI**



* MHI of the County's service area is estimated to be $40,608.

It should be noted that multiple years of 6.76% rate increases will push the County above 2% of the MHI. Assuming the MHI increases 2.5% per year, six (6) additional years of 6.76% rate increases would result in charges exceeding the 2% threshold.

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6.2 Financial Capability Analysis

The 2% test evolved from the combined sewer overflow (CSO) affordability analysis developed by the EPA. This analysis was used to determine whether the capital plans for consent decrees related to CSOs were so aggressive as to cause financial hardships for the utility and its customers. As a result, this test was used to project the burden that charges in the future would place on a utility's customers. There are two components of this test. One component is the residential indicator, which is the percentage of MHI of wastewater charges. The other component is the utility's financial capability. The financial capability is a function of the following characteristics of the utility:

- Bond rating
- Overall net debt as a percentage of fair market value
- Unemployment rate
- Median household income
- Tax revenue as a percentage of fair market value
- Property tax collection rate

The two components are then considered together to determine the burden level: low, medium or high. A MHI percentage of greater than 2% potentially places a utility in the high burden area. RFC adapted this test to determine the current burden level on ESD customers.[5]

Exhibit 6-2: Determination of Customer Burden based on EPA's Financial Capability Matrix

		Residential Indicator (Cost per Household as a % of MHI)		
		Low (Below 1.0%)	Mid-Range (1.0% to 2.0%)	High (Above 2.0%)
Financial Capability Indicator	Weak (Below 1.5)	Medium Burden	High Burden	High Burden
Financial Capability Indicator	Mid-Range 1.5 to 2.5	Low Burden	☆★ Medium Burden	High Burden
Financial Capability Indicator	Strong Above 2.5	Low Burden	Low Burden	Medium Burden

☆ Existing Rates
★ Recommended Rates

[5] It should be noted that this test was originally developed to assess future affordability of combined sewer overflow, but has been adapted to evaluate wastewater charge affordability.

6.3 Comparative Perspective

In addition to the two tests, it is important to review the rates from a comparative perspective. RFC found that the County's charge for a typical customer remains one of the highest in the country. The proposed increase does not significantly impact the County's standing. With the increase, the County's charge remains significantly below the charge for an equivalent customer of the City of Atlanta. See Exhibits 3-14 and 3-15 for more detailed comparisons.

6.4 Affordability Program

Within the wastewater industry there is debate as to whether utilities should be responsible for affordability programs. Many believe that since the utilities are placing the burden on the customers that they should be responsible, while others believe it is outside the mission of the utilities, which is to provide the necessary service while protecting the environment. Given the level of the rates and the demographics of the County's service area, RFC recommends that the Commission consider implementing an affordability program. As part of the consideration the County must answer the following questions:

- What will be the source of funding, initial and ongoing, of the program?
- What agency will oversee the program?
- How will those that really can't afford to pay be determined?

6.5 Recommendations

The recommended rates will continue to place a burden on the County's wastewater customers. The County's rates remain among the highest in the country, and subsequent rate increases will likely continue to be a concern in the future. However, neither the current rates nor the proposed FY 2009-2010 rates are unaffordable based on metrics commonly used in the industry.

RFC recommends that the Commission consider implementing an affordability program. The other utilities serving areas of Jefferson County have programs, Alagasco (Project SHARE), Alabama Power (Project SHARE) and Birmingham Water Works Board (H2O Foundation). The County may be able to pattern a program after one of these existing programs.

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APPENDIX A

Support Information

EXECUTIVE SUMMARY

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Exhibit A-1: FY 2009-2010 Master Rate Schedule

Charge	Meter Size	Existing Rates	Recommended Rates	Unit
Volumetric*				
		$ 7.40	$ 7.90	per Ccf
Minimum				
	5/8"	$ 2.00	$ 13.50	per Month
	3/4"	2.50	17.44	
	1"	5.00	25.31	
	1.25"	7.00	33.19	
	1.5"	9.00	45.00	
	2"	14.00	68.62	
	3"	28.00	123.74	
	4"	45.00	202.49	
	6"	85.00	399.36	
	8"	170.00	635.60	
	10"	200.00	911.21	
	12"	250.00	1,698.67	

*Return factor of 85% is applied for Residential Customers.

Charge	Meter Size	Existing Rates	Recommended Rates	Unit
High Strength				
BOD				
	Tier 1	$ 0.1950	$ 0.2900	per Pound
	Tier 2	0.2925	n/a	
COD				
	Tier 1	$ 0.1950	$ 0.2900	per Pound
	Tier 2	0.2925	n/a	
TSS				
	Tier 1	$ 0.1500	$ 0.1500	per Pound
	Tier 2	0.3000	n/a	
FOG		$ 0.1000	$ 0.1100	per Pound
Total Phosphorous		$ 2.00	$ 2.62	per Pound
Total Nitrogen		n/a	$ 0.22	per Pound
Grease Program				
	# of Grease Traps			
	1-5	$ 200.00	$ 220.00	
	6-10	400.00	440.00	
	11-15	600.00	660.00	
	16-20	800.00	880.00	
Direct to Grease		$ 30.00	$ 75.00	per Kgal
Septage		$ 30.00	$ 60.00	per Kgal

APPENDIX B

Support Information

SECTION III: FINANCIAL PLANNING AND COST OF SERVICE ANALYSIS

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Exhibit B-1: Un-Escalated CIP costs

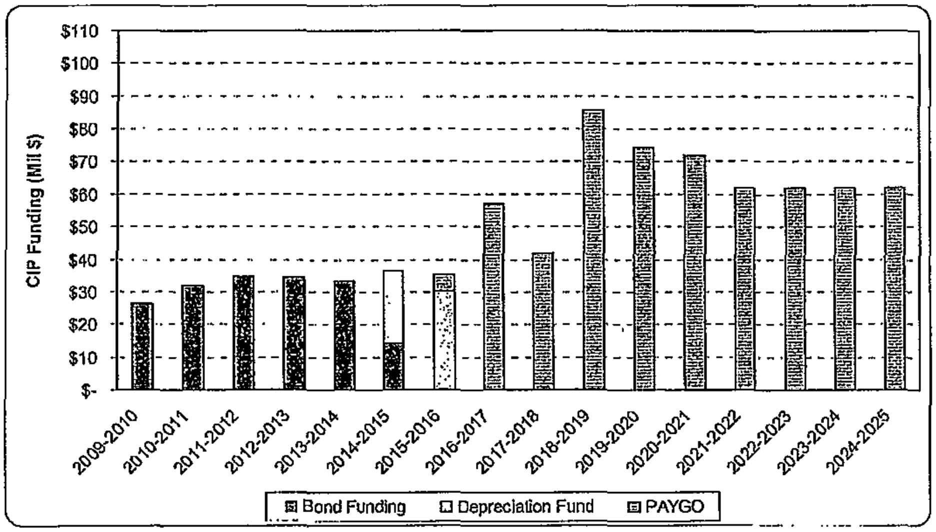

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Exhibit B-2: Capital Assets by Cost Center

Asset Cost Center	Book Value
SEWER BILLING	$ 11,009
ESD ADMINISTRATION	117,254,742
ENGINEERING & CONSTRUCTION	505,850
ENGINEERING & CONSTRUCT ADMIN	7,533
SURVEY	31,991
INSPECTION	121,867
SEWER LINE CONSTRUCTION	376,322
LINE MAINTENANCE ADMINISTRATION	77,476
VILLAGE LINE MAINTENANCE	130,719
SHADES LINE MAINTENANCE	151,669
TV INSPECTION	283,045
CAHABA RIVER WWTP	455,236,633
FIVE MILE CREEK WWTP	141,482,901
LEEDS WWTP	19,719,474
TRUSSVILLE WWTP	51,429,980
TURKEY CREEK WWTP	66,407,576
VALLEY CREEK WWTP	1,108,589,219
VILLAGE CREEK WWTP	800,908,166
FIVE MILE CREEK MAINTENANCE SHOP	219,092
VALLEY CREEK MAINTENANCE	343,533
VILLAGE CREEK MAINTENANCE	-
ELECTRICAL SHOP	136,453
INSTRUMENT SHOP	36,615
PUMP STATION OPERATIONS	37,358,110
BIOSOLIDS	424,321
ES PATTON BASIN	19,676,475
ES SHADES BASIN	181,158,082
ES SYSTEMWIDE	148,052,235
BARTON LABORATORY	177,146
	$ 3,150,308,232

Exhibit B-3: Allocation of I&I

User Charge Component	I&I Allocation
Volumetric	80%
Customer Account	20%

Exhibit B-4: Cost of Service per Customer Class per Cost Component

	Cost Component - Test Year 2009-2010								
	Volume			Strength				Billing & Collection	
	Billed	I&I	Total	BOD/COD	TSS	FOG	Total Nutrients	I&I	Accounts
	Ccf	Ccf	Ccf	lb	lb	lb	lb	0	0
Residential	$18,189,781	$20,711,570	$0	$7,195,877	$4,244,764	$1,280,177	$2,384,673	$9,238,371	$6,804,558
Non-Residential	$29,232,237	$33,284,925	$0	$15,857,851	$7,935,259	$1,818,152	$3,816,181	$4,260,753	$726,491

Appendix C

Support Information

SECTION IV: INDUSTRIAL SURCHARGES
Subsection: Distribution of Costs to Process Functions

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Exhibit C-1A: Allocation Percentages to Process Functions for ESD Administration (7100)

	Allocation Percentages							
Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Septage Receiving	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%

Exhibit C-1B: Distribution of Plant Costs to Process Functions for ESD Administration (7100)

	Allocation Percentages							
Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Septage Receiving	$0	$0	$0	$0	$0	$0	$63,000	$63,000

Exhibit C-2A: Allocation Percentages to Process Functions for Cahaba River WWTP (7301)

	Allocation Percentages							
Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grit Screening and Comminuters	85.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	100.0%
Pumping	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Biological Treatment	0.0%	80.0%	0.0%	0.0%	20.0%	0.0%	0.0%	100.0%
Filters	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Disinfection	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Thickening	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Dewatering	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Sludge Digesters	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Water Reuse	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

Exhibit C-2B: Distribution of Plant Costs to Process Functions for Cahaba River WWTP (7301)

Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	$ 49,414	$ -	$ -	$ -	$ -	$ -	$ -	$ 49,414
Grit Screening and Comminuters	50,115	-	-	8,844	-	-	-	58,959
Pumping	562,057	-	-	-	-	-	-	562,057
Clarifiers	219,679	-	41,190	13,730	-	-	-	274,599
Biological Treatment	-	207,886	-	-	51,972	-	-	259,858
Filters	-	155,692	-	-	-	-	-	155,692
Disinfection	60,222	-	-	-	-	-	-	60,222
Thickening	-	28,088	35,110	-	7,022	-	-	70,221
Dewatering	-	67,458	84,323	-	16,865	-	-	168,646
Sludge Digesters	-	82,846	103,557	-	20,711	-	-	207,114
Water Reuse	9,472	-	-	-	-	-	-	9,472
Total Parameter Costs	$ 950,960	$ 541,971	$ 264,180	$ 22,574	$ 96,570	$ -	$ -	$ 1,876,255
Weighted Percentages	51%	29%	14%	1%	5%	0%	0%	100%
General/Admin Costs								
Personnel Services	$ 521,663	$ 297,306	$ 144,920	$ 12,383	$ 52,975	$ -	$ -	$ 1,029,246
Operating	91,175	51,962	25,329	2,164	9,259	-	-	179,888
Capital Outlay	1,924	1,096	534	46	195	-	-	3,796
Total General/Admin	$ 614,761	$ 350,364	$ 170,783	$ 14,593	$ 62,429	$ -	$ -	$ 1,212,930
Total Processing Costs	$ 1,565,721	$ 892,335	$ 434,963	$ 37,167	$ 158,998	$ -	$ -	$ 3,089,185

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Exhibit C-3A: Allocation Percentages to Process Functions for Five Mile Creek WWTP (7302)

	Allocation Percentages							
Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grit Screening and Comminuters	85.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	100.0%
Pumping	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Biological Treatment	0.0%	80.0%	0.0%	0.0%	20.0%	0.0%	0.0%	100.0%
Filters	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Disinfection	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Thickening	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Dewatering	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Sludge Digesters	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Water Reuse	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

Exhibit C-3B: Distribution of Costs to Process Functions for Five Mile Creek WWTP (7302)

Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	$ 45,751	$ -	$ -	$ -	$ -	$ -	$ -	$ 45,751
Grit Screening and Comminuters	46,168	-	-	8,147	-	-	-	54,315
Pumping	505,744	-	-	-	-	-	-	505,744
Clarifiers	157,883	-	29,603	9,868	-	-	-	197,353
Biological Treatment	-	189,345	-	-	47,336	-	-	236,681
Filters	-	87,263	-	-	-	-	-	87,263
Disinfection	55,873	-	-	-	-	-	-	55,873
Thickening	-	26,006	32,507	-	6,501	-	-	65,014
Dewatering	-	46,232	57,790	-	11,558	-	-	115,580
Sludge Digesters	-	75,139	93,924	-	18,785	-	-	187,848
Water Reuse	8,669	-	-	-	-	-	-	8,669
Total Parameter Costs	$ 820,086	$ 423,985	$ 213,824	$ 18,015	$ 84,180	$ -	$ -	$ 1,560,090
Weighted Percentages	53%	27%	14%	1%	5%	0%	0%	100%
General/Admin Costs								
Personnel Services	$ 513,444	$ 265,451	$ 133,872	$ 11,279	$ 52,704	$ -	$ -	$ 976,751
Operating	74,635	38,586	19,460	1,640	7,661	-	-	141,981
Capital Outlay	769	397	200	17	79	-	-	1,462
Total General/Admin	$ 588,848	$ 304,435	$ 153,533	$ 12,935	$ 60,444	$ -	$ -	$ 1,120,194
Total Processing Costs	$ 1,408,933	$ 728,419	$ 367,357	$ 30,950	$ 144,625	$ -	$ -	$ 2,680,285

Exhibit C-4A: Allocation Percentages to Process Functions for Leeds WWTP (7303)

	Allocation Percentages							
Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grit Screening and Comminuters	85.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	100.0%
Pumping	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Biological Treatment	0.0%	80.0%	0.0%	0.0%	20.0%	0.0%	0.0%	100.0%
Filters	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Disinfection	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Thickening	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Dewatering	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Sludge Digesters	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Water Reuse	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

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Exhibit C-4B: Distribution of Plant Costs to Process Functions for Leeds WWTP (7303)

Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grit Screening and Comminuters	19,283	-	-	3,403	-	-	-	22,685
Pumping	60,491	-	-	-	-	-	-	60,491
Clarifiers	129,025	-	24,192	8,064	-	-	-	161,281
Biological Treatment	-	90,169	-	-	22,542	-	-	112,711
Filters	-	46,905	-	-	-	-	-	46,905
Disinfection	91,111	-	-	-	-	-	-	91,111
Thickening	-	5,117	6,396	-	1,279	-	-	12,792
Dewatering	-	17,056	21,320	-	4,264	-	-	42,641
Sludge Digesters	-	17,376	21,720	-	4,344	-	-	43,439
Water Reuse	33,928	-	-	-	-	-	-	33,928
Total Parameter Costs	$ 333,837	$ 176,622	$ 73,628	$ 11,467	$ 32,429	$ -	$ -	$ 627,984
Weighted Percentages	53%	28%	12%	2%	5%	0%	0%	100%
General/Admin Costs								
Personnel Services	$ 121,829	$ 64,456	$ 26,869	$ 4,185	$ 11,835	$ -	$ -	$ 229,173
Operating	14,373	7,604	3,170	494	1,396	-	-	27,037
Capital Outlay	1,567	829	346	54	152	-	-	2,947
Total General/Admin	$ 137,769	$ 72,889	$ 30,385	$ 4,732	$ 13,383	$ -	$ -	$ 259,157
Total Processing Costs	$ 471,606	$ 249,511	$ 104,013	$ 16,199	$ 45,812	$ -	$ -	$ 887,142

Exhibit C-5A: Allocation Percentages to Process Functions for Trussville WWTP (7304)

	Allocation Percentages							
Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grit Screening and Comminuters	85.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	100.0%
Pumping	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Biological Treatment	0.0%	80.0%	0.0%	0.0%	20.0%	0.0%	0.0%	100.0%
Filters	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Disinfection	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Thickening	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Dewatering	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Sludge Digesters	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Water Reuse	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

Exhibit C-5B: Distribution of Plant Costs to Process Functions for Trussville WWTP (7304)

Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grit Screening and Comminuters	17,697	-	-	3,123	-	-	-	20,821
Pumping	65,545	-	-	-	-	-	-	65,545
Clarifiers	105,320	-	19,748	6,583	-	-	-	131,650
Biological Treatment	-	118,479	-	-	29,620	-	-	148,099
Filters	-	41,058	-	-	-	-	-	41,058
Disinfection	89,883	-	-	-	-	-	-	89,883
Thickening	-	4,479	5,599	-	1,120	-	-	11,198
Dewatering	-	14,930	18,663	-	3,733	-	-	37,325
Sludge Digesters	-	20,249	25,311	-	5,062	-	-	50,621
Water Reuse	32,578	-	-	-	-	-	-	32,578
Total Parameter Costs	$ 311,023	$ 199,194	$ 69,320	$ 9,706	$ 39,534	$ -	$ -	$ 628,776
Weighted Percentages	49%	32%	11%	2%	6%	0%	0%	100%
General/Admin Costs								
Personnel Services	$ 96,355	$ 61,710	$ 21,475	$ 3,007	$ 12,248	$ -	$ -	$ 194,795
Operating	19,493	12,485	4,345	608	2,478	-	-	39,409
Capital Outlay	-	-	-	-	-	-	-	-
Total General/Admin	$ 115,848	$ 74,195	$ 25,820	$ 3,615	$ 14,726	$ -	$ -	$ 234,204
Total Processing Costs	$ 426,871	$ 273,389	$ 95,139	$ 13,321	$ 54,260	$ -	$ -	$ 862,980

Exhibit C-6A: Allocation Percentages to Process Functions for Turkey Creek WWTP (7305)

	Allocation Percentages							
Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grit Screening and Comminuters	85.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	100.0%
Pumping	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Biological Treatment	0.0%	80.0%	0.0%	0.0%	20.0%	0.0%	0.0%	100.0%
Disinfection	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Thickening	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Dewatering	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Sludge Digesters	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Water Reuse	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

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Exhibit C-6B: Distribution of Plant Costs to Process Functions for Turkey Creek WWTP (7305)

Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grit Screening and Comminuters	17,539	-	-	3,095	-	-	-	20,634
Pumping	61,280	-	-	-	-	-	-	61,280
Clarifiers	105,967	-	19,869	6,623	-	-	-	132,459
Biological Treatment	-	104,316	-	-	26,079	-	-	130,395
Disinfection	86,781	-	-	-	-	-	-	86,781
Thickening	-	4,519	5,648	-	1,130	-	-	11,296
Dewatering	-	15,062	18,827	-	3,765	-	-	37,655
Sludge Digesters	-	18,490	23,112	-	4,622	-	-	46,224
Water Reuse	31,758	-	-	-	-	-	-	31,758
Total Parameter Costs	$ 303,326	$ 142,386	$ 67,457	$ 9,718	$ 35,597	$ -	$ -	$ 558,484
Weighted Percentages	54%	25%	12%	2%	6%	0%	0%	100%
General/Admin Costs								
Personnel Services	$ 125,955	$ 59,125	$ 28,011	$ 4,035	$ 14,781	$ -	$ -	$ 231,908
Operating	23,331	10,952	5,188	747	2,738	-	-	42,956
Capital Outlay	-	-	-	-	-	-	-	-
Total General/Admin	$ 149,286	$ 70,077	$ 33,200	$ 4,783	$ 17,519	$ -	$ -	$ 274,865
Total Processing Costs	$ 452,612	$ 212,464	$ 100,656	$ 14,501	$ 53,116	$ -	$ -	$ 833,349

Exhibit C-7A: Allocation Percentages to Process Functions for Valley Creek WWTP (7306)

	Allocation Percentages							
Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grit Screening and Comminuters	85.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	100.0%
Pumping	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Primary Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Secondary Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Biological Treatment	0.0%	80.0%	0.0%	0.0%	20.0%	0.0%	0.0%	100.0%
Filters	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Disinfection	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Thickening	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Dewatering	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Sludge Digesters	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Water Reuse	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Septage Receiving	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%

Exhibit C-7B: Distribution of Plant Costs to Process Functions for Valley Creek WWTP (7306)

Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	$ 202,066	$ -	$ -	$ -	$ -	$ -	$ -	$ 202,066
Grit Screening and Comminuters	195,876	-	-	34,566	-	-	-	230,442
Pumping	1,726,140	-	-	-	-	-	-	1,726,140
Primary Clarifiers	242,479	-	45,465	15,155	-	-	-	303,099
Secondary Clarifiers	969,918	-	181,860	60,620	-	-	-	1,212,397
Biological Treatment	-	604,935	-	-	151,234	-	-	756,168
Filters	-	303,099	-	-	-	-	-	303,099
Disinfection	395,153	-	-	-	-	-	-	395,153
Thickening	-	79,055	98,819	-	19,764	-	-	197,637
Dewatering	-	253,515	316,893	-	63,379	-	-	633,786
Sludge Digesters	-	244,412	305,515	-	61,103	-	-	611,031
Water Reuse	-	-	-	-	-	-	-	-
Septage Receiving	-	-	-	-	-	-	210,924	210,924
Total Parameter Costs	$ 3,731,632	$ 1,485,016	$ 948,552	$ 110,341	$ 295,479	$ -	$ 210,924	$ 6,781,943
Weighted Percentages	55%	22%	14%	2%	4%	0%	3%	100%
General/Admin Costs								
Personnel Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating	160,411	63,836	40,775	4,743	12,702	-	9,067	291,534
Capital Outlay	-	-	-	-	-	-	-	-
Total General/Admin	$ 160,411	$ 63,836	$ 40,775	$ 4,743	$ 12,702	$ -	$ 9,067	$ 291,534
Total Processing Costs	$ 3,892,043	$ 1,548,852	$ 989,327	$ 115,084	$ 308,181	$ -	$ 219,991	$ 7,073,477

Exhibit C-8A: Allocation Percentages to Process Functions for Village Creek WWTP (7307)

Treatment Process	Allocation Percentages							
	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grit Screening and Comminuters	85.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	100.0%
Pumping	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Primary Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Secondary Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Biological Treatment	0.0%	80.0%	0.0%	0.0%	20.0%	0.0%	0.0%	100.0%
Filters	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Disinfection	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Thickening	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Dewatering	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Sludge Digesters	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Water Reuse	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grease Receiving	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
Septage Receiving	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%

Exhibit C-8B: Distribution of Plant Costs to Process Functions for Village Creek WWTP (7307)

Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	$ 207,867	$ -	$ -	$ -	$ -	$ -	$ -	$ 207,867
Grit Screening and Comminuters	126,476	-	-	22,319	-	-	-	148,795
Pumping	1,920,371	-	-	-	-	-	-	1,920,371
Primary Clarifiers	166,293	-	31,180	10,393	-	-	-	207,867
Secondary Clarifiers	158,078	-	29,640	9,880	-	-	-	197,597
Biological Treatment	-	502,792	-	-	125,698	-	-	628,490
Filters	-	75,834	-	-	-	-	-	75,834
Disinfection	458,610	-	-	-	-	-	-	458,610
Thickening	-	113,954	142,443	-	28,489	-	-	284,886
Dewatering	-	250,164	312,705	-	62,541	-	-	625,409
Sludge Digesters	-	317,999	397,499	-	79,500	-	-	794,998
Water Reuse	75,834	-	-	-	-	-	-	75,834
Grease Receiving	-	-	-	-	-	80,812	-	80,812
Septage Receiving	-	-	-	-	-	-	207,867	207,867
Total Parameter Costs	$ 3,113,529	$ 1,260,743	$ 913,466	$ 42,592	$ 296,227	$ 80,812	$ 207,867	$ 5,915,236
Weighted Percentages	53%	21%	15%	1%	5%	1%	4%	100%
General/Admin Costs								
Personnel Services	$ 612,897	$ 248,177	$ 179,815	$ 8,384	$ 58,312	$ 15,908	$ 40,918	$ 1,164,412
Operating	238,579	96,607	69,996	3,264	22,699	6,192	15,928	453,265
Capital Outlay	11,277	4,566	3,308	154	1,073	293	753	21,424
Total General/Admin	$ 862,754	$ 349,350	$ 253,120	$ 11,802	$ 82,084	$ 22,393	$ 57,599	$ 1,639,102
Total Processing Costs	$ 3,976,283	$ 1,610,093	$ 1,166,586	$ 54,395	$ 378,311	$ 103,204	$ 265,466	$ 7,554,337

Exhibit C-9A: Allocation Percentages to Process Functions for Five Mile Creek Maintenance Shop (7308)

	Allocation Percentages							
Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grit Screening and Comminuters	85.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	100.0%
Pumping	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Biological Treatment	0.0%	80.0%	0.0%	0.0%	20.0%	0.0%	0.0%	100.0%
Filters	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Disinfection	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Thickening	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Dewatering	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Sludge Digesters	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Water Reuse	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

Exhibit C-9B: Distribution of Plant Costs to Process Functions for Five Mile Creek Maintenance Shop (7308)

Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grit Screening and Comminuters	33,320	-	-	5,880	-	-	-	39,199
Pumping	32,200	-	-	-	-	-	-	32,200
Clarifiers	99,679	-	18,690	6,230	-	-	-	124,598
Biological Treatment	-	-	-	-	-	-	-	-
Filters	-	32,200	-	-	-	-	-	32,200
Disinfection	-	-	-	-	-	-	-	-
Thickening	-	6,720	8,400	-	1,680	-	-	16,800
Dewatering	-	-	-	-	-	-	-	-
Sludge Digesters	-	560	700	-	140	-	-	1,400
Water Reuse	18,200	-	-	-	-	-	-	18,200
Total Parameter Costs	$ 183,398	$ 39,479	$ 27,790	$ 12,110	$ 1,820	$ -	$ -	$ 264,596
Weighted Percentages	69%	15%	11%	5%	1%	0%	0%	100%
General/Admin Costs								
Personnel Services	$ 67,549	$ 14,541	$ 10,235	$ 4,460	$ 670	$ -	$ -	$ 97,456
Operating	5,228	1,125	792	345	52	-	-	7,543
Capital Outlay	-	-	-	-	-	-	-	-
Total General/Admin	$ 72,777	$ 15,666	$ 11,028	$ 4,805	$ 722	$ -	$ -	$ 104,999
Total Processing Costs	$ 256,174	$ 55,146	$ 38,817	$ 16,915	$ 2,542	$ -	$ -	$ 369,595

Exhibit C-10A: Allocation Percentages to Process Functions for Valley Creek Maintenance (7309)

	Allocation Percentages							
Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grit Screening and Comminuters	85.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	100.0%
Pumping	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Primary Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Secondary Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Biological Treatment	0.0%	80.0%	0.0%	0.0%	20.0%	0.0%	0.0%	100.0%
Filters	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Disinfection	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Thickening	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Dewatering	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Sludge Digesters	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Water Reuse	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Septage Receiving	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%

Exhibit C-10B: Distribution of Plant Costs to Process Functions for Valley Creek Maintenance (7309)

Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grit Screening and Comminuters	43,876	-	-	7,743	-	-	-	51,619
Pumping	42,401	-	-	-	-	-	-	42,401
Primary Clarifiers	62,296	-	11,681	3,894	-	-	-	77,870
Secondary Clarifiers	62,296	-	11,681	3,894	-	-	-	77,870
Biological Treatment	-	-	-	-	-	-	-	-
Filters	-	42,401	-	-	-	-	-	42,401
Disinfection	-	-	-	-	-	-	-	-
Thickening	-	8,849	11,061	-	2,212	-	-	22,122
Dewatering	-	-	-	-	-	-	-	-
Sludge Digesters	-	737	922	-	184	-	-	1,844
Water Reuse	23,966	-	-	-	-	-	-	23,966
Septage Receiving	-	-	-	-	-	-	9,734	9,734
Total Parameter Costs	$ 234,835	$ 51,987	$ 35,344	$ 15,530	$ 2,397	$ -	$ 9,734	$ 349,827
Weighted Percentages	67%	15%	10%	4%	1%	0%	3%	100%
General/Admin Costs								
Personnel Services	$ 87,588	$ 19,390	$ 13,182	$ 5,792	$ 894	$ -	$ 3,630	$ 130,477
Operating	4,287	949	645	284	44	-	178	6,386
Capital Outlay	-	-	-	-	-	-	-	-
Total General/Admin	$ 91,875	$ 20,339	$ 13,828	$ 6,076	$ 938	$ -	$ 3,808	$ 136,863
Total Processing Costs	$ 326,710	$ 72,326	$ 49,172	$ 21,606	$ 3,334	$ -	$ 13,542	$ 486,690

Exhibit C-11A: Allocation Percentages to Process Functions for Village Creek Maintenance (7310)

	Allocation Percentages							
Treatment Process	**Flow**	**BOD**	**TSS**	**FOG**	**Total Nutrients**	**Direct to Grease**	**Direct to Septic**	**Total**
Flow Equalization	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**100.0%**
Grit Screening and Comminuters	85.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	**100.0%**
Pumping	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**100.0%**
Primary Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	**100.0%**
Secondary Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	**100.0%**
Biological Treatment	0.0%	80.0%	0.0%	0.0%	20.0%	0.0%	0.0%	**100.0%**
Filters	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**100.0%**
Disinfection	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**100.0%**
Thickening	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	**100.0%**
Dewatering	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	**100.0%**
Sludge Digesters	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	**100.0%**
Water Reuse	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	**100.0%**
Grease Receiving	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	**100.0%**
Septage Receiving	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	**100.0%**

Exhibit C-11B: Distribution of Plant Costs to Process Functions for Village Creek Maintenance (7310)

Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grit Screening and Comminuters	33,945	-	-	5,990	-	-	-	39,935
Pumping	32,804	-	-	-	-	-	-	32,804
Primary Clarifiers	48,196	-	9,037	3,012	-	-	-	60,245
Secondary Clarifiers	48,196	-	9,037	3,012	-	-	-	60,245
Biological Treatment	-	-	-	-	-	-	-	-
Filters	-	32,804	-	-	-	-	-	32,804
Disinfection	-	-	-	-	-	-	-	-
Thickening	-	6,846	8,558	-	1,712	-	-	17,115
Dewatering	-	-	-	-	-	-	-	-
Sludge Digesters	-	571	713	-	143	-	-	1,426
Water Reuse	18,541	-	-	-	-	-	-	18,541
Grease Receiving	-	-	-	-	-	7,531	-	7,531
Septage Receiving	-	-	-	-	-	-	19,054	19,054
Total Parameter Costs	$ 181,683	$ 40,221	$ 27,344	$ 12,015	$ 1,854	$ 7,531	$ 19,054	$ 289,702
Weighted Percentages	63%	14%	9%	4%	1%	3%	7%	100%
General/Admin Costs								
Personnel Services	$ 40,687	$ 9,007	$ 6,124	$ 2,691	$ 415	$ 1,686	$ 4,267	$ 64,878
Operating	13,768	3,048	2,072	910	141	571	1,444	21,954
Capital Outlay	-	-	-	-	-	-	-	-
Total General/Admin	$ 54,455	$ 12,055	$ 8,196	$ 3,601	$ 556	$ 2,257	$ 5,711	$ 86,832
Total Processing Costs	$ 236,138	$ 52,276	$ 35,540	$ 15,616	$ 2,410	$ 9,788	$ 24,765	$ 376,534

Exhibit C-12A: Allocation Percentages to Process Functions for Electrical Shop (7311)

	Allocation Percentages							
Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grit Screening and Comminuters	85.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	100.0%
Pumping	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Primary Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Secondary Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Biological Treatment	0.0%	80.0%	0.0%	0.0%	20.0%	0.0%	0.0%	100.0%
Filters	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Disinfection	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Thickening	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Dewatering	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Sludge Digesters	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Water Reuse	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grease Receiving	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
Septage Receiving	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%

Exhibit C-12B: Distribution of Plant Costs to Process Functions for Electrical Shop (7311)

Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	$ 20,072	$ -	$ -	$ -	$ -	$ -	$ -	$ 20,072
Grit Screening and Comminuters	17,707	-	-	3,125	-	-	-	20,832
Pumping	63,491	-	-	-	-	-	-	63,491
Primary Clarifiers	17,831	-	3,343	1,114	-	-	-	22,289
Secondary Clarifiers	64,716	-	12,134	4,045	-	-	-	80,895
Biological Treatment	-	27,233	-	-	6,808	-	-	34,041
Filters	-	24,682	-	-	-	-	-	24,682
Disinfection	29,225	-	-	-	-	-	-	29,225
Thickening	-	10,090	12,613	-	2,523	-	-	25,226
Dewatering	-	19,777	24,721	-	4,944	-	-	49,443
Sludge Digesters	-	13,642	17,053	-	3,411	-	-	34,106
Water Reuse	5,166	-	-	-	-	-	-	5,166
Grease Receiving	-	-	-	-	-	-	-	-
Septage Receiving	-	-	-	-	-	-	15,802	15,802
Total Parameter Costs	$ 218,209	$ 95,424	$ 69,865	$ 8,284	$ 17,686	$ -	$ 15,802	$ 425,270
Weighted Percentages	51%	22%	16%	2%	4%	0%	4%	100%
General/Admin Costs								
Personnel Services	$ 84,939	$ 37,144	$ 27,195	$ 3,225	$ 6,884	$ -	$ 6,151	$ 165,538
Operating	150,248	65,704	48,106	5,704	12,177	-	10,880	292,820
Capital Outlay	20,524	8,975	6,571	779	1,663	-	1,486	40,000
Total General/Admin	$ 255,711	$ 111,824	$ 81,872	$ 9,708	$ 20,725	$ -	$ 18,518	$ 498,358
Total Processing Costs	$ 473,921	$ 207,248	$ 151,737	$ 17,992	$ 38,411	$ -	$ 34,319	$ 923,628

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Exhibit C-13A: Allocation Percentages to Process Functions for Instrument Shop (7312)

Treatment Process	Allocation Percentages							
	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grit Screening and Comminuters	85.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	100.0%
Pumping	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Primary Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Secondary Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Biological Treatment	0.0%	80.0%	0.0%	0.0%	20.0%	0.0%	0.0%	100.0%
Filters	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Disinfection	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Thickening	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Dewatering	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Sludge Digesters	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Water Reuse	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grease Receiving	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
Septage Receiving	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%

Exhibit C-13B: Distribution of Plant Costs to Process Functions for Instrument Shop (7312)

Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	$ 18,133	$ -	$ -	$ -	$ -	$ -	$ -	$ 18,133
Grit Screening and Comminuters	17,129	-	-	3,023	-	-	-	20,151
Pumping	58,015	-	-	-	-	-	-	58,015
Primary Clarifiers	13,650	-	2,559	853	-	-	-	17,063
Secondary Clarifiers	68,490	-	12,842	4,281	-	-	-	85,612
Biological Treatment	-	36,077	-	-	9,019	-	-	45,096
Filters	-	26,759	-	-	-	-	-	26,759
Disinfection	37,854	-	-	-	-	-	-	37,854
Thickening	-	9,853	12,317	-	2,463	-	-	24,633
Dewatering	-	20,280	25,350	-	5,070	-	-	50,701
Sludge Digesters	-	14,092	17,615	-	3,523	-	-	35,231
Water Reuse	8,633	-	-	-	-	-	-	8,633
Grease Receiving	-	-	-	-	-	-	-	-
Septage Receiving	-	-	-	-	-	-	13,571	13,571
Total Parameter Costs	$ 221,904	$ 107,062	$ 70,684	$ 8,156	$ 20,076	$ -	$ 13,571	$ 441,453
Weighted Percentages	50%	24%	16%	2%	5%	0%	3%	100%
General/Admin Costs								
Personnel Services	$ 99,674	$ 48,090	$ 31,750	$ 3,664	$ 9,018	$ -	$ 6,096	$ 198,291
Operating	17,237	8,316	5,490	634	1,559	-	1,054	34,291
Capital Outlay	-	-	-	-	-	-	-	-
Total General/Admin	$ 116,911	$ 56,406	$ 37,240	$ 4,297	$ 10,577	$ -	$ 7,150	$ 232,581
Total Processing Costs	$ 338,815	$ 163,467	$ 107,924	$ 12,454	$ 30,653	$ -	$ 20,721	$ 674,034

Exhibit C-14A: Allocation Percentages to Process Functions for Pump Station Operations (7313)

Treatment Process	Allocation Percentages							
	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grit Screening and Comminuters	85.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	100.0%
Pumping	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Primary Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Secondary Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Biological Treatment	0.0%	80.0%	0.0%	0.0%	20.0%	0.0%	0.0%	100.0%
Filters	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Disinfection	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Thickening	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Dewatering	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Sludge Digesters	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Water Reuse	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grease Receiving	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
Septage Receiving	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%

Exhibit C-14B: Distribution of Plant Costs to Process Functions for Pump Station Operations (7313)

Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grit Screening and Comminuters	161,840	-	-	28,560	-	-	-	190,400
Pumping	2,864,097	-	-	-	-	-	-	2,864,097
Primary Clarifiers	152,592	-	28,611	9,537	-	-	-	190,740
Secondary Clarifiers	-	-	-	-	-	-	-	-
Biological Treatment	-	-	-	-	-	-	-	-
Filters	-	-	-	-	-	-	-	-
Disinfection	-	-	-	-	-	-	-	-
Thickening	-	-	-	-	-	-	-	-
Dewatering	-	-	-	-	-	-	-	-
Sludge Digesters	-	228,480	285,601	-	57,120	-	-	571,201
Water Reuse	-	-	-	-	-	-	-	-
Grease Receiving	-	-	-	-	-	-	-	-
Septage Receiving	-	-	-	-	-	-	-	-
Total Parameter Costs	**$ 3,178,530**	**$ 228,480**	**$ 314,212**	**$ 38,097**	**$ 57,120**	**$ -**	**$ -**	**$ 3,816,439**
Weighted Percentages	**83%**	**6%**	**8%**	**1%**	**1%**	**0%**	**0%**	**100%**
General/Admin Costs								
Personnel Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating	-	-	-	-	-	-	-	-
Capital Outlay	-	-	-	-	-	-	-	-
Total General/Admin	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Processing Costs	**$ 3,178,530**	**$ 228,480**	**$ 314,212**	**$ 38,097**	**$ 57,120**	**$ -**	**$ -**	**$ 3,816,439**

Exhibit C-15A: Allocation Percentages to Process Functions for Biosolids (7314)

	Allocation Percentages							
Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Grit Screening and Comminuters	85.0%	0.0%	0.0%	15.0%	0.0%	0.0%	0.0%	100.0%
Pumping	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Primary Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Secondary Clarifiers	80.0%	0.0%	15.0%	5.0%	0.0%	0.0%	0.0%	100.0%
Biological Treatment	0.0%	80.0%	0.0%	0.0%	20.0%	0.0%	0.0%	100.0%
Filters	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Disinfection	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Thickening	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Dewatering	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Sludge Digesters	0.0%	40.0%	50.0%	0.0%	10.0%	0.0%	0.0%	100.0%
Water Reuse	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

Exhibit C-15B: Distribution of Plant Costs to Process Functions for Biosolids (7314)

Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Flow Equalization	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grit Screening and Comminuters	-	-	-	-	-	-	-	-
Pumping	-	-	-	-	-	-	-	-
Primary Clarifiers	-	-	-	-	-	-	-	-
Secondary Clarifiers	-	-	-	-	-	-	-	-
Biological Treatment	-	-	-	-	-	-	-	-
Filters	-	-	-	-	-	-	-	-
Disinfection	-	-	-	-	-	-	-	-
Thickening	-	90,653	113,316	-	22,663	-	-	226,633
Dewatering	-	90,653	113,316	-	22,663	-	-	226,633
Sludge Digesters	-	90,653	113,316	-	22,663	-	-	226,633
Water Reuse	-	-	-	-	-	-	-	-
Total Parameter Costs	$ -	$ 271,960	$ 339,949	$ -	$ 67,990	$ -	$ -	$ 679,899
Weighted Percentages	0%	40%	50%	0%	10%	0%	0%	100%
General/Admin Costs								
Personnel Services	$ -	$ 89,653	$ 112,066	$ -	$ 22,413	$ -	$ -	$ 224,133
Operating	-	18,040	22,550	-	4,510	-	-	45,100
Capital Outlay	-	-	-	-	-	-	-	-
Total General/Admin	$ -	$ 107,693	$ 134,616	$ -	$ 26,923	$ -	$ -	$ 269,233
Total Processing Costs	$ -	$ 379,653	$ 474,566	$ -	$ 94,913	$ -	$ -	$ 949,132

Exhibit C-16A: Allocation Percentages to Process Functions for Barton Laboratory (7315)

Treatment Process	Allocation Percentages							
	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Pretreatment	0.0%	33.0%	33.0%	0.0%	34.0%	0.0%	0.0%	100.0%
Grease Control	0.0%	0.0%	0.0%	45.0%	0.0%	55.0%	0.0%	100.0%
Remaining Budget	20.0%	18.0%	4.0%	4.0%	54.0%	0.0%	0.0%	100.0%

Exhibit C-16B: Distribution of Plant Costs to Process Functions for Barton Laboratory (7315).

Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Pretreatment	$ -	$ 159,567	$ 159,567	$ -	$ 164,403	$ -	$ -	$ 483,537
Grease Control	$ -	$ -	$ -	$ 380,786	$ -	$ 465,405	$ -	846,191
Remaining Budget	$ 266,663	$ 241,056	$ 56,419	$ 51,010	$ 714,579	$ -	$ -	1,329,728
Total Parameter Costs	$ 266,663	$ 400,624	$ 215,986	$ 431,796	$ 878,982	$ 465,405	$ -	$ 2,659,456

Exhibit C-16C: Distribution of Plant Costs to Process Functions for Barton Laboratory (7315)

Treatment Process	Flow	BOD	TSS	FOG	Total Nutrients	Direct to Grease	Direct to Septic	Total
Semi-Volatiles by EPA 625	$ 5,670	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,670
ICP/MS Metals	18,239	-	-	-	-	-	-	18,239
TKN	-	-	-	-	23,760	-	-	23,760
TP	2	-	-	-	20,432	-	-	20,434
OP	-	11	-	-	288	-	-	299
Total Phenol	-	10	2	-	-	-	-	12
Ammonia	-	1	1	-	18,676	-	-	18,677
Nitrate + Nitrite	-	-	-	-	9,128	-	-	9,128
Fats, Oils, and Grease	-	5	-	5,160	-	-	-	5,165
BOD	-	14,380	-	-	-	-	-	14,380
COD	-	9,952	-	-	-	-	-	9,952
Total Suspended Solids	-	3	5,704	-	-	-	-	5,707
Grab pH	2,608	2	-	-	-	-	-	2,610
Cyanide	456	10	-	-	-	-	-	466
Technical & Administrative	-	12	-	-	-	-	-	12
Total Parameter Costs	**$ 26,975**	**$ 24,384**	**$ 5,707**	**$ 5,160**	**$ 72,284**	**$ -**	**$ -**	**$ 134,510**
General/Admin Costs								
Personnel Services	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operating	-	-	-	-	-	-	-	-
Capital Outlay	-	-	-	-	-	-	-	-
Total General/Admin	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Total Processing Costs	**$ 26,975**	**$ 24,384**	**$ 5,707**	**$ 5,160**	**$ 72,284**	**$ -**	**$ -**	**$ 134,510**

Appendix D

Support Information

SECTION IV: INDUSTRIAL SURCHARGES
Subsection: Customers

Exhibit D-1: Industrial Waste Surcharge Customer Data (Flow, BOD, TSS)

		Mass Loadings			
		BOD (COD*)		TSS	
Industrial Customer	Annual Flow Volume (MG)	Non-Surcharged (pounds)	Surcharged (pounds)	Non-Surcharged (pounds)	Surcharged (pounds)
Golden Flake	115.0	287,671	737,395	287,732	23,978
Barbers	76.6	191,680	113,730	191,757	206,458
Buffalo Rock	51.8	129,581	2,386,875	129,580	92,866
Coca Cola	100.1	250,329	1,552,041	12,516	0
Ventura	28.7	71,642	37,493	30,843	0
Milo's Tea*	5.4	33,900	77,790	1,080	0
Cintas*	20.3	127,134	58,651	27,740	0
Unifirst*	18.3	114,211	142,384	40,150	0
Aramark*	9.4	58,546	73,767	18,506	0
Kent	5.2	12,855	37,150	215	0
Allied Energy Corporation	4.5	11,347	341,929	3,919	0
Birmingham Hide & Tallow*	14.7	91,804	397,819	36,722	77,483
Home Baking Co.	1.3	3,052	50,052	3,052	5,579
Paramount Cleaners	15.2	19,760	0	2,153	0
Oxmoor Press (Stevens Graphic)	6.8	8,520	0	4,146	0
M&B Metals	7.3	18,260	37,008	12,478	0
Mrs. Stratton's Salads	6.1	15,148	80,790	15,148	33,225
PreCoat Metals	7.0	17,433	581	5,811	0
Pemco Aeroplex Outside	6.4	7,647	0	4,452	0
Interstate Brands*	2.3	14,287	32,383	3,302	0
Progressive Metal Finishers	2.5	0	0	911	0
Birmingham Tank Wash*	2.4	15,246	42,790	193	0
Amerex	1.8	4,555	39,473	1,063	0
Hanna	3.1	604	0	1,421	0
Scholar Craft	0.7	130	0	89	0
Nutec Metal Finishing, LLC	1.4	0	0	118	0
Max Coating	1.6	1,469	0	75	0
Total	515.9	--	--	835,171	439,588

* COD loadings are charged and shown above for specific Customers.

Exhibit D-2: Industrial Waste Surcharge Customer Data (FOG, Total Phosphorous, Total Nitrogen)

	FOG		Total Phosphorous		Total Nitrogen	
Industrial Customer	Non-Surcharged (pounds)	Surcharged (pounds)	Non-Surcharged (pounds)	Surcharged (pounds)	Non-Surcharged (pounds)	Surcharged (pounds)
Golden Flake	47,991	29,754	3,838	5,287	0	0
Barbers	31,938	21,718	2,556	4,025	0	0
Buffalo Rock	21,596	10,798	1,727	2,029	0	0
Coca Cola	5,884	0	3,339	559	0	0
Ventura	11,950	35,610	398	0	0	0
Milo's Tea	1,887	0	181	787	0	0
Cintas	8,480	33,240	679	872	0	0
Unifirst	7,609	17,043	278	0	0	0
Aramark	3,903	18,654	79	0	0	0
Kent	2,142	1,949	141	317	0	0
Allied Energy Corporation	1,425	0	10	0	303	7,484
Birmingham Hide & Tallow	6,120	8,874	490	5,863	980	237,924
Home Baking Co.	509	197	41	7	0	0
Paramount Cleaners	4,243	0	14	0	0	0
Oxmoor Press (Stevens Graphic)	2,272	0	227	187	0	0
M&B Metals	3,043	3,835	3	0	0	0
Mrs. Stratton's Salads	2,525	2,373	202	324	0	0
PreCoat Metals	872	0	0	0	0	0
Pemco Aeroplex Outside	1,138	0	214	178	0	0
Interstate Brands	952	771	76	6	0	0
Progressive Metal Finishers	280	0	48	0	0	0
Birmingham Tank Wash	244	0	17	0	81	15
Amerex	660	0	7	0	0	0
Hanna	191	0	0	0	0	0
Scholar Craft	199	0	2	0	0	0
Nutec Metal Finishing LLC	60	0	1	0	0	0
Max Coating	334	0	53	204	0	0
Total	**168,447**	**184,818**	**14,620**	**20,646**	**1,364**	**245,424**

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Appendix E

Support Information

SECTION IV: INDUSTRIAL SURCHARGES
Subsection: Labor, Electricity, Chemicals

Electricity

ESD staff provided RFC with kWh allocations for Turkey Creek (a Class III WWTP) and Five Mile Creek (a Class IV WWTP) treatment plants according to the following areas of usage: Influent Pumping, Aeration, Digester, Grit System, and Ultraviolet Disinfection. Exhibit E-1 shows the information provided and the percentage of usage for these areas.

Exhibit E-1: Electricity Allocations of Two WWTPs for Treatment Processes

Area of Usage	Turkey Creek kWh	Turkey Creek Percent use	Five Mile Creek kWh	Five Mile Creek % Use
Influent Pumping	504.4	10%	3,796	15%
Aeration	2,566.6	52%		
Digester	654	13%		
Aeration/Digester Blowers			7,286	30%
Grit System	50	1%	254	1%
Ultraviolet Disinfection	525.9	11%	824	3%
Total	4,300.9	86%	12,160	49%

According to the ESD, the remaining 14% for the Turkey Creek treatment plant may be attributed to building lights and power, the RAS pump, and the plant water system. From this description, RFC assumed an allocation of the remaining 14% with 3% to pumping, 3% for water reuse, and 8% for General/Administrative. The ESD attributed the remaining 51% of the Five Mile Creek allocation to the RAS and WAS pumps. From this description, RFC assumed that of the remaining 51% of usage, 40% is allocated to pumping and 11% is allocated to General/Administrative.

Given that data from two treatment plants was available, ESD staff indicated that an assumption could be made for the remaining seven treatment plants based on the available data and similar class of plant. Therefore, RFC assumed the electric usage data available for Turkey Creek (Class III) would be suitable for Trussville (Class III), Leeds (Class III), Prudes Creek (Class II), and Warrior (Class II) treatment plants. The usage data available for Five Mile Creek (Class IV) would be suitable for Cahaba (Class IV), Valley Creek (Class IV), and Village Creek (Class IV) treatment plants. Exhibit E-2 shows the process allocations that are applied to the electricity budget line item using the preceding information. The remaining cost centers in the ESD's budget used the allocations for the plants as shown in Exhibit E-3.

Exhibit E-2: WWTP Electric Usage Process Allocations (%)

Plant	Class	FE	GS	Pu	Cl	BT	Fi	Di	Th	Dw	SD	WR	GC	SR	G/A
Cahaba	III	0	1	55	0	15	0	3	0	0	15	0	0	0	11
Five Mile	III	0	1	55	0	15	0	3	0	0	15	0	0	0	11
Leeds	II	0	1	13	0	51	0	11	0	0	13	3	0	0	8
Truss-ville	II	0	1	13	0	51	0	11	0	0	13	3	0	0	8
Turkey Creek	II	0	1	13	0	51	0	11	0	0	13	3	0	0	8
Valley Creek	IV	0	1	55	0	15	0	3	0	0	15	0	0	0	11
Village Creek	IV	0	1	55	0	15	0	3	0	0	15	0	0	0	11

Note:
Column Headings: Pl = Plant; Cl = Class; FE = Flow Equalization; GS = Grit Screening; Pu = Pumping; Cl = Clarifiers; BT = Biological Treatment; Fi = Filters; Di = Disinfection; Th = Thickening; Dw = Dewatering; SD = Sludge Digesters; WR = Water Reuse; GC = Grease Control; SR = Septage Receiving; G/A = General/Admin

Exhibit E-3: Remaining Cost Center Electric Usage Process Allocations (%)

Cost Center	WW TP	FE	GS	Pu	Cl	BT	Fi	Di	Th	Dw	SD	WR	GC	SR	G/A
Five Mile Creek Maintenance Shop	Five Mile Creek	0	1	55	0	15	0	3	0	0	15	0	0	0	11
Instrument Shop	Five Mile Creek	0	1	55	0	15	0	3	0	0	15	0	0	0	11
Pump Station Operations		0	5	75	5	0	0	0	0	0	15	0	0	0	0
Bio-solids		0	0	0	0	0	0	0	25	25	25	0	0	0	25

Note:
Column Headings: FE = Flow Equalization; GS = Grit Screening; Pu = Pumping; Cl = Clarifiers; BT = Biological Treatment; Fi = Filters; Di = Disinfection; Th = Thickening; Dw = Dewatering; SD = Sludge Digesters; WR = Water Reuse; GC = Grease Control; SR = Septage Receiving; G/A = General/Admin

Although the Warrior and Prudes Creek budgets are included under the Five Mile Creek, RFC made no adjustments to the Five Mile Creek allocations since they were based on actual data.

Labor

The ESD staff provided labor data for the Five Mile Creek, Village Creek, Trussville, and Valley Creek treatment plants, as well as the Electrical Shop, Instrument Shop, and the Five Mile Maintenance Shop. Labor allocations for Prudes Creek and Warrior are included under the Five Mile Creek cost center. The same assumptions used in the electricity usage allocations were used for those treatment plants where data was not provided by applying allocations that were consistent with the class of treatment plant. Overall the data indicates the percentage of time spent by personnel on various duties related to the treatment process. RFC developed allocations based on these hours per functional category. However, the data provided was not consistent in format for each treatment plant and other cost centers. Therefore, it is presented below separately by treatment plant and other applicable cost centers in Exhibits E-4 through 11.

Five Mile Creek Treatment Plant

Data for the Five Mile Creek treatment plant is shown in Exhibit E-4. According to the ESD each shift is eight (8) hours with percent estimates based on work performed by an average number of operators per eight-hour shift. "Miscellaneous" is time needed for record keeping, remote monitoring, travel to and work at other plant sites, etc.

Exhibit E-4: Five Mile Creek Allocations

Plant Location	Percent Time	Functional Category
Headworks	7%	Flow Equalization
Aeration Basin	6%	Biological Treatment
Final Clarifier	11%	Clarifiers
Sand Filter	5%	Filters
UV Disinfection	1%	Disinfection
Digesters	4%	Sludge Digesters
Thickeners	4%	Thickening
Drying Beds	6%	Dewatering
Plant Water	0.5%	Water Reuse
Miscellaneous	55.5%	General/Administrative
Total	100%	

Village Creek Treatment Plant

The data provided for the Village Creek treatment plant included allocations of labor to four specific locations within the treatment plant: headworks, secondary clarifier, dewatering, and digestion. Additional data was provided for two operators located at the east and west portions of the plant and a floating employee with no specific process-related data. RFC made an assumption that the labor for these positions would be allocated evenly across the four plant locations provided plus the septage receiving function located at the treatment plant.

According to the data provided by the ESD the following definitions were provided for each of the plant locations where labor allocations were provided:

- The headworks station involves bar screens, bar rakes, pre-aeration, primary clarifiers, primary pump room, perimeter drain functions, receiving septic trucks, Ensley lift station, and #1 screw pump functions.

- The secondary station involves 1st stage aeration and settling, 2nd stage aeration and settling, chlorine disinfection and sulfur dioxide chlorine removal, thickener system, turblex blower operations, power distribution building operations, and #2 Screw pump operations.

- The dewatering building involves pumping thickened sludge from 'A' holding tank to 'G' or 'H' thermophillic digesters, operating thickening and dewatering centrifuges, disinfecting sludge with lime, driving trucks to make room for more loading, and loading trucks with dewatered and limed sludge.

- The digester station involves pumping sludge to and from the thermophillic and mesophyllic digesters, insuring digester levels and temperatures are maintained, drawing and taking up drying beds, and controlling the centrate supernatant pump station.

- The east station involves operating the pump station, operating the surge basins, operating the pre-aeration and the aeration blowers, receiving septic and grease trucks, and operating the aeration basins.

- The west station involves operating the final clarifiers, the RAS/WAS system, the thickener and blender system, the sand filter system, the UV disinfection system, the plant water system, and the power generation system.

- The floating employee position fills in for absent personnel and works wherever needed during high flow situations.

RFC used these definitions and the hourly data provided to develop the following allocations to the functional categories. Exhibit E-5 shows the assignment of these allocations to the functional categories.

Exhibit E-5: Village Creek Treatment Plant Labor Allocations to Functional Categories (%)

Process Location	FE	GS	Pu	PC	SC	BT	Fi	Di	Th	Dw	SD	WR	GC	SR	G/A
Headworks	2.6	2.6	2.6	2.6										2.6	
Secondary Clarifier					2.3	2.3		2.3	2.3						
Dewatering								2.8	2.8	2.8	2.8				
Digestion										5.2	5.2				
East	2.2		2.2	2.2	2.2									2.2	
West						1.6	1.6	1.6	1.6			1.6			
Floater	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3		0.3	
Total	5.1	2.8	5.1	5.1	4.8	4.2	1.8	6.9	6.9	8.2	8.2	1.9	0	5.1	33.9

Note:
Column Headings: FE = Flow Equalization; GS = Grit Screening; Pu = Pumping; PC = Primary Clarifiers; SC = Secondary Clarifiers; BT = Biological Treatment; Fi = Filters; Di = Disinfection; Th = Thickening; Dw =

Dewatering; SD = Sludge Digesters; WR = Water Reuse; GC = Grease Control; SR = Septage Receiving; G/A = General/Admin

Trussville, Leeds, and Turkey Creek WWTPs

The ESD provided labor percentages associated with the Trussville plant representing the level of effort expended by the Trussville staff per plant process. These allocations were adjusted in order to fit the process allocations outlined in the Surcharge Model prepared by RFC. Since the Leeds and Turkey Creek plants are Class III plants, the labor percentages provided for Trussville were applied to those two plants as well. Below in Exhibit E-6 are the allocations provided by Trussville and how these were adjusted for use in the Surcharge Model.

Exhibit E-6: Trussville Treatment Plant Allocation of Labor to Treatment Processes

Process Location	ESD Alloc	FE	GS	Pu	PC	SC	BT	Fi	Di	Th	Dw	SD	WR	GC	SR
Influent Lift Station	10			10											
Grit Removal Station	5		5												
Aeration Basins	8					8									
RAS/WAS	8						8								
Clarifiers	10					10									
Alum Station	3					1	1	1							
Generator Station	3					1	1		1						
Sand Filters	10							10							
UV System	14								14						
Plant Water Station	7												7		
Cascade Aeration & Outfall	3								3						
Aerobic Digester	6											6			
Thickener Station	3									3					
Drying Beds	10										10				
Total	100	0	5	10	0	20	10	11	18	3	10	6	7	0	0

Note:
Column Headings: FE = Flow Equalization; GS = Grit Screening; Pu = Pumping; PC = Primary Clarifiers; SC = Secondary Clarifiers; BT = Biological Treatment; Fi = Filters; Di = Disinfection; Th = Thickening; Dw = Dewatering; SD = Sludge Digesters; WR = Water Reuse; GC = Grease Control; SR = Septage Receiving; G/A = General/Admin

Further adjustments were made to these allocations since a General/Administrative allocation was not included in the original ESD data. In order to account for this, RFC used the number of labor personnel at the Trussville plant and applied adjustments to determine the total time spent by the plant personnel on processes. The difference would then provide the amount of time spent on General/Administrative activities. Exhibit E-7 shows the adjustments.

Exhibit E-7: Trussville Adjustment of Labor Allocations

Position	Number of Personnel	Adjustment Multiplier	Adjusted Number of Personnel	Percent Time On Processes	Adjusted Number of Personnel on Processes
Trussville & Leeds WWTP Supervisor	1	3	3	0%	0
Shift Supervisor	1	2	2	75%	1.5
Operators	4	1	4	100%	4
Laborer	1	0.5	0.5	100%	0.5
			9.5		6
Percent Time Dedicated to Treatment Processes					**63%**

By dividing the adjusted number of personnel on processes (6) by the total adjusted number of personnel (9.5) an estimate of the percentage of time spent on processes can be determined. In this case, the percentage is 63% resulting in 37% of time allocated to the general/administrative category. This applies to Leeds and Turkey Creek as well, with one exception: the percentage for Turkey Creek is adjusted to 44% since there is no filtration process at the plant. This resulted in the following allocations shown in Exhibit E-8 used for labor within the Surcharge Model with the exception of Turkey Creek.

Exhibit E-8: Trussville Adjusted Allocations for Treatment Processes

Process Location	ESD Alloc	FE	GS	Pu	PC	SC	BT	Fi	Di	Th	Dw	SD	WR	G/A
Total	100	0.00	3.16	6.32	0.00	12.63	6.32	6.95	11.37	1.89	6.32	3.79	4.42	36.84

Note:
Column Headings: FE = Flow Equalization; GS = Grit Screening; Pu = Pumping; PC = Primary Clarifiers; SC = Secondary Clarifiers; BT = Biological Treatment; Fi = Filters; Di = Disinfection; Th = Thickening; Dw = Dewatering; SD = Sludge Digesters; WR = Water Reuse; GC = Grease Control; SR = Septage Receiving; G/A = General/Admin

<u>Valley Creek Treatment Plant</u>
ESD provided data related to man hours dedicated to treatment processes for operators and laborers based on total number of hours per week. These hours do not include effort related to supervision, laboratory, grounds maintenance, or support. ESD applied a 1.5 multiplier to the operator hours and none to the laborer hours. Since Valley Creek processes include septage

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receiving, RFC assumed that 5% of hours for "In-Plant Treatment" were dedicated to this process. Exhibit E-9 shows the allocation percentage of hours provided by the ESD for labor and the re-allocation of these hours to the functional categories within the Surcharge Model.

Exhibit E-9: Valley Creek Treatment Plant Allocation of Labor to Treatment Processes

Process Location	ESD Alloc	FE	GS	Pu	PC	SC	BT	Fi	Di	Th	Dw	SD	WR	GC	SR
Preliminary Treatment	14.37	4.79	4.79	4.79											
Primary Settling	7.19		5		7.19										
Biological Treatment	7.19						7.19								
Secondary Settling	14.37					14.37									
Final Settling	14.37					14.37									
Anaerobic Digestion	7.19									3.59		3.59			
In-Plant Treatment	7.19						1.09			1.09					5.00
Tertiary Treatment	7.19							7.19							
Disinfection	7.19								7.19						
Dewatering	13.78										13.76				
Total	100	4.79	9.79	4.79	7.19	28.74	8.28	7.19	7.19	4.69	13.76	3.59	0.00	0.00	5.00

Note:
Column Headings: FE = Flow Equalization; GS = Grit Screening; Pu = Pumping; PC = Primary Clarifiers; SC = Secondary Clarifiers; BT = Biological Treatment; Fi = Filters; Di = Disinfection; Th = Thickening; Dw = Dewatering; SD = Sludge Digesters; WR = Water Reuse; GC = Grease Control; SR = Septage Receiving; G/A = General/Admin

Since the number of personnel for Valley Creek dedicated to the treatment processes is large relative to supervisory staff, it was assumed that all labor should be allocated to the treatment processes.

Electrical Shop and Instrument Shop

The Electrical Shop and Instrument Shop cost centers were included due to the involvement of their personnel with the WWTPs. Assuming the same labor allocations for each treatment plant cost center, the data provided by the ESD as to the percentage of hours dedicated to each plant was applied to the personnel services budget line items for the Electrical Shop and Instrument Shop cost centers. Exhibit E-10 shows the percent hours for each plant as provided by the ESD.

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Exhibit E-10: Electrical Shop and Instrument Shop labor Percentage Dedicated to Treatment Plants

Treatment Plant	Electrical Shop Personnel Labor Percentage	Instrument Shop Personnel Labor Percentage
Village Creek	22.00%	20.00%
Valley Creek	26.47%	25.00%
Cahaba River	2.51%	10.71%
Trussville	0.54%	7.14%
Leeds	1.42%	3.57%
Warrior	4.79%	1.43%
Five Mile	20.48%	17.86%
Prudes	1.10%	2.87%
Turkey Creek	3.81%	10.00%
Pump Stations	8.44%	0.71%
Barton Laboratory	8.44%	0.71%
Total	**100%**	**100%**

These percentages are applied to the budget line items related to personnel services and allocated according to the process allocations that have already been estimated for each treatment plant.

<u>Maintenance Shops</u>
The Five Mile Creek Maintenance Shop is responsible for the maintenance needs of the Five Mile, Leeds, Trussville, Turkey Creek, Warrior, and Prudes Creek treatment plants. The Village Creek and Valley Creek Maintenance Shops are responsible for the maintenance needs of their respective treatment plants. ESD staff provided labor data from the Five Mile Creek Maintenance Shop for the percent of time the personnel spends at each treatment plant and the percentage of this time on each process. RFC used the ESD's descriptions of its processes to fit the process allocations outlined in the Surcharge Model. Exhibit E-11 shows the allocations for each process.

Exhibit E-11: Five Mile Creek Maintenance Shop Labor Percentage Dedicated to Treatment Plants

Process Location	ESD Alloc	FE	GS	Pu	PC	SC	BT	Fi	Di	Th	Dw	SD	WR	SR	G/A
Influent	8.71			8.71											
Grit Removal	10.61		10.61												
Aeration	23.48					23.48									
Clarification	10.23					10.23									
Filtration	8.71							8.71							
Digester	0.38											0.38			
Thickeners	4.55									4.55					
Plant Water	4.92												4.92		
In Plant	28.41														28.41
Total	100	0.00	10.61	8.71	0.00	33.71	0.00	8.71	0.00	4.55	0.00	0.38	4.92	0.00	28.41

Note:
Column Headings: FE = Flow Equalization; GS = Grit Screening; Pu = Pumping; PC = Primary Clarifiers; SC = Secondary Clarifiers; BT = Biological Treatment; Fi = Filters; Di = Disinfection; Th = Thickening; Dw = Dewatering; SD – Sludge Digesters; WR – Water Reuse; GC – Grease Control; SR – Septage Receiving; G/A = General/Admin

RFC applied the total allocation percentages to all of the budget line items under the Five Mile Creek Maintenance Shop cost center except for electricity and natural gas. Since data was not provided for the Valley Creek and Village Creek Maintenance Shops, RFC assumed that the scope of the Five Mile Creek Maintenance Shop was similar to that of Village Creek and Valley Creek and applied the allocations from Exhibit E-11 to all of the budget line items as well with the exception of electricity and natural gas.

Chemicals

Chemical cost allocations are based on historical data provided by the ESD for FY 2007-2008. ESD provided costs of each chemical used for each treatment plant according to its purpose, average dosage, annual usage, FY 2008 annual cost, and dosage point. RFC used the costs for each chemical along with the dosage point to calculate percent allocations among the treatment processes. Along with the nine treatment plants, data was provided for the Scotts Branch Pre-Treatment Facility and the collection system. Detail on how this data was incorporated into cost allocations is included in this subsection.

Three treatment plants had more than one chemical dosage point: Cahaba River, Valley Creek, and Village Creek. While the remaining treatment plants: (Five Mile Creek (including Warrior and Prudes Creek), Leeds, Trussville, and Turkey Creek), had one dosage point. RFC used the 2008 data provided by the ESD along with the dosage points shown below in Exhibit E-12 to estimate allocations according to treatment process in Exhibit E-13.

Exhibit E-12: 2008 Treatment Plant Chemical Cost Data (provided by ESD)

Treatment Plant	Chemical	Dosage Point	Functional Category	2008 Cost
Cahaba River	Alum	clarifier distribution box and media filter influent	Clarifiers/Filters	$112,791
	Polymer	two filter presses in dewatering bldg	Dewatering	$40,212
	Chlorine Tablets Calcium Hypochlorite	re-use water system in media filter building	Water Re-Use	$100
Five Mile Creek	Sodium hypochlorite	plant water pump station	Disinfection	$300
Leeds	Alum BLI-1146	clarifier distribution box	Clarifiers	$57,700
Trussville	Alum	clarifier distribution box	Clarifiers	$40,000 - projected
Turkey Creek	Alum	clarifier distribution box	Clarifiers	$50,000 - projected
Valley Creek	Polymer	DW press feedbox	Dewatering	$97,412
	Foundry Lime	Dried sludge mixer box	Sludge Digesters	$97,106
Village Creek	Chlorine/Sulfur Dioxide	Outfall 001	Disinfection	$51,120
	Polymer/Lime	Dewatering Bldg	Dewatering	$209,246

Exhibit E-13 shows the estimated cost allocations that RFC developed based on the cost data. Assumptions were made in some allocations, such as where the dosage point for some chemicals was shown to be in more than one location; then the allocations were distributed evenly between those treatment processes for which it applied. For instance the allocations for Cahaba are a good example where alum was applied at both the clarifier distribution box and media filter influent resulting in a total percent allocation of 73% for these two processes. An equal distribution of this allocation between clarifiers and filters resulted in an allocation of 36.5% for each.

Exhibit E-13: Treatment Plant Functional Category Allocation

	Functional Categories					
Treatment Plant	**Clarifiers**	**Filters**	**Disinfection**	**Dewatering**	**Sludge Digesters**	**Water Reuse**
Cahaba	36.5%	36.5%		26%		1%
Five Mile			100%			
Leeds	100%					
Trussville	100%					
Turkey Creek	100%					
Valley Creek				50%	50%	
Village Creek			20%	80%		

As mentioned earlier, ESD staff provided additional chemical usage data for the Scotts Branch Pre-Treatment Facility and the pump stations located within the collection system. Both are included under the Pump Station Operations cost center. Exhibit E-14 shows the data provided by the ESD staff.

Exhibit E-14: Additional Chemical Usage Data

Location	Chemical	Dosage Point	Functional Category	2008 Cost
Scotts Branch Pretreatment Facility	HTH (Powdered Chlorine)	Clarifiers & Effluent Flume	Primary Clarifiers	$340
Pump Stations	Citrus Degreaser	Wet Well	Pumping	$825
Pump Stations/ Scotts Branch Pretreatment Facility	Potassium Permanganate	Wet Well	Pumping	$2,640
Pump Stations	Lon-Gon	Wet Well & Atomizing Spray	Pumping	$1,470
Pump Stations	Lime	Sewage Overflow Area	Pumping	$165
Pump Stations	Lift-Zyme	Wet Well	Pumping	$2,992

Exhibit E-15 shows the estimated cost allocations that RFC developed based on the cost data.

Exhibit E-15: Pump Station Functional Category Allocation

	Functional Categories	
	Pumping	Primary Clarifiers
Pump Station Operations	96%	4%

A majority of the chemical costs for the collection system are included under the pumping process. RFC assumed the Scotts Branch Pre-Treatment Facility chemical costs should be allocated entirely under the primary clarifier category since its basic function is to treat industrial wastewater.

Appendix F

Support Information

SECTION VI: AFFORDABILITY ANALYSIS
Subsection: Financial Capability Analysis

Exhibit F-1: Financial Capability Analysis

WORKSHEET 1 - COST PER HOUSEHOLD			
Line No.	Current Costs		
100	Annual Operations and Maintenance Expenses (Excluding Depreciation)		$ 61,336,284
101	Annual Debt Service (Principal and Interest)		$ 111,966,690
102	Subtotal		$ 173,302,974
106	Total Costs		$ 173,302,974
107	Residential Share of Total Costs		$ 69,321,190
108	Total Number of Households in Service Area	[No. of Accounts]	128,953
109	Cost Per Household		$ 538

WORKSHEET 2 - RESIDENTIAL INDICATOR		
Line No.	Median Household Income	
201	Census Year MHI	
202	MHI Adjustment Factor	
203	Adjusted MHI	$ 40,608
204	Annual Cost Per Household	$ 538
205	**Residential Indicator Score**	1.324%
	Annual Cost per Household as percent of adjusted Median Household Income	

WORKSHEET 3 - BOND RATING		
Line No.		
301	Most Recent General Obligation Bond Rating	
	Date	
	Rating Agency	
302	Most Recent Revenue (Water or Sewer) Bond Rating	D
	Date	3/6/2008
	Rating Agency	Standard & Poor's
	Bond Insurance	
303	Summary Bond Rating	D

WORKSHEET 4 - OVERALL NET DEBT AS A PERCENT OF FULL MARKET PROPOERT VALUE		
Line No.		
401	Direct Net Debt	$ 925,780,000
	(G.O. Bonds Excluding Double-Barreled Bonds)	
402	Debt of Overlapping Entities	$ 0
	(Proportionate Share of Multijurisdictional Debt)	
403	Overall Net Debt	$ 925,780,000
404	Market Value of Property	$ 7,744,422,422
405	Net Debt as Percent of FMV	11.95%

Exhibit F-1, Continued

WORKSHEET 5: UNEMPLOYMENT RATE

Line No.		
501	Unemployment Rate - Permittee	10.70%
502	Unemployment Rate - County (If Permittee's Rate is unavailable)	
503	Benchmark - US National Unemployment Rate	9.80%

WORKSHEET 6: MEDIAN HOUSEHOLD INCOME

Line No.		
601	Median Household Income - Permittee	$ 40,608
602	Census Year National MHI	
603	MHI Adjustment Factor	
604	Adjusted National MHI	$ 52,029

WORKSHEET 7: PROPERTY TAX REVENUES AS A PERCENT OF FULL MARKET PROPERTY VALUE

Line No.		
701	Full Market Value of Real Propoerty	$ 7,744,422,422
702	Property Tax Revenue	$ 501,067,572
703	Tax Revenue as Percent of FMV	6.47%

WORKSHEET 8: PROPERTY TAX REVENUE COLLECTION RATE

Line No.		
801	Property Tax Revenue Collected	$ 501,067,572
802	Property Taxes Levied	$ 509,403,085
803	Property Tax Collection Rate	98.36%

WORKSHEET 9: SUMMARY OF PERMITTEE FINANCIAL CAPABILITY INDICATORS

Line No.	Indicator	Column A Actual Value	Column B Score
901	Bond Rating	D	1.0
902	Overall Net Debt as a Percent of FMV	11.95%	1.0
903	Unemployment Rate	10.70%	2.0
904	Median Household Income	$ 40,608	2.0
905	Tax Revenue As Percent of FMV	6.47%	1.0
906	Property Tax Collection Rate	98.36%	3.0
907	**Permittee Financial Capability Indicators Score**		**1.7**

WORKSHEET 10: FINANCIAL CAPABILITY MATRIX SCORE

Line No.		
1001	Residential Indicator Score	1.324%
1002	Permittee Financial Capability Indicators Score	1.7
1003	**Financial Capability Matrix Category**	**Medium Burden**

Appendix G

Support Information

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Exhibit G-1: Glossary of Acronyms

ADEM	Alabama Department of Environmental Management
BNR	biological nutrient removal
BOD	biochemical oxygen demand
Ccf	hundred cubic feet
CIP	Capital Improvement Program
COD	chemical oxygen demand
CSO	combined sewer overflow
ENRCCI	Engineering News-Record Construction Cost Index
EPA	Environmental Protection Agency
ESD	Environmental Services Department
FOG	fats, oils, and grease
FY	fiscal year
gpd	gallons per day
I&I	inflow and infiltration
mg	million gallons
mg/l	milligrams per liter
mgd	million gallons per day
MHI	median household income
NPDES	National Pollutant Discharge Elimination System
O&M	operations and maintenance
PAYGO	pay-as-you-go
RAS	return activated sludge
RFC	Raftelis Financial Consultants, Inc.
SID	significant industrial dischargers
TP	total phosphorus
TSS	total suspended solids
UV	ultraviolet
WAS	waste activated sludge
WEF	Water Environment Federation
WWTP	wastewater treatment plant

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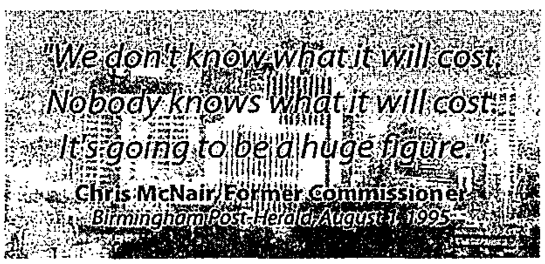
Executive Summary

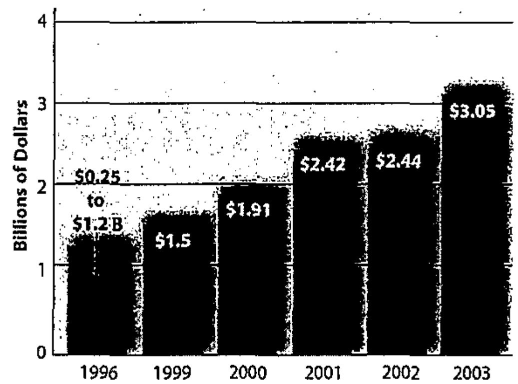
Events Leading to the Program Review

By agreement between the Jefferson County Commission and the federal government, the U.S. District Court entered a Consent Decree (CD) on December 9, 1996. Among a number of specific requirements, the CD required Jefferson County (County) to eliminate sewer overflows and meet all requirements of the Clean Water Act (CWA) by 2007. In addition, the County agreed to take responsibility for a consolidated sewer system serving 21 municipalities in the County, more than tripling the linear feet of sewer line that fell within the requirements of the CD. Compliance with the CD committed the County to invest significant resources to meet a mandate that did not appear to be well understood by anyone at the time.



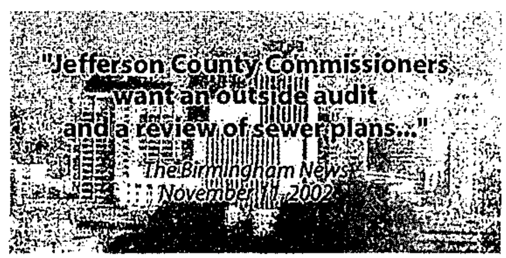
The County embarked on a Program to meet the requirements of the CD and allow for system expansion. Early in the Program, the County understood that the cost of implementation would not be easy to determine. The first estimate for the Program ranged between $250 million and $1.2 billion, but as planning and implementation proceeded, the cost continually increased. The annual report prepared by the Environmental Services Department (ESD) for the Commission documents the increasing estimated cost (Exhibit ES-1).

As the cost of the Program escalated, sewer rates were increased (Exhibit ES-2) to cover the planned capital investment and greater operating costs. This combination of increasing costs and rates, along with cancellation of the Cahaba River Trunk Extension Tunnel (Super Sewer) project



(The 1996 costs are from Birmingham News; all other costs are from ESD's annual report.)

Exhibit ES-1 *Estimated costs for the County's Program have continually increased, which helped convince the Commissioners that the Program delivery process required evaluation.*



and other related concerns, led Commissioner Gary White to call for a review of the Program.

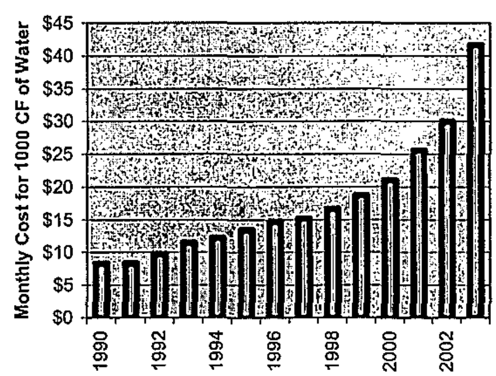


Exhibit ES-2 *Actual Jefferson County monthly sewer charges based on 1000 CF of water used.*

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Review Team Responsibilities

The BE&K Team, comprised of the following firms, was retained by Jefferson County in December 2002 to perform a review of the Program:

- BE&K Engineering Co.—overall management of the review, along with a review of Program implementation procedures
- CH2M HILL—engineering technical expertise and support
- Porter White and Company—financial analysis and alternative funding recommendations
- Public Affairs Research Council of Alabama (PARCA)—rate and tax benchmarking

The BE&K Team performed detailed reviews of Program documentation and held interviews with County staff, including ESD and ESD's consultants. BE&K conducted a three-day and a four-day value engineering workshop with ESD and its consultants to gain insight into the County's existing Program data and Program delivery approaches, and to develop alternatives that would benefit the County. The team also compared the County's Program documentation with that available from similar programs conducted by other wastewater utilities.

Major Review Findings

This report summarizes the findings of the review and makes recommendations for steps the County should take to increase the effectiveness and efficiency of its Program delivery process. This report also recommends steps that the County should take to deal more effectively with the challenges of future regulations and expansion demands.

The major findings from the report are summarized below:

- **The Jefferson County CD is comparable to CDs in other areas**
- **The County appears to be on schedule to complete the Program in 2007.**
- **Completion of the Program will likely require an estimated additional $611 million to complete the Program and the work required in 2008.**
- **Sewer rate increases of approximately 12.5 percent per year from 2004 through 2011 are necessary.**
- **The County and ESD have made a number of unwise decisions, which, when combined, have significantly increased the Program's capital and operating costs.**
- **There are significant opportunities for strategic planning at both the ESD and County level.**

Jefferson County CD is comparable to CDs in Other Areas

The comparison of the Jefferson County CD with CDs for Atlanta, Mobile, Miami, and New Orleans revealed that the CDs were similar. While the details differ, EPA Region 4 has placed similar requirements on all these entities to eliminate all sewer overflows. Nationally, CDs implemented before the Jefferson County CD were less restrictive, while CDs implemented after the Jefferson County CD were more restrictive. Additional details are included in the report.

On Schedule to Meet 2007 Program Requirements

The CD specifies that Jefferson County complete a number of engineering and construction activities. To date, the County has complied with these requirements within the specified deadlines. If additional capital is funded, it is likely that the County will continue to meet the required deadlines in the CD.

The CD also requires that the County achieve "no sewer overflows" by 2007. This is not a practical goal, as overflows will continue to occur for a variety of reasons, as detailed in this report. However, it appears that when the Program is completed, the County will be able to meet the intent of the CD, giving it a strong basis for negotiating with the EPA and the Department of Justice. The ability to work effectively with the governmental agencies that have jurisdiction, other stakeholders, and the public will be significantly enhanced if the recommendations of this study are implemented.

Program Completion Requires Additional Capital

Completion of the Program will require approximately $611 million of additional expenditures. This amount includes $365 million of project costs needed to complete the portions of the Program that the risk assessment

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dictates be accomplished prior to the CD target date (resulting in an estimated final cost of $2.67 billion), plus $246 million of additional capital costs in years 2008 through 2017 for those portions of the Program that our risk assessment suggest deferral is possible. This $246 million in capital cost is necessary in order to correct known defects in the system, but can be deferred. If these additional costs are funded using revenue bonds, then additional funds not included above will be needed to fund required reserves, bond interest during construction, and costs of issuance. The remaining sewer rehabilitation projects comprise the majority of the investment that has not yet been contracted. The BE&K team believes that the County could minimize the expenditure of funds by implementing the recommendations contained in this report.

The Team reviewed the remaining 355 sewer projects identified by ESD and assessed the cost of the projects that the County and its consultants identified as most likely to be needed to meet the CD, both in terms of the activities required and their ability to eliminate sewer overflows. Projects needed in order to repair identified defects in the sewer system, but not believed to be required by the CD, were deferred for completion between 2008 and 2017. By doing so, immediate financing requirements were reduced and the need for further rate increases was delayed.

Failure to raise the needed funds to address the repairs required by the CD would place the County in jeopardy of not meeting the CD, even after the huge investment that has occurred.

Sewer Rates Must Be Increased

Sewer rates must be increased to cover the assumed cost of existing and additional borrowing, O&M costs, and other capital costs. The current Commission plan of a 10-percent increase in sewer rates through 2007 shown in Exhibit ES-3 would leave the County in need of a 20- to 30-percent increase in both 2009 and 2010. A level 12.5-percent increase in 2004 through 2011 would meet needed revenue requirements and help stabilize rate increases.

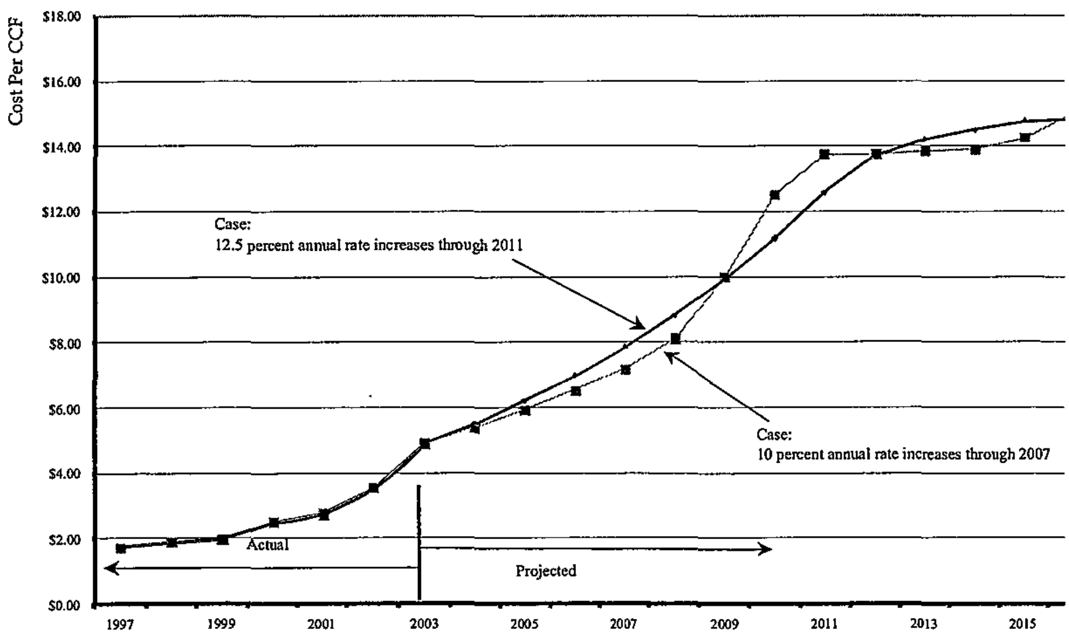


EXHIBIT ES-3
A 10-percent increase in sewer rates through 2007 would leave the County in need of a 20- to 25-percent increase in 2009 and 2010, while a 12.5-percent increase in 2004 through 2011 would meet revenue requirements, helping to stabilize rate increases.

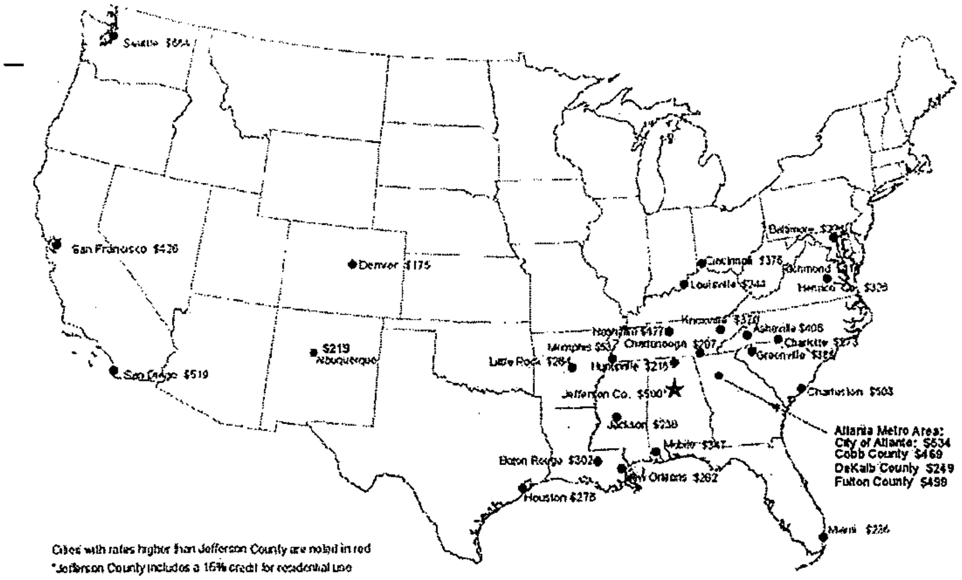


EXHIBIT ES-4

Of the 31 utilities benchmarked, only the City of Atlanta is likely to have future municipal sewer rates comparable to Jefferson County's.

Research showed that in 2003 Jefferson County had the fifth highest residential sewer rate, third highest commercial rate, and third highest industrial rate of the 31 utilities compared (Exhibit ES-4). The required 12.5-percent per year rate increase would put the sewer rates above EPA's "high burden" definition by 2007—exceeding 2 percent of median household income (MHI) (Exhibit ES-3). Again, this unrealistically assumes no significant new investment for service expansion or requirements to meet new environmental regulations. Of the 31 utilities benchmarked, only the City of Atlanta is likely to have future rates comparable to the County's.

Past Decisions Increased Program Cost

A number of decisions made during the course of negotiating the CD and delivering the County's Program have resulted in higher costs. These decisions are discussed in the following pages.

Acceptance of Liability for Consolidated Sewers

Consolidating responsibility for the municipal sewers under the County was required during negotiation of the CD. When the County agreed to this, it was not fully aware of the poor condition of the municipal sewers. The impacts from this decision to consolidate are still being realized today. However, the County likely had little choice but to accept responsibility for the liability.

Lack of Overall Strategy to Define Program Requirements and Manage to Budget

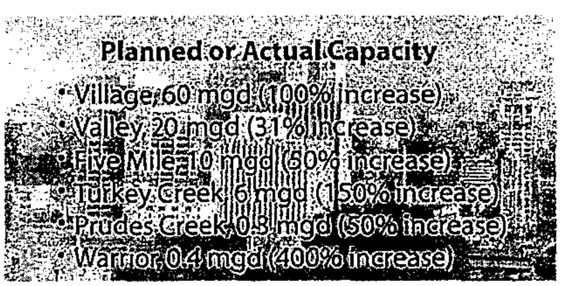
Implementation of the Program without experienced and sufficient staff and specialized tools and processes has affected both Program delivery and Program costs. ESD administered the Program without the addition of significant new internal resources or outside consultants experienced in delivering programs similar in size and complexity. Prior to 1996, ESD and some of its consultants had been involved in the delivery of capital improvements on the order of $35 million/year.

Delivery of the County's Program involved expenditures of more than $250 million per year and the delivery of hundreds of construction contracts. Inadequate cost and scheduling tools and processes were in place, making it impossible for ESD to accurately predict Program cost and coordinate schedules. As a result, it was not possible to prioritize improvements or accurately track Program cost. Typically, a program manager with the experience, personnel, and tools to deliver a Program of this magnitude would have been hired.

Investment in Treatment Plant Expansion and Use of Overly Conservative Design Basis

Wastewater flows in the County have shown no increase over the past 5 years, with no significant increase expected. Yet plant investments were made that significantly increased capacity, requiring a huge capital investment. Some of the investment was required to handle peak wet weather flows and to assure compliance with the CWA; however a significant portion of the approximately $1 billion spent was for expanding the capacity of the treatment plants in a system that shows no demands for expansion (Exhibit ES-5). Several of the plants now have a capacity of 2.5 to 3 times the average daily flow, which significantly increases operating costs and the challenge of proper operations. Therefore, a significant amount of unnecessary capital was invested, which had the effect of increasing the cost of future operations.

In addition to constructing questionable plant expansions, the sizing of some of the facilities is overly conservative when compared to accepted practice. This is particularly true of the clarifiers, which account for a significant portion of a plant's cost.



There is little evidence that alternatives were adequately considered in making plant investments. Rather, the County expanded the plants using existing technology. For example, at the Valley Creek Plant, significant savings may have been achieved had single-stage nitrification been evaluated and found acceptable.

Lack of Consideration of Alternatives for Rehabilitation

Most programs of this size and complexity consider multiple options using decision science tools to optimize the decision process. Decisions regarding the County's Program did not include a review of alternative technologies, such as upstream peak storage facilities, in-system management, tunnels to transport and equalize flows, or other techniques for reducing the cost of transporting and treating peak flows. The assessment of such technologies is routinely done by utilities facing challenges similar to the County's, resulting in significant cost savings and enhanced system performance and reliability.

	1997	1998	1999	2000	2001	2002
Annual Average Daily Flow (AADF), mgd	120.96	117.33	113.53	97.06	115.61	119.71

EXHIBIT ES-5
Jefferson County's wastewater flows have shown no increase over the past 5 years; thus, the $1 billion spent expanding plant capacity cannot be justified.

Assessment of alternative technologies for the County's Program, coupled with effective cost and schedule control, would have promoted the prioritization of capital expenditures. Instead, for sewer main repair, the Program essentially used only cured-in-place liner (CIPP) technology, repairing entire pipe segments between manholes. This approach is costly because it is designed to rehabilitate the sewer totally, which was not always necessary. Had there been competition for capital, the County's Program might have focused more on inflow reduction, at a significantly lower cost. Also, alternatives to CIPP might have been used earlier in the Program where warranted.

Impacts of the Product Review Committee and Contractor Prequalification Process

The Product Review Committee had the worthy goal of assuring that the technology and services used for the Program were of the

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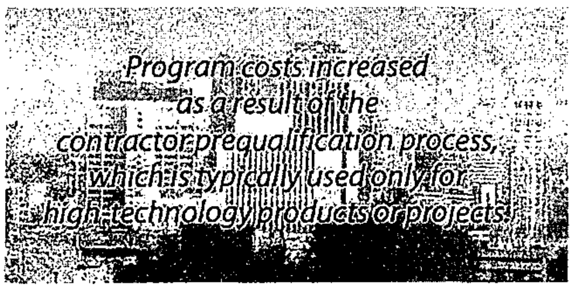
highest quality. While this type of review committee is not unusual for the utility industry, the Committee had little evidence of documented analysis of the costs resulting from their actions. Selections were approved primarily on the basis of quality, without documenting assessment of the cost consequence or documenting a cost-benefit ratio.

The contractor prequalification process, which was used essentially for all the contractors who worked on the Program, is unusual for the utility industry, except when applied to highly technical products and installation. It appears that early in the Program, the prequalification process and Product Review Committee process limited competition, resulting in higher unit price costs.



As the number of qualified contractors increased, the costs decreased and were more in line with costs in comparable cities.

Opportunities for Development of Integrated Water Strategy

It is critical that the County recognize that the demands of effectively managing its water needs go far beyond the requirements of the CD. Future regulatory requirements for managing and treating storm water and non-point source pollutants require an integrated approach strategy and perhaps, the coordinated operation of water, wastewater, and storm water utilities (Exhibit ES-6).

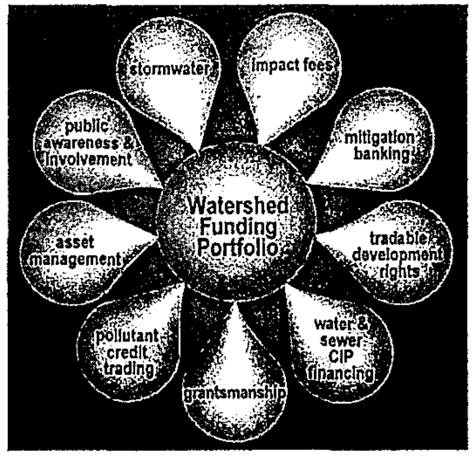


EXHIBIT ES-6
An integrated water strategy will make a variety of options for maximizing the County's resources possible.

An integrated water strategy is required to address cost-effectively the increased regulatory challenges, greater capital and O&M costs, and need for technological advances associated with Jefferson County's Program. The concept of managing water in an integrated manner— be it water supply, wastewater, or storm water— is not new.

As the review findings indicate, the County has a significant opportunity to collaborate and work to manage water on an integrated basis. A practical example of this need is the duplication of service between the Birmingham Water Works and Sewer Board and the County. New regulations for storm water and non-point source pollutant treatment are likely to change the structure of the Storm Water Management Authority in the future. Water, wastewater, and storm water are directly related and call for an integrated strategy to address current and future needs

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Recommendations

The findings of the BE&K Team include many issues for which little can be done to mitigate the cost impacts. Thus, our recommendations focus on a forward look so that the County can learn from the past to deal more effectively and economically with future issues.

Our recommendations here, which build on the review findings, have considerable overlap and are designed to be considered in their entirety and implemented in unison:

- Create an integrated water management task force
- Retain experienced wastewater program management
- Develop a strategic plan for ESD
- Commission a rate study
- Evaluate funding sources to address future regulatory issues and expansion
- Implement a comprehensive stakeholder education and involvement program

There is a significant risk in choosing to ignore some of these recommendations while adopting others. Also, these recommendations represent a high-level summary of the many recommendations presented in detail in this report.

Create an Integrated Water Management Task Force

Many communities have dealt effectively with seemingly insurmountable issues using a task force approach. The key to success of this approach is the assignment of key leadership to the task force and their support by the County Commission so that task force members can effectively conduct their work.

Metro Atlanta's integrated water resource plan is directly applicable to Jefferson County.

The task force would consist of key stakeholders who are impacted by the County's Program, such as political, regulatory, governmental, business, environmental, and water service entities. Professional facilitation is generally required to align such a large and diverse group. In the end, the most important ingredient is leadership by a recognized, energetic, and open-minded individual.

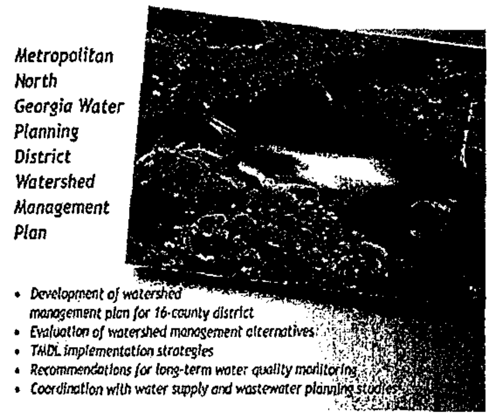

EXHIBIT ES-7
Integrated watershed planning for the Atlanta area was successfully spearheaded by a Water Quality Initiative Task Force, which represented diverse stakeholders, including 100 water utilities, and resulted in development of a regional water management district.

Metro Atlanta is an excellent example of how effective a task force can be in collaborating on integrated and regional water issues (Exhibit ES-7). In the 16-county area that comprises metro Atlanta, there are more than 100 water utilities. The critical water issues on the Chatahoochee River demanded more regional thinking— in other words, considering water in an integrated manner. Building moratoriums and the inability to permit water withdrawals had threatened the region's future growth. After years of trying to develop solutions to these issues, the Metro Chamber of Commerce provided the leadership necessary to form and fund the Water Quality Initiative Task Force.

With facilitation provided pro-bono by the Boston Consulting Group, this 39-member task force evaluated water quality issues and developed solutions that ultimately resulted in state legislation that created a regional water management district—the Metropolitan North Georgia Water Planning District. The state also provided some of the funding to enable the District to begin operations. Over the past 2

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years, the District has developed plans that have been endorsed by stakeholders to create regional treatment of water and sewer and consider the impacts of storm water management and treatment.

Integrated water management operations are also demonstrated by the newly formed City of Atlanta Watershed Management Department, which combines the operations of water supply, wastewater treatment, and a soon-to-be-implemented storm water utility.

The benefits of integrated water management range from improved stakeholder support, education, and involvement in the planning process to the potential for fundamental changes in the way a utility is organized and operated.

Retain Experienced Wastewater Program Management

Jefferson County should secure the services of a firm that specializes in program management for wastewater programs of similar size and complexity. With more than $1 billion of work remaining to be completed, a program manager can not only lead more effective delivery of the remaining construction, but can provide the expertise and experience necessary to develop alternative approaches to delivering the remaining work.

The BE&K Team has provided the County a draft procurement document that describes the method routinely used by the water industry to procure program management services. The document also describes details of the services that are needed, along with the key positions that the selected firm should provide.

There are many advantages to the County's use of program management. The County will have the opportunity to choose individuals with specific and appropriate skill levels that are totally dedicated to delivering the County's work and that can reside in the County's facilities, promoting teamwork. The County avoids staffing for peak workloads because the program manager scales up or down, as workload dictates, and then leaves once the program is completed.

Also, a program management firm draws on the experience of its entire firm, bringing lessons learned from around the world and providing tools and processes that have proven successful on other programs. Typically, detailed engineering services can continue to be provided by existing consultants under the supervision of the program manager.

Develop Strategic Plan for ESD

A strategic plan creates the framework for policy and decision-making and guides the priority for investment. There is little evidence that the County has such a plan in place today. County staff has focused primarily on the CD, reacting to current issues. The addition of a program manager will enhance ESD's ability to develop a strategic plan in the following two ways:

- It will free up appropriate ESD leadership from project delivery tasks, allowing them more time to create a strategy
- It will supplement County staff with individuals capable of supporting or leading such an effort

ESD's strategic plan would require the County's endorsement as well as the support of other County departments impacted by the plan. The strategy would likely address such issues as operations, expansion policies, ratemaking, project prioritization, program information, and approval processes.

Develop Asset Management System

Today, most large utilities are creating asset management systems that make preventive maintenance of assets possible from both economic and critical function perspectives. Equipment information and maintenance requirements contained in electronic databases are entered into the asset management system, where they are tracked and monitored.

The best time to develop an asset management system is during new construction. Instead of preparing paper copy O&M manuals for the new facilities, as is occurring now within the County's Program, the information is prepared electronically, which promotes its transferal to an asset management system. However, the decision to undertake an asset management system must be made with a strategy in mind to avoid excess cost and protect the County's large investment in assets.

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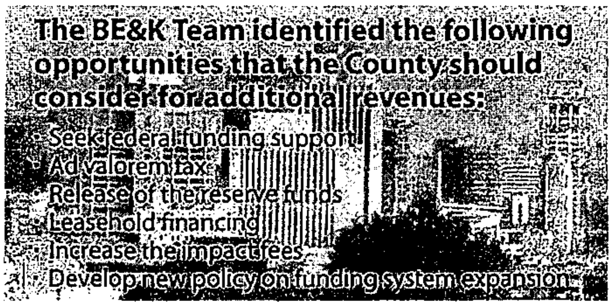
Revise Project Approval Process

Several of the County's expansion projects that were under design or construction that were evaluated did not appear to meet a reasonable test of cost-benefit. The County properly cancelled these projects, but the cancellations came at a considerable cost to the County. Development of a clear project approval strategy could have led to a policy that might have prevented this from happening. Most utilities have a clearly defined capital improvement plan process that involves appropriate stakeholders formally and publicly.



Review Rehabilitation Strategy

Jefferson County's strategy for rehabilitation should be reviewed. It is not too late to consider shifting the focus to inflow reduction and the use of system storage to reduce peak flows, as well as how "stranded assets" such as the Cahaba River Trunk Sewer Tunnel might be used in a beneficial manner.

Significant changes in the rehabilitation strategy will require modifications to the CD. If planning is accomplished that demonstrates the opportunity without conflicting with the intent of the CD, modifications are possible.

Commission a Rate Study

The expectation of a 12.5-percent rate increase would only generate sufficient revenue to cover future operating and capital costs under the existing rate design. This does not allow for the capital expenses required to accommodate future regulatory demands or growth. The County should commission a rate study to assure that costs are distributed among customer classes on a rational basis. This is necessary to both produce defensible rates and to assure equitable treatment of customers.

Evaluate Funding Sources to Address Future Regulatory Issues and Expansion

The County should carefully review recommendations for additional financing of sewer system expansion projects because it will be difficult to pay for expansion through user fees. It is imperative that the availability of alternative funding mechanisms, such as general tax revenues, assessment bonds, general sewer service fees, and grants, be assessed before implementation of the expansion projects. In addition, compliance with future regulatory issues may require additional funding.

Implement a Comprehensive Stakeholder Education and Involvement Program

This recommendation is imbedded to some degree in all the other recommendations and is intended to be much broader than a public relations program. The County needs to formally identify the groups impacted by the actions of ESD, including the general public, and develop a structured program to communicate, educate, and involve these groups in the decision-making process. To begin this process, a formal plan should be developed to map out a stakeholder education and involvement strategy for each stakeholder group. For example, for the regulatory community, regular meetings could be held with EPA and the Alabama Department of Environmental Management to regularly update them on Program progress and to resolve any issues. This action could lead to greater regulatory understanding and support at critical times in the Program. Another good example is the environmental community. While often more challenging to achieve the environmental community's understanding, it is critical to success of the County's program.

While developing and implementing stakeholder education and involvement programs is not necessarily expensive, it would involve the active participation of ESD staff and its consultants.

Conclusions

Jefferson County has a huge opportunity to learn from the investments made and actions taken over the past seven years. Taking a leadership role in water management, both

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within the County and ESD, can radically change the future outcome. Failure to make the needed changes produces the discouraging outcome of ever-increasing sewer rates, with little hope of improvement. Sewer rates in the high burden range will become a deterrent to future growth prospects for the County.

Hopefully, this report will be seen as a positive call to act on difficult issues, which will require some outside help and the collective wisdom of the leadership of Jefferson County.

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1

Introduction

The Jefferson County Consent Decree (CD) focuses on the collection system and the wastewater treatment plant rehabilitation and capacity improvements needed to provide peak wet weather conveyance and treatment capacity sufficient to eliminate overflows and bypasses.

BE&K Scope of Work

The Jefferson County Commission ("County") retained BE&K Engineering Company ("BE&K") on December 23, 2002 to lead a review and evaluation of the current status of the Jefferson County Sewer Improvement Program (the "Program") and to advise the County on program management and constructibility issues the County should consider in completing the Program. To the extent that BE&K's review determined that the currently available funding would not permit the completion of the entirety of the Program, BE&K was to suggest funding recommendations and to rank the remaining portions of the Program in order of importance.

The County Commission asked BE&K to prepare a detailed review of the Capital Improvement Program (Program), which the County had designed in order to meet the requirements of the CD by means of a report defining the status of the design and construction work performed to date including analysis of:

- The Program work that the County required in order to comply with the CD
- The Program work that the County required in order to comply with other environmental standards
- The Program work that was otherwise categorized by the Environmental Services Department (ESD) as an ongoing capital improvement Program

The County also asked BE&K to prepare a report defining the design and construction work remaining to be performed as a part of the Program. This report was to include an analysis of:

- The portions of the existing Program that remain in order to achieve compliance with the CD
- The portions of the existing Program that remain in order to achieve compliance with environmental standards
- The portions of the existing Program that remain in order to accommodate economic development in Jefferson County and the adjacent cities or other political subdivisions

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The County also asked BE&K to evaluate the financial status of the Program and offer recommendations concerning the Program work that remains. The County asked BE&K to prepare a report evaluating the financial status of both the works performed to date and the remaining works to be performed including:

- The presentation of financial statements forecasting operations and the financial condition of the Sewer System including a comprehensive financial review of the Sewer System operations since the approval of the CD detailing the significant operating, capital improvement, and maintenance costs; and
- A recommendation for the financing of the Program, including an analysis of the alternatives available for distributing the burdens of any increases in costs and a comparison of what approaches have been adopted in other communities.

Finally, the County asked BE&K to review the costs of the Program works performed to date in relation to benchmarks from other municipal or county systems.

BE&K has been careful to avoid replicating the work of the engineering consultants retained by the County to define what work is required in order to comply with the CD, while preparing a comprehensive report on the status of the defined Program and recommendations with respect to the most cost-effective means to accomplish that defined Program. Thus, BE&K has not verified that the Program, if completed, would comply with the CD, since that determination has been reached by the County in consultation with its other experts. BE&K has also been careful to avoid replicating physical studies conducted by the County and has thus accepted those studies and the findings of other professionals engaged to review and interpret those studies.

During the course of BE&K's work, the ESD recognized that funding limitations would preclude the completion of the entirety of the Program absent additional sources of funding. As a result, the County determined that the funding for the Program would be limited to the amount already funded. This position required ESD to scale back the Program by halting or deleting certain projects. BE&K then undertook to evaluate those projects that were discontinued, abandoned, or otherwise not started as a product of the County's financial limitations.

Through in-depth interviews with ESD staff and the involved consultants and through BE&K's analysis of various project documents, BE&K explored the importance of the various projects to the County's ultimate goal of timely meeting the requirements of the CD. BE&K inquired of the consultants with respect to their opinions concerning the relative merit of continuing these projects either in whole or in part. In each instance, BE&K tested both the ESD staff and the consultants by exploring the bases for the ESD staff and consultant's determination that a project was either necessary in order to meet the CD, was partially necessary in order to meet the CD, or was not necessary to meet the CD (although the project would need to be undertaken at a later time in order to address defects in the sewer system). Based on that categorization of (1) Necessary, (2) Partly Necessary, and (3) Not Necessary, BE&K then assigned the following essentially arbitrary percentages to the respective projects that were remaining in the County's originally designed Program.

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Necessary	100%
Partly Necessary	50%
Not Necessary	0%

Based on these assessments, BE&K was then able to determine a rough order-of-magnitude anticipated cost for the projects remaining within the Program that would need to be accomplished in order to meet the goal of the original Program—meeting the CD.

BE&K has prepared this report for the Jefferson County Commission. This report is not intended to be utilized by parties other than the Commission, or referred to in any prospectus or official statement promoting or relating to the sale of the project or any financing effort related thereto. The financial projections presented herein are a function of the underlying assumptions about future events and conditions that may face the Jefferson County Sanitary Sewer System. While it is believed that the assumptions underlying the projections are reasonable, actual events and conditions will vary from the assumed events and conditions and such variance may cause actual financial results to be materially different from projected financial results.

With the Commission's approval, BE&K retained CH2M HILL for technical advice and Porter, White & Company and the Public Affairs Research Council of Alabama (PARCA) for financial advice.

The BE&K scope of work included assembling the findings and recommendations into a formal report for presentation to the Commission. This report provides an analysis of the County's execution of the overall capital improvement program as well as an analysis of the project management techniques utilized by the ESD. The findings and recommendations provide our opinion of the most cost-effective path forward to complete the Program.

Information Sources and Overview of Methods

The BE&K team began detailed meetings with the ESD staff in January 2003. Porter, White & Company, PARCA, and CH2M HILL were mobilized in February. The local sources of information included:

- ESD Staff
- ESD Consultants (ESD employed more than thirty consultants who provided services including studies, design, construction inspection, project management, flow analysis, and as-built drawing analysis services.)
- Jefferson County Finance Department
- ESD and Finance Department Files

The ESD, the Finance Department, and the consultants were helpful and cooperative. The BE&K team had sufficient access to review necessary files and documents. The County

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departments granted access to the required County employees and consultants' personnel as needed by the BE&K team.

Information for the BE&K report was gathered by detailed document reviews and interviews. Document reviews were held in the ESD offices, the Finance Department offices, the consultants' offices, at construction sites, and in the BE&K office. ESD furnished BE&K with information concerning the CD, including background studies and reports. Interviews were held at ESD offices, the Finance Department's offices, construction sites, and consultants' offices. As noted, BE&K was not asked to verify existing engineering data or generate new primary engineering or site investigation.

The BE&K Report

The BE&K report consists of the executive summary and fifteen sections that describe the background, observations, findings, and recommendations for each section. Each report section, including the methods utilized to gather information, is outlined below:

1. Introduction – This section describes the BE&K scope of work, the methods utilized to obtain information, and a brief summary of each report section.

2. Estimated Cost to Complete Program – This section contains BE&K's assessment of the projects identified by ESD that are required to complete the Program and provides the estimated cost for completion of the Program with those projects. BE&K's assessment was based on documentation and interviews with ESD staff and their consultants, review of the current estimate furnished by ESD and their consultants, and reviews of the CD.

3. Cost and Schedule Management – This section describes the present project control procedures as reported to us and contains recommendations to improve cost and schedule management practices currently in use by ESD. The information was obtained by direct interview with ESD staff and County consultants. The current County methods were compared with methods utilized by other local governments and by the many private owners when managing large programs.

4. Value Engineering – This section contains recommendations for establishing a pro-active value engineering process and provides the results of two value engineering sessions held with ESD staff and selected consultants.

5. Strategic Planning – The strategic planning section contains recommended actions to implement a Jefferson County capital improvement program strategic planning process. The information and recommendations contained in this section were obtained by comparing Jefferson County's ESD Planning processes with other large local governments planning processes.

6. Program Management – This section contains recommended actions for effective management and control of the remainder of the Program. The information and recommendations contained in this section were obtained by comparing Jefferson

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County's current program management processes with program management processes utilized by other large governmental entities that have executed major programs.

7. Technology Utilized for the Consent Decree Program – This section compares the process technology utilized by ESD with process technology utilized by other large wastewater utilities. Technical experts from CH2M HILL reviewed the design basis (where available) and design information. They interviewed ESD staff and County consultants to understand the process technology utilized to comply with the Program. The BE&K team prepared its findings and recommendations after comparing the technology used by ESD with technology used by other large governmental entities.

8. Product Review Committee – This section reviews the procedures and operation of the Jefferson County Product Review Committee. It compares the County's procedures with those of similar committees formed by other municipalities in response to Consent Decrees. The information was gathered by direct interviews with the chairman of the Product Review Committee and a member of the Product Review Committee and from documentation supplied by ESD.

9. Contracting Methods and Administration – This section contains recommendations regarding current ESD contracting procedures and compares the ESD practices for awarding professional services contracts and construction contracts with practices reported to be used by other local governments. The information was obtained by direct interview with ESD staff and selected consultants.

10. Comparison of Unit Pricing with Other Locations – This section contains a comparison between the costs Jefferson County paid for selected work with the costs paid by surrounding municipalities for the same work. The Jefferson County information was obtained by reviewing Jefferson County construction contracts and bid documents. The BE&K team obtained information from surrounding communities through direct contact with the community or its program manager.

11. Sewer Rate Comparisons – This section compares Jefferson County and thirty-one municipalities/counties. The comparisons include sewer and water rates, medium household income, sales tax, ad valorem taxes, and total tax burden. The information was obtained by direct phone interviews, Internet document searches, and review of recognized industry publications regarding rates.

12. Historical and Perspective Financial Review – This section contains a review and analysis of Jefferson County's financial performance while executing the Program. It specifically addresses the bond offerings, the operations, and the maintenance cost. Information was obtained by reviewing documents obtained from ESD and the Finance Department.

13. Alternative Funding Methods – This section contains recommendations for alternative program funding methods. The BE&K team believes that there is not enough funding presently available to complete all the projects necessary to comply with the Program.

14. Alternatives for Expansion – This section contains recommendations for developing plans to fund expansion of the sewer system to accommodate future growth.

15. Public Awareness/Involvement – This section provides our recommendations for future Community Relations efforts in connection with the Program.

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2

Estimated Cost to Complete the Consent Decree Program

Introduction

The Jefferson County Commission requested a report that would assess and estimate the remaining design and construction work required to satisfy the Program by September 2007. This report analyzes the remaining portions of the existing program required to:

- Achieve compliance with the CD.
- Achieve compliance with the Clean Water Act (CWA).
- Accommodate economic development in Jefferson County.

This section of the report describes the estimated cost of the work remaining to complete the CD.

1. It recognizes that in April 2003, ESD changed the manner in which rehabilitation projects would be implemented. The County Commission told ESD at that time that the County did not intend to borrow any additional funds and that ESD should react accordingly to this change in direction. ESD then directed the consultants to repair only the defects listed in the Sanitary Sewer Evaluation Survey (SSES) documents. At that same time, ESD directed the consultants not to repair any additional defects discovered during the television inspection investigations undertaken after the CD was in place unless the defect involved an automatic bypass, an overflow, or a collapsed pipe.
2. It assumes compliance with current environmental regulations.
3. It assumes no funding for expansion of new sewer lines to unserved areas of the County.

This section also contains a description of the methodology utilized to gather the supporting information on which our conclusions are based.

Background

ESD, through Dawson Engineering, maintained the expenditure and expected total cost records of the Program. Our review of the Yearly reports and the Birmingham News articles for estimated total costs for the ESD Capital Improvement Program (Program) provided the following information:

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- Continued increases in the estimated total cost of the Program.
  - — 1996 – estimated Program cost of $250 million to $1.2 billion (this information was obtained from the Birmingham News).
  - — 1999 – estimated Program cost of $1.5 billion (obtained from the FY 1999 report)
  - — 2000 – estimated Program cost of $1.91 billion (obtained from the FY 2000 report)
  - — 2001 – estimated Program cost of $2.42 billion (obtained from the FY 2001 report)
  - — 2002 – estimated Program cost of $2.44 billion (obtained from the FY 2002 report)
  - — 2003 – estimated Program cost of $3.05 billion (obtained from the FY 2003 report)
- All yearly increases were large except the increase from 2001 to 2002. This was primarily due to projects being deleted from the report in 2002. We noted that the majority of the projects deleted in 2002 were returned to the 2003 report, and there was a large increase in the total forecast Program cost.
- The 2003 FY report provided the Commission with a total projected cost. Previous reports did not add up the totals. It was left to the reader to add the numbers in order to see the total forecast.
- No comparisons were made between the current estimate and any Program budget or previous estimates.
- No comparisons were made between the current estimate and the Waste Treatment System Capital Improvement Plan (WTSCIP) estimates submitted to the EPA as part of the CD project. ESD submitted seventeen (17) WTSCIP amendments to the EPA. The estimated total cost for the WTSCIP amendments submitted to EPA is $1.5 billion.

The Jefferson County Commission retained the BE&K team in December 2002 to review the Program. BE&K mobilized its team in late January and began meetings and interviews with the County staff engineers and consultants. BE&K notified the County Commission in late March 2003 that the County had insufficient funds to complete all planned CD, CWA, and expansion projects.

BE&K recommended that fifteen expansion projects that had been awarded be cancelled after ESD completed a cost benefit analysis to determine if enough money could be saved after cancellation costs to justify the action. This recommendation included five construction contracts and ten consultant contracts. BE&K was subsequently notified that the County cancelled two construction expansion projects and reduced one construction expansion project in scope in an effort to achieve cost savings. ESD then began prioritizing projects in order to best utilize the remaining funds. The County determined that the two remaining construction contracts valued at $2.6 million had progressed too far to provide enough savings to justify cancellation. The County projects settlement payments of $15 million for the two construction contracts that were cancelled. In March 2003, when BE&K recommended that the County consider cancellation of these two particular contracts, one had not started and one was judged to be less than five percent complete. The BE&K team did not participate in the cancellation negotiations for these two contracts. Nonetheless, an analysis of these contracts established that the County would have enjoyed substantial savings had the contracts contained cancellation clauses. In addition to the five construction contracts, BE&K recommended that the County consider cancellation of ten consultant contracts. The County cancelled five consultant contracts but ultimately decided not to cancel four design contracts and one study contract with consultants. The contracts the County decided not to cancel were to study and/or design expansion projects for which the construction portion of the project had been canceled; therefore, these study and design contracts were for work that would not be done. These non-cancelled consultant contracts were valued at $3 million. Although the consultant contracts contained language allowing the cancellation for Owner's convenience, ESD chose to allow the consultants to complete these contracts.

In the spring of 2003, the County Commission announced that it did not intend to borrow any additional funds. ESD responded by prioritizing the remaining work and eliminating all projects that could not be completed within the existing funding. At that time, ESD asked all consultants to review their respective projects and eliminate all scope that was not specifically mentioned in documents sent to EPA. The consultants responded to ESD's request and worked with ESD to eliminate all scope not identified by the documents sent to EPA. This included the elimination of approximately $212 million in rehabilitation and replacement scope previously identified by ESD as being required for compliance with the CD. The scope eliminated from the current work covers defects discovered after the SSES documents were transmitted to EPA. The defects are not believed to be contributing to current overflows or to be in imminent danger of collapse. All items discovered to be contributing to overflows or in danger of imminent collapse are to be repaired as part of the CD Program. This remains the current course of action.

In a letter dated May 13, 2003, describing the cost reductions by ESD, Mr. Jack Swann stated, "Everyone involved in these project reductions should keep in mind that we are not cutting 'fat.' We are cutting projects designed to eliminate actual known sewer overflows. The reduced program may be able to comply with a minimal interpretation of the CD, but it will certainly not 'eliminate all overflows.'" This position was stated again at the July monthly meeting with the Citizen's Advisory Committee. In the letter, ESD explained that it had evaluated and revised the projects and was doing only the work listed, totaling $172 million. These contracts/projects are listed in Appendix 2. It does not appear that ESD undertook a risk analysis to determine what the risk of not meeting the CD would be if these portions of the County Program were reduced in scope and/or put on hold.

For our assessment, the BE&K team proceeded to evaluate the rescoped projects and their importance by meeting with ESD staff engineers and six of the consulting engineers responsible for the detailed design of the 163 remaining construction subprojects. The subprojects are portions of the project as they are separated for contract bid packages. These meetings included:

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- Review of the history and technical requirements for the individual subprojects. Were there structural failures, overflows, backups, included in the CD as SSES defects, leading to identification of the subproject?
- Determination of the level of confidence that the consultant engineer and ESD staff engineer have in the current cost estimate. All current cost estimates have been furnished by ESD and their consultants.
- Determination as to whether each particular subproject was required in order to comply with the CD.
- Determination as to whether the subprojects reviewed made up the entire Program.

The six consultants BE&K met with are responsible for the design of 83 percent (135 of the 163 construction and bio-solids subprojects) of the remaining construction and bio-solids subprojects previously identified by ESD. The six consulting firms are:

- F. W. Dougherty Engineering and Associates, Inc.
- Paul B. Krebs and Associates, Inc.
- Hendon Engineering Associates, Inc.
- Gary L. Owen and Associates, Inc.
- USInfrastructure, Inc.
- Volkert and Associates

After the BE&K team meetings with the consultants listed above, ESD also furnished written descriptions of fourteen additional CD and CWA subprojects.

These fourteen projects are assigned to the following design consultants:

- Dawson Engineering
- R. K. Wilson & Associates
- George Putnam & Associates
- Gresham Smith & Partners
- Sain Engineering

The BE&K team reviewed (93 percent) 152 of the 163 remaining construction and bio-solids subprojects. In addition, the BE&K team reviewed the associated construction inspection and television inspection subprojects supporting the construction subprojects. The list of contract/projects can be seen in Appendix B.

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The 163 remaining construction and bio-solids subprojects are delineated as follows:

- 67 are collection system rehabilitation projects ESD identified as CD projects. The BE&K team reviewed all 67 subprojects.
- 29 are collection system replacement projects ESD identified as CD projects. The BE&K team reviewed 24 of the 29 subprojects.
- 42 are collection system replacement projects ESD identified as CWA projects. The BE&K team reviewed 39 of the 42 subprojects.
- 8 are collection system pump station projects ESD identified as CWA projects. The BE&K team reviewed all 8 subprojects.
- 7 are wastewater treatment plant projects ESD identified as CWA projects. The BE&K team reviewed 5 of the 7 subprojects.
- 10 are bio-solids management and sampling projects ESD identified as CWA projects. The BE&K team reviewed 9 of the 10 subprojects.

Evaluation Process

The primary assumption of the evaluation is that the completion of the remaining work (subprojects) in the ESD Program will fulfill the intent of the CD and the CWA. BE&K met with ESD staff engineers and the appropriate consultants as noted above in a series of meetings and reviewed the consultants' remaining projects as described above. The review included background and technical purpose discussions about groups of projects or specific projects. This process allowed BE&K to collect and rank the subprojects and assess the risk of not meeting the CD mandates if the subproject, or any element of the subproject, was delayed or cancelled. We based our assessment on the comments and information received from the design consultants and the ESD staff. Our review also included discussions about the current cost estimate prepared by the consultants in order to permit BE&K to assess the risk associated with exceeding the current cost estimate. Although BE&K was unable to verify the quantities provided by the consultants, the unit prices in the estimates were reviewed to ensure that current unit rates were being utilized.

Following each meeting BE&K reviewed the comments received from the ESD staff engineers and the design consultants, in order to collectively assign a risk value for each project. The selected rating system focuses the County's assessment of whether a project is required by the CD and determines the level of risk of cost overruns incurred during engineering and construction. Outlined below are the details of the rating system BE&K utilized.

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A. *Is the project required to comply with the Consent Decree?*

If the BE&K team determined (based on the comments from ESD and the consultants) that an entire subproject was required to meet the CD, the project was rated an A project. If a project is rated an A for CD non-compliance, 100 percent of the current cost estimate is utilized in the forecast in order to determine the funding requirements for the CD Program. The following described project types, if not constructed, would be considered an A rating for CD non-compliance:

- Sewer rehabilitation projects for correction of defects identified during the SSES as submitted to the EPA are required by the CD.
- Projects that correct a known overflow point, are required by the CD. The CD listed automatic bypasses (overflows) and the SSES listed specific point repairs.
- Projects that correct a pipe currently under capacity (that could lead to an overflow at an upstream location) are required by the CD. The SSES documents and Capacity Analysis documents submitted to the EPA identified specific pipes to be replaced. Additional investigation by ESD and the design consultants revealed additional pipes that should be replaced.
- The CWA requires correction of known structural defects such as collapsed sections of pipe. These projects are also required by the CD. Structural defects were identified in the SSES. Others were identified by EDS and the design consultants after the CD program began.

A total of 355 subprojects have been identified by ESD that need to be considered in the evaluation as the remainder of the Program. These include construction, design, inspection, ROW acquisition, project management, television inspection, testing, and bio-solids management as well as SIMS implementation contracts for both the collection systems and the wastewater treatment plants.

Applying the above criteria, 280 contracts were ranked as an A for CD non-compliance.

If the BE&K team determined (based on the comments from ESD and the design consultants) that only a portion of the project was required to meet the CD, then the project was rated as a B project. For a project rated as a B for CD non-compliance, 50 percent of the current cost estimate was utilized in the forecast of funding requirements for the program. The following described project types, if not constructed, were considered a B rating for CD non-compliance:

- Projects in which pipe(s) flow(s) is/are at or near the rated capacity of the pipe(s) but has/have not yet caused documented overflows.
- Projects in which a portion of the scope of the project is required in order to comply with the CD.

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- The projects not reviewed by the BE&K team included 11 construction contracts, and their associated inspection contracts. These contracts account for approximately four percent of the remaining work.

In applying the above criteria, 57 contracts were ranked as a B for CD non-compliance.

If the BE&K team determined that a project was not likely to be required to meet the CD, the project was rated as a C. For a project rated as a C for CD non-compliance, none of the current estimate was utilized in the forecast of funding requirements for the CD Program. The following described project types or defects, if not constructed, were considered a C rating for CD non-compliance:

- Defects discovered during Television Inspection after the SSES was performed. These are not active overflows. They are not in danger of causing immediate collapse or an overflow.

- Projects that may be required in the future to comply with the CWA.

In applying the above criteria, 18 contracts were ranked as C for CD non-compliance.

All projects or portions of projects rated as a B or C will likely have to be constructed at some time in the future to comply with CWA provisions. The ESD staff and their consultants must evaluate the scopes of these individual subprojects and assign a construction priority and completion timing for those designated as B and C. BE&K assumed that all identified defects not associated with the CD in the Jefferson County sewer system will need to be constructed by the year 2017. Therefore, all projects identified as CWA by ESD, and not associated with the CD, are to be forecasted as a capital expense to be incurred between 2008 and 2017. The team assumes a ten-year program to complete all identified B and C projects.

B. What is the risk that the project will exceed the current estimated cost?

The BE&K team reviewed the ESD consultant's estimated cost for each selected subproject with ESD staff engineers and consultants. Cost estimates, which were provided by ESD or by the consultants, were verified as being current. During discussions about the risk of overrun the design consultants or ESD staff engineers classified each project risk. The classification was numerical and ranged from 1 to 3, with (1) being the highest and three (3) being the lowest.

In cases where BE&K determined (based on the comments and documentation received from the ESD staff and the design consultants) that a project could exceed the current cost estimate, the project was rated as a one (1). If a project was rated as a one for its potential risk of exceeding the current estimate, ten percent of its estimated cost was added as a contingency. The contingency amount was utilized in the forecast to determine the funding requirements for each subproject in the Program. All CD rehabilitation projects were rated a "one," with high probability of exceeding the current estimate. This was based, in part, on the history of overruns on previously completed CD rehabilitation projects. For example, several major completed rehabilitation projects exceeded the SSES cost estimates as noted several paragraphs below.

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In cases where BE&K determined (based on comments received from ESD staff engineers and consultants) that a project should be rated as a two (2), five percent of its estimated cost was added as a contingency. The few projects not reviewed by the BE&K team received a rating of two (2) for exceeding the current estimate.

If BE&K determined (based on comments received from ESD staff engineers and design consultants) that a project would not likely exceed the current estimate, the project was rated as a three (3). If a project was rated as a three (3) for exceeding the current estimate, no additional funds were added to the funding requirements for the program.

A major contributing factor should be noted in the examples listed below. The County repaired defects not noted in the SSES, but deemed necessary by ESD when the project was executed. The SSES estimates were prepared with reference to defects discovered by conventional smoke and dye testing. Later examination by TVI, which is much more detailed, revealed many additional defects ESD deemed necessary to be repaired. There is currently $17 million in TVI work to be completed in the system. There is a significant potential that this additional TVI will find additional defects in the collection system that were not evident in the smoke and dye testing done for the SSES reports.

- Cahaba system rehabilitation work is complete, and actual cost for the Cahaba system rehabilitation work exceeded the original SSES estimate by approximately 86 percent. There is $5 million in TVI work remaining to be done in this collection system, but no funds are currently estimated to repair any serious defects that may be discovered during the remaining TVI.
- Rehabilitation work in Village Creek is well underway. Most of the work has been bid, and the bid prices exceed the SSES estimate by 165 percent. This overrun is expected to decrease slightly as work is completed and actual cost becomes known. There is $5 million in TVI work remaining to be done in this collection system.
- Rehabilitation work has begun in the Five Mile Creek basin. The bids on early construction packages exceeded the SSES estimate by 132 percent. There is $2.9 million in TVI work remaining to be done in this collection system.
- Rehabilitation work has begun in the Valley Creek areas. The bids on the early construction packages exceed the SSES estimate by 165 percent. There is $4.4 million in TVI work remaining to be done in this collection system.
- The Turkey Creek rehabilitation work is projected to exceed the original SSES estimate by approximately 10 percent.

As a cost cutting measure, ESD has directed their consultants to design repairs only for those defects listed in the SSES. The ESD's new approach results in fewer repairs and lower cost estimates. However, the past history of project performance suggests that this approach poses a high risk of failure with a potential for significant overruns.

Observations

The BE&K team observed the following during discussions with ESD staff engineers and the consulting engineers:

Compliance with the CD has been defined by ESD and the design consultants as:

- Accomplishing the work specifically defined in the CD or referred to in the CD. This relates to removing all the bypasses, constructing peak flow facilities, and repairing all defects listed in the SSES reports.
- Eliminating all Sanitary Sewer Overflows (SSOs). ESD staff engineers, design consultants, and BE&K agree that SSOs occur for a variety of reasons and that it is nearly impossible to eliminate SSOs caused by vandalism (for example, intentionally filling manholes with debris or removing manhole covers) or extreme acts of nature (for example, hurricanes and extreme rainfall events).
- The ESD staff engineers and consultants are confident that the work described in the CD can be accomplished by September 2007
- ESD has proposed to complete the CD Program based on the amount of currently available funds ($172 million). This proposal is apparently in response to a mandate received from the County Commission to limit spending to the funds currently available. The decision to limit the value of the scope to $172 million poses a high risk of failing to comply with the CD. BE&K estimates the cost to complete the program is $550 million without contingency.

The 152 construction and bio-solids contracts evaluated by the BE&K team equate to 96 percent of the estimated value of the 163 remaining construction and bio-solids contracts. In addition, there are 192 contracts for construction inspection, testing, geotechnical investigation, design, television inspection, and project management activities, bringing the total number of contracts to 355.

Work to be Completed Following the Consent Decree

ESD and the consultants have identified many defects that will not be repaired under the Program. These defects are not thought to be serious enough to require repair while the current funding constraints are in place. However, they may become serious in the future with the potential for damage like structural collapse, overflows, and backups that would require repair in order to comply with the CWA. As the BE&K team reviewed the known subprojects with ESD and consultants, projects not required to be executed under the CD Program were discussed. The current ESD plan is to perform those projects at a later date when funding is available. At this time, there are approximately $246 million (in 2003 dollars) in projects with known defects to be repaired in the future. The makeup of these projects is as follows:

- $212 million in rehabilitation and replacement projects previously identified by ESD and consultants as being required for compliance with the CD. As discussed earlier in this report,

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only those defects noted in the SSES plus any current known structural collapses or overflows are being repaired at this time.

- $15 million in replacement projects previously identified by ESD and consultants as being required for compliance with the CWA.
- $11 million in wastewater treatment plant projects previously identified by ESD and consultants as being required for compliance with the CWA.
- $8 million in ROW and support activities for the projects noted above.

The BE&K team recommends that ESD and the consultants prioritize these projects based on the severity of defects and implement repair in a phased plan beginning in 2008 and ending in 2017. This will require funding of approximately $25 million per year excluding contingency and escalation. The $25 million per year for ten years has been used to calculate future sewer rates in the financial model.

BE&K also reviewed Capital Maintenance requirements for the future. Capital Maintenance is similar work to the projects currently being done. It will involve rehabilitation and replacement of existing lines, pump stations, and portions of treatment plants. Approximately 30 percent of the collection system has been replaced or repaired by the work completed under the Program. Each year additional major repairs will be needed to maintain the system's integrity and prevent a situation that would initiate another CD. ESD is currently planning to spend approximately $35 million per year as required for Capital Maintenance projects including repair of collapsed pipes, minor replacement projects, and point repairs. The $35 million appears reasonable based on BE&K's experience, and this figure has been used to calculate future sewer rates. As a comparison, Atlanta's capital maintenance budget for a similar sized system is approximately $40 million.

ESD has agreed in the CD to use television inspection (TVI) to inspect all sewer lines every ten years. BE&K has reviewed the cost data received from ESD and the consultants and has included $4.5 million per year in the annual capital budget to cover the estimated cost of television inspection. This is also included in the rate calculations in the financial model.

Summary of the Jefferson County ESD Capital Improvement Program Cost

The total amount of funds committed (contracts and purchase orders issued to date) is $2.165 billion. ESD projects savings of $33 million as a result of the cancellation and reduction of scope of the eight contracts noted earlier. ESD has reported that they have recently reviewed more than 300 existing contracts and determined that the contractors will not expend all of the funds committed on their contracts. ESD forecasts a $53 million savings for the County. The total committed funds will be $2,079 billion, once all the change orders are written, reducing the cost of the 300 existing contracts.

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Committed Funds for Program

Committed Funds to Date	$2,165
Project Savings from Cancelled Contracts	<$33>
Projected Savings form Completed Contracts	<$53>
Total Committed Funds	$2,079

(All funds in millions)

BE&K believes satisfying the requirements of the Program will cost an additional $550 million. This estimate was provided by the ESD and their consultants and based on the reduced scope of work required to correct known overflows or repair defects specifically mentioned in documents sent to the EPA (specifically the SSES reports). Based on comments received from ESD and the consultants in the project review meetings described earlier in this section, BE&K calculated using a weighted risk analysis that a minimum contingency of $40 million should be established in order to complete the Program. This includes unknown defects that will be discovered during the course of prosecuting the work and/or as a result of the (TVI) television investigation. This is an aggressive estimate and contingency. It will be difficult to achieve.

Re-Estimated Cost of the Project to Complete the Program

Summary of Current Program Financial Status			
	Committed to Date	Future Cost	Total Projected Cost
Current Status	$2,079	$590	$2,669

(All funds in millions)

The total re-estimated cost of the work to complete the risk weighted Program is $590 million including contingency. However, further investigation identifies $246 million in scope, which although unnecessary to satisfy the Program, will still need to be completed within ten years of the CD's completion due to the nature of defects and the aging of the remainder of the system.

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Funds Available for the Program

The total reforecast of funds available for the County CIP is $2.304 billion.

Interim Report	$2,301
Accrued Interest through July	$3
Total Funds Available for CIP	$2,304

(All funds in millions)

Additional Funds Required to Complete the Program

The total cost of the Capital Improvement Program is estimated to be $2.669 billion, with $2.304 billion funding currently available. Therefore, an additional $365 million, at a minimum, will be required to fund the amount of work that BE&K recommends be completed to satisfy the Program.

Funds Available for CIP	$2,304
Total Projected Cost	$2,669
Additional Funds Required	($365)

(All funds in millions)

These calculations do not take into account the use of the bond reserve fund. This issue is discussed further in Section 13.

Findings and Recommendations

Finding 2-1

ESD, in response to a mandate from the County Commission to limit expenditures, has proposed completing a limited number of contracts/subprojects required to meet the CD. ESD has estimated these contracts/subprojects and all supporting activities will to cost $172 million. BE&K's review of all remaining contracts/subprojects (355 total) with ESD and the consultants identified 337 contract/subprojects valued at $590 million (including contingency) needing completion to satisfy the Program with a manageable degree of risk.

Recommendation 2-1

The County should determine the level of acceptable risk they want to assume and the amount of financing available to complete the Program. BE&K recommends funding and completion of all of the contract/subprojects evaluated in the analysis as required to complete the Program be funded and completed.

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Finding 2-2

ESD does not have sufficient funding to complete the projects that BE&K recommended. Completion of the Program will require approximately $365 million in additional funding. We assumed this can to be financed by additional borrowing.

Recommendation 2-2

The current financial model assumes that the County will continue to utilize revenue bonds to finance the completion of the Program. Alternative funding methods for this scope are addressed in Section 13.

Finding 2-3

ESD currently contemplates starting the repair of defects that are not associated with the CD in 2008 if adequate financing is available. The current estimated cost for the repairs of known defects that ESD plans to carry over to the period 2008-2017 is approximately $246 million (in 2003 dollars).

Recommendation 2-3

The County must prioritize the defects of the repair work noted above and use the prioritization to manage available cash flow. The current financial model assumes that the County will continue to utilize revenue bonds to finance the completion of the Program work. Alternative funding methods for this scope are addressed in Section 13.

Finding 2-4

BE&K has calculated a $40 million contingency based on the risk analysis model utilized. This is, in total, a 7 percent contingency. The past history has demonstrated consistent cost overruns of previous estimates.

Recommendation 2-4

This level of contingency may be appropriate to utilize for financing purposes in order to ensure that the County does not borrow more funds than it needs. However, it will take an aggressive program and cost management and few surprises in the scope of the work to accomplish this goal. The County should have a backup plan for additional financing near the end of the Program. The reporting of work progress in a cost management system with active monthly forecasting will ensure that the County Commission is apprised of the Program status as it develops.

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3

Cost and Schedule Management

Introduction

The focus of this section is the cost and schedule management process currently in place. The findings and recommendations result from our comparison of those processes in place with industry standard practices and processes for similar programs of this magnitude.

Background

ESD and the County Finance Department maintain the financial records for the Program. ESD also, through its consultant, Dawson Engineering, maintains a database that is used to track the cost committed on purchase orders, spent to date, future cost, and cash flow. The County Finance Department receives the purchase orders, tracks invoices against the purchase order amount, makes payments, and tracks the amount remaining to complete the purchase order. The Program schedule is managed and maintained by a consultant, Environmental Services Associates.

Cost Management and Reporting

BE&K worked with ESD, the Finance Department, and the design consultants to obtain all historical documentation needed for our analysis and review. The County utilizes decentralized systems to collect this documentation. The County does not have a reporting system that is capable of tracking, reporting, and projecting accurate Program cost and progress. . Furthermore, the system used by the County only permits accounting. The County's System does not permit analysis of potential management decision changes or the modeling of different scenarios or the combination of multiple projects for such analysis.

Dawson Engineering provided a key source of information with its collection and recording of project costs. Dawson updates this database regularly and issues revised reports, as required by EDS. The County uses this database to forecast cash flow. The manual entry method used by ESD and the Finance Department to input costs into this database allows for avoidable error and resultant misreporting.

BE&K reviewed the documentation and systems at the County Finance Department to determine account recording and payment procedures. Data is not recorded in a single system. The County's use of a single system for data entry could reduce errors and duplication of work for both ESD and the County Finance Department. In addition to permitting more errors in data

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entry, the current system has the compounding problem that errors are difficult to correct. These difficulties result from the advanced age of the software. Even with a list of all the errors identified in the current database, the County Finance Department has made no attempt to correct its records. As a result, ESD cannot rely on the County Finance Department database.

Schedule Control

BE&K has analyzed the overall program Schedule and believes CD dates can be met. We used a logic-driven Critical Path Method schedule to track all engineering design, ROW acquisition, and construction activities underway or yet to be awarded. This logic-driven schedule can also serve as an excellent tool for prioritizing CD and CWA projects not yet awarded.

The schedule used by Engineering Service Associates, Inc. reflects neither all remaining work to be completed nor all steps necessary to achieve completion. It is not logically tied to CD completion dates and does not allow for float calculations (float being the time available before an activity becomes critical and delays the project past CD completion dates). This schedule makes it difficult to forecast the impact of individual changes as they are made because all the activities and contracts required to complete the work are not included. In the past, many contractors have requested and received long schedule extensions. In the future, schedule extensions should be granted only with reference to a logic-driven master Critical Path Method schedule. This schedule can also provide a schedule-driven cash flow tool.

Observations

We found more than 500 discrepancies, between data recorded at the Finance Department and ESD. These discrepancies included duplications and errors in cost data. Many of the corrections that were made to the database were in the tens of million of dollars with the sum of the individual changes totaling over $100 million. Many of the changes, by coincidence, tended to offset each other. The net change after correction of the errors was $9 million. The majority of the errors and inaccuracies proved to be contained in the Finance Department records. (Note: Dawson disagrees with this assessment.)

ESD and the Finance Department do not collaborate regarding correction of the errors. We were not able to identify the individual responsible for the overall accuracy of the cost reporting effort. These errors flow through to the ESD Capital Improvement Program annual reports.

The lack of readily available, accurate information hurts ESD's capability to manage the Program. To conduct our review, we were forced to undertake multiple interviews and reviews of documents, including the Commission Minute Book in order to determine how individual projects relate to the total Program. Once a bid has been accepted by the Commission, the estimated value, which BE&K would have designated as a budget, is replaced by the bid amount; thus losing any ability to forecast overruns/underruns to a budget. We have been unable to determine who is responsible for the budget. The ESD management has stated on numerous occasions that they do not have a budget, only an estimated cost of the known work. A single-entry database would allow ESD to track and report alterations and impacts of potential changes required to the Program. With such a system, models can be developed and reviewed quickly with immediate reporting of funding or timing requirements.

Regarding the schedule, there does not appear to be a priority given to assuring that projects are executed as originally planned. So far, there has been sufficient time to absorb all delays and not impact the Program targets. Management is not receiving any reports that indicate the impact of deviations from the original plan. This trend of delays is contributing to schedule compression and could result in not having enough resources to accomplish the volume of work that could stack up. Should this late start or late finish trend continue, CD completion dates could be impacted, and it is essential that the project team be apprised immediately.

Findings and Recommendations

Finding 3-1

The ESD does not treat the estimated contract values as an approved control budget and report their performance against the budget on a regular basis. The ESD spreadsheet uses a planned project amount as the projected cost. The planned project amount is then changed when contracts are bid/awarded or when change orders are approved. When these changes take place, this original planned project amount is superceded by the revised amount. The use of this approach by ESD results in the contract awarded amount always being the only amount left on the spreadsheet. Because the original planned projected cost is not retained on the spreadsheet, no analysis of whether projects are under, over, or on budget can be determined. This practice does not give the Commission an accurate comparison of the bid price against the approved budget.

Recommendation 3-1

The current estimate of all work to be completed to comply with the Program is approximately $2.67 billion (including the minimum contingency recommended by BE&K). We recommend that the County adopt this amount as the program control budget. The establishment of a program control budget with approval and acceptance by the County Commission, ESD, and the involved consultants is essential to the success of the remainder of the Program. Establish a separate control budget for each contract or activity. The industry practice is to have management maintain a control budget for the Program. This control budget must then be reported against on a monthly basis so that ESD and the Commission know exactly where they stand with remaining funds. The cost engineer should advise the Commission prior to every contract award as to how the proposed contractor's bid compares to the amount of money that has been budgeted. If a bid is significantly over budget, the Commission can request that ESD review the scope of work with the contractor and consultant to ensure that any scope reduction available can be utilized while still retaining the integrity of the project. The project control budget is defined as the budget approved by the County Commission.

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Finding 3-2

The Program does not have a centralized cost management and reporting function. Cost management and reporting duties and responsibilities are split among ESD, the Finance Department, and Dawson Engineering.

Recommendation 3-2

Establish a centralized cost management and reporting function (designated as the Program Cost Engineer) and empower that Program Cost Engineer with responsibility for the management of all estimating, cost reporting, and cost management for the duration of the Program. This Program cost engineer would also coordinate with, and ensure that the Finance Department enters data correctly. This coordination effort would eliminate a large number of the discrepancies our investigation found between the two systems of accounting. It is recommended that the Program cost engineer be under the supervision of the County's chosen new Program Manager.

Finding 3-3

The Program does not have an integrated cost system. Each department or organization responsible for Program cost management and reporting manually enters the same data numerous times. This repetitive entry of the same data at different locations is the cause of some of the error in the system of accounting. The County accounting system does not provide for the projection of future costs.

Recommendation 3-3

BE&K recommends that the County implement a new integrated cost management system (Enterprise wide Management Information System—MIS) or facilitate this through the Program Manager's system. The system must feature a "single entry" point for data. A single-entry data system is one in which data is entered only one time into a common purchasing, accounting, and cost database. Single entry of data reduces the likelihood of error. It is our understanding that the current County financial accounting system does not have all the features required to accomplish what a single-entry cost system should be able to do in order to manage a Program of this magnitude. The single entry system begins with the establishment of a code of accounts. The County's current coding system can be utilized for this purpose with some minor modifications. A parallel purchasing system could be utilized in order to facilitate the capture of cost commitments. This could be closely coordinated with the Finance Department, and the Program cost engineer could assist the Finance Department by cost coding the contracts and purchase orders to ensure they are entered into the proper cost code. A parallel accounts payable file will monitor payments by the County to ensure the projections reflect the current amount paid. This would allow the County to continue to issue the contracts and purchase orders and to make all contract payments as they currently do.

Finding 3-4

ESD is not using a regularly issued cost report to forecast costs and keep all parties informed about the current and future financial expectations for the Program. A cost report is commonly used as a tool for experienced Program and Project Managers. The current cost information provides an insight into what has happened in the past. It does not appear that budget discipline has been brought to the Program. A cost report would force that discipline.

Recommendation 3-4

BE&K recommends that the Program Manager prepare and issue weekly and monthly status reports detailing the status of the Program compared to the control budget. The report will document all gains and losses as they occur. The Cost Engineer shall review with the design consultants and the appropriate County ESD staff engineer all potential losses (negative variances). The Program Cost Engineer is then responsible to develop a path forward to minimize the loss on any project. The net sum of gains and losses on the individual subprojects will increase/decrease the projected Program cost but not affect the Program budget. The Program Cost Engineer should use this information on each contract to forecast the likely outcome of the project. Doing this with each contract on a monthly basis will allow management to note and act on the financial trends affecting the Program. The Program Manager will report to the Commission on a monthly (minimum) basis describing any variations from the approved budget. The ESD yearly report prepared by the Program Manager will outline any changes between it and the prior yearly report.

Finding 3-5

Although there have been significant delays in individual project completions since the inception of the Program, the County can attain the Program completion dates dictated by the CD without significant acceleration costs. Our review indicates that contractors involved in the Program have historically not filed for time extensions until the original construction time duration is exhausted.

Recommendation 3-5

BE&K recommends that the Program Manager identify and carefully manage the projects on or near the "critical path" that, if delayed, could cause the County to miss a CD completion date. The ESD staff engineers and independent design consultants should examine critical projects in sufficient detail, frequently enough and far enough ahead to identify impacts that may affect the required completion dates. This will allow ESD staff to make decisions regarding acceleration or other measures that will ensure on-time completion.

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Finding 3-6

The ESD and its current consultant do not maintain a master CPM logic network schedule that reflects all the interdependencies of the Program. Management cannot easily determine if the CD mandates can be met, and the required "critical path" cannot be determined.

Recommendation 3-6

BE&K recommends that the Program Manager create, and update monthly, a comprehensive critical path schedule that reflects all the Program elements. This schedule should include all engineering projects, all construction projects, all bid cycles, all review cycles, all permitting cycles, all ROW acquisition cycles, all start-up/commissioning cycles, and all decision-making cycles. The scheduler should tie these elements, using acceptable logic, to the timing outlined in the CD. This will reveal the amount of "float" each project has and will show the "critical path". The contract time should not be allowed to expire before an extension of time is determined, but delays should be tracked.

Finding 3-7

The amount of time required for ROW acquisition and railroad permitting is difficult to predict. There is a communication problem between the Roads and Transportation Department (which performs the ROW acquisition) and the ESD staff engineers. The Roads and Transportation Department does not know the urgency of a particular project, and the ESD staff engineers do not know the status of the ROW acquisition effort or the issues the Roads and Transportation Department has encountered in its efforts to obtain the ROW.

Recommendation 3-7

BE&K recommends that the ESD staff engineers participate in the monthly update meeting when the Roads and Transportation Department discusses issues associated with ROW and Permit acquisition. This information should then be reflected accurately in the updated Master CPM Schedule.

Finding 3-8

The existing management reports regarding scheduling do not reflect the current schedule status in comparison to a baseline or "target" schedule. As a result, the current report does not disclose whether the work is ahead or behind the original plan. Project schedule durations may actually have too much time allotted. This lack of knowledge is causing increased County indirect costs. BE&K's analysis of the execution window (for projects from year 2000 to date) revealed significant delays of both project start dates and project completion dates. When compared against the original plan for starting and completing each project, 47 percent of the projects started late (by an average of 293 workdays), and 57 percent of the projects finished late (by an average of 147 workdays). These delays were absorbed in the program and have not yet impacted the mandatory completion dates set forth in the CD.

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Recommendation 3-8

BE&K recommends that the Program Manager establish a realistic "Target" schedule against which to measure the current plan and present exception reports to management showing projects that are ahead of, or behind, the target schedule.

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4

Value Engineering

Introduction

The focus of this section is the evaluation of the Program practices currently in place. In comparison with industry standard practices for similar programs of this magnitude, findings and recommendations indicate the lack of a value engineering process.

Value Engineering Definition

Value Engineering (VE) is a systematic approach to identify cost savings without sacrificing the purpose, reliability or efficiency of a project. The VE process can also be used to identify potential functional enhancements of the proposed project. The VE team should consist of design professionals that are proficient in the design areas of interest, (for example, process design, electrical, civil, geotechnical, or mechanical). VE studies should be facilitated by a Certified Value Specialist qualified through the Society of American Value Engineers International. A VE study can be performed anytime during the design phase but it is most effective when performed early in the design so that any accepted recommendations can be implemented easily in the design.

Background

The ESD strategy for implementing the design engineering services required by the Program was, and still is, to work primarily with local design firms familiar with the existing wastewater treatment plants and sewer collection basins. In the past, these firms were generally small at the beginning of the Program, and the principals had many years of experience working with ESD management; however, they were not generally experienced with programs of this size and complexity. ESD staff engineers served as Project Managers for each project, managing and approving the design of the wastewater treatment plants and the rehabilitation of the sewer system. The ESD staff and design firms were responsible for assuring that the design was cost-effective and that the project as designed would meet the intent of the CD.

Observations

We did not find any evidence of a formal VE process. VE is recognized as a construction industry best practice and is a proven method to identify cost savings without sacrificing the intent of a project. VE should be implemented in the early stages (0 to 50 percent design completion) of a design in order to maximize its effectiveness and optimize savings. This is particularly true on large designs such as in the facilities included in the Jefferson County Program. The County has missed the opportunity to optimize value and savings for the completed portions of its Program. However, there are several WWTPS and many rehabilitation or replacement projects that are in various stages of the design process, and the County could still recognize savings by implementing a formal VE process.

The ESD retained approximately thirty (30) local design firms to provide engineering services for the Program. Ninety (90) percent of the engineering was furnished by ten (10) of the firms. The firms appear to have worked independently. ESD staff engineers handled all coordination between design firms.

The BE&K team led VE sessions with ESD staff and consultants in mid June 2003. The BE&K team published the results of these sessions to ESD and to the consultants in "Draft Form" on July 21, 2003. The findings and recommendations from each session are listed in the draft VE reports.

Collection System Value Engineering Results

Introduction

In our recommendation to the County on March 17, 2003, BE&K strongly recommended immediate implementation of a formal Value Engineering process. The primary goal of this process is to determine the optimum execution strategy for the County for the remainder of the Program. Historically, as BE&K and CH2M HILL have discovered on numerous projects, the VE process has produced better technical solutions and lower capital costs.

As noted in the BE&K recommendation, VE is not a process to reduce project cost by reducing project scope. Rather, the VE evaluates cost-saving alternatives that respect the functional requirements of the project or that enhance function within the project budget. The Value Engineering begins with a structured review of proposed technical and implementation approaches to the remainder of the program. Considering the County's current course of action to reduce Program costs by eliminating projects, BE&K believes focused Value Engineering, with its defined goals and direction, will focus on essential Program functions to minimize cost, provide adequate schedule time for execution, and limit risk.

Background

From June 18 through 20, 2003, BE&K performed a VE study on the collection sewer rehabilitation portion of the sewer Program. The purpose of this study was to review the execution strategy and to develop alternatives that would provide the best overall value to the County and guide cost-saving proposals for the remaining I/I reduction and weather control alternatives. The process and major observations were documented for the County's reference and for the design team's consideration as the rehabilitation program moves forward. The VE participants identified five (5) primary goals for the VE study:

- Provide value for the future
- Manage CD compliance risks

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- Reduce cost
- Respect the schedule (linkage to CD, linkage to cost)
- Link short-term and long-term activities to the County's mission and goals

A team of engineering professionals experienced in planning, design, and construction, (and not involved in the County's project design) worked with Dawson Engineering, USInfrastructure, Paul B Krebs & Associates, ESD staff and management, BE&K, and CH2M HILL throughout the formal VE study. The VE team members included professionals with skill sets relevant to the CD and sewer rehabilitation. The VE study leader was an experienced management consultant and was supported by a Certified Value Engineering Team Member. The study followed the plan promulgated by Society of American Value Engineers International, the Value Engineering Society. The three-day study consisted of the following five phases: Information, Creative, Analysis, Development, and Presentation.

During the study, participants discussed the historical perspective and the challenges facing Jefferson County in the 1995 timeframe. One of the major issues that impacted Program costs was the fact that the County took over the municipal systems in the spring of 1998. When the CD was negotiated, the County expected to obtain approximately 9 million linear feet of sewer lines from the municipalities for a total of 12 million LF. However, the County actually took possession of close to 12 million linear feet for a total of approximately 15 million LF. The degree of rehabilitation for the inherited systems was significantly more than expected when the County took them over in 1998, because the systems were in much worse condition than anticipated due to lack of maintenance and annual improvement. Facilitated discussions were conducted on the status of the work with respect to the CD and the performance measures used to assess CD compliance. The discussions also addressed:

- Potential risks of not implementing the CWA projects
- Inflow/Infiltration (I/I) reduction and rehabilitation strategies
- Community concerns
- Project funding constraints and ESD's response
- Summary alternative strategies for the future

An initial list of evaluation criteria was identified to facilitate discussions of alternative strategies. This helped to guide the decision process by the participants. A high level list of 30 alternative strategies was developed by the participants to be used as a framework for brainstorming sessions. The brainstormed alternatives were identified, combined, prioritized, and considered by the participants. The advantages and disadvantages of each alternative were identified, along with their associated risks.

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Observations for the Collection System Rehabilitation Value Engineering Study

As a result of the VE study, the participants identified, discussed, summarized, and prioritized the following proposals for further consideration by ESD:

- Increased in-house maintenance and rehabilitation program
- Continuation of rehabilitation to main lines, using SIMMS data
- Comprehensive smoke testing as a tool to identify and eliminate/minimize illicit connections and key inflows
- Condition assessment of sewer system assets to guide future repairs
- Private lateral rehabilitation
- Enlist the Commission
- Public awareness/involvement program to communicate benefits
- Execute telemetry for pump stations
- Dynamic hydraulic modeling

See Appendix 5 for the full summary and results of the Collection System Value Engineering session.

Five Mile Creek WWTP Value Engineering Study

From June 24 through 27, 2003, BE&K performed a VE study on the 95 percent completed design package, but not yet constructed, Five Mile Creek WWTP project. Typically, VE studies are performed prior to the engineering being 50 percent complete.

The purpose of the VE study was to identify and evaluate potential cost savings along with possible functional enhancements. The VE team documented the major observations of the study for future consideration and reference by the County and the consultants. The VE study included a limited cost estimate review of the $41.8 million estimate in order to suggest areas for refinement as the Hendon design team completes the design. In addition, the VE team evaluated the necessity of each project component to meet the requirements of the CD, CWA, or general plant maintenance requirements not related to the CD or CWA.

The County selected the Five Mile Creek Wastewater Treatment Plant project as an example project for which a VE study should be conducted. A team of engineering professionals, not involved in the project design, worked with the County and the Hendon design staff throughout the formal study. The VE team members included design and construction professionals with skill sets relevant to the Five Mile Creek project, including a Process Mechanical Engineer, Civil Engineer, Structural Engineer, Electrical Engineer, Construction Manager, Cost Estimator, and Certified Value Engineering Team Leader. The study followed the job plan promulgated by Society of American Value Engineers International, the Value Engineering Society. The four-day study consisted of the following phases: Information, Creative Analysis, Development, and Presentation. The Implementation Phase is currently underway to determine the disposition of the cost saving and functional proposals recommended by the VE team.

Observations from the Five Mile Creek Value Engineering Study

As a result of the study, the VE team documented seven (7) proposals in the preliminary review draft report. As many as five (5) of the identified seven (7) proposals could be accepted for a potential initial cost savings of $11,300,000, which is offset by future expenditures for this group of proposals of $8,710,000. The above was calculated according to the present worth methodology assuming a facility life of 25 years, and a discount factor of 3 percent. The net life cycle cost savings for this grouping of proposals is therefore $2,590,000. The major reasons for the future expenditures for this grouping of proposals are deferral of a project element that is not viewed to be necessary in the current project–the sand filters–and paying lease payments for the emergency generator. The sand filters are assumed to be needed at year 10.

Under the present design, the VE team estimates that 59 percent of project cost applies to meeting CD requirements, 21 percent applies to meeting CWA requirements, and 20 percent applies to plant operation issues.

See Appendix 5 for the full results of the Five Mile Creek WWTP Value Engineering Study.

Findings and Recommendations

Finding 4-1

The County has not used a formal VE process in its Capital Improvement Program. The VE process is an industry-accepted practice used to identify important design concept needs or inefficiencies, confirm the technical basis of the initial design/approach and identify functional enhancements. The projected cost savings from identified inefficiencies or avoided correction costs, usually exceeds the cost of the VE process. The Five Mile Creek Value Engineering Session identified potential initial cost savings of $11.3 million on a $41 million project. This amounts to a potential initial savings of 27 percent. The two major reasons for the initial savings are (1) deferring a major portion of the project for 10 years until it is needed and (2) leasing, not buying, the emergency generator. The net potential savings after installing all project components, as they are required, is $2.6 million, a 6.5 percent savings. The potential savings might have been much larger if the County had implemented a formal VE process in the early stages of the Program.

The identified savings resulted from the following combination of proposed changes: a suggested relocation of the screening and grit removal processes, postponing the construction of the filters,

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building a new operations building, and substituting a sodium hypochlorite disinfection system for the proposed UV.

Recommendation 4-1

It is recommended that the County immediately implement a systematic VE process for projects having an estimated value of $5 million or greater and for all repetitive projects such as rehabilitation projects. This process should be implemented between the start and the 50 percent complete point of design engineering.

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5

Strategic Planning

Introduction

Over the last decade, the structure and dynamics of the marketplaces in which public water and wastewater utilities operate have changed. The demands of regulatory requirements and system expansion needs coupled with limitations on support of federal and state infrastructure development have imposed both increasing pressures on utility revenue requirements and heightened performance expectations. The pressures of the CD compliance and the lack of a process for coordination/collaboration between water, wastewater, and storm water management responsibilities across local agencies have exacerbated the impact of these changing markets and regulatory dynamics in Jefferson County. The resulting projected sewer rate structure could impact the financial future of the County. As the County addresses its immediate challenges, it is important that incremental improvements and investments build a foundation for the County's future success.

Observation

It appears that ESD has focused on delivering the CD activities without adequate strategic planning and action. A strategic planning effort would afford the County the opportunity to structure its remaining and future initiatives and investments to leverage emerging regulatory trends and define strategic direction for the sewer system and its needed improvements as a whole. In particular, Jefferson County's enormous prospective resource investment may provide a foundation for leveraging emerging changes in the regulatory framework for watershed protection, thereby creating additional value for the Jefferson County sewer system beyond achieving CD compliance. ESD has not developed a clearly defined strategy (understood and supported by their key stakeholders) that guides investment and policy development. Strategic planning offers a mechanism to place these opportunities into appropriate context, define strategic direction, and galvanize key stakeholders toward a common vision.

Recent EPA policy statements have endorsed concepts of holistic watershed management, including watershed permitting and pollutant credit trading, and have indicated the EPA's increasing focus on more effective management of infrastructure systems. As Jefferson County implements the Program, development of a portfolio of responsive watershed management funding and implementation options may mitigate rate increases and enhance environmental performance. Similarly, with this investment, the County has significant opportunities to adopt a proactive approach to complying with forthcoming capacity, management, operations, and maintenance (CMOM) regulations; implementing an Environmental Management System to improve its business processes; and instituting a sound asset management program to guide future investment priorities.

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Strategic Planning in the Wastewater Utility Industry

Integrated watershed planning provides an opportunity to consider funding on a portfolio basis. The diagram illustrates the range of funding options from typical water and sewer rates for Capital Improvement Program financing to tradable development rights. Public awareness and alignment is a goal of effective integrated watershed planning.

Effective strategic planning will help utilities respond to emerging changes in the regulatory framework and build a diverse watershed funding portfolio

As the wastewater utility marketplace has become more dynamic, innovative, and competitive, it has been challenged by regulatory requirements of broadening reach, and effective strategic planning has become imperative. Though various tools and processes are available, several fundamental attributes include:

- Working with community and internal stakeholders to define the utility's strategic goals and objectives, and establishing performance metrics that will measure performance against those goals.
- Scenario planning to identify critical uncertainties and define strategies that are robust under a broad range of market and regulatory conditions.
- Evaluating and prioritizing candidate strategic investments using criteria that align resource investments to the County's strategic goals and objectives. Effective use of this process would prevent the approval of projects that did not meet specific criteria established in the strategic plan.
- Planning and monitoring to ensure efficient and strategic allocation of resources.

The commitment of leaders and key decision makers is critical to the success of any strategic planning process. Accordingly, effective and sustained engagement of key stakeholders is of paramount importance.

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Capital Improvement Program

The County needs to develop a process by which it has an approval process involving the County Commission and requires financial justification for projects by ESD before projects are added to the Program. The County should also conduct a risk assessment before a project is deleted or cancelled. This approval process should balance the expense of development with the potential benefits to the County including potential sewer rate collection, impact fees, and sales taxes resulting from economic expansion. The criteria for project acceptance would reflect the defined strategic plan. Approval for an entire project should be made by the Commission at its regular meetings, and such approvals should be shared with the public.

Findings and Recommendations

Finding 5-1

There is little strategy or operational coordination/collaboration today between the Birmingham Water and Sewer Board, ESD, and the various storm water and other water entities operating in the County. Total watershed management is a nationwide emerging trend that offers the County strategic opportunities.

Recommendation 5-1

We recommend the County create a task force and study the opportunities that can emerge from greater collaboration and strategic planning among potable water, wastewater, and storm water management. Presently there is a large gap between the three vital functions that make up the watershed activity. A similar situation had existed in the Metro Atlanta area between the more than 100 utilities that provided these services, making regional and integrated solutions difficult to develop and implement. As a result, Metro Atlanta created a task force in 1999 to study the situation and make recommendations for strategic improvements. The work of this task force resulted in legislation that created a Water Planning District and enabled and required collaborative planning between the utilities considering water, wastewater, and storm water. The key to the success of this task force was strong leadership from the business, legislative, regulatory, political, and environmental communities, along with pro bono facilitation provided by the Boston Consulting Group. The work and makeup of this task force, along with the resulting recommendations, are described in a summary report entitled, Final Draft Report of the Clean Water Initiative, November 2000. (See Appendix 5A.)

We recommend that Jefferson County use a similar task force concept to study opportunities to strategically coordinate, plan, and implement actions that integrate the activities of the currently separated water, sewer, and storm water utilities. The Jefferson County task force should be made up of senior executives from local and regional corporations and associations, as well as legislative, regulatory, political, and environmental representatives that are key stakeholders in the outcome of the program. Potential benefits from such a strategy include:

- More effective management of the overall watershed

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- Enhanced ability to deal with future regulatory requirements
- Potential reduction in overall operating costs for the three services
- Potential reduction in treatment requirements and costs through credit trading
- Ability to consider a broader suite of rate making options for the services provided
- Improved ability to address concerns of the various stakeholders including the public

The Metro Atlanta task force was co-chaired by a prominent business leader and included the Minority Leader of both the Georgia House of Representatives and the Georgia State Senate. Other members included the Director of the Environmental Protection Division and the County Commissioners.

Finding 5-2

The lack of attention to strategic thinking and planning has reduced the leverage of the capital investment made toward designing and executing the Program to meet the CD and has failed to position the County well to meet future obligations.

Recommendation 5-2

BE&K recommends that the County promptly engage a capable program management firm to take responsibility for efficiently delivering the remaining $1 billion plus of capital investment. Retaining an experienced program management firm will free ESD leadership to deal with starting up the new plants and will add additional strategic thinking talent that can bring experience from programs similar in size and complexity. Potential areas additional strategic planning might address include:

- Developing an asset management plan.
- Developing sewer rates based on a cost of service study for various customer classes.
- Developing a plan for various regulatory impact scenarios.
- Planning proactively for potential future regulatory requirements, such as the total maximum daily loads and potential negative decisions on blending.
- Developing a scheduling model that will allow project reprioritization based on changes in funding availability.

Finding 5-3

Our investigation has not revealed any specific criteria that the County has used for system expansion investments. The County does not appear to have put in place a formal approval and justification process for sewer expansion or, if one exists, to have shared the process with the

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ratepayers and taxpayers. All contracts are currently approved at the Commission meetings. However, neither the Commission nor the public sees the entire project, only the portion covered by the scope and cost of the bid for the contractors. This approach does not allow anyone to identify the total cost and scope of a project. For example, the County cancelled the following projects, including three active contracts, and paid the contractor's cancellation costs.

- The new Cahaba River trunk sewer (Super Sewer) was forecast to cost $147 million. It was cancelled after spending $62 million.
- The new Morris Kimberly wastewater treatment plant was forecast to cost $40 million. It was cancelled after spending $15 million.
- The Trussville trunk sewer was forecast to cost $32 million. It was cancelled after spending $18 million.

Recommendation 5-3

BE&K recommends that the County implement a strategic planning process that will incorporate the various planning and zoning agencies in order to develop a long-term countywide expansion policy. This policy would include roads, water, sewer, power, and natural gas services. The planning process would identify the criteria under which new investments will be made along with a formal public process to review and approve the Capital Investment Plan on at least an annual basis. The process should consider funding methods that determine whether the existing ratepayers will get benefits from the new project and thus should pay the cost of the project or whether the cost of the project, once justified and presented to the public, provides more general benefits and thus should be borne by the taxpayers.

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6

Program Management

Introduction

This section focuses on the program management process currently in place. Findings and recommendations provide a comparison of the current program management practices with industry standard practices for similar programs of this size.

Background

Program management for the Program is currently split between parties. The Assistant Director of ESD functions as the Program Manager. Dawson Engineering tracks costs, cash flow, and forecasted cost. Engineering Service Associates, Inc. (ESA) is the official Program Manager maintaining document flow and coordination between the Environmental Protection Agency and the County, providing ROW acquisition support, and scheduling most of the contracts that have been awarded. The current ESD staff handles the remaining traditional program management functions such as technical reviews, design oversight, construction oversight, and any public relations.

Observations

Research by the BE&K team indicated that many governmental agencies typically retain an experienced Program Manager for programs of this size and complexity. The Program is the largest public works project undertaken in the State of Alabama in recent years (maybe ever). The programs in Atlanta, New Orleans, Nashville, and Miami utilized Program Managers. The experienced Program Manager then acts as an extension of the department staff and uses proven comprehensive tools and program delivery processes to execute the program. Retaining a Program Manager frees the department staff to plan the start-up, integration, and operation of the completed and existing facilities while the program is being engineered and constructed. In addition, the Program Manager provides strategic and tactical planning support as required.

Prior to implementing the CD, ESD managed all capital work with its in-house staff. The approximate capital budget was $35 million or less per year. Annual average capital spending for the Program is approximately $250 million per year, an increase of approximately 800 percent. ESD chose to act as the Program Manager and supplement its staff with local consultants who were known by ESD management. Neither the ESD staff nor the chosen local consulting firms had experience managing very large, complex, multi-billion dollar programs.

By choosing to manage the Program on its own, the County has exposed itself to a variety of risks. Without the leadership and knowledge of an experienced Program Manager, the County

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has not employed effective planning and control tools and methods typically used in the industry. The County does not treat project estimates as budgets and report against them on a regular basis. If the County had treated the estimates as budgets, it could have discovered, investigated, and rectified the trend of spending more than the estimate years earlier.

Findings and Recommendations

Finding 6-1

The Program is being performed without the assistance of an experienced Program Manager. ESD did not have staff experienced with Programs of this magnitude or experienced in managing large projects. An experienced Program Manager would provide tools such as logic-driven schedules, integrated cost management and reporting, risk analysis, cost/benefit analysis, and proven delivery management methods such as peer reviews and value engineering. This would provide the ESD management time to manage operations and maintenance of the department and strategize and plan for the future.

Recommendation 6-1

Retain an experienced program management firm immediately as recommended in BE&K's letter of July 2, 2003. See Appendix 3. The BE&K team has prepared a draft Request for Proposal document the County can use to select a Program Manager. See Appendix 3. The document outlines the duties of the Program Manager and the requirements for the Program management proposal. As an added benefit, a proven Program Manager could consult with ESD on strategic planning tools to prepare for the future demands of the regulatory agencies, the portion of the system that was not repaired under the Program, the CMOM program, and other regulatory requirements that potentially will come in the future.

Finding 6-2

ESD management has indicated that if a program management firm is retained, it intends to continue having local consultants provide scheduling and cost reporting management services. This would cause a duplication of services.

Recommendation 6-2

BE&K recommends the Program Manager, once retained, evaluate and determine how to structure the management services provided by local consultants. The transition to a Program Manager who can guide the Program to a successful completion will be difficult for ESD and will require careful management. It will be important that the County Commission also support the new Program Manager. BE&K often uses teambuilding exercises to reduce the potential negative effects of this type of transitional change, and we recommend teambuilding exercise in this situation.

Finding 6-3

The estimated cost for local consultants to provide cost, scheduling, and other program management services for the remainder of the program is approximately $14.4 million. A Program Manager could provide these services less expensively and more comprehensively.

Recommendations 6-3

Use the existing funds estimated for decentralized project management across the various contractors and consultants to hire an experienced Program Manager with scheduling and cost management personnel. The program management staff may work in the County's facility, thus reducing the costs for this service. The County may assign the program manager the responsibility to determine the best ways to utilize the existing service providers. We believe $2to 3 million a year will be sufficient to budget for this activity through 2007.

Finding 6-4

ESD does not have a comprehensive plan to obtain a release from the EPA for completion of the CD. ESD has a plan to complete the physical work but has not worked out the methodology to prove compliance to the CD.

Recommendation 6-4

An experienced Program Manager will be able to assist the County in establishing contacts with the interested parties of the Program, including the EPA, and facilitate a process for the satisfactory completion of the Program. A team and leader that have been involved in this before will best accomplish this. This is an important activity that needs to be accomplished by the County, and an experienced Program Manager can be of tremendous assistance.

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7

Technology Utilized for the Program

Introduction

The Program, initiated by the CD in 1995 and projected to continue to 2007, is one of the largest in the United States at an estimated cost of $2.76 billion. Although technology and process requirements were not specifically described in the CD, the County is responsible for determining and implementing the various technological solutions required to fulfill the intent of the CD.

The primary objectives of Jefferson County's technological efforts are defined by the CD. The CD required the application of good engineering practices aimed at achieving the following:

- Eliminating further bypasses and unpermitted discharges of untreated wastewater containing raw sewage to the Black Warrior and Cahaba River basins
- Eliminating sewer system overflows
- Achieving full compliance with the County's NPDES permits
- Achieving full compliance with the CWA

Achieving these goals required the County to solve interrelated complex problems. Selection and application of the appropriate technology by the County was an important element in the successful achievement of the stated CD objectives. In addition, the employment of technology should be balanced with economic impact considerations.

The purpose of this evaluation is to assess the appropriateness of the technology utilized on the Jefferson County Sewer System Improvements Program and to identify any potential economic advantages that could be realized on future projects by employing alternate technological solutions. The technology assessment presented here is divided into two areas:

1. The technologies applied to address wastewater collection system issues on the program
2. The technologies applied to satisfy wastewater treatment goals

Each is systematically presented herein.

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Background

In order to assess the technology employed on the Program, the BE&K team requested the County to provide the basis of design documentation for each WWTP. A number of engineering documents were supplied by the County staff and reviewed by our review team. In some cases, certain basis of design documentation was not available. In these cases, in order to complete the technology assessment, the review team performed facility site visits and applied engineering judgment and assumptions based on the team's experience in the respective technological area. In addition, the review team conducted interviews with the County staff and the County's engineering consultants concerning the technological approach selected to satisfy the CD.

The observations, findings, and recommendations derived and described in this assessment are based on the review of the information furnished by the County and its consultants, the review team's interviews of the County staff and engineering consultants, and on the review team's experience in the application of technology to solve similar wastewater collection system and treatment challenges. Much of the technology employed on the Program has either been implemented, is in design, or is under construction.

General Observations

Collection System Technology

A general discussion of the Jefferson County collection system and its physical components is presented below. The technology represented by the collection system to convey wastewater flows to the treatments plants is primarily gravity sewers, pump stations, and force mains. An overview of the County's collection system can be seen in Appendix 7A.

As part of the CD, Jefferson County took ownership and, therefore, financial responsibility for the sewer system of 21 municipalities located in Jefferson County. The municipalities had not invested in an active, ongoing maintenance program for their sewer collection systems. Jefferson County had expected to receive approximately 9,000,000 feet of sewers and the related pump stations from the municipalities. The municipalities actually transferred ownership of approximately 11,500,000 feet of sewers to Jefferson County. The additional sewers and the unanticipated lack of maintenance performed on the municipal sewers impacted the scope and cost of the Program.

Consent Decree Terms and Requirements

The basic requirements of the County's CD are focused on the "C" or "Capacity" component of EPA's proposed Sanitary Sewer Overflow Rule's CMOM provisions (CMOM stands for Capacity, Management, Operations, and Maintenance). The Jefferson County CD was compared to the Houston Administration Order and the Atlanta, Miami, and Mobile CDs. Our review indicates that Jefferson County was not treated differently than other localities when negotiating CDs. All of the CDs reviewed contained similar language. CDs negotiated in the early 1990s were less restrictive than CDs negotiated in the late 1990s and early 2000s. The CDs for each

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city focus on different core issues. The EPA's primary focus on capacity issues for the County differs from the CD focus included in several other SSO-based CDs, such as the City of Atlanta and the City of Mobile. Similar to the County's, the Atlanta CD also includes a multi-phased evaluation and rehabilitation program for capacity activities. Mobile is to address capacity problems through the implementation of a Capacity Assurance Program that is less specific on methodologies or approaches. Both Atlanta's and Mobile's CDs have requirements centered on Management, Operations, and Maintenance (MOM) activities. The CD comparisons are contained in Appendix 7B. In the County's CD, the collection system technological requirements are embodied in the Remedial Actions requirements. EPA specified a compliance framework that included a three-phased approach for remediation of SSOs. The phases were:

- Phase I – Planning Documents
- Phase II – Analyses and Reports
- Phase III – Implementation of Waste Treatment System Capital Improvement Plan (WTSCIP)

The technology evaluation that BE&K performed primarily pertains to Phases 1 and 2 of the CD. These phases establish the scope of the projects implemented in Phase 3 and provide the greatest opportunity to produce substantial cost reductions while achieving CD compliance. Not all of the County's documents are referenced in the evaluation, because the primary emphasis is on the conveyance system capacity and the rehabilitation program development approach.

Phase I of the CD required the County to develop a series of planning documents to identify the scope, specific methodologies, time frame, and resources needed to determine the condition and capacity of the conveyance system. These documents also provided an overall plan for identifying and ranking the problem conveyance system areas. The documents are:

- Preliminary Sewer System Analysis (PSSA)
- Infiltration/Inflow (I/I) Plan
- Sewer System Evaluation Survey (SSES)
- Capacity Analysis Plan
- Comprehensive Performance Evaluation (CPE) Plan
- Water Quality Monitoring Plan
- Initial Waste Treatment System Capital Improvement Plan (WTSCIP)
- Reporting Requirements for Unauthorized Discharges

The EPA established the Remedial Action framework and allowed the County to negotiate the technical approaches and implementation steps within the general activity and time frame

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established by the EPA. This is consistent with the many CD case study summaries presented in the Association of Metropolitan Sewerage Agencies (AMSA) Handbook published in July of 2003 titled, Wet Weather Consent Decrees; Protecting POTWs in Negotiations. Typically, the framework of the implementation steps is fairly standard, but again, there can be negotiated changes as long as the fundamental EPA objectives are achieved. This is the essence of the performance-based requirements of the EPA's proposed SSO Rule, i.e., establish the objects, provide an implementation framework; let the permittee (utility) propose the approach and methods to meet the requirements; and implement the plan.

Phase II activities were built on the process and approach recommendations of Phase I. The reports included identification of the worst system areas, the discovered deficiencies and their associated rehabilitative needs, and corrective actions to meet the objectives of the CD. Phase II reports and documentation essentially provided the field findings, data analysis, and recommendations for implementing rehabilitation and capacity improvements.

The reporting activities required the development of these reports to document the findings:

- Infiltration/Inflow Analysis Reports
- Sewer System Evaluation Survey (SSES) Reports
- Capacity Analysis Reports
- Capacity Improvement Schedules
- Comprehensive Performance Evaluation (CPE) Reports
- Performance Improvement (PI) Plans
- Collection System Operation and Maintenance Plan
- Water Quality Monitoring Program

The County chose to conduct these investigations by a sewer drainage basin. Therefore, reports such as the Infiltration/Inflow Analysis Reports; the SSES Reports; and the Capacity Analysis Reports were prepared for each basin and contained the specific findings and recommendations pertaining to that basin. The basins are listed below:

County Sewer Drainage Basins		
Cahaba River	Prudes Creek	Valley Creek
Five Mile Creek	Trussville	Village Creek
Leeds	Turkey Creek	Warrior (Cane Creek)

The SSES Reports provided an inventory of each defect discovered in the field investigation activities (for example, smoke testing, dye testing, physical inspections, and closed circuit

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television inspection). Each defect was also categorized and given an I/I leak rate and repair cost so that it could be prioritized with the other located defects. The reports refer to the prioritization process as resulting from a cost-effective analysis, but it appears to be more of a cost comparison. A cost-effective analysis process would have included a more comprehensive accounting of the costs and savings to develop the savings/cost ratio. For instance, the SSES-related costs and the savings of reduced sewer diameters and treatment capacity resulting from the analysis of wet weather controls were not included. Common wet weather controls would be I/I reduction, real time control to maximize system storage, and off-line storage above the plant head works.

Phase III is the plan of action to correct deficiencies, or the implementation phase of the WTSCIP, in which specific improvements are made according to the Capacity Improvement Schedules and the Performance Improvement Plans. After the EPA approved the Phase II documents, the County preceded with the design and construction of the Phase II recommended improvements to initiate the Phase III activities.

Collection System Technology Findings and Recommendations

These findings and recommendations were based on the approaches used by the County not only to address the immediate execution and compliance with the CD, but also the longer-term compliance with the CWA beyond the targeted termination of the CD in 2007.

The County had the latitude during the CD negotiations to shape the technical and implementation approach to be implemented over the CD's 12-year period. This is evident by the tasks and schedule milestones currently being implemented. No one approach is necessarily wrong; however, there are very important financial and long-term operational advantages to some approaches and associated technologies over others. Our recommendations below are based on experience with other utilities across the country that incorporated and benefited from their implementation.

ESD's overall management and technical approach for evaluating and controlling SSOs appeared heavily influenced by ideas held by the ESD, local engineering firms, and service groups, and grounded in field data collection and analysis. Therefore, the County's initial solution was geared toward gathering field information and data and then formulating which decisions and subsequent actions needed to be made. This is what the business community calls a "bottoms-up" approach to making decisions and solving problems. It creates a great deal of field activity at the front of a program, but it puts less emphasis on initial strategic planning and on building community support for the ensuing programs. Although this "bottoms-up" approach could be found in several industry references at the mid-1990s, newer, more effective approaches were available and being successfully applied.

The other noticeable and influencing factor about the County's Program approach and cost magnitude was that the ESD did not incorporate the technical and business organizational tools and methods available and necessary to manage a project of its magnitude. For instance, the BE&K team was surprised when we didn't see a more advanced, robust hydraulic model used as a core analysis tool as is typical for large and complex systems. Total Program cost savings in

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the order of 25 percent have been shown to be available when cost-effective technical and business organization tools are utilized (for example, when using the model to evaluate alternative comparisons such as larger pipes versus a combination of pipes, I/I reduction, and storage up in the system). The need for such a tool was apparently never recognized.

In addition, the capacity sizing for the conveyance systems was not clearly documented in the planning documents that we reviewed, and discussions with the design consultants confirm the flow disconnect. The County was initially faced with dealing with the flows from 21 municipal satellite systems, and it was not clearly documented how the satellite system flows would impact the conveyance system flows.

Finding 7-1

The planning documents developed and submitted to EPA did not clearly define the basis for how each basin's sewer and treatment system should be designed to handle the peak flows. Peak hour flow is the flow rate unit by which sewers and pumping systems are designed to handle. A standard is needed to define how to select or project the peak hour flow for each sewer in the system. Neither capacity discussions in the documents nor interviews with the County's design consultants indicated an overall design standard to guide the facility designs.

A simple capacity analysis was performed on the 18-inch diameter and greater sewers. This leaves a significant amount of footage (greater than 50 percent of the total length) that has not been analyzed. These sewers are just as much at risk of having capacity-related SSOs as the larger pipes and, therefore, put the County at substantial risk of future permit violations similar to those currently being addressed in the CD.

Recommendation 7-1

Prepare a Sewer Evaluation and Capacity Assurance Plan (SECAP) document that will lead to the development of sewer and treatment system design capacity for each basin. A SECAP is a common industry-planning document similar to a facility plan or master plan, however, it includes more detail and supporting activities as needed. The SECAP should be prepared by a professional engineering firm that has technical and implementation experience with this type of study. Preparation of the SECAP should begin as soon as possible and be completed prior to or in conjunction with the termination of the County's CD.

Finding 7-2

The County's rehabilitation Program is based on I/I analysis techniques that combine both the infiltration and inflow components. Because infiltration and inflow enter the sewer system differently, they can be repaired differently. Inflow is easier to locate and costs less to remove from the sewer system. In addition, inflow usually contributes more to an SSO because it has a greater peaking value. Because ESD combined these two I/I components in the implementation plan, the County did not receive the benefits from the potentially reduced rehabilitation costs or from eliminating a higher priority problem (removing inflow).

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Recommendation 7-2

When the County does the SECAP recommended in 7-1, the County should analyze and process the current flow data using infiltration and inflow separation techniques. This should be done prior to and for the hydraulic modeling simulation and capacity analysis portion of the SECAP. This separation process allows the cost-effectiveness of the multiple combinations of infiltration and inflow alternatives to be evaluated. Experience shows that most inflow sources are cost effective to remove and produce measurable extraneous flow reductions.

Finding 7-3

The ESD needed a robust, fully dynamic model to help analyze the multiple solutions available for controlling SSOs. ESD used a rather simple hydraulic model called Hydra™ to analyze the flow in the larger sewers. Pump stations were not modeled simultaneously with the sewers. Their model was suited more for handling individual sewer defects and their contributing I/I quantity estimates.

Recommendation 7-3

It is recommended that the ESD convert data from their existing Hydra™ model into a new, robust, dynamic hydraulic model such as XP-SWMM, MOUSE, or INFOWORKS. The new model should be used to evaluate the multiple controls still available to the County to consider. The model would be an important tool to use during the development of the SECAP document mentioned in Recommendation 6-1.

Finding 7-4

A comprehensive, system-wide program to identify and address I/I defects located on private service laterals has not been performed. The length of private sewer laterals is commonly acknowledged to equal or exceed the sewer footage on public property. The benefit of private I/I reduction is the potential to remove significant sources of rainwater from the sewer system at essentially the cost of running the program administratively. Administrative costs could be in the range of $50 to $100 per residential lot where a problem is found.

Recommendation 7-4

Develop a system-wide private service lateral rehabilitation Program. The purpose of the service lateral program is to identify the private service laterals contributing to I/I and capacity-related SSOs. The program should include a general process to review the plans and implications (public/private issues) with Commissioners, a public notification process, and an examination of options for performing smoke testing or TVI.

Finding 7-5

The County does not presently have an established asset management process to sustain funding support and to provide management with sufficient information to prioritize the repair of known and future defects.

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Recommendation 7-5

It is recommended that the County establish an asset management process to sustain funding support and distribution prioritization to position the County into a preventive maintenance posture. The process would comply with EPA's proposed CMOM provisions and represent good business practices adopted by the wastewater industry.

We recommend that ESD establish an asset management process that is properly structured and implemented to include analysis and decision tools that correctly assign the condition and status of the assets and the risks (service, environmental, and health) that an asset failure presents. This process would allow asset-corrective action decisions to be prioritized and funding demands to be projected in support of the corrective actions. The County already has in place SIMMS, GIS, and other data governance systems that can supply the basic data into asset management decision and analysis tools.

General Observations

Wastewater Treatment Plant Technology Observations

Based on the review of the information provided, and on the review team's experience with municipal wastewater treatment technology, it is this team's opinion that all of the Jefferson County wastewater treatment plants have designs capable of satisfying the NPDES permit and the CD.

Treatment plant design capacities are typically based on maximum monthly average daily flows. The design capacities of the Village Creek, Leeds, and Turkey Creek WWTPs significantly exceed the annual average daily flows (AADF) for the past five years (1998 – 2002). Only the Five Mile Creek plant has shown a steady increase in average daily flow in this time period. The wastewater flows at the other treatment plants have not increased over the five-year period. For many of the County's plants, the ratio of the design capacity to the five-year average of daily flows are in the range of 2.5 to 3.3, apparently to provide for expansion of the area. It appears that capital expenditures to provide this additional capacity could have been deferred with a phased approach to expansion of the treatment facilities at some of the County's WWTPs.

Many of the Jefferson County treatment plants are equipped with peak flow storage facilities that are sized to treat a peak hour flow, or greater. Data was not available to analyze the sizing of the peak flow storage basins. Hydraulic profiles of some plants indicate that the plants are designed to carry a predicted wet weather flow capacity, based on experience. Common industry practice is to size the hydraulic facilities to pass the anticipated peak hour flow through the plant. Having a plant with this peak hour flow carrying capacity, in addition to peak flow storage basins, indicates that there is redundant hydraulic capacity within the plants and that unnecessary capital has been expended.

As mentioned previously, it appears that some of the plants, most notably Village Creek and Turkey Creek, are designed with a capacity to treat annual average flows greater than the flows now being received at the plants, or having been received in the last five years. Having excess

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treatment capacity can present operational challenges to maintain a viable biological population that is balanced and acclimated to provide the intended treatment levels.

Ultraviolet (UV) disinfection has been selected for most of the plants. Alternative disinfection systems were not considered. However, the use of sodium hypochlorite and sodium bisulfite for chlorination/dechlorination has been found to be a more cost-effective solution in many cases when compared to UV. This is particularly the case with smaller (10-mgd or less) treatment plants.

Biological selector technology was not considered. Biological selectors can offer some cost and operational advantages because of their positive impact that improves sludge settleability. The added benefits from employing this technology can offer potential cost savings to other unit processes by relaxing otherwise conservative design criteria, particularly with clarification.

In general, the design hydraulic loading rates for the secondary clarifiers at the County's WWTPs are conservative. With adequate clarifier depth (generally 14 feet side water depth or greater), it is common to find design surface overflow rates (SOR) of 500 gallons per day per square foot (gpd/ft^2) based on the MMADF. The secondary clarifiers at the Jefferson County WWTPs were routinely designed with a surface overflow rate of 300 gpd/ ft^2 based on the AADF. Jefferson County does not record the MMADF/AADF ratios for the various facilities. However, typically MMADF/AADF ratios are in the range of 1.2 – 1.3. Applying an MMADF/AADF peaking factor of 1.3, the equivalent design SOR used at the County WWTPs is 390 gpd/ft^2. Potential cost savings could have been realized using less conservative design surface overflow rates, particularly in conjunction with biological selector technology.

Peak flow treatment facilities were generally sized based on the County's experience with little or no analytical tools to estimate required storage volumes. Ongoing capital improvement programs to reduce the effects of infiltration and inflow (I&I) may substantially reduce peak flows in the future. If collection system improvements can be made such that the benefits would be realized in time for permit compliance and reliable estimates of the reduction could be made, the design peak flow rates may be able to be reduced. I&I reductions will have the greatest affect on the peak hour flow rates and the peak day flow rates. Potential cost savings could be realized with the reduction or elimination of peak flow storage facilities based on an engineering analysis of required storage volume. In addition, I&I reductions can be utilized to reduce treatment plant sizing and capital expenditures.

Findings and Recommendations

The findings by this review team indicate that a number of decisions regarding the design of improvements at the WWTPs have most likely increased the County's capital expenditures unnecessarily. Issues that support this statement are as follows:

- Analysis and modeling were not used to size the peak flow storage facilities, suggesting the potential for over sizing the facilities. It is common practice to use historical analytical data to develop a computer model on which to base the sizing of peak flow storage facilities.

- There appears to be redundant peak flow handling facilities provided. Plants were designed to carry the anticipated peak flows without storage. Peak flow storage facilities were also added at these plants. If the plants were designed to carry the anticipated peak flows, then additional peak flow storage facilities would not be necessary.
- A conservative design criteria was used to size the clarification facilities.
- A two-stage nitrification process was used and was costly due to additional clarifiers, pump stations, and ancillary facilities when compared to a more cost-effective, single-stage system.
- A phased expansion approach was not used for the WWTPs. Some of the plant expansions have built in capacity 2.5 to 3 times the average daily flow for the past five years. Growth predictions in Jefferson County do not warrant the size plants built at this time.

Collectively, these decisions have likely caused the County an additional capital burden in excess of $100 million.

Specific findings and recommendations for each wastewater treatment plant are discussed below.

	Annual Average Daily Wastewater Flow (mgd)					
WWTP	1997	1998	1999	2000	2001	2002
Village Creek	**40.00**	**38.32**	**34.16**	**33.45**	**38.42**	**39.00**
Valley Creek	**44.28**	**45.68**	**48.91**	**35.41**	**43.68**	**45.00**
Five Mile	**15.83**	**16.40**	**13.40**	**12.30**	**16.20**	**19.25**
Cahaba	**10.40**	**8.80**	**8.90**	**8.90**	**9.90**	**9.30**
Leeds	**1.79**	**1.92**	**1.60**	**0.82**	**1.09**	**1.09**
Trussville	**2.16**	**1.98**	**2.05**	**1.96**	**2.17**	**2.05**
Turkey Creek	**6.50**	**4.23**	**4.51**	**4.22**	**4.15**	**4.02**
Totals	120.96	117.33	113.53	97.06	115.61	119.71

<u>Village Creek WWTP</u>

This plant is under construction; a portion is complete and the remainder will be complete in 2005.

Finding 7-6

The total biological treatment capacity for the combined existing and peak flow plants is 120 mgd (60 mgd each). Flows over the past several years have averaged about 40 mgd with no apparent trend upward. This will present operational challenges since, on average, each plant

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would be operating at the low end of its capacity. It is challenging to run a 60-mgd biological treatment plant at 20 mgd, because the biological microbial population cannot be increased quickly to accommodate large fluctuations in flows and loadings when it rains.

Recommendation 7-6

We recommend that ESD review operational strategy to ensure both plants have the capability to treat the potential wide variation in flows and loads. Consider developing a biological treatment model to assess the potential benefit of step-feeding the aeration basins under peak hydraulic conditions to reduce the size of the secondary clarifiers.

Finding 7-7

The surge basins at the peak flow plant were designed in concept to allow the operators two –to three hours to start up the filters and the UV disinfection system if they are not in operation at the start of a heavy rain event. The influent pump station has a maximum capacity of 340 mgd. Three hours of flow at a rate of 340 mgd is about 43 million gallons. The stated storage capacity of the surge basins is 90 million gallons. The surge basin has approximately six hours of storage at peak flow. Based on the information presented, the surge basin capacity appears to be twice the necessary size to meet the intended use.

Recommendation 7-7

We recommend that ESD review the sizing of the surge basin in a Value Engineering process on future projects to ensure that a cost-effective design is chosen.

<u>Valley Creek WWTP</u>

This treatment plant is under construction and will be complete in 2006.

Finding 7-8

The primary clarifiers are conservatively sized. We estimate that using generally accepted design criteria, six primary clarifiers at 140-ft diameter could have been provided to achieve about the same total suspended solids and biochemical oxygen demand removal. The current design includes ten primary clarifiers at 140-ft diameter. It appears possible to have eliminated four 140-ft diameter clarifiers.

Recommendation 7-8

We recommend that ESD consider less conservative design to reduce costs on future projects after using a Value Engineering process for risk assessment.

Finding 7-9

Two-stage nitrification processes are less commonly used by wastewater utilities because of the high capital cost. The process requires two sets of clarifiers and associated RAS/WAS pumping

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facilities. It appears that three 157-ft. diameter final clarifiers could have been added for a total of nine final clarifiers (six existing), instead of the total of thirty clarifiers (16 new 120-ft diameter intermediate clarifiers plus eight new 157-ft diameter final clarifiers (six existing). The associated RAS/WAS pumping for the excess clarifiers could be eliminated as well. The clarifiers appear to be 12 ft deep. A deeper clarifier of 14 ft is preferred to prevent solids carryover.

Recommendation 7-9

We recommend that ESD utilize a single-stage nitrification process, eliminating unnecessary clarifiers and pumping facilities (22) would have been more cost-effective.

Finding 7-10

The peak flow storage basins, (110 million gallons) according to ESD, were sized based on experience, and no analytical tools were used. Information was not available in the design basis to allow the sizing to be checked as we had done at the Village Creek plant. If this basin was sized in a similar manner to that at Village Creek, then the size of the basin may be too large.

Recommendation 7-10

We recommend that ESD use analytical tools to size peak flow basins in the future.

Five Mile Creek WWTP

The expansion to this treatment plant is not under construction. The design engineering is complete.

A Value Engineering study was completed on the Five Mile Creek WWTP as part of this review. Specific findings and recommendations on the Five Mile Creek WWTP project are presented in Section 8, Value Engineering/Peer Review of this report.

Cahaba River WWTP

Construction on the expansion to this treatment plant started on October 28, 2002 and is ongoing.

Finding 7-11

Biological nutrient removal is included in the design for removal of nitrogen and phosphorus from the wastewater. This is in anticipation of future discharge limits based on the total maximum daily loads for the Cahaba River. The new plant is designed around the five-stage Bardenpho process. Portions of the treatment plant required for anticipated future limits could be designed with space allotted but construction deferred.

Recommendation 7-11

We recommend that ESD consider phased construction for portions of the treatment plant designed for the anticipated future discharge limits (for example, the polishing clarifiers). This would delay capital expenditures until required, however, a contract modification might be required, if this work is already underway.

Finding 7-12

The surface overflow rate (SOR) and solids loading rate for the secondary clarifiers are very conservative. The SOR is 310 gallons per day per square foot (gpd/sf) at an average flow and 517 gpd/sf at the peak hour flow. Typical design would allow 500 gpd/sf at the average flow rate and 1000 gpd/sf at the peak hour flow rate. The average solids loading rate is about 16 pounds per day per square foot (ppd/sf). Typical design would allow 20 ppd/sf. The secondary clarifiers appear to be at least one-third larger than necessary. The polishing clarifiers are also conservatively sized. Conservative sizing may be the result of reliability considerations, since only two secondary and two polishing clarifiers are provided.

Recommendation 7-12

We recommend that ESD consider providing smaller secondary and polishing clarifiers with higher loading rates to reduce capital expenditures.

Finding 7-13

Polishing clarifiers are designed for phosphorus removal beyond that provided in the biological treatment basins. No phosphorus limit has been established yet for the plant, although one is anticipated in the future.

Recommendation 7-13

We recommend that ESD delay construction of the polishing clarifiers until needed. Also consider direct filtration using the designed deep bed filters, potentially eliminating the need for polishing clarifiers.

Finding 7-14

UV disinfection was designed for a peak flow rate of 100 mgd, which appears to be conservative. The peak hour flow rate observed was 71 mgd, and the design includes expansion of the peak flow storage in an aerated retention basin to 22 MG to equalize influent flow rates. It might be possible to reduce the size of the UV system.

Recommendation 7-14

We recommend that ESD review the basis of 100 mgd capacity for UV disinfection.

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Finding 7-15

Repumping of the effluent was designed to accommodate deep bed filters. It was not clear whether other types of filters with lower head loss were considered, or whether use of a lower head loss filter could eliminate the need for repumping.

Recommendation 7-15

We recommend that ESD review whether repumping of the effluent could be avoided with lower head loss filters such as traveling bridge filters.

Leeds WWTP

The work at this treatment plant has been completed.

Finding 7-16

The peak design flow was based on the maximum capacity of the influent sewer with an allowance for surcharge rather than the actual estimated peak flows. Data may not have been available to refine the required design capacity. This will cause the treatment plant to be oversized for the amount of wastewater collected in the system.

Recommendation 7-16

As this plant is constructed, the only recommendation is to obtain reliable peak flows prior to the design.

Finding 7-17

The surface overflow rate (SOR) for the secondary clarifiers are very conservative. The SOR is 289 gallons per day per square foot (gpd/sf) at maximum flow. Typical design would allow 500 gpd/sf at the average flow rate and 1000 gpd/sf at the peak hour flow rate. Not enough information was available to evaluate the solids loading rate. Side water depth was 12 feet.

Recommendation 7-17

The plant is constructed. Consider providing smaller clarifiers with higher loading rates and a side water depth of 14 feet in the future.

Trussville WWTP

The work at this treatment plant has been completed.

Finding 7-18

The expansion of the Trussville WWTP was designed to meet the projected 20-year flow conditions of the plant's service area, which was projected to be 4.0 mgd. The average of the

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AADF for the past five years is 2.04 mgd. A phased-approach to the expansion of the Trussville WWTP could have deferred significant capital expenditures.

Recommendation 7-18

The plant is constructed. In future WWTP projects, consider a phased approach to satisfying the projected 20-year needs of the service area in order to minimize capital expenditures.

Turkey Creek WWTP

The expansion at this treatment plant is under construction.

Finding 7-19

The design capacity of the Turkey Creek WWTP is based on the anticipated future annual average daily flow. When completed, the expansion of the Turkey Creek WWTP will provide the plant with the capability to treat an annual average daily flow of 10 mgd. This is 2.4 times the average of the AADF for the past five years. A phased approach to the expansion of the Turkey Creek WWTP could have deferred significant capital expenditures.

The five-year average of the AADF for the Turkey Creek plant is 4.23 mgd. A phased approach to providing the 10 mgd capacity at the plant could save significant capital outlays, debt service, and unnecessary depreciation of equipment.

Recommendation 7-19

We recommend that, because the NPDES permit has monthly average permit limitations, the design flow for the plant should be based on the anticipated maximum monthly average daily flow. In future WWTP projects, consider a phased approach to satisfying the projected 20-year needs of the service area to minimize capital expenditures.

Finding 7-20

The treatment technology employed at the Turkey Creek WWTP consists of activated sludge operated in the extended aeration mode. The chosen technology does not have the advantages of biological selector technology.

The process design for the Turkey Creek plant appears to be based on extended aeration activated sludge with an 18-hour retention time in the aeration basin at the design flow of 10 mgd. As stated above, the 10-mgd design flow is significantly greater than the AADF that has been treated at the plant for the past 5 years. Therefore, if flows to the plant do not significantly increase upon completion of the expansion, the prolonged duration of biomass in the aeration basins due to lower than design flow rates may promote the growth of filamentous organisms or dispersed floc, which can decrease sludge settleability and create operational problems. Application of biological selector technology may inhibit the proliferation of some filaments in activated sludge.

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Recommendation 7-20

We recommend that ESD consider the application of biological selector technology in the process design of future treatment plant projects.

Finding 7-21

The secondary clarifiers at the Turkey Creek WWTP are conservatively designed with a surface overflow rate of 300 gpd/ft^2 based on AADF. Although the larger clarifiers ensure suitable removal of activated sludge particles, surface overflow rates of 500 gpd/ft^2 based on MMADF have been successfully employed to achieve the degree of treatment required at the Turkey Creek plant.

Recommendation 7-21

We recommend that ESD consider sizing secondary clarifiers with a SOR of 500 gpd/ft2 based on MMADF. Side water depth should be a minimum of 14 feet.

Finding 7-22

UV disinfection technology is utilized at the Turkey Creek plant. It was unclear if a cost analysis was completed to compare UV disinfection with chlorination using sodium hypochlorite and dechlorination using sodium bisulfite. Employing sodium hypochlorite/sodium bisulfite may result in a more cost-effective disinfection solution compared to UV light.

Recommendation 7-22

We recommend that ESD evaluate sodium hypochlorite/sodium bisulfite disinfection systems in future treatment plant projects.

Warrior WWTP

The expansion to this treatment plant is under design and is being reviewed by the County.

Finding 7-23

The surface overflow rate (SOR) for the secondary clarifiers is very conservative. The SOR is 282 gallons per day per square foot (gpd/sf) at average flow and 564 gpd/sf at maximum flow. Typical design would allow 500 gpd/sf at the average flow rate and 1000 gpd/sf at the peak hour flow rate.

Recommendation 7-23

We recommend that ESD consider providing smaller clarifiers with higher loading rates. As this plant expansion project is still being designed, these changes could be made very economically. A VE study should be conducted on this design to ensure the most cost-effective design is being utilized.

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Prudes Creek WWTP

The expansion to this treatment plant is under design and is being reviewed by the County. A VE study should be conducted on this design to ensure the most cost-effective design is being utilized.

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8

Product Review Committee

Introduction

In the spring of 1996, ESD formed a Product Review Committee (PRC) to serve as a quality-control step in the overall program to evaluate and approve/disapprove sewer line rehabilitation methods and new and rehabilitation sewer line products. About 60 percent ($1.9 billion) of the total estimated costs of the Program are for sewer line rehabilitation, replacement, and new sewer line installation. As a result, the PRC defines the methods and available product mix for nearly $1.9 billion worth of projects.

BE&K reviewed the PRC to determine if PRC policies or approaches contributed to inflate the Program costs unnecessarily. BE&K focused the PRC review on the selection process for sewer rehabilitation methods and new and rehabilitation sewer line products the PRC used in comparison to the two major PRC program objectives: 1) compliance with the regulatory CD and 2) the ability of the applicant to deliver a convincing product and installation performance package. The PRC decision to approve or reject a product depended in part on general product criteria furnished by the manufacturer, product installation demonstrations, and reference checks at previous installations.

The PRC was not responsible for evaluating the manner in which the PRC-approved products were subsequently incorporated into design specification documents. However, the members of the PRC were involved with individual projects and were charged to confirm that the PRC-approved products were incorporated into the specifications.

BE&K's review of the PRC is based on a review of documents provided by ESD at the request of BE&K, two interview sessions where BE&K interviewed both a Jefferson County chief engineer (chairman of the PRC) and a vice president of Dawson Engineering (a member of the PRC).

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Background

PRC Purpose

Product and Services Evaluation

ESD formed the PRC in the spring of 1996. ESD modeled the PRC in part on a similar committee formed by the City of Houston, Texas and other similar committees formed by Hillsborough County, Florida, and Chesterfield County, Virginia.

The purpose of the PRC was to manage the evaluation of sewer rehabilitation products resulting from implementation of the Program. The PRC serves as a focal point for manufacturers and vendors to submit their products and services for approval to be used in the Program. The PRC evaluates products and services against criteria established by the PRC to meet the Program goals and objectives. The criteria, as described later in this section, include product quality, product life expectancy, and installation method. The criteria did not include expected life-cycle cost.

The products evaluated by the PRC are used in the Jefferson County sanitary sewer system to rehabilitate existing sewers and to construct new sewers. Based on our interviews, we understand that products contractors will use widely throughout the Program are subjected to PRC review. Products that will have limited use on a single project are subject to the review of the project design consultant.

The PRC process provides centralized, consistent product selection for sewer rehabilitation and new sewer construction work. The PRC provides its product reviews to the local design consultant to be used in developing project specifications and bidding documents.

The PRC is not chartered to evaluate wastewater treatment process equipment. The design consultant (subject to ESD approval) evaluates wastewater treatment process equipment.

Organizational

The County formed the PRC under the jurisdiction of the ESD. The PRC reports to the ESD Director.

The PRC meets monthly and reviews all outstanding applications for product approval. The PRC publishes a monthly report that describes all product applications for approval and states the status of the products (approved or disapproved).

Consent Decree Compliance

The CD did not require the formation of the PRC specifically. Nevertheless, the CD prompted the County to be concerned about product performance criteria (e.g., contractors will use the

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product's long-term ability to eliminate I/I and structurally perform as designed), which caused the County to form the PRC.

PRC Membership

Member Makeup

The PRC consists of eleven members selected from ESD staff, local engineering consulting firms, and professional service companies. The members have technical and/or management positions. They either supervise design, maintenance, or construction personnel or have a background in design, maintenance, and/or construction.

Member Responsibilities

Members evaluate the ability of a product on the basis of whether it meets PRC requirements and whether it can perform as stated in the application documentation and any subsequent product demonstration. Members also evaluate the merits of the submitted product or class of product with regard to published case studies and experiences of other utilities.

Members initially review application packages independently and then later meet for discussion.

One PRC member serves as chairperson. Other PRC members alternate the responsibility for leading a specific product review. The PRC sometimes forms subcommittees to evaluate product groups such as CIPP linings, manhole lids, and PVC lateral pipe.

After its formation, the PRC members initiated a mass mailing to all previous suppliers informing them of the committee, its function, and that product approval was required.

Product Submittal and Evaluation Process

Submittal Steps

Each rehabilitation product proposed for use in the County's sewer system undergoes the submittal and evaluation process. No products were automatically accepted or "grand-fathered" because they were being used prior to the formation of the PRC. Any product that receives approval from the PRC, and then changes in either material or in its field installation process, then that product must be resubmitted and reapproved prior to use.

The process begins when an interested product manufacturer or the contractor/installer submits a Sanitary Sewer System Products "Application For Acceptance" form to the PRC. The application lists the product, the applicant, and the applicant/installer information important to the PRC. In addition, the instructions list the Supplement Information to submit that more fully describes the specific product. For example,

- Product literature and brochures

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- Sample product specifications
- Engineering guides or manuals
- Installation and maintenance instructions
- Product test reports and ASTM documentation
- Typical pricing schedules

When the sewer rehabilitation product or process is specialized, the PRC qualifies the product, installation procedure, and the contractor.

Evaluation Process

Applications must be completely filled out and have responsive answers. Applications judged to be incomplete are either returned to the applicant for revision and resubmittal or discarded at the PRC's discretion. If Supplemental Information is insufficient, the application is similarly returned to the applicant or rejected.

Complete and responsive applications are evaluated on the merits of the supplied information to satisfy the PRC that the product performs its designated function. Acceptance of an application is influenced by its historical use of the product in the sewer industry, responses of reference interviews, and comprehensiveness of the product testing documentation. This information also determines whether or not a subsequent field demonstration is required.

The PRC generally requires demonstration projects, but product approval is possible without them. Demonstration projects are regularly required because they provide an opportunity not only to verify the claimed qualities of the product but also to allow confirmation of the installation process. Consideration of the installation process is an integral component of the PRC acceptance determination. Deficiencies or weaknesses in the product's installation process or the installer's skills become apparent during the demonstration process. The County currently pays product demonstrators to demonstrate their products. .

The PRC has always required applicant references. Insufficient or poor references are grounds for disapproval.

The ability of the product to meet specified performance requirements is the primary criteria for approval. Cost is not a factor for approval or disapproval. The PRC does not disapprove technically sound and performance adequate products because the cost is higher relative to other similar products.

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Approval or Rejection Notification

The PRC evaluates application material and field demonstration results and then renders acceptance or rejection of the product. Acceptance may include conditional requirements or restrictions. Once the product is approved, then it may be included in the County bid documents. No product approval is permanent, and every product is subject to an initial probation period explained in the approval notice.

The PRC reserves the right to discontinue or suspend use of an approved product that is subsequently installed but does not perform satisfactorily.

Rejected or suspended products cannot be re-submitted sooner than six months from the date of the rejection or suspension. The PRC notifies the applicant of the reasons for the rejection or suspension.

Product Performance Monitoring

Responsibility

Responsibility for monitoring the performance of the approved rehabilitation or new sewer product falls to the project design consultant.

Performance Feedback to PRC

Product performance observations are presented at the monthly rehabilitation progress meetings held with local design consultants and ESD staff.

Observations

The PRC is charged with reviewing technical data and specifications presented by manufacturers and companies seeking the PRC's approval of products and methods used in sewer rehabilitation and new sewer construction.

The PRC focuses on product selections that eliminate infiltration and inflow (I/I) and perform as presented by the manufacturer for an acceptable period of time. This was described by the PRC members in the interview sessions as at least 40 years and preferably longer. The CD requirements influence the PRC's product selection criteria when I/I elimination effectiveness of the product is considered by the PRC. Each rehab product has inherent advantages and disadvantages depending on the specific conditions. For instance, post installation performance monitoring resulted in plastic-based pipe reliners being disallowed by the PRC because of the poor record of achieving consistent I/I elimination performance, caused by annular space issues resulting primarily from pipe ovality misalignment. However, our research indicates that plastic-based pipe reliners are being utilized successfully in other areas of the country.

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The PRC's holistic product and installation performance approach appears to be influenced by the duration of the financing for the Program costs. There is concern that products selected on an immediate, low-cost basis may not last forty years, and that ratepayers could be burdened by overlapping program costs (cost of the initial product that failed and the replacement product cost). In addition, products that have the lowest entry costs may have higher total system life-cycle costs because of relatively greater maintenance and repair requirements.

The PRC served as a structured mechanism to have different product manufacturers demonstrate their respective product's ability to meet PRC requirements. The PRC provided a means to coordinate and distribute the knowledge gathered from the PRC evaluations to the local design consultants.

Our review indicated that certain rejected products would have performed well if conditions were stipulated, such as where the product could be used or that it had to be used in conjunction with another cost. As a result, some of Jefferson County's material specifications and construction requirements are conservative and may result in higher prices when compared with other locations. The County has not permitted any deviations from the specifications regardless of location of installation or site condition. For instance, specifications for county mains and residential property service laterals require the same type of material. This approach to the specifications drives up the cost of home construction in Jefferson County by approximately $1,000 per unit according to the Birmingham Home Builders Association. In addition, the County's general requirement that contractors utilize ductile iron pipe in order to reduce potential maintenance cost has increased Program cost. A less conservative approach would allow material specification deviations depending on geological conditions. This would permit a contractor to use less expensive PVC piping where the soil condition had suitable bearing capacity. This practice is widely used in other localities.

Regarding the PRC Review Conclusions

PRC activities appear to support the objectives of regulatory compliance and desired product package performance. Product selection appears based on a process that places emphasis, as much as possible, on the long-term performance of the installed product. The process does not appear arbitrary or capricious. Some products perform well under controlled lab conditions but rely heavily on the quality of field installation decisions and methods for proper performance. The PRC's emphasis on using experienced product installer's, reference follow-up, and field demonstration observations is reasonable and these steps to help lower the risk to the County of selecting good products but poor installation processes. However, the County would benefit from a mandatory evaluation of life-cycle cost as an objective criterion in the PRC operating guidelines.

Since its inception, the PRC evaluation process seems to have evaluated many of the nationally distributed products for sewers. Because individual products were not part of BE&K's review, no attempt was made to determine why the PRC did not select certain products commonly used by other utilities for similar installation conditions. For instance, the PRC did not approve certain epoxies, cementitious manhole coatings, and PVC pipe products that are commonly used by other utilities and may have offered reduced life cycle costs.

Overall, the PRC appears to provide a valuable and important process function for the County to manage its assets and avoid the incorporation of poor performing products in the County's sewer infrastructure. However, we have provided several recommendations for the County to consider incorporating into the PRC guidelines. These are summarized below as Findings and Recommendations.

Findings and Recommendations

Finding 8-1

The PRC guidelines are consistent with its purpose. However, the selection criteria for product approval should be more structured and formally emphasize the importance of cost criteria and expand the conditional requirements of products to increase product competition.

Recommendation 8-1

We recommend that ESD management direct the PRC to include product life-cycle cost in its evaluation and the PRC adopt a decision-making process using available industry decision science tools that address the problem of assessing the relative merits of multiple and often competing criteria. The PRC should document life cycle cost evaluations and use these evaluations as the cost basis for product selection. Further, these life cycle evaluations will help to ensure that product selection decisions are consistent with Program objectives and are based on well-defined measures of performance using quantitative input. ESD should incorporate more flexibility in the PRC decision-making process on a case-by-case basis to allow utilization of products commonly incorporated by other utilities.

Finding 8-2

The PRC is comprised of representatives of the County's ESD staff and ESD's local professional consultants. This limited membership reduces the opportunity for a broader and more diverse perspective of product application and selection criteria priorities.

Recommendation 8-2

The PRC should broaden its membership, institute term limits, and stagger service terms. For example, the PRC might limit individual membership to three consecutive years and rotate one third of the membership each year. The PRC should include additional members with different experience and backgrounds. For instance, the PRC might include a representative from the County's Purchasing Department, a recognized industry sewer rehabilitation expert from outside the area; a member with a financial or economics background; and a member who represents a local user group. The inclusion of members with diverse knowledge and interest, who are not directly affiliated with the County or their participating consultants, would add a more balanced perspective to product selection and give the PRC more public credibility.

Finding 8-3

The PRC has not always ensured that all products and methods selected have adequate competition, potentially resulting in added cost for the County. For instance, our research indicates that Jefferson County paid more for cured-in-place liner than surrounding communities. There were only three prequalified bidders for cured-in-place liner during the first three-to-four years of the program. Our research indicates that additional CIPP product suppliers were available. Eventually, two additional cured-in-place liner products and installers were qualified. When this additional competition entered the market, the price paid by Jefferson County decreased to match the levels being paid by surrounding communities.

Recommendation 8-3

We recommend the PRC consider alternative qualification methods to obtain adequate competition. For instance, all cured-in-place lining installation had to be demonstrated in Jefferson County. Three suppliers demonstrated their products early in the Program. The PRC then tried to convince other manufacturers of cured-in-place lining products to demonstrate their products in Jefferson County. This effort took several years. Several members of the PRC could have visited installation sites in other communities and expedited the approval process in order to create a more competitive atmosphere and, presumably, saved the County money.

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9

Contracting Methods and Administration

Introduction

BE&K examined the methods and procedures the ESD uses to contract for professional services and construction. Findings and recommendations relate to the current process as compared with industry standard practice for similar programs of this magnitude. Our findings as described below are divided into two sections. The first section details the selection process for professional services, and the second section details the selection process for construction contractors.

Background

Our task was to determine the specific procurement process used for the selection of professional services to supplement the ESD professional staff with design engineering management services, and to determine the impact of this process on the Program. The size and schedule for the Progam meant that the County needed not only design consultants, but also supplemental professional staff to accomplish normal program management tasks, process engineering, inspection, testing, and construction management services.

Professional Services Contracting

With respect to the process used to select design consultants, we found no evidence that the County used a competitive prequalification procedure. Our research indicates that governmental agencies executing programs of this size, utilize a qualifications based selection process. Our findings indicate that local firms were chosen on the basis of ESD's familiarity with them, albeit on smaller projects, and sometimes because of the local firm's experience with a geographic area or treatment plant. In our opinion, it is unusual for an owner not to utilize a qualification based selection process to select the most experienced and qualified engineering firms for a program of this magnitude and complexity. It is also unusual for an owner to use only local engineering talent without proven track records on projects of this magnitude and complexity. On most programs like this, the owner undertakes a comprehensive procurement process to ensure selection of only the most qualified firms with experience on similar large and complex programs. The selected firm may then subcontract portions of the work in order to be cost effective and utilize the local talent. The American Council of Engineering Companies (ACEC) recognizes that a formal selection process is the key to successful projects: "When public officials utilize professional consultants to undertake a construction project, whether it involves a study, new construction, or modifying an existing facility: the consultant's performance can influence the entire course of the project — economy, feasibility, public response, design, function efficiency, construction costs, operating costs, and maintenance costs during the life of

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the facility. Some public services do not undertake projects often enough to have experience planning for such a project or to select a professional consultant in the most cost-effective and efficient manner." (Ref. ACEC, American Council of Engineering Conference of California http://www.celsoc.org/ftp/qbsbrochure.pdf Page 3 of 41.) See Appendix 9. Jefferson County's decision not to utilize a formal Quality Based Selection process was particularly unusual in light of its considerable effort to ensure that only experienced construction contractors be allowed to bid this work. If the same qualifications process had been used in selecting consultants, then local engineering firms would have had difficulty qualifying for the magnitude of the work they were awarded. Figure 1 below indicates the breakdown of the awarded costs; they are identified as Professional Services such as design, inspection, and testing. The use of the term "Inspection" refers to construction management services that local consulting firms are providing. Professional consultant services were sole sourced, negotiated, and direct awarded. Construction contracts were bid, evaluated, and awarded to the lowest qualified bidder.

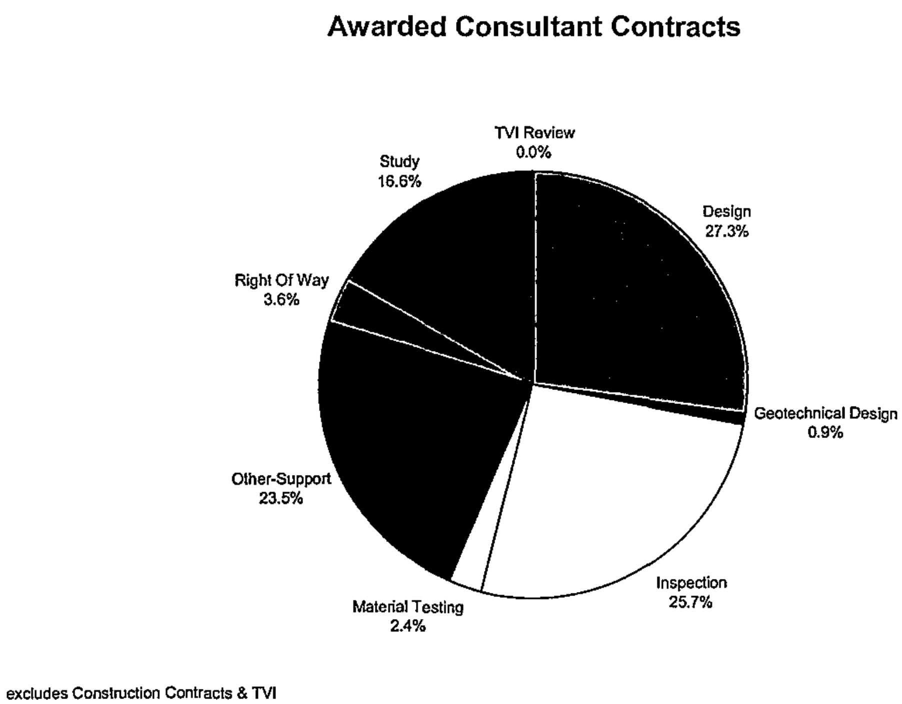

Figure 1- Work Breakdown as a % of $ Awarded

Note: "Other Support" is project management, flow monitoring, technical support, and as-built drawing evaluations.

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Contract Type Projections

Awarded Contracts

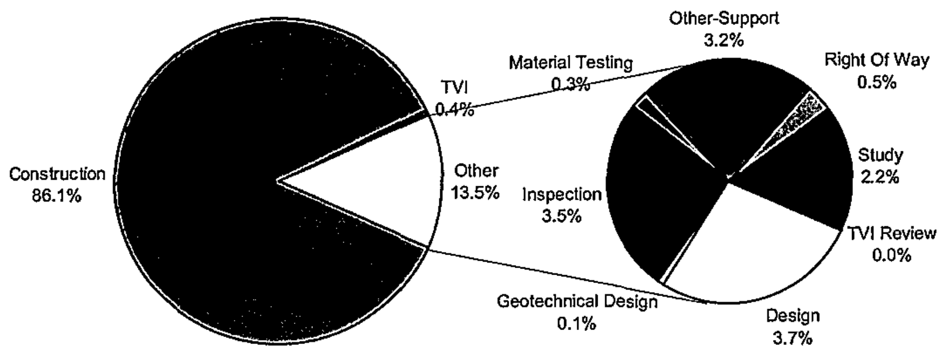

Figure 2 - Consultant Work Breakdown For Contracts Awarded To Date

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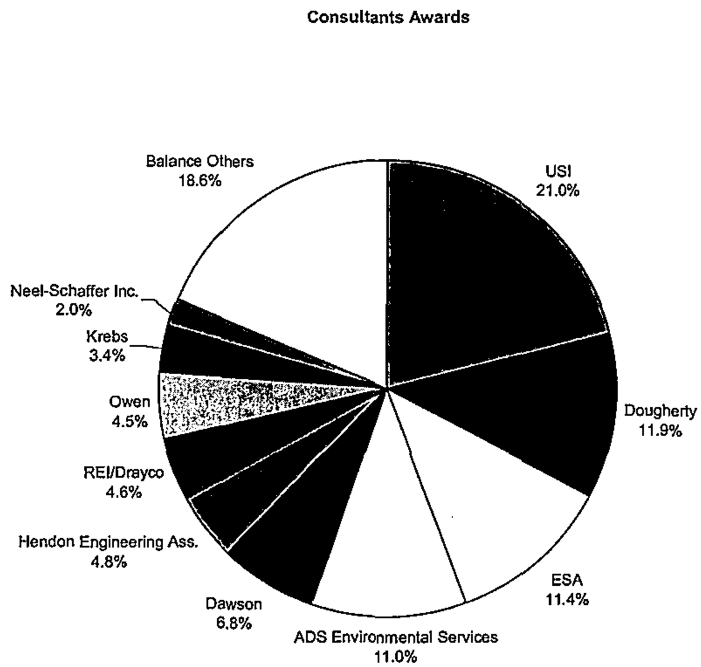

Figure 3 - Percentage of Work Awarded

	Consultant	Total
1	USI	$60,978,581
2	Dougherty	$34,533,918
3	ESA	$33,190,681
4	ADS Environmental Services	$31,792,257
5	Dawson	$19,870,236
6	Hendon Engineering Ass.	$13,822,568
7	REI/Drayco	$13,387,381
8	Owen	$13,182,725
9	Krebs	$9,900,293
10	Neel-Schaffer Inc.	$5,726,940
	Balance Others	$53,944,189
	Total	$290,329,770

Figure 4 - Consultants Share of the Work

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Construction Services Contracting Prequalification

We determined that ESD used a prequalification process unique to the Public Works sector to prequalify and select construction contractors. ESD required that all contractors wanting to bid work for ESD be prequalified prior to submitting bids. The experience of the BE&K team technical consultant, CH2M HILL, which is experienced with and has researched large capital programs, is that prequalification of construction contractors is not normally performed on traditional public works programs such as the Program. (However, prequalification is used when specialized abilities are required such as in nuclear, hazardous waste remediation, or in private sector work.) The BE&K team believes that the CIPP installation contractors should have been prequalified; however, ESD could have been more aggressive in qualifying the contractors by visiting CIPP sites in other municipalities and using the results of those visits to document qualification results. The ESD prequalification process has the potential to limit competition by restricting the number of qualified contractors who bid. The specific experience and qualifications for contractors are generally covered in the bidding document specifications and contractor license requirements. Contractor financial requirements are generally determined by the contractor's ability to obtain necessary insurance and bond instruments. The Jefferson County area has many contractors skilled in asphalt paving, manhole repair and installation, pipe laying, and other services required by ESD in the execution of this program. The unique prequalification program used by ESD may have discouraged qualified contractors from bidding.

Bidding and Award of Contracts

ESD's construction contracts are competitively bid and, in most cases, awarded to the lowest bidder. This is typical for the public works sector. The WWTP construction contracts were awarded on a lump sum basis on nearly complete design. The collection system construction contracts were awarded on a unit price basis based on estimated quantities developed by the design consultant during the design phase. These quantities were adjusted to match the designed solution once the TVI and design were completed.

ESD also maintained a category of contracts designated as the "$50K Program." These projects were not bid but were negotiated with contractors to perform emergency work or other specific tasks. According to ESD records, the Program began in 1998 and continued through 2002. The Program was stopped in December 2003 and is under review.

Construction Management

Construction management (inspection) was typically performed by the design consultant, although ESD performed inspections for selected programs. Our review indicated that inspection during construction has been effective to date. The design consultants reviewed and approved progress payments, performed quality inspections, reviewed and approved change orders concerning cost or schedule, and generally acted as the County's representatives.

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Findings and Recommendations

Finding 9-1

ESD did not utilize a formal written pre-qualifications process for selecting experienced design consultants. ESD chose consultants based on ESD's personal knowledge of either the consulting firm or of an individual employed by the consulting firm. ESD then assigned the consultants' based on the consultants' familiarity with the existing facilities and systems.

Recommendation 9-1

We recommend that ESD establish a formal qualification based selection process based on Best Practices as defined by CII (Construction Industry Institute). ESD should select consultants based on proven past experience and capability on projects of similar size and complexity. Based on our investigation and review of the consultant contracts awarded, we believe the County should use the Qualification Based Selection process to select a consultant and then negotiate rates with the chosen qualified consultant.

Finding 9-2

There is no evidence that the Program considered utilizing an engineering peer review process to obtain alternative design options. Therefore, the County received no benefits that may have been available from consultants who had worked on "Consent Decree" programs in other areas. Local consultants acted as an extension of the ESD, providing the process design as directed. Design consultants turned the ESD's concepts and preferences into reality on the "drawing board."

Recommendation 9-2

We recommend that ESD implement an engineering peer review process for future ESD projects.

Finding 9-3

ESD uses a rigorous process to prequalify contractors to bid on projects. ESD considers contractors for prequalification in three (3) sewer and five (5) facility categories, depending on the contractor's request and the PRC's assessment of qualifications. Our experience is that contractor prequalification, in the public works sector, is generally limited to selection of specialty contractors or technologies. This prequalification process may have restricted or limited the number of bidders. Particularly at the start of the Program, the County may have paid higher rates by restricting the number of bidders. In reviewing the unit rate bids for construction, we noted that prices came down over time as more bidders were added in 2000. We have not been able to determine why additional bidders were added in almost every category. It appears that the fourth bidder was added in the summer of 2000 and the fifth bidder was added in the summer of 2001.

Recommendation 9-3

We do not recommend changes to the process at this stage of the program. The current prequalified contractor pool is sufficient to produce competitive bids. If, however, the County observes a decline in the number of qualified bidders or bids, then the County should revisit this concern.

Finding 9-4

ESD negotiated contracts for emergency repair and other services for the $50K Program.

Recommendation 9-4

ESD and its consultants should develop a competitive bid package for its emergency repair services or other services requiring quick response. The package could be based on standard work units or standard services that small local contractors could provide.

Cancellation Clause for Owner's Convenience

Introduction

ESD uses several standard contracts to define the terms and conditions for its professional services suppliers and construction contractors. The standard contract utilized for professional services suppliers contains a "cancellation clause for Owner's convenience". This clause allows the County to cancel or stop the work at any time. This clause describes the method the parties to the contract would then determine payment to cover cost associated with the cancellation.

The construction contracts entered into by ESD do not contain a "cancellation clause for Owner's convenience". If the County decides to cancel the contract for its convenience, then the County can and probably will be sued for "breach of contract" and would be placed in a weak position to defend against the contractor's claim.

Observation

The ESD recently cancelled three construction contracts due to an overall lack of funding to complete the planned Program. The three contracts did not have a "cancellation clause for owner's convenience." All contractors involved with the cancellations filed claims against the County claiming breach of contract for not allowing completion of the work. Progress was minimal on all three projects and all contractors made claims for payment that were disproportionate to the physical progress on the project. This situation also existed on the Cahaba Trunk Sewer project. The County can protect against these concerns by including a "cancellation clause for owner's convenience" in each construction contract. As stated above, this contract language merely prescribes a system by which the County might terminate and describes the means the parties would use to determine the payment for cost associated with the termination.

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Findings and Recommendations

Finding 9-5

The ESD is in a weak position to defend against claims of breach of contract when it must cancel a construction contract for owner's convenience because the language in its construction contracts does not permit this form of termination.

Recommendation 9-5

We recommend that the County include a termination for convenience provision in each construction contract. This type of clause would allow Jefferson County to cancel or stop the work at any time and describes the method the parties would use to determine the payment to cover cost associated with the cancellation to the contract.

BE&K submitted a recommendation to the County Commissioner on March 27, 2003 recommending the inclusion of a clause for cancellation for Owner's convenience. We also included several examples of clauses the County could use. We understand that the County is adding a "Cancellation for Convenience Clause" to its future construction contracts.

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10

Comparison of Unit Pricing with Other Locations

Introduction

The focus of this section is to summarize and discuss the results of our research of a representative material which was installed, then record and compare the Jefferson County Sewer Program's awarded unit prices for 8-inch cured-in-place pipe (CIPP) with those experienced at other locations during the same time period. CIPP was selected because it represented a large percentage of the total capital investment that was required in this program. In addition, yearly cost comparisons were made for several other collection system items.

This review of the unit prices was performed to determine if there were significant differences with unit prices awarded in selected cities in the southeastern U.S. A detailed comparison of the Jefferson County CIPP specifications, with the specifications of the other cities was made in order to determine if unit price differences could be attributed to different specification requirements. We also compared geographical and/or geological similarities.

Background

Public works projects are competitively bid to provide the public agency with the lowest cost. Bidders are provided with the same technical requirements, bonding requirements, and schedule. When construction projects are competitively bid, a number of processes are generally followed. These include, but may not be limited to, project identification, planning, development of the scope of work, design (including drawings and specifications), bidding, and contract award. Prices provided by the contractors may be either lump sum or unit price based on an estimated scope of work or units of measure. Factors that impact construction costs include, but are not limited to, the following:

- The number of qualified bidders
- Requirements of the contract documents
- Market conditions
- Size (length) of the project
- Availability of the local labor force

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- Contractor familiarity with technology utilized
- MBE/WBE requirements
- History of the selected technology
- Use of other technologies as alternates
- Geology of the area

In 1996, Jefferson County started its sewer construction program to meet the requirements of the CD. About 60 percent of the planned work included sewer line rehabilitation/replacement and manhole rehabilitation/replacement activities. A Contractor Prequalification Process was used by Jefferson County to determine the capability of the contractors desiring to participate in the bidding process. The process was used by Jefferson County to reduce the possibility of an unqualified contractor or product being utilized in the Program. ESD indicated that its prequalification objective was to help assure quality in its projects. It is our opinion that this process did adversely affect the unit prices (caused inflated prices) during the bidding process by limiting competition due to the limited technology providers that were approved in the first few years of the Program by the Product Review Committee (PRC). As discussed in Section 8, the PRC required interested contractors and technology providers to give model product demonstrations for evaluation and approval by ESD. A more aggressive approach by the PRC should have been employed to increase the number technologies considered and evaluated. For instance, traveling to other locations where other utilities were utilizing the products being considered for construction. This approach and others would have allowed the PRC to maintain the same objective for establishing a quality standard and qualify additional bidders without the bidder having to prepare a special crew and equipment shipment to Jefferson County to demonstrate the quality and applicability of their product. This step would have potentially allowed additional contractors and technology providers to be qualified much earlier in the program. This process is also described in other sections of this report.

Methods Utilized

The team utilized historical information and procurement documentation from other locations to perform reviews of the design documents for selected scopes of work. The request for bid and design documents (drawings and specifications) can have a significant impact on the unit prices. These are summarized in this report.

Unit Cost Data Collection and Summary

Jefferson County bid tabulations from 1996 to 2002 were used for this review. Trends for selected bid categories were summarized along with comparison of the 8-inch CIPP with awarded bids for selected locations in the southeast U.S. As part of the 8-inch CIPP review, the CIPP specifications from Jefferson County and the selected cities were reviewed and compared.

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Jefferson County Unit Prices

Prior to comparing the Jefferson County unit prices with those from similar programs, the Jefferson County bid tabulation data was queried for selected trends. In Table 1, major rehabilitation bid items were summarized for the years 1996 to 2002 to determine the trend of the annual highest average unit price compared to the average unit price for awarded bids in 2002. In all cases except one, the average unit price in 2002 decreased substantially from the annual highest average unit cost. The 8-inch CIPP trend was then compared with the trend from the selected cities.

Table 1
Unit Price Trends from 1996 to 2002
Jefferson County Sewer Rehabilitation Program

Bid Item	Annual Highest Average Unit Cost	Year of Highest Average Unit Cost	2002 Average Unit Cost	Percent Increase (Decrease)
8-in. CIPP - 0 to 10 ft deep	$58.00	1996	$27.10	-53.3%
8-in. CIPP - 10 to 20 ft deep	$62.57	1997	$26.95	-56.9%
10-in. CIPP - 0 to 10 ft deep	$64.00	1996	$31.86	-50.2%
12-in. CIPP - 0 to 10 ft deep	$70.00	1997	$35.02	-50.0%
48-in. MH Rehab - 0 to 10 ft deep	$371.00	1998	$254.61	-31.4%
48-in. MH Rehab - 0 to 20 ft deep	$389.38	1998	$255.98	-34.3%
48-in. MH Rehab - 0 to 30 ft deep	$406.00	1998	$261.38	-35.6%
New 48-in. MH - Precast Concrete	$609.00	1998	$271.07	-55.5%
Replacement 48-in. MH – Precast Concrete	$501.32	1998	$367.73	-26.6%
Mainline Replacement, 8-in. DI Pipe, Class 52, 0 to 6 ft	$154.35	1998	$78.26	-49.3%
Mainline Replacement, 8-in. DI Pipe, Class 52, 6 to 8 ft	$158.22	1998	$84.65	-46.5%
Mainline Replacement, 8-in. DI Pipe, Class 52, 8 to 10 ft	$166.83	1998	$88.64	-46.9%
Pavement Replacement	$19.15	1998	$6.75	-64.8%
Pavement Milling	$14.83	1999	$7.28	-50.9%
Special Stone Aggregate Backfill	$17.59	1998	$16.63	-5.5%
Television Inspection	$2.91	2002	$2.91	0.0%
Service Lateral Reinstatement	$200.63	1997	$47.28	-76.4%
Service Lateral Reconnection and Repair	$3,695.00	1998	$1,941.72	-47.5%
Service Lateral Stubout Installation	$97.32	1998	$31.33	-67.8%
Standard MH Frame and Cover Installation	$438.75	1996	$291.08	-33.7%

In the trend comparison, BE&K reviewed 46 unit prices in the rehabilitation contracts that made up 80 percent of the total rehabilitation cost. Twenty of the 46 unit prices compared are shown in Table 1. Of the 46 unit prices between 1997 and 2002, only 4 increased over time. The remaining 44 unit prices dropped over time. This includes many items installed on a regular basis by a large number of local contractors, including asphalt paving, ductile iron pipe installation, manhole replacement, service lateral reconnection and repair. These are neither highly technical tasks nor ones that involve new technology that might require specialized

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contractors or construction methods. All these trends seem to be the same, i.e., the price went down over time as the number of bidders increased (as shown in Figure 1).

Jefferson County 8-inch CIPP Unit Prices

The comparison of Jefferson County unit prices with those from other selected cities was performed using the 8-inch CIPP, 0 to 10 feet deep, as the benchmark. The project specifications for the Jefferson County CIPP were compared with the specifications of the selected cities. The results of that comparison are described later in this section.

The awarded bid unit prices for 8-inch CIPP in Jefferson County from 1996 to 2002 are shown in Figure 1.

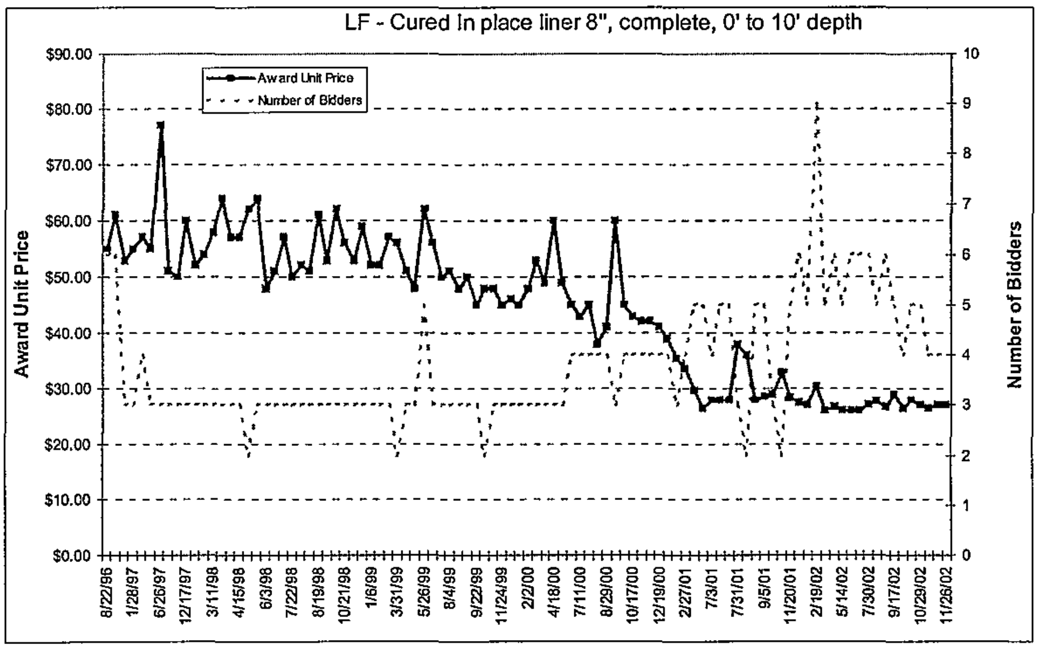

Figure 1

From 1996 to near the fall of 1999, the unit price of the 8-inch CIPP was consistently above $50 per foot ESD management may not have recognized that Jefferson County was paying significantly higher prices than surrounding communities and did not initiate corrective actions, such as expediting approval of additional CIPP contractors. Also, it appears that during this period, the same three bidders bid on each contract.

Input from an experienced Program Manager would likely have led to a more aggressive approach by the PRC to qualify additional products/bidders. A more aggressive approach could

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have impacted this issue positively by increasing the number of approved bidders. Having only the same three bidders on the Program did not provide the level of competition to maintain reasonable prices.

From the fall of 1999 to the middle of 2001, Jefferson County experienced a unit price reduction from approximately $50 per foot to $30 per foot. From the middle of 2001 to the end of 2002, the unit price stabilized between $25 and $30 per foot. Table 2 summarizes the CIPP average unit prices and linear footage awarded per year.

Table 2
Average Awarded Bid for 8-inch CIPP (0' to 10') by Year
Jefferson County Sewer Rehabilitation Program

Year	Number of Projects	Feet of CIPP	Price	Average Unit Price
1996	2	12,110	$673,850	$55.64
1997	8	89,065	$4,883,625	$54.83
1998	20	293,998	$16,218,129	$55.16
1999	17	215,418	$10,722,046	$49.77
2000	17	386,150	$17,366,494	$44.97
2001	16	403,817	$12,203,721	$30.22
2002	17	682,302	$18,041,932	$26.44
Totals	**97**	**2,082,860**	**$80,109,797**	**$38.46**

A number of factors could have contributed to the unit cost reduction. General market conditions at the time, lack of local experience with large sewer programs, number of bidders who participated in the bidding process and other factors would have had a collective impact on the unit prices quoted. Most of the projects awarded from the beginning of the sewer program to around the middle of 2000 had generally the same three (3) bidders during the competitive bidding process, and the unit price fluctuated very little. However, beginning around the middle of 2000, the number of bidders increased to four (4) and the average unit price dropped to $44.97. Through the year 2002, the number of bidders per project generally ranged from four (4) to six (6), and the average unit price dropped even more to $26.44. In a few instances in 2002, there were fewer than four (4) bidders, and on one project, there were nine (9) bidders.

During the interview process with US Infrastructure, Inc. (USI), the following four (4) factors were identified by USI as having potentially contributed to higher unit prices in the early years of this program:

- When the program began in 1995, the contractors in this region were not equipped or staffed to perform the large volume of sewer rehabilitation work. Contractors began preparation for this program by making initial capital investments in equipment, licensing and royalty fees, personnel, and training. According to USI, the investments made by these contractor's have now been recovered. USI's opinion is that the reduction in unit prices is partially due to this

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investment being satisfied. As shown in Figure 5, this does not appear to have been the situation in Nashville. Nashville's pricing immediately dropped to and remained much lower that the Jefferson County rates. Our review of the Nashville pricing revealed that several bidders for the Nashville CIPP work were also bidding CIPP work in Jefferson County.

- The decreases in the unit prices over the years of the program are based, in part, on the County engineers' and the contractors' increased understanding of the requirements of the program. Through this understanding, the program team members became more efficient and cost-effective as they gained experience.

- Many contractors and suppliers have established office facilities and constructed CIPP wet out facilities in Jefferson County. These investments have resulted in more easily obtainable materials and in reduced shipping and handling costs.

- As the program evolved, the County began performing TV inspection in areas where no information on the condition of the sewer system was available. Work from the TV inspections was added to the SSES work scope, which resulted in increases in work scopes (quantities) making the projects more attractive and, therefore, increasing competition. In summary, as bid quantities increased, unit prices decreased. Table 2 shows that this is true in the later years but not between 1998 and 1999. The unit price decrease also coincides with the increase in the number of bidders.

Figure 2 is actual Jefferson County unit price data that has been sorted by date bid to indicate the period of installation for the linear footage of individual CIPP projects.

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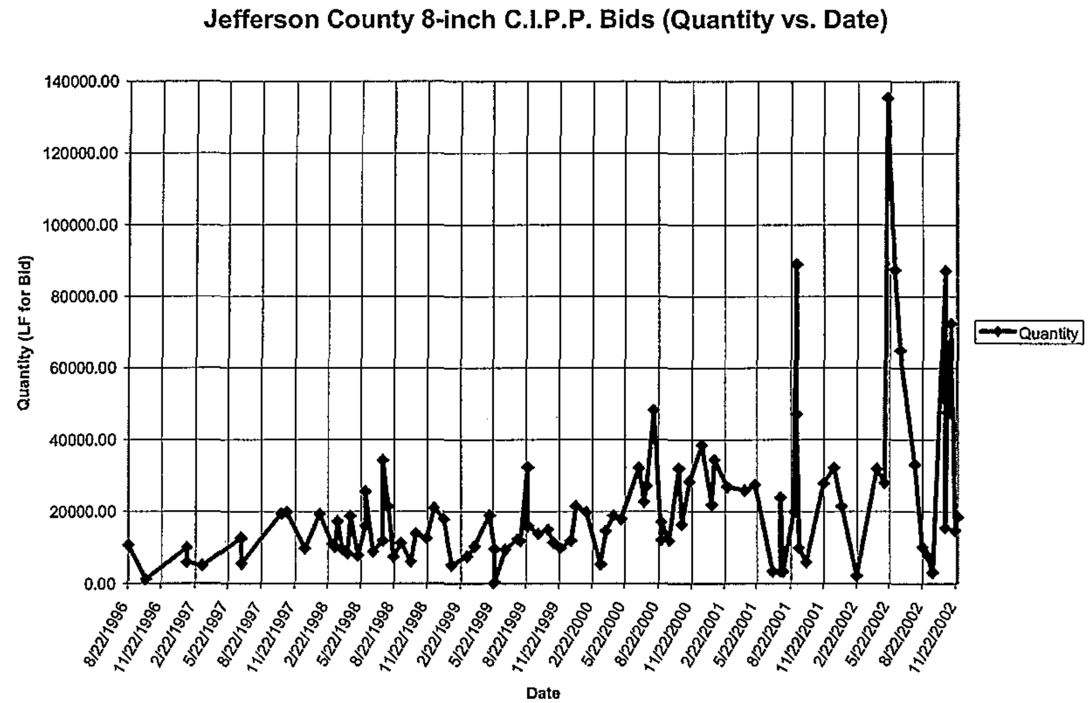

Figure 2

Although there was a steady increase in the linear feet of CIPP lining, this does not appear to have been a significant factor impacting the unit price except for the large projects awarded in 2002. However, as previously reported, the unit prices in 2002 were between $25 and $30 per foot.

As described earlier in this report, a number of factors can impact the unit price for a particular bid item. Smaller projects can often result in higher unit prices due to mobilization/ demobilization and overhead costs. For the 8-inch CIPP, the Jefferson County bid tabulation data was used to see if there was a relationship between length of CIPP lining on the project and unit price for that project without regard to the year. This data is plotted and is provided in Figure 3.

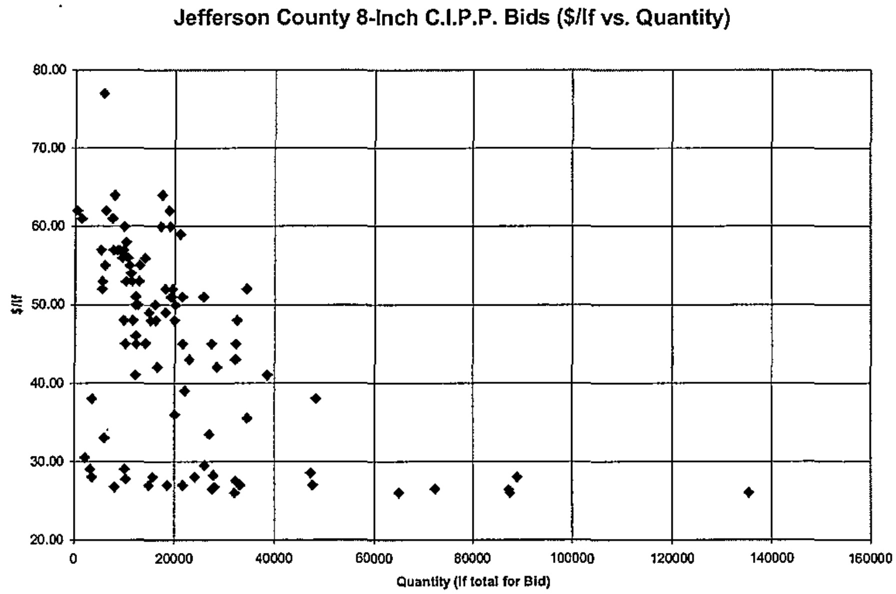

Figure 3

In Jefferson County, the shorter projects have more unit cost variability. It appears that the lowest unit price is in the range of $25 to $30 per foot. The highest unit price experienced by Jefferson County was $77per foot, which was on a short project (5,625 feet bid on June 26, 1997). The lowest unit price experienced by Jefferson County for the period of record reviewed was $26.00 per foot on three (3) long projects (32,000 feet, 87,500 feet and 135,391 feet bid on April 16, 2002, June 4, 2002 and May 14, 2002, respectively).

Selected Programs for Comparison

The Commission requested that this report make a comparison of the Jefferson County cost data with those of other wastewater utilities. The criteria used to select the comparison programs were as follows:

- Size of the Program – Compare with a program of similar size to the Jefferson County Program
- Location of the Utility – Compare with a program located in the southeast U.S. and, if possible, in a similar geological setting to Jefferson County
- Similar Rehabilitation Approach – Compare with a program that used CIPP as part of its rehabilitation strategy

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It was not possible for comparison programs to meet all the criteria set forth. For comparison purposes with Jefferson County, the following programs were selected for collection and summary of unit price data:

- Nashville, Tennessee
- New Orleans, Louisiana
- Atlanta, Georgia

All the comparison programs are located in the southeastern U.S. There are geological similarities between Jefferson County and Nashville and Atlanta. All of the comparison programs have large rehabilitation activities ongoing. All rehabilitation projects involving use of CIPP were similar in that they all utilize the existing pipe into which the CIPP was inserted to form the rehabilitated sewer.

Nashville CIPP Unit Cost Data

Of the city programs that provided requested CIPP cost information, Nashville was able to provide more data points than either New Orleans or Atlanta. Over the past few years, Nashville has awarded more individual projects with CIPP bid items (38 total) than New Orleans or Atlanta. During the same period of time, Jefferson County has awarded more CIPP projects than any of the three (3) comparison programs. The number of bidders on Nashville projects ranged from two (2) to nine (9). As shown in Figure 4, Nashville experienced a similar unit cost reduction trend for 8-inch CIPP compared to that experienced by Jefferson County from 1997 to 2002.

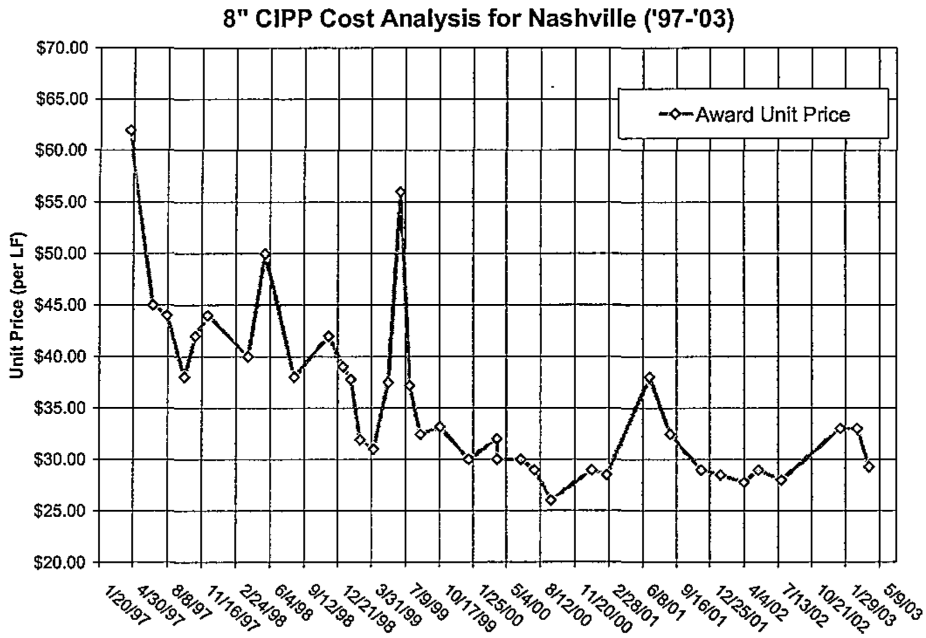

Figure 4

The highest unit price experienced by Nashville was $62.00 per foot compared with Jefferson County's $77.00 per foot. As with the highest Jefferson County unit price, the highest Nashville unit price was on a short project (1,660 feet of liner that was bid on April 17, 1997). The lowest unit price experienced by Nashville for the period of record reviewed was $29.25 per foot compared with Jefferson County's $26.00 per foot. As with the lowest Jefferson County unit prices, the lowest Nashville unit price was on a relatively long project (28,500 feet of liner that was bid on April 08, 2003).

The comparison between Nashville and Jefferson County unit prices for CIPP is provided in Figure 5.

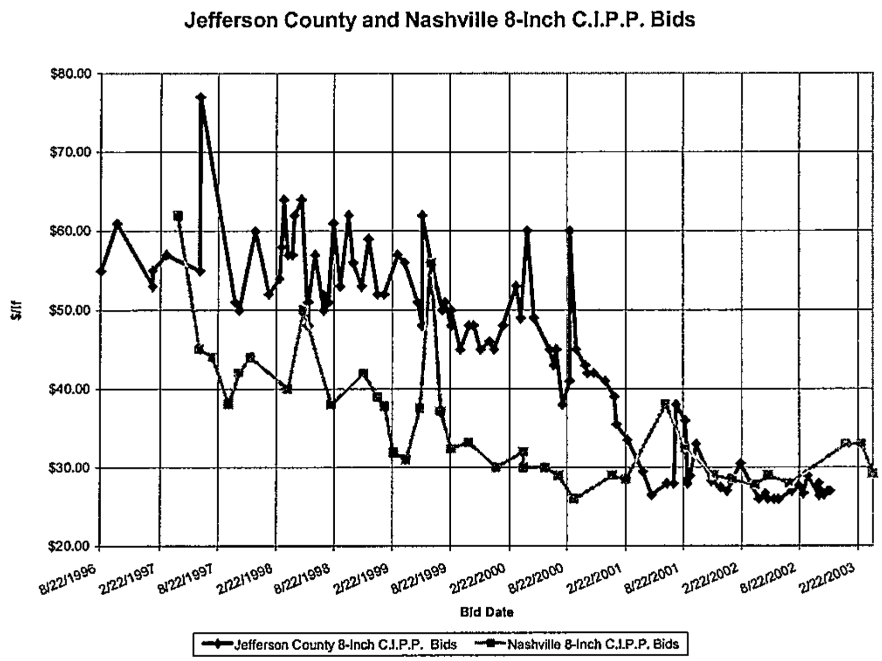

Figure 5

From the latter part of 1997 to around the end of 2000, Nashville's awarded unit prices were consistently $10 to $20 per foot below the Jefferson County unit prices. Figure 5 demonstrates that although Nashville's' starting unit price was in the same range as Jefferson County's', the Nashville unit prices dropped immediately. This reduction took four years in Jefferson County. From 2001 through 2002, the unit prices generally converged. In fact, the observed unit prices for Jefferson County are lower than those for Nashville from around mid-2002 to the period of record.

New Orleans CIPP Unit Cost Data

New Orleans had fewer unit cost data points than either Nashville or Jefferson County. The number of New Orleans projects bid with CIPP components was eleven (11). The number of bidders on New Orleans projects ranged from two (2) to five (5). As shown in Figure 6, New Orleans experienced a similar unit cost reduction trend for 8-inch CIPP as Jefferson County experienced from 1998 to 2002.

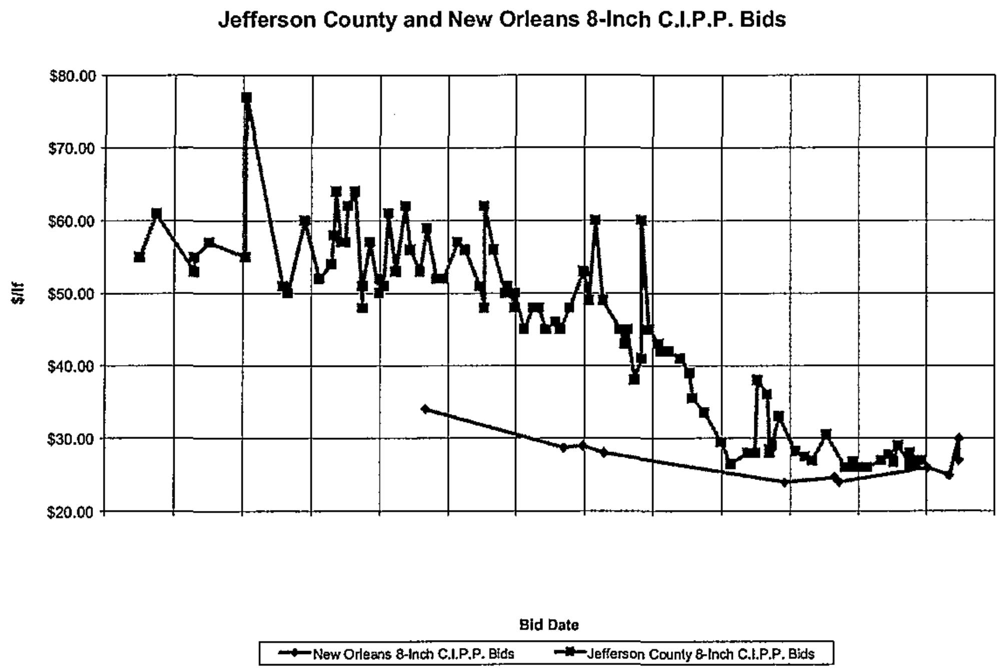

Figure 6

From the first part of 1998 to around the beginning of 2001, New Orleans' awarded unit prices were consistently $15 to $20 per foot below the Jefferson County unit prices. Beginning in 2001 through 2002, the unit prices generally converged.

Atlanta CIPP Unit Cost Data

During the 1990s, the City of Atlanta had not concentrated on the use of CIPP for its sewer rehabilitation program. In 1999, the City of Atlanta awarded an annual contract for 8-inch CIPP at the unit price of $31.00 per foot. This same unit price was used in 2000, 2001, 2002 and the first part of 2003. Around February 2003, the price was adjusted to $29.00 per foot. This compares to Jefferson County's average awarded unit prices of $49.77 per foot during 1999 and $26.00 during 2002. The 2003 CIP for the City of Atlanta indicates that it has budgeted $5 million for CIPP work, which would represent approximately 170,000 feet of CIPP for the year.

CIPP Data for Other Southeastern U.S. Cities

In addition to the data collected for the three (3) comparison cities, bid tabulation data was collected for other southeastern cities using information provided by the Trenchless Technology Institute and other sources. The southern region cities/utilities included in this comparison were:

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- City of Baton Rouge
- Pine Bluff Wastewater Utility
- City of Knoxville
- Nashville – Davidson City
- City of Shreveport
- City of Mobile

The summary comparison of these cities/utilities is provided in Figure 7.

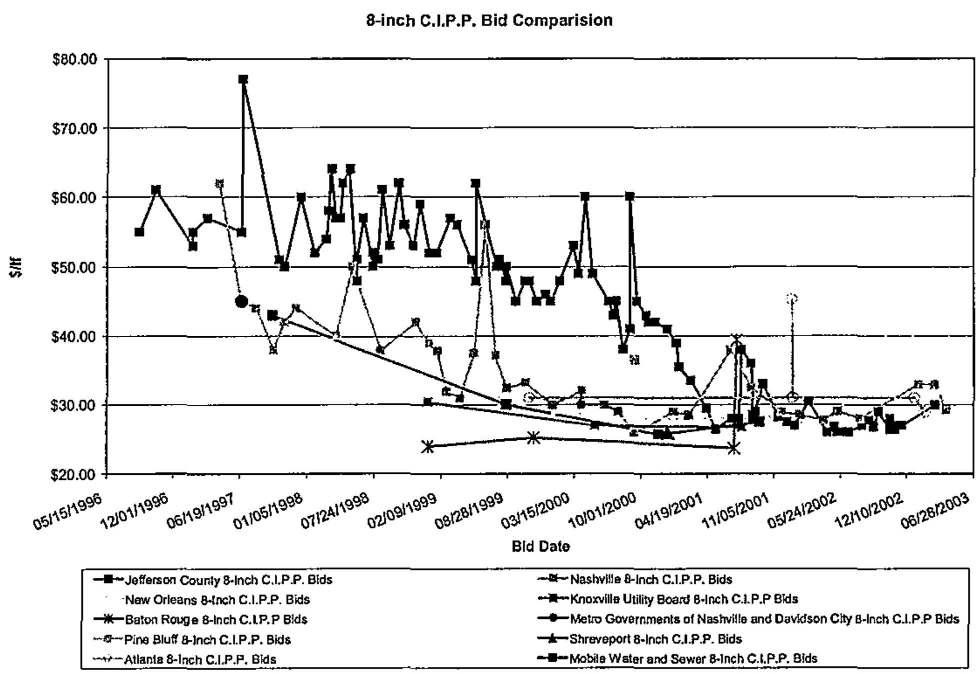

Figure 7

The CIPP unit prices for Jefferson County are above these comparison cities/utilities except from the end of 2001 through 2002. Regarding Figure 7 above, it can be seen that many of the localities did not start at the high unit rates that Jefferson County experienced, and were consistently much lower than Jefferson County until 2001. This is consistent with the findings of the previous comparisons with Nashville and New Orleans.

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Comparison of CIPP Specifications

The technical specifications for the installation of CIPP for Jefferson County, Nashville, Atlanta, and New Orleans were reviewed and compared. The purpose of this review was to determine if the requirements of the specifications varied, resulting potentially in a variation of unit prices. It was found that the CIPP bid specifications between Jefferson County, Nashville, Atlanta, and New Orleans were generally similar.

Under the 1996 Jefferson County construction specifications for CIPP, the bid includes furnishing the pipe liner (which based upon bid tab must include prep, insertion and curing of liner, traffic control, sewage flow control and bypass pumping since not listed separately in bid tab), light and medium cleaning, television inspection before and after installation (only immediately after installation) and for all labor tools and incidentals necessary to complete liner work. Heavy cleaning, service lateral connection listed as separate bid items. In May of 2003, Jefferson County modified their specifications to include the requirement that an addition television inspection be performed one a year later CIPP installation.

The warrantee period for the CIPP for Jefferson County, Nashville, and New Orleans is five years; for Atlanta it is one year. In early 2003, the specification was revised to require the CIPP contractor to return after one year to TVI the lines again. This requirement was not in effect for the 1996-2000 period, which is being analyzed in this document. The cost for the additional TVI typically is $3.50 to $4.50 per linear foot. It includes some cleaning because the lines would have been in service one year. Even with this additional expense, the current Jefferson County CIPP unit prices are the same or below the comparison cities.

Finding 10-1

Our research indicates that Jefferson County paid $10 to $20 more per linear foot for the 8-inch CIPP lining product than other locations in the southeast U.S. during the 1996-2000 period. Based on approximately one million feet of pipe lining installed between 1996 and 2000, this represents between $10 and $20 million of additional cost. It appears that other locations did not experience as high a unit rate at the start of their CIPP programs. Currently Jefferson County is paying at or below the average for the surrounding communities

Recommendations 10-1

At the start of any future program, Jefferson County should aggressively expand the competition base by encouraging the participation of experienced contractors from other locations, particularly when new or emerging technologies are planned for use.

Finding 10-2

BE&K evaluated 46 unit prices of various categories of work in the rehabilitation construction contracts that made up 80 percent of the cost of these contracts. Forty-two unit prices deceased in cost as time passed and the number of contractors increased. These trends of the unit prices being higher in 1996 – 2000 are very similar in nature to the CIPP unit prices that are noted above. It does not seem likely that the nature of the work, experience level, initial contractor investment, and all parties' better understanding of the requirements of these types of work would be likely reasons for the price of common construction work elements like asphalt paving, manhole installation, manhole replacement, ductile iron pipe installation, mainline point repair, and manhole height adjustment to decrease in price. What does appear consistent is that a fourth and fifth bidder were added in 2000 – 2001 and pricing decreased

Recommendation 10-2

Jefferson County should attempt to have at least five firms qualified to bid for construction contracts in the future.

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11

Sewer Rate Comparisons

Introduction

This section of the report was prepared by the Public Affairs Research Council of Alabama (PARCA) and provides comparative information on local taxes and sewer and water rates for 31 U.S. jurisdictions including Jefferson County, Alabama. The objective of the analysis is to determine how Jefferson County compares in terms of the financial burden of local government on taxpayers and in terms of the size and burden of sewer and water charges on ratepayers. Taxes and fees are analyzed on a per-capita basis and as a percentage of median household income.

Comparative data on fees and taxes are a significant factor in the determination of financial strategies for the Jefferson County Sewer System; therefore, the findings in this section form a part of the foundation for the discussions of strategic issues presented later in the report.

Background

Selection of Jurisdictions

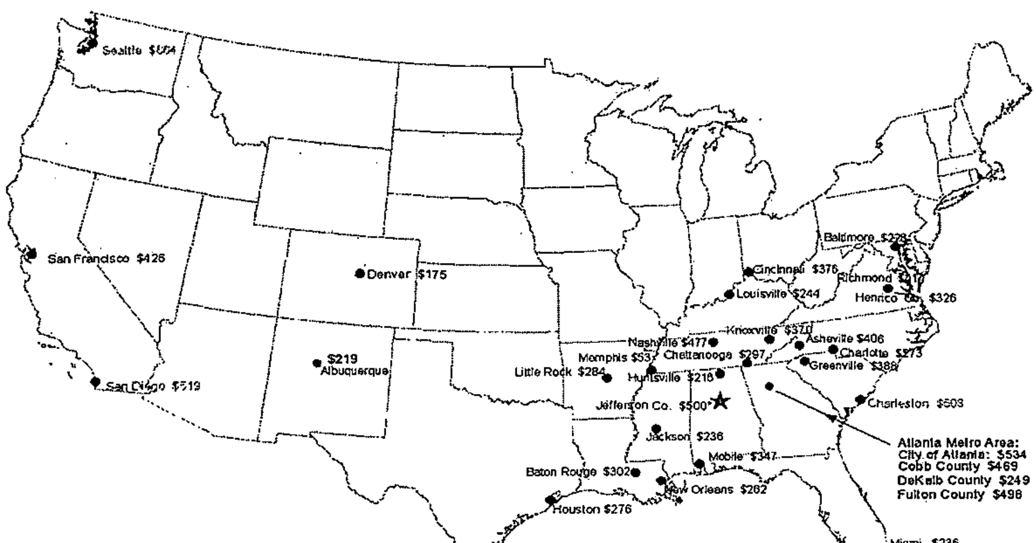
The jurisdictions in this comparative report were selected for analysis by BE&K Engineering staff because of various characteristics related to the financing of their sewer utilities. The jurisdictions vary by median household income level and local tax burden, as well as sewer and water rates. They are spread across the U.S. geographically and are identified below by metropolitan areas. Some of the jurisdictions are, like Jefferson County, operating under robust state and/or federal Consent Decrees, which may affect their finances; these are shown in bold italics here and in every table in this section of the report.

Metro Area	Jurisdictions in the Comparison
Southeast (20):	
Asheville	City of Asheville
Atlanta	***City of Atlanta***, Cobb County, DeKalb County, ***Fulton County***
Baton Rouge	***City of Baton Rouge***
Birmingham	***Jefferson County***
Charleston	City of Charleston
Charlotte	City of Charlotte
Chattanooga	City of Chattanooga
Greenville	City of Greenville
Huntsville	City of Huntsville
Knoxville	***City of Knoxville***
Jackson	City of Jackson
Little Rock	City of Little Rock

Memphis	City of Memphis
Miami	***Miami-Dade County***
Mobile	***City of Mobile***
Nashville	***Nashville-Davidson County***
New Orleans	***City of New Orleans***
Mid-Atlantic (3):	
Baltimore	***City of Baltimore***
Richmond	City of Richmond, Henrico County
Midwest (2):	
Cincinnati	***City of Cincinnati***
Louisville	City of Louisville
Southwest (2):	
Albuquerque	City of Albuquerque
Houston	***City of Houston***
West (4):	
Denver	City-County of Denver
San Diego	***City of San Diego***
San Francisco	City of San Francisco
Seattle	City of Seattle

Annual Sewer Rates for Selected Cities in the U.S.
April 2003

(Based on 12,000 cubic feet per year)



Cities with rates higher than Jefferson County are noted in red
*Jefferson County includes a 15% credit for residential use.

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Estimates of Current Median Household Income

Median household income is a commonly accepted measure of the ability to pay the fees and taxes required to support sewer facilities. Dividing the amounts of taxes and fees by median household income produces a measure of the average burden of those levies on the population.

Published estimates of 2002 median household income for each city and county in the U.S. were obtained from Claritas, Inc. These figures were projected to 2003 using the inflation estimates of two agencies of the federal government (the Office of Management and Budget and the Congressional Budget Office). The resulting 2003 median household income estimates of jurisdictions in the study range from a high of $71,923 (Cobb County, Georgia) to a low of $31,869 (Knoxville, Tennessee), as shown in **Table 1**.

Table 1
2003 Median Household Income

	Median Household Income	Percent of Jefferson County	Percent of Median Jurisdiction
Cobb Co., GA	$ 71,923	164%	164%
San Francisco, CA	64,750	148%	148%
Seattle, WA	62,681	143%	143%
DeKalb Co., GA	61,011	139%	139%
Charlotte, NC	60,016	137%	137%
Henrico Co., VA	57,598	131%	131%
Fulton Co., GA	57,178	130%	130%
San Diego, CA	55,062	126%	126%
Denver, CO	54,130	123%	123%
Nashville, TN	50,534	115%	115%
Huntsville, AL	49,766	113%	113%
Little Rock, AR	48,412	110%	110%
Albuquerque, NM	47,850	109%	109%
Houston, TX	47,773	109%	109%
Charleston, SC	46,766	107%	107%
Jefferson County	43,871	100%	100%
Greenville, SC	41,892	95%	95%
Jackson, MS	40,551	92%	92%
Memphis, TN	40,149	92%	92%
Atlanta, GA	40,064	91%	91%
Miami, FL	39,604	90%	90%
Chattanooga, TN	38,480	88%	88%
Asheville, NC	38,474	88%	88%
Baltimore, MD	37,092	85%	85%
Cincinnati, OH	36,094	82%	82%
Mobile, AL	35,565	81%	81%
Louisville, KY	35,134	80%	80%
Baton Rouge, LA	34,394	78%	78%
New Orleans, LA	33,479	76%	76%
Richmond, VA	33,340	76%	76%
Knoxville, TN	31,869	73%	73%

Source: Claritas 2002 estimates, inflated to 2003 using estimates of Office of Management & Budget and Congressional Budget Office.

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Jefferson County ranks as the median (or middle) jurisdiction among the 31 comparison jurisdictions. Fourteen other jurisdictions in the comparison are within plus or minus fifteen percentage points of Jefferson County. Nine of the jurisdictions in the comparison have median incomes over $54,000 and are substantially higher than Jefferson County, while another eight have median incomes below $38,000 and are substantially lower than Jefferson County.

Estimates of Local Taxes

Local taxes are one of the major resources available for financing the capital and operating requirements of sewer systems. The taxes of interest are the *total* amount of local taxes paid – including city, county, school, and other special-district levies – rather than simply the taxes levied by the jurisdiction administering the sewer utility. The reason for this is obvious: the taxpayer contributes to all of these types of jurisdictions for the various local government services, and the division of functions is different in each community. Only the bottom-line total of tax payments to all local jurisdictions captures in "apples-to-apples" fashion the burden on the taxpayer for local services such as the sewer system. Needless to say, data on total local taxes are laborious to calculate and hard to obtain.

The U.S. Census Bureau collects such data every fifth year in its Census of Governments, and the most recent data available are from the 1997 Census of Governments, which contains data on FY 1996 local taxes and on total personal income within each of the communities measured. The data are presented in terms of (1) an amount per capita (i.e., the amount per community resident), and (2) an amount expressed as a percent of total personal income in the community. This analysis looks at the property tax burden as well as the burden of all local taxes added together, because the property tax is the mainstay of local government finance in most communities.

Table 2 shows 1996 local property taxes in the 31 jurisdictions compared. The first and second columns of numbers show property tax collections in relation to population and personal income, while the third and fourth columns compare the per-capita figures to Jefferson County and the median jurisdiction in the comparison group. Local property tax payments in the jurisdictions varied widely, from 1.10 percent to 3.95 percent of personal income (a ratio of 3.5 to 1 from top to bottom), and from $209 to $1,395 per capita (a ratio of almost 7 to 1).

Jefferson County's property tax level was very low in comparison to most of the jurisdictions compared; it ranked 27th in per-capita terms and 26th in relation to personal income. The median locality had property taxes totaling about $694 per capita and 2.38 percent of personal income – 66 percent higher than Jefferson County in per-capita terms and 44 percent higher in relation to income. It is worth re-emphasizing that these are *total* local property taxes, not just taxes levied by the jurisdiction administering the sewer system. In Jefferson County's case, they represent a weighted average of the taxes levied by the County, ten school systems, and 31 municipalities.

Eight jurisdictions in the table have property tax collections that exceed 3 percent of total personal income. Fifteen jurisdictions collect from 2 percent to 3 percent of personal income.

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The final eight jurisdictions – including all three in Alabama – collect less than 2 percent of personal income in property taxes. Jefferson County is well down within this low-tax group.

The final column of Table 2 is a reference column that relates the median household income level of each jurisdiction to that of the median jurisdiction.

Table 2
1996 Local Property Taxes

	1996 Local Property Taxes Per Capita	Local Property Taxes As a Percent of: Personal Income	Jefferson County's Property Tax	Median Jurisdiction's Property Tax	Jurisdiction as a Percent of Median Jurisdiction on Median Household Income
Atlanta, GA	$ 1,395	3.79%	333%	201%	91%
Fulton Co., GA	1,395	3.79%	333%	201%	130%
Houston, TX	1,048	3.76%	250%	151%	109%
Cincinnati, OH	967	3.35%	231%	139%	82%
Richmond, VA	934	3.41%	194%	135%	76%
San Francisco, CA	923	2.36%	220%	133%	148%
Miami, FL	892	3.95%	213%	129%	90%
Charlotte, NC	847	2.71%	202%	122%	137%
DeKalb Co., GA	820	2.85%	196%	118%	139%
Seattle, WA	811	2.38%	194%	117%	143%
Henrico Co., VA	795	2.70%	190%	115%	131%
Charleston, SC	766	3.16%	183%	110%	107%
Denver, CO	754	2.30%	180%	109%	123%
Cobb Co., GA	747	2.50%	178%	108%	164%
Baltimore, MD	700	2.25%	167%	101%	85%
Jackson, MS	694	3.08%	166%	100%	92%
Nashville, TN	681	2.29%	163%	98%	115%
Chattanooga, TN	637	2.47%	152%	92%	88%
Greenville, SC	637	2.58%	152%	92%	95%
San Diego, CA	558	2.23%	133%	80%	126%
Asheville, NC	557	2.38%	133%	80%	88%
Memphis, TN	551	2.10%	132%	79%	92%
Knoxville, TN	538	2.21%	128%	77%	73%
Little Rock, AR	475	1.83%	113%	68%	110%
New Orleans, LA	434	1.84%	104%	63%	76%
Louisville, KY	431	1.61%	103%	62%	80%
Jefferson County	419	1.65%	100%	60%	100%
Albuquerque, NM	394	1.63%	94%	57%	109%
Baton Rouge, LA	317	1.34%	76%	46%	78%
Huntsville, AL	263	1.10%	63%	38%	113%
Mobile, AL	209	1.11%	50%	30%	81%

Source: U.S. Census Bureau; PARCA calculations.

Table 3 shows the same type of comparison for *total* local taxes in 1996 for the 31 jurisdictions. The variation on total taxes is smaller than on property taxes alone (about 2-to-1 in relation to personal income, versus 3.5-to-1 in Table 2), because this comprehensive measure includes the alternative levies that some communities favor over property taxes. Jefferson County is an

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example of a community that favors alternative taxes, relying in large part on an occupational license tax that is much like a local income tax; others are Mobile, New Orleans, and Baton Rouge, which have very high sales taxes. Jefferson County ranked 13th in total local taxes per capita and 12th in total local taxes as a percent of personal income, a few places above the median in both cases. The fourth column of numbers shows that Jefferson County's total tax burden is 103 percent of the median jurisdiction, while its household income is 100 percent of the median (fifth column) and its property tax (sixth column) is only 60 percent of the median.

Table 3
1996 Total Local Taxes

	1996 Total Local Taxes Per Capita	Total Local Taxes As a Percent of: Personal Income	Jefferson County's Total Taxes	Median Jurisdiction's Total Taxes	Jurisdiction as a Percent of Median Jurisdiction on: Median Household Income	Property Tax
Atlanta, GA	$ 2,140	5.81%	194%	200%	91%	201%
Fulton Co., GA	2,140	5.81%	194%	200%	130%	201%
Denver, CO	1,903	5.80%	172%	177%	123%	109%
San Francisco, CA	1,766	4.51%	160%	165%	148%	133%
Cincinnati, OH	1,495	5.18%	136%	139%	82%	139%
Seattle, WA	1,410	4.14%	128%	132%	143%	117%
Richmond, VA	1,409	5.14%	128%	131%	76%	135%
Houston, TX	1,330	4.76%	120%	124%	109%	151%
Nashville, TN	1,296	4.36%	117%	121%	115%	98%
Miami, FL	1,182	5.23%	107%	110%	90%	129%
Charlotte, NC	1,153	3.68%	104%	108%	137%	122%
Henrico Co., VA	1,148	3.90%	104%	107%	131%	115%
Jefferson County	1,104	4.35%	100%	103%	100%	60%
Charleston, SC	1,075	4.44%	97%	100%	107%	110%
DeKalb Co., GA	1,072	3.73%	97%	100%	139%	118%
New Orleans, LA	1,072	4.55%	97%	100%	76%	63%
Baltimore, MD	1,034	3.32%	94%	96%	85%	101%
Cobb Co., GA	1,032	3.45%	94%	96%	164%	108%
Knoxville, TN	1,010	4.15%	92%	94%	73%	77%
Baton Rouge, LA	990	4.20%	90%	92%	78%	46%
Memphis, TN	927	3.54%	84%	86%	92%	79%
Louisville, KY	905	3.38%	82%	84%	80%	62%
Chattanooga, TN	894	3.47%	81%	83%	88%	92%
Little Rock, AR	817	3.15%	74%	76%	110%	68%
San Diego, CA	785	3.14%	71%	73%	126%	80%
Asheville, NC	751	3.21%	68%	70%	88%	80%
Jackson, MS	740	3.29%	67%	69%	92%	100%
Greenville, SC	726	2.94%	66%	68%	95%	92%
Mobile, AL	704	3.72%	64%	66%	81%	30%
Huntsville, AL	677	2.84%	61%	63%	113%	38%
Albuquerque, NM	656	2.71%	59%	61%	109%	57%

Source: U.S. Census Bureau; PARCA calculations.

Residential Sewer Impact Fees

Information on residential sewer impact fees was obtained directly from the jurisdictions in the study, through telephone contact confirmed with written documentation. Among the 31

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jurisdictions included in the comparison, 26 levy some sort of residential sewer impact fee and five do not. **Table 4** shows the amount and nature of the fees and the basis for calculation. Analysis of the table shows that the fees are basically of two types:

- "Tap" or connection fees, which are commonly based on the cost involved in adding a connection, the size of the meter or tap, or some other measure of this type. Such fees attempt to offset a part of the administrative cost of adding new customers to the system.

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Table 4
How Residential Sewer Impact Fees Are Calculated in the Jurisdictions Compared

Locality	Amount	Nature of the Fee	Basis for Calculation
Albuquerque, NM	$ 1,200	Utility Expansion Charge	Based on the calculated unit-cost of capacity for major infrastructure elements which have been constructed, or are planned to be constructed as part of an approved 10 year plan. When new customers are charged installations that have greater use capacity are charged a higher rate.
Asheville, NC	550	Sewer Tap Installed	
	850	Facility Fee (Sewer Depletion Fee)	
Atlanta, GA	275	Connection Fee	
Baltimore, MD	-	(None)	
Baton Rouge, LA	2,150	Sewer Impact Fee	Based upon the water meter size for the residence.
Charleston, SC	1,820	Impact Fee	Based on equivalent residential units. One unit is 4,000 gpd.
	200	Tap Fee	Tap Size
Charlotte, NC	1,640	Connection Fee	
	690	Wastewater Capacity Fee	Based on net book value and capacity of treatment plants and sewer lines.
Chattanooga, TN	903	Lateral connection fee.	Covers the cost of connection to the lateral.
Cincinnati, OH	2,500	Connection Fee	Based on the September Engineering News Record Construction Cost Index (Sep ENR CCI) for Cincinnati. Base amount is mulitplied by ratio of current-year Sep ENR CCI to Sep 2000 ENR
Cobb Co., GA	1,100	Connection Fee	
	1,700	Wastewater System Development Fees	Based on gallons per day of wastewater contributed to the system.
DeKalb Co., GA	1,500	Sewer Tap Fee	
Denver, CO	410	Sanitary Sewer Availability Fee	Based on gallons per day of wastewater contributed to the system.
	1,375	Tap Fee	Based on gallons per day of wastewater contributed to the system.
Fulton Co., GA	1,810	Connection Fee	
Greenville, SC	2,000	New Account Fee	Based on size of water meter.
Henrico Co., VA	1,732	Local Facilities Fee	Paid when the costs of local facilities have not been previously assesed against the property being connected. (Not included in chart)
	2,960	Connection Fee	
Houston, TX	940	Wastewater Impact Fee	Based on the average flow rate for a single-family dwelling unit.
Huntsville, AL	1,000	Connection Fee	
Jackson, MS	410	Tap Fee	Based on size of water meter.
	230	Development Fee	Based on size of water meter.
Jefferson County	50	Tap Fee	
	1,100	Impact Fee	Based on the number of fixtures.
Knoxville, TN	-	(None)	
Little Rock, AR	100	Connection Fee	
Louisville, KY	1,121	Capacity Charge	Based on net worth and total design capacity.
	5,500	Connection Fee	Based on the average cost for the installation of connections during the previous 12-month period.
Memphis, TN	1,150	Impact Fee	
	240	Development Fee	Adjusted annually in accordance with the GDP Implicit Price Deflator for State & Local Government Purchases as published by the US Commerce Dept. each preceding July.
Mobile, AL	720	Capacity Charge	For a single-family dwelling.
	150	Connection Fee	
Miami, FL	1,960	Connection Fee	Based on projected use.
Nashville, TN	500	Capacity Fee	Based on projected use.
New Orleans, LA	-	(None)	
Richmond, VA	-	(None)	
San Diego, CA	2,500	Capacity Charge	Based on projected use.
San Francisco, CA	-	(None)	
Seattle, WA	3,168	King County Capacity Charge	$17.60 per month for 15 years.

Source: PARCA research.

- Sewer capacity fees, which are commonly based on some measure of the treatment capacity or dollar value of the facilities impacted by the new customer, or some measure of the usage volume added by the customer. Such fees attempt to offset part of the capital cost involved in adding new customers to the system.

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Table 5 presents an analysis of the total amount of residential impact fees in each jurisdiction, adding the two types of fees together where both are present and commonly levied against new customers. Jefferson County ranks 18th among the 26 jurisdictions in the study that have impact fees. Seven of the comparison jurisdictions have residential sewer impact fees that are more than twice as high as Jefferson County, and thirteen have impact fees that are more than 50 percent higher. The medians among jurisdictions with residential sewer impact fees in the comparison group are about $1,800 and 3.4 percent of income. Jefferson County's residential sewer impact fees would have to increase by 56 percent to reach the median of the comparison group that levies such fees. On the other hand, when the no-fee jurisdictions are considered, Jefferson County's residential sewer impact fees are 83 percent of the median and only $240 shy of Memphis, the median jurisdiction among all 31. The last three columns in Table 5 show how each jurisdiction relates to the median in terms of income, property taxes, and total local taxes.

Table 5
2003 Residential Sewer Impact Fees

	2003 Residential Sewer Impact Fees	Residential Sewer Impact Fees As a Percent of: Median Household Income	Jefferson County's Impact Fees	Median Jurisdiction's Impact Fees	Jurisdiction as a Percent of Median Jurisdiction on: House-hold Income	Property Tax	Total Local Taxes
Louisville, KY	$ 6,621	18.8%	576%	476%	80%	62%	84%
Seattle, WA	3,168	5.1%	275%	228%	143%	117%	132%
Henrico Co., VA	2,960	5.1%	257%	213%	131%	115%	107%
Cobb Co., GA	2,800	3.9%	243%	201%	164%	108%	96%
San Diego, CA	2,500	4.5%	217%	180%	126%	80%	73%
Cincinnati, OH	2,500	6.9%	217%	180%	82%	139%	139%
Charlotte, NC	2,330	3.9%	203%	168%	137%	122%	108%
Baton Rouge, LA	2,150	6.3%	187%	155%	78%	46%	92%
Charleston, SC	2,020	4.3%	176%	145%	107%	110%	100%
Greenville, SC	2,000	4.8%	174%	144%	95%	92%	68%
Miami, FL	1,960	4.9%	170%	141%	90%	129%	110%
Fulton Co., GA	1,810	3.2%	157%	130%	130%	201%	200%
Denver, CO	1,785	3.3%	155%	128%	123%	109%	177%
DeKalb Co., GA	1,500	2.5%	130%	108%	139%	118%	100%
Asheville, NC	1,400	3.6%	122%	101%	88%	80%	70%
Memphis, TN	1,390	3.5%	121%	100%	92%	79%	86%
Albuquerque, NM	1,200	2.5%	104%	86%	109%	57%	61%
Jefferson County	1,150	2.6%	100%	83%	100%	60%	103%
Huntsville, AL	1,000	2.0%	87%	72%	113%	38%	63%
Houston, TX	940	2.0%	82%	68%	109%	151%	124%
Chattanooga, TN	903	2.3%	79%	65%	88%	92%	83%
Mobile, AL	870	2.4%	76%	63%	81%	30%	66%
Jackson, MS	640	1.6%	56%	46%	92%	100%	69%
Nashville, TN	500	1.0%	43%	36%	115%	98%	121%
Atlanta, GA	275	0.7%	24%	20%	88%	201%	200%
Little Rock, AR	100	0.2%	9%	7%	110%	68%	76%
San Francisco, CA	-	-	-	-	148%	133%	165%
Richmond, VA	-	-	-	-	76%	135%	131%
New Orleans, LA	-	-	-	-	76%	63%	100%
Knoxville, TN	-	-	-	-	73%	77%	94%
Baltimore, MD	-	-	-	-	85%	101%	96%

Source: PARCA research.

Residential Sewer Use Fees

Information on residential sewer use fees was obtained directly from the jurisdictions in the study, through telephone contact confirmed with written documentation. **Table 6** shows how residential sewer use fees are calculated in the jurisdictions compared in this report. The calculations are based on a standard monthly usage factor of 1,000 cubic feet for residential customers, which is consistent with the middle category in comparisons done by Raftellis Financial Consulting. The monthly fee for 1,000 cubic feet is shown in the first column. In calculating this amount, 14 of the 31 jurisdictions use both flat-fee and variable components, while the other 17 use only variable factors. Twenty jurisdictions measure usage by the total amount metered; the other 11 use either a percentage of total metered use or a winter average, or both, to account for yard watering, car washing, and other uses that do not affect the sewer system.

Table 6
How Residential Sewer Use Fees Are Calculated in the Jurisdictions Compared

Jurisdiction	Monthly Amount	Fixed Fee	Metered Amount			Minimum Charge	Maximum Charge	Other Charge
			Total	%	Winter			
Albuquerque, NM	$18.27	X	X					
Asheville, NC	33.81	X	X					
Atlanta, GA	44.50		X					
Baltimore, MD	20.74		X			X		
Baton Rouge, LA	25.20				X	X		
Charleston, SC	42.32			90%		X	X	
Charlotte, NC	22.75	X	X				X	
Chattanooga, TN	24.77			90%				
Cincinnati, OH	31.30		X			X		
Cobb Co., GA	39.08	X		125%	X			
DeKalb Co., GA	20.72	X	X					
Denver, CO	14.58		X			X		
Fulton Co., GA	41.52	X	X					
Greenville, SC	32.25	X	X					
Henrico Co., VA	27.15	X			X			
Houston, TX	22.96	X	X					
Huntsville, AL	18.03			85%				
Jackson, MS	19.70		X					
Jefferson County	41.65			85%				
Knoxville, TN	30.86		X			X		
Little Rock, AR	23.64		X			X		
Louisville, KY	20.30	X		85%				
Memphis, TN	4.39		X					
Miami, FL	19.69	X	X					
Mobile, AL	28.95		X			X		
Nashville, TN	39.74		X			X		State Surcharge
New Orleans, LA	21.82	X		85%				
Richmond, VA	34.46	X	X					
San Diego, CA	43.26	X			X		X	
San Francisco, CA	35.48			90%				
Seattle, WA	55.30		X			X		

Source: PARCA research; monthly amounts based on 1,000 cf of water metered.

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An analysis of the annualized monthly fee for 1,000 cubic feet of water usage is shown in **Table 7**. The annualized fee ranges from $53 to $664 in the jurisdictions compared, with medians of $326 and 0.77 percent of median household income. Jefferson County ranks 5th on the absolute size of the standard residential sewer use fee and 4th in terms of the residential sewer use fee as a percent of median household income; its residential sewer use fee is 53 percent above the median level of the jurisdictions compared. Three of the four jurisdictions above Jefferson County on the sewer use fee are also higher than Jefferson County in terms of the sewer impact fee (Seattle, San Diego, and Charleston). Atlanta, like Jefferson County, is high on the sewer use fee but low on the sewer impact fee.

Table 7
2003 Residential Sewer Use Fees

	Standard Residential Sewer Use Fee	Residential Sewer Use Fees As a Percent of:			Jurisdiction as a Percent of Median Jurisdiction on:			
		Median Household Income	Jefferson County's Use Fee	Median Jurisdiction's Use Fee	Household Income	Property Tax	Total Local Taxes	Sewer Impact Fees
Seattle, WA	$ 664	1.06%	133%	204%	143%	117%	132%	228%
Atlanta, GA	534	1.33%	107%	164%	91%	201%	200%	20%
San Diego, CA	519	0.94%	104%	159%	126%	80%	73%	180%
Charleston, SC	508	1.09%	102%	156%	107%	110%	100%	145%
Jefferson County	500	1.14%	100%	153%	100%	60%	103%	83%
Fulton Co., GA	498	0.87%	100%	153%	130%	201%	200%	130%
Nashville, TN	477	0.94%	95%	146%	115%	98%	121%	36%
Cobb Co., Ga	469	0.65%	94%	144%	164%	108%	96%	201%
San Francisco, CA	426	0.66%	85%	131%	148%	133%	165%	-
Richmond, VA	414	1.24%	83%	127%	76%	135%	131%	-
Asheville, NC	406	1.05%	81%	125%	88%	80%	70%	101%
Greenville, SC	388	0.93%	78%	119%	95%	92%	68%	144%
Cincinnati, OH	376	1.04%	75%	115%	82%	139%	139%	180%
Knoxville, TN	370	1.16%	74%	114%	73%	77%	94%	-
Mobile, AL	347	0.98%	69%	107%	81%	30%	66%	63%
Henrico Co., VA	326	0.57%	65%	100%	131%	115%	107%	213%
Baton Rouge, LA	302	0.88%	61%	93%	78%	46%	92%	155%
Chattanooga, TN	297	0.77%	59%	91%	88%	92%	83%	65%
Little Rock, AR	284	0.59%	57%	87%	110%	68%	76%	7%
Houston, TX	276	0.58%	55%	85%	109%	151%	124%	68%
Charlotte, NC	273	0.45%	55%	84%	137%	122%	108%	168%
New Orleans, LA	262	0.78%	52%	80%	76%	63%	100%	-
DeKalb Co., GA	249	0.67%	50%	76%	85%	118%	100%	108%
Louisville, KY	244	0.41%	49%	75%	139%	62%	84%	476%
Jackson, MS	236	0.69%	47%	73%	80%	100%	69%	46%
Miami, FL	236	0.58%	47%	73%	92%	129%	110%	141%
Baltimore, MD	228	0.60%	46%	70%	90%	101%	96%	-
Albuquerque, NM	219	0.46%	44%	67%	109%	57%	61%	86%
Huntsville, AL	216	0.43%	43%	66%	113%	38%	63%	72%
Denver, CO	175	0.32%	35%	54%	123%	109%	177%	128%
Memphis, TN	53	0.13%	11%	16%	92%	79%	86%	100%

Source: PARCA research; standard residential sewer use fee based on 1,000 cubic feet of water metered per month.

Residential Water Use Fees

Information on residential water use fees was obtained directly from the jurisdictions in the study, through telephone contact confirmed with written documentation. The analysis of water use fees assumes a standard 1,000 cubic feet of water metered per month, the same figure used

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for sewer fee analysis. The results of these calculations for the 31 jurisdictions are shown in **Table 8**. The jurisdictions vary from $108 to $456 in annual fees, with a median of $233 (Greenville). These fees range from 0.25 percent to 1.19 percent of median household income, with a median of 0.51 percent (Houston). Jefferson County, represented by Birmingham Water Works Board fees, is close to the median on both counts.

Table 8
2003 Residential Water Use Fees

	Standard Residential Water Use Fee	Residential Water Use Fee As a Percent of:			Jurisdiction as a Percent of Median Jurisdiction on:				
		Median Household Income	Jefferson County's Water Use Fee	Median Jurisdiction's Water Use Fee	Household Income	Property Tax	Total Local Taxes	Sewer Impact Fee	Sewer Use Fee
Asheville, NC	$ 456	1.19%	181%	196%	88%	80%	70%	101%	125%
San Diego, CA	417	0.76%	165%	179%	126%	80%	73%	180%	159%
Fulton Co., GA	372	0.65%	148%	160%	130%	201%	200%	130%	153%
Knoxville, TN	370	1.16%	147%	159%	73%	77%	94%	-	114%
Seattle, WA	357	0.57%	142%	153%	143%	117%	132%	228%	204%
San Francisco, CA	317	0.49%	126%	136%	148%	133%	165%	-	131%
Richmond, VA	310	0.93%	123%	133%	76%	135%	131%	-	127%
Chattanooga, TN	282	0.73%	112%	121%	88%	92%	83%	65%	91%
Louisville, KY	266	0.76%	106%	115%	80%	62%	84%	476%	75%
Henrico Co., VA	265	0.46%	105%	114%	131%	115%	107%	213%	100%
Jackson, MS	263	0.65%	105%	113%	92%	100%	69%	46%	73%
Jefferson County	252	0.57%	100%	108%	100%	60%	103%	83%	153%
Cobb Co., GA	252	0.35%	100%	108%	164%	108%	96%	201%	144%
New Orleans, LA	249	0.74%	99%	107%	76%	63%	100%	-	80%
Houston, TX	246	0.51%	97%	106%	109%	151%	124%	68%	85%
Greenville, SC	233	0.56%	92%	100%	95%	92%	68%	144%	119%
Cincinnati, OH	230	0.64%	91%	99%	82%	139%	139%	180%	115%
Nashville, TN	225	0.45%	89%	97%	115%	98%	121%	36%	146%
Albuquerque, NM	219	0.46%	87%	94%	109%	57%	61%	86%	67%
Baton Rouge, LA	212	0.62%	84%	91%	78%	46%	92%	155%	93%
Atlanta, GA	210	0.52%	83%	90%	91%	201%	200%	20%	164%
DeKalb Co., GA	195	0.32%	77%	84%	139%	118%	100%	108%	76%
Charleston, SC	190	0.41%	75%	82%	107%	110%	100%	145%	156%
Denver, CO	190	0.35%	75%	81%	123%	109%	177%	128%	54%
Baltimore, MD	170	0.46%	67%	73%	85%	101%	96%	-	70%
Mobile, AL	163	0.46%	65%	70%	81%	30%	66%	63%	107%
Charlotte, NC	149	0.25%	59%	64%	137%	122%	108%	168%	84%
Little Rock, AR	137	0.28%	54%	59%	110%	68%	76%	7%	87%
Huntsville, AL	134	0.27%	53%	58%	113%	38%	63%	72%	66%
Miami, FL	126	0.32%	50%	54%	90%	129%	110%	141%	73%
Memphis, TN	108	0.27%	43%	46%	92%	79%	86%	100%	16%

Source: PARCA research; standard residential water use fee based on 1,000 cubic feet of water metered per month.

Comparison of Residential Sewer and Water Use Fees and Local Taxes to Median Household Income

The burden of local taxes and fees on residents is commonly measured by comparing such levies to the median household income. Comparison of the tax and fee data in Tables 2, 3, 7, and 8 with the median household income data in Table 1 reveals the following:

The burden created by annual residential sewer and water usage fees is shown in **Table 9**. The jurisdictions are ranked in the table according to the ratio of these fees and median household

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income for the jurisdiction, which is shown in the second column of numbers. The extremes among the 31 jurisdictions are represented by the top three (Knoxville, Asheville, and Richmond), which have fees that exceed 2 percent of median household income; and the bottom five (Dekalb County, Huntsville, Charlotte, Denver, and Memphis), which have fees that amount to less than 0.75 percent of median household income. In Jefferson County, sewer and water use fees amount to 1.71 percent of median household income, which is 115 percent of the median jurisdiction's burden.

Table 9
2003 Sewer and Water Use Fee Burden

	2003 Standard Sewer & Water Use Fees	Sewer & Water Use Fees as a % of Median Household Income (Burden)	Sewer and Water Use Fee Burden as a Percent of: Jefferson County's Burden	Median Jurisdiction's Burden
Knoxville, TN	$ 741	2.32%	136%	156%
Asheville, NC	862	2.24%	131%	150%
Richmond, VA	723	2.17%	127%	145%
Atlanta, GA	744	1.86%	108%	124%
Jefferson County	752	1.71%	100%	115%
San Diego, CA	936	1.70%	99%	114%
Cincinnati, OH	605	1.68%	98%	112%
Seattle, WA	1,021	1.63%	95%	109%
New Orleans, LA	511	1.53%	89%	102%
Fulton Co., GA	870	1.52%	89%	102%
Chattanooga, TN	579	1.50%	88%	101%
Baton Rouge, LA	514	1.49%	87%	100%
Charleston, SC	698	1.49%	87%	100%
Greenville, SC	621	1.48%	86%	99%
Louisville, KY	510	1.45%	85%	97%
Mobile, AL	511	1.44%	84%	96%
Nashville, TN	702	1.39%	81%	93%
Jackson, MS	500	1.23%	72%	82%
San Francisco, CA	743	1.15%	67%	77%
Baltimore, MD	419	1.13%	66%	76%
Houston, TX	521	1.09%	64%	73%
Henrico Co., VA	590	1.03%	60%	69%
Cobb Co., GA	720	1.00%	58%	67%
Albuquerque, NM	438	0.91%	53%	61%
Miami, FL	362	0.91%	53%	61%
Little Rock, AR	420	0.87%	51%	58%
DeKalb Co., GA	444	0.73%	42%	49%
Huntsville, AL	351	0.70%	41%	47%
Charlotte, NC	422	0.70%	41%	47%
Denver, CO	365	0.67%	39%	45%
Memphis, TN	161	0.40%	23%	27%

Source: Tables 7 and 8; PARCA calculations.

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The burden created by property taxes plus sewer and water use fees is shown in **Table 10**. Adding property taxes to the analysis compresses the variation from top-to-bottom because the normal options are to favor either property taxes or fees in financing local infrastructure, and including both has an averaging effect. Thus, the range from the top to the bottom jurisdiction (seen in the second column of numbers) drops from almost 6-to-1 in Table 9, to about 3-to-1 in Table 10. Jefferson County ranks much lower in Table 10 because of its very low property taxes.

Table 10
Burden of Property Tax and Residential Sewer and Water Use Levies

	Est. 2003 Property Tax, Sewer & Water Use Levy Total	Property, Sewer, Water Levy Total as % of Median Household Income (Burden)	Property Tax, Sewer & Water Use Levy Burden as a Percent of: Jefferson County's Burden	Median Jurisdiction's Burden
Atlanta, GA	2,261	5.64%	168%	153%
Richmond, VA	1,859	5.58%	166%	152%
Fulton Co., GA	3,036	5.31%	158%	144%
Cincinnati, OH	1,815	5.03%	149%	137%
Miami, FL	1,925	4.86%	145%	132%
Houston, TX	2,315	4.85%	144%	132%
Charleston, SC	2,177	4.65%	138%	127%
Asheville, NC	1,778	4.62%	137%	126%
Knoxville, TN	1,445	4.53%	135%	123%
Jackson, MS	1,750	4.31%	128%	117%
Greenville, SC	1,700	4.06%	121%	110%
Seattle, WA	2,514	4.01%	119%	109%
Chattanooga, TN	1,531	3.98%	118%	108%
San Diego, CA	2,164	3.93%	117%	107%
Henrico Co., VA	2,145	3.72%	111%	101%
Nashville, TN	1,860	3.68%	109%	100%
DeKalb Co., GA	2,183	3.58%	106%	97%
San Francisco, CA	2,270	3.51%	104%	95%
Cobb Co., Ga	2,517	3.50%	104%	95%
Charlotte, NC	2,048	3.41%	101%	93%
Baltimore, MD	1,252	3.38%	100%	92%
New Orleans, LA	1,127	3.37%	100%	92%
Jefferson County	1,476	3.36%	100%	91%
Louisville, KY	1,075	3.06%	91%	83%
Denver, CO	1,609	2.97%	88%	81%
Baton Rouge, LA	976	2.84%	84%	77%
Little Rock, AR	1,305	2.69%	80%	73%
Albuquerque, NM	1,217	2.54%	76%	69%
Mobile, AL	904	2.54%	76%	69%
Memphis, TN	1,005	2.50%	74%	68%
Huntsville, AL	899	1.81%	54%	49%

Source: PARCA research and calculations.

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To make this kind of comparison possible, it is necessary to assume that the 1996 Census Bureau measurement of the local tax burden remains accurate in 2003, in terms of the relationship between total personal income and total tax collections, and that this percentage can be added to the burden of sewer and water use fees as a percent of median household income. While the resulting measurement is an approximation based on estimates, it is the best indicator of the overall tax and fee burden that can be obtained with the information available.

The burden created by total local taxes plus sewer and water usage fees is shown in **Table 11.** This relationship is measured in the same way as just discussed for property taxes plus sewer and water usage fees. The variation in tax and fee burdens is further compressed by this measure to about 2-to-1 from the highest to the lowest jurisdiction. Jefferson County rises in the distribution because it has taken advantage of a payroll tax option, as do New Orleans and Baton Rouge, which have utilized sales taxes in financing services. This measure is the most comprehensive indicator of the tax and fee burden borne by residents. The data show that Jefferson County stands at 111 percent of the median jurisdiction and ranks 9th among the 31 jurisdictions measured, with a tax and fee burden that amounts to 6.06 percent of median household income.

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Table 11
Burden of Total Local Tax and Residential Sewer and Water Use Levies

	Est. 2003 Total Local Tax, Sewer & Water Use Levy Total	Total Tax, Sewer, Water Levy Total as % of Median Household Income (Burden)	Total Tax, Sewer & Water Levy Burden as a Percent of: Jefferson County's Burden	Median Jurisdiction's Burden
Atlanta, GA	$ 3,071	7.66%	126%	141%
Fulton Co., GA	4,191	7.33%	121%	134%
Richmond, VA	2,437	7.31%	121%	134%
Cincinnati, OH	2,476	6.86%	113%	126%
Knoxville, TN	2,064	6.48%	107%	119%
Denver, CO	3,505	6.48%	107%	119%
Miami, FL	2,434	6.14%	101%	113%
New Orleans, LA	2,034	6.07%	100%	111%
Jefferson County	2,660	6.06%	100%	111%
Charleston, SC	2,775	5.93%	98%	109%
Houston, TX	2,797	5.85%	97%	107%
Seattle, WA	3,617	5.77%	95%	106%
Nashville, TN	2,906	5.75%	95%	105%
Baton Rouge, LA	1,957	5.69%	94%	104%
San Francisco, CA	3,664	5.66%	93%	104%
Asheville, NC	2,098	5.45%	90%	100%
Mobile, AL	1,834	5.16%	85%	95%
Chattanooga, TN	1,915	4.98%	82%	91%
Henrico Co., VA	2,834	4.92%	81%	90%
San Diego, CA	2,664	4.84%	80%	89%
Louisville, KY	1,696	4.83%	80%	89%
Jackson, MS	1,833	4.52%	75%	83%
Cobb Co., GA	3,204	4.45%	73%	82%
DeKalb Co., GA	2,716	4.45%	73%	82%
Baltimore, MD	1,649	4.45%	73%	82%
Greenville, SC	1,852	4.42%	73%	81%
Charlotte, NC	2,633	4.39%	72%	80%
Little Rock, AR	1,943	4.01%	66%	74%
Memphis, TN	1,581	3.94%	65%	72%
Albuquerque, NM	1,734	3.62%	60%	66%
Huntsville, AL	1,764	3.54%	58%	65%

Source: PARCA research and calculations.

Commercial Sewer Use Fees

Information on commercial sewer use fees was obtained directly from the jurisdictions in the study, through telephone contact confirmed with written documentation. **Table 12** shows how commercial sewer use fees are calculated in the jurisdictions compared in this report. The monthly fees for two commercial accounts are shown in the table, along with the fee methodology. As in the residential analysis, the comparisons are based on standard assumptions. The commercial comparisons assume two situations, one with small usage and the other with large usage: (1) an establishment with a 5/8-inch meter and monthly usage of 3,000 cubic feet of water, and (2) an establishment with a 2-inch meter and monthly usage of 50,000 cubic feet of

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water. These parameters are the same as those used by Raftellis Financial Consulting in its published comparisons of commercial wastewater rates.

Table 12
How Commercial Sewer Use Fees Are Calculated in the Jurisdictions Compared

	Monthly Amount		Basis of Calculation						
	5/8" Meter	2" Meter	Fixed	Metered Amount			Minimum	Maximum	Other
Jurisdiction	3,000 cf	50,000 cf	Fee	Total	%	Winter	Charge	Charge	Charge
Albuquerque, NM	$ 37.81	$ 458.24	X	X					
Asheville, NC	92.41	1,512.50	X	X					
Atlanta, GA	133.50	2,225.00		X					
Baltimore, MD	62.22	1,037.00		X			X		
Baton Rouge, LA	69.02	1,098.32				X	X		
Charleston, SC	137.52	2,106.82		X			X		
Charlotte, NC	65.15	1,061.55	X	X				X	
Chattanooga, TN	82.57	1,107.72		X			X		
Cincinnati, OH	73.84	928.95		X			X		
Cobb Co., GA	105.23	1,682.88	X	X					
DeKalb Co., GA	57.37	941.23	X	X					
Denver, CO	43.75	729.24	X	X					
Fulton Co., GA	112.58	1,782.36	X	X					
Greenville, SC	80.82	1,253.01	X		95%				
Henrico Co., VA	65.55	758.57	X			X			
Houston, TX	69.11	1,480.93	X	X					
Huntsville, AL	63.72	1,062.08		X					
Jackson, MS	59.10	985.00		X					
Jefferson County	147.00	2,450.00		X					
Knoxville, TN	88.26	1,184.66		X			X		
Little Rock, AR	60.24	920.34		X			X		
Louisville, KY	49.07	691.61	X		90%				
Memphis, TN	13.17	219.48		X					
Miami, FL	67.28	1,265.78	X	X					
Mobile, AL	86.84	1,447.27		X			X		
Nashville, TN	137.10	1,936.35		X			X		State Surcharge
New Orleans, LA	59.61	885.71	X	X					
Richmond, VA	76.12	1,129.43	X	X					
San Diego, CA	83.49	1,292.34	X	X					
San Francisco, CA	160.45	2,671.90		X					
Seattle, WA	165.90	2,765.00		X			X		

Source: PARCA research.

The table shows the methods used by each jurisdiction to calculate commercial rates. Fifteen of the 31 jurisdictions have rates with both flat-fee and variable components, while sixteen have only a variable-rate fee. Twenty-seven jurisdictions measure usage by the total amount metered; two use percentages of the metered total, and another two use a winter average. Ten have minimum charges, and only one has a maximum for commercial accounts.

Table 13 compares the jurisdictions on 2003 sewer use fees for the two commercial accounts described above. The annualized fee based on this usage ranges from $158 to $1,991 for the small commercial account and from $2,684 to $33,180 for the large account – a spread of more than 12-to-1 in each case. Jefferson County ranks third in both distributions, and its fees are about twice those of the median jurisdictions. This means that about half the jurisdictions in the comparison have commercial sewer use fees that are less than 50 percent of Jefferson County's fees. Only Seattle and San Francisco rank above Jefferson County.

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Table 13
2003 Commercial Sewer Use Fees

	Annualized Fee		As a % of Jefferson Co.		As a % of Median		Jurisdiction vs Median on:	
	5/8" Meter 3,000 cf	2" Meter 50,000 cf	5/8"	2"	5/8"	2"	Property Tax	All Local Taxes
Seattle, WA	$ 1,991	$ 33,180	113%	113%	225%	245%	117%	132%
San Francisco, CA	1,925	32,063	109%	109%	217%	237%	133%	165%
Jefferson County	1,764	29,400	100%	100%	199%	217%	60%	103%
Charleston, SC	1,650	25,282	94%	86%	186%	187%	110%	100%
Nashville, TN	1,645	23,236	93%	79%	186%	171%	98%	121%
Atlanta, GA	1,602	26,700	91%	91%	181%	197%	201%	200%
Fulton Co., GA	1,351	21,388	77%	73%	152%	158%	201%	200%
Cobb Co., GA	1,263	20,195	72%	69%	143%	149%	108%	96%
Asheville, NC	1,109	18,150	63%	62%	125%	134%	80%	70%
Knoxville, TN	1,059	14,216	60%	48%	120%	105%	77%	94%
Mobile, AL	1,042	17,367	59%	59%	118%	128%	30%	66%
San Diego, CA	1,002	15,508	57%	53%	113%	114%	80%	73%
Chattanooga, TN	991	13,293	56%	45%	112%	98%	92%	83%
Greenville, SC	970	15,036	55%	51%	109%	111%	92%	68%
Richmond, VA	913	13,553	52%	46%	103%	100%	135%	131%
Cincinnati, OH	886	11,147	50%	38%	100%	82%	139%	139%
Houston, TX	829	17,771	47%	60%	94%	131%	151%	124%
Baton Rouge, LA	828	13,180	47%	45%	93%	97%	46%	92%
Miami, FL	807	15,189	46%	52%	91%	112%	129%	110%
Henrico Co., VA	787	9,103	45%	31%	89%	67%	115%	107%
Charlotte, NC	782	12,739	44%	43%	88%	94%	122%	108%
Huntsville, AL	765	12,745	43%	43%	86%	94%	38%	63%
Baltimore, MD	747	12,444	42%	42%	84%	92%	101%	96%
Little Rock, AR	723	11,044	41%	38%	82%	81%	68%	76%
New Orleans, LA	715	10,629	41%	36%	81%	78%	63%	100%
Jackson, MS	709	11,820	40%	40%	80%	87%	100%	69%
DeKalb Co., GA	688	11,295	39%	38%	78%	83%	118%	100%
Louisville, KY	589	8,299	33%	28%	66%	61%	62%	84%
Denver, CO	525	8,751	30%	30%	59%	65%	109%	177%
Albuquerque, NM	454	5,499	26%	19%	51%	41%	57%	61%
Memphis, TN	158	2,634	9%	9%	18%	19%	79%	86%

Source: PARCA research.

Industrial Sewer Use Fees and Surcharges

Information on commercial sewer use fees was obtained directly from the jurisdictions in the study through telephone contact confirmed with written documentation. **Table 14** shows how industrial sewer use fees and surcharges are calculated in the jurisdictions compared in this report. The monthly usage fees for two industrial accounts are shown in the table. As in the residential and commercial analyses, the comparisons are based on standard assumptions. The industrial comparisons assume (1) an establishment with a 4-inch meter and monthly usage of 1,000,000 cubic feet of water, and (2) an establishment with a 8-inch meter and monthly usage of 1,500,000 cubic feet of water. These parameters are the same as those used by Raftellis Financial Consulting in its published comparisons of industrial wastewater rates. The monthly sewer usage fees for these two hypothetical establishments in each jurisdiction are shown in the first two columns of the table.

In addition to the normal monthly usage charges, it is common among the jurisdictions to levy industrial surcharges when certain pollutants within the industrial effluent exceed stated limits. These surcharges are shown in the table. The two most common pollutants subject to surcharge limits are biochemical oxygen demand, which is limited in 27 of the 31 jurisdictions, and total suspended solids , which is limited in 29 of the 31 jurisdictions. The surcharge rates, shown in the table, apply to the effluent quantity (in pounds) when the concentration of the pollutant (in milligrams per liter) is above the stated limits.

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Table 14
How Industrial Sewer Use Fees Are Calculated in the Jurisdictions Compared

Jurisdiction	Monthly Usage Fee		Industrial Surcharges														
	4" Meter	8" Meter	Limits In Milligrams Per Liter							Industrial Surcharge Per Pound						
	1,000,000 cf	1,500,000 cf	BOD	COD	TSS	Grease	Ph	TKN	Ammonia	BOD	COD	TSS	Grease	Ph	TKN	Ammonia
Albuquerque, NM	$ 7,030	$ 16,441	250	500	330					$0.1200	$0.0600	$0.1100				
Asheville, NC	9,887	15,296	70		70					$0.4110		$0.2840				
Atlanta, GA	44,500	66,750		500	250			25								
Baltimore, MD	20,740	31,110	300		300		12	30		$0.1429		$0.2171		$2.5233	$0.1613	
Baton Rouge, LA	21,903	32,853	200		250					Varies						
Charleston, SC	41,912	62,862	290		290											
Charlotte, NC (1)	24,202	36,302	235		250				20	$0.2400		$0.1000				$0.5000
Chattanooga, TN	13,560	19,506	300		400					$0.0890		$0.0650				
Cincinnati, OH	17,296	26,326	240		300			25		$0.3066		$0.1795			$0.2684	
Cobb Co., GA	33,161	49,699	250		275		7.5		15	$0.0936		$0.1752		$1.7482		$0.9934
DeKalb Co., GA	18,393	27,647	250		250		10		30	$0.0719		$0.0719		$2.8767		$0.7192
Denver, CO	14,585	21,877	250		250			40		$0.2035		$0.1694			$0.1074	
Fulton Co., GA	35,533	53,297		350	200		500	25			$0.2400	$0.2400		$2.0000	$0.8000	
Greenville, SC	26,259	39,385	250		250					$0.1530		$0.1530				
Henrico Co., VA	19,275	26,304	250		275					$0.3205		$0.1405				
Houston, TX	29,768	44,652	350		375					$0.1762		$0.3762				
Huntsville, AL	17,726	26,589	250		250					$0.1700		$0.1200				
Jackson, MS	19,700	29,550	240		300					$0.0700		$0.0700				
Jefferson County	49,000	73,500	300-1200	750-3000	300-1000	136	38			$0.1950	$0.1950	$0.1500	$0.1000	$2.0000		
			1201+	3001+	1001+					$0.2925	$0.2925	$0.3000				
Knoxville, TN	18,005	26,055	240		300	50				$0.0699		$0.0651	$0.0408			
Little Rock, AR	18,305	27,455	250	450	250	50				$0.1000	$0.1000	$0.0900	$0.1000			
Louisville, KY	14,601	22,050	250		270					$0.1990		$0.0820				
Memphis, TN	4,390	6,584	250		300					$0.0270		$0.4600				
Miami, FL	25,491	38,241	200	200	200					$0.1900	$0.1900	$0.1400				
Mobile, AL	28,945	43,418	280		250	100				$0.2300		$0.2500	$0.2500			
Nashville, TN	29,508	43,918	300		325	100				$0.2932		$0.1400	$0.1400			
New Orleans, LA	17,715	26,777	285		395					$0.2063		$0.1378				
Richmond, VA	19,465	29,833	250		275					$0.1683		$0.1939				
San Diego, CA	N/A	N/A														
San Francisco, CA (2)	53,483	80,225									$0.1113	$0.5537	$0.7512			
Seattle, WA (3)	55,300	82,950	300		400					$0.1764		$0.2583				

1. All industrial customers pay an extra $0.30 per ccf to finance part of the cost of industrial sewage treatment; commercial customers with high-strength waste also pay an extra $0.40 per ccf.

2. In San Francisco all industrial customers pay a higher user rate regardless of concentration.
3. The Industrial Surchage in Seattle is levied by King County.

Source: PARCA research.

The most unique policy on industrial sewage charges among the jurisdictions compared belongs to Asheville, which has low pollutant limits and high surcharge rates in comparison to the other jurisdictions in the table. This indicates that Asheville bases a larger portion of its industrial sewage charges on the content of the effluent treated, rather than on the basic usage charges levied without regard to pollutant concentrations, and generates much of its industrial sewer revenue from surcharges. However, Asheville is in the second year of a long-term plan to raise monthly sewer usage charges for industrial customers and to raise the limits that apply to surcharge rates. The intent is to raise more revenue from industrial customers, and in a more stable way. The surcharges are used in other jurisdictions to prevent high pollutant concentrations rather than to generate large amounts of revenue.

Table 15 ranks the 31 jurisdictions on industrial sewer usage fees for the two hypothetical establishments described above. No effort was made to create assumptions about the pollutant concentrations in the effluent, or to calculate the resultant surcharge, because of the technical nature of such comparisons, the variations in industrial composition from one jurisdiction to another, and the fact that the surcharges generally do not yield large amounts of revenue.

Table 15
2003 Industrial Sewer Use Fees

	Annualized Fee		As a % of Jefferson Co.		As a % of Median		Jurisdiction vs Median on:	
	4" Meter 1,000,000 cf	8" Meter 1,500,000 cf	4"	8"	4"	8"	Property Tax	All Local Taxes
Seattle, WA	663,600	995,400	113%	113%	273%	273%	117%	132%
San Francisco, CA	641,796	962,694	109%	109%	265%	265%	133%	165%
Jefferson County	588,000	882,000	100%	100%	242%	242%	60%	103%
Atlanta, GA	534,000	801,000	91%	91%	220%	220%	201%	200%
Charleston, SC	502,942	754,342	86%	86%	207%	207%	110%	100%
Fulton Co., GA	426,400	639,563	73%	73%	176%	176%	201%	200%
Cobb Co., GA	397,928	596,393	68%	68%	164%	164%	108%	96%
Houston, TX	357,218	535,826	61%	61%	147%	147%	151%	124%
Nashville, TN	354,100	527,019	60%	60%	146%	145%	98%	121%
Mobile, AL	347,345	521,017	59%	59%	143%	143%	30%	66%
Greenville, SC	315,106	472,622	54%	54%	130%	130%	92%	68%
Miami, FL	305,889	458,889	52%	52%	126%	126%	129%	110%
Charlotte, NC	290,419	435,619	49%	49%	120%	120%	122%	108%
Baton Rouge, LA	262,840	394,240	45%	45%	108%	108%	46%	92%
Baltimore, MD	248,880	373,320	42%	42%	103%	103%	101%	96%
Jackson, MS	236,400	354,600	40%	40%	97%	97%	100%	69%
Richmond, VA	233,577	357,995	40%	41%	96%	98%	135%	131%
Henrico Co., VA	231,294	315,648	39%	36%	95%	87%	115%	107%
DeKalb Co., GA	220,711	331,763	38%	38%	91%	91%	118%	100%
Little Rock, AR	219,664	329,464	37%	37%	91%	91%	68%	76%
Knoxville, TN	216,056	312,656	37%	35%	89%	86%	77%	94%
Huntsville, AL	212,715	319,073	36%	36%	88%	88%	38%	63%
New Orleans, LA	212,576	321,324	36%	36%	88%	88%	63%	100%
Cincinnati, OH	207,549	315,908	35%	36%	86%	87%	139%	139%
Louisville, KY	175,218	264,599	30%	30%	72%	73%	62%	84%
Denver, CO	175,019	262,528	30%	30%	72%	72%	109%	177%
Chattanooga, TN	162,724	234,077	28%	27%	67%	64%	92%	83%
Asheville, NC	118,639	183,554	20%	21%	49%	50%	80%	70%
Albuquerque, NM	84,357	197,287	14%	22%	35%	54%	57%	61%
Memphis, TN	52,675	79,013	9%	9%	22%	22%	79%	86%
San Diego, CA	N/A	N/A						

Source: PARCA research.

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Jefferson County ranks third in the table, falling below only Seattle and San Francisco – and only marginally below these two west-coast jurisdictions. The Jefferson County industrial usage charge is about 2.4 times the median for each of the hypothetical establishments. Atlanta is not far behind Jefferson County. Mobile's industrial sewer usage fees are 41 percent below Jefferson County's, but still rank high overall; Huntsville, which has less industry, is substantially lower.

Findings and Observations

The foregoing discussion leads directly to the following findings with respect to residential, commercial, and industrial customers of the Jefferson County Sewer System:

Finding 11-1

Residential sewer impact fee. Jefferson County's residential sewer impact fee ranks 18th among the 31 jurisdictions compared. It totals 83 percent of the residential sewer impact fee in the median jurisdiction.

Observation 11-1

The residential sewer impact fee is the least burdensome sewer fee charged by Jefferson County, as measured by its comparison to other fees of the same type charged by the 30 other jurisdictions in the study. The median jurisdiction's residential sewer impact fee is $240 more than Jefferson County's, and half the jurisdictions studied charge more in relation to their median household income than does Jefferson County. This fee should be considered when increased revenues are sought for the sewer system.

Finding 11-2

Residential sewer use fee. Jefferson County's residential sewer use fee ranks 5th among the 31 jurisdictions compared. It totals 153 percent of the residential sewer use fee in the median jurisdiction.

Observation 11-2

Jefferson County's residential sewer use fee is very high when compared with the fees in most of the jurisdictions studied. It consumes the third largest share of median household income in the study and is only 33 percent smaller than the sewer use fee in Seattle, which is the highest jurisdiction.

Finding 11-3

Residential sewer and water use fees compared to median household income. Combined residential sewer and water use fees in Jefferson County rank 5th among the 31 jurisdictions compared. The total of these fees is 115 percent of the median and represents 1.7 percent of median household income.

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Observation 11-3

At the county level, personal income is the best measure of the size of an area's economy. The median household income of Jefferson County in 2003 is an estimated $43,871, which falls in the middle of the jurisdictions studied and does not appear to be a limitation on the ability of the county government to finance an adequate sewer system. However, residential sewer and water use fees in Jefferson County consume the 5th highest percentage of median household income in the study. This of course does create a limitation on the financial options available to increase sewer revenue.

Finding 11-4

Local taxes plus residential sewer and water use fees compared to median household income. When local taxes are added to residential sewer and water use fees, Jefferson County ranks 8th among the 31 jurisdictions, at 114 percent of the median.

Observation 11-4

The combined effect of high taxes and fees increases the financial limitation on sewer finances in Jefferson County. However, the County's property tax revenue is among the smallest in the study, measuring only 61 percent of the median, and the burden of this tax on personal income is also very small compared to most of the other jurisdictions analyzed. This suggests that property taxes would be an exception to the financial limitations revealed by the comparisons. However, Alabama's assessment system for property taxes places a heavier burden on commercial and industrial property than on residential property, and it is important to consider the burdens that additional property taxes would place on the various kinds of customers in the sewer system.

Finding 11-5

Commercial sewer use fees. Jefferson County's commercial sewer use fee ranks 3rd among the 31 jurisdictions compared. It totals 217 percent of the commercial sewer use fee in the median jurisdiction.

Observation 11-5

Jefferson County achieves its highest rankings in the study on sewer usage fees for commercial and industrial customers. Commercial sewer use fees in this County are only 13 percent below the highest jurisdiction in the study. This very high figure suggests that the burden already placed on business customers will make general fee increases difficult, and if the County turns to property taxes, careful consideration will have to be given to the disproportionate burden of that tax on commercial and industrial property under the terms of the Alabama Constitution. Combining fee reductions with a property tax increase would be one method of dealing with this issue.

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Finding 11-6

Industrial sewer use fees. Jefferson County's industrial sewer use fee ranks 3rd among the 31 jurisdictions compared. It totals 242 percent of the industrial sewer use fee in the median jurisdiction.

Observation 11-6

The Jefferson County industrial sewer use fee falls only 13 percent below the top jurisdiction in the study and is even higher in relation to the median than the commercial sewer use fee. Again, the burden this places on business customers is a barrier to further fee increases affecting this customer segment.

12

Financial Review, Historical and Prospective

Introduction

BE&K has prepared this portion of its review in response to Jefferson County's request for a financial analysis of the Program performed to date and the Program work remaining to be performed. Our objective in this section is to provide the County with a professional evaluation by a recognized professional firm that has related experience within Jefferson County. To this end, BE&K retained Porter, White & Company to provide financial advice and evaluation. Porter, White's work is based in part on observations and analysis by BE&K and CH2M HILL and has been reviewed by BE&K and CH2M HILL.

A substantial portion of Porter, White's work was the construction of a long-range financial model projecting the financial performance of the system through 2018 for the purpose of analyzing the effect of additional capital expenditures for the Program on user charges. The projections are based on a number of assumptions, the most important of which are (i) the amount and timing of capital expenditures, and (ii) the interest cost of future borrowings that are assumed to be at interest levels prevailing as of August 15, 2003. The amount and timing of capital expenditures is based on estimates prepared in connection with an engineering analysis of the Program.

Background

Since fiscal year 1995, the capital requirements of the Program have imposed substantial changes on the financial configuration of the system. A vast amount of capital has been expended to rehabilitate and upgrade the system. This capital investment has not expanded the customer base materially; therefore, existing customers bear the cost of these expenditures. As of August 10, 2003, the system had about $3.3 billion of debt scheduled to be paid over 40 years. The debt service profile, or annual payments of interest and principal, are not flat, but rise erratically from existing levels of $85 million to about $260 million during the forty-year period. Thus, sewer use rates, assuming no additional debt restructuring and refundings, must increase at rates well above inflation. In fact, debt issued by the system has increased by more than ten-fold since 1995. A detailed summary of all issues since 1997 is located in Appendix 12A. Net property and plant has increased nearly as much, but lags debt due to several hundred million dollars unspent in construction funds. Over the next two-to-three years, net property and plant will increase rapidly as funds are expended on improvements.

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The County's financing strategies have been successful in raising a very large amount of money at historically low interest rates. Further, operation and maintenance (O&M) expenses appear to be reasonable when compared to other systems. The sewer user charges are presently very high and are projected to become even higher, especially if the user charges are further increased to finance needed but unfunded (undiscovered) repairs to the system. This is primarily because there has been no realistic long-range financial plan, no determination of how much capital expenditure the County could afford to finance; how much burden the ratepayers could afford to assume, and no attempt to contain the amount of the capital expenditures or debt within the limits of what the County and the users can afford.

Observations

After completing numerous interviews in an attempt to understand the County's financial planning methods for the Program, our review determined that good financial planning was made extremely difficult by the lack of well-defined project scopes and cost estimates. This condition occurred in the majority of the program's projects until early 2003, when the new County Commission began closer scrutiny of the program's costs and practices. Project estimates in excess of the SSES estimates occurred due to numerous reasons, including the lack of accurate as-built drawings and other information on municipal sewer systems that had been taken over. In many cases, work was only defined while in the course of digging up existing systems and conditions were identified as non-compliant with the CD or CWA. In some instances, these projects had to be segregated from the "original" scopes of work into a form the County defined as "break-out" projects. Breakout and repair-in-place work contributed to the estimate over-runs and difficulty in setting a target budget for the Program. During the course of our review, there seemed to be frustration that questions were asked about cost forecast and budgets; since in the view of ESD officials, projects were probably going to cost whatever they cost to accomplish the Program goal of compliance with the CD. This is an unfamiliar phenomenon to most of us in the project management profession. Without a better way to provide annual budgetary requirements, funding and rate decisions were retrospective and unplanned rather than prospective and planned. Better physical planning could have resulted in better financing planning and lower project costs and sewer rates.

We found poor coordination between the ESD and the Finance Department. It appears that ESD made spending decisions without meaningful budgets or controls, and Finance paid the bills and found the money. The working assumption appeared to have been that since the County was working under a CD, it should spend without consideration of ultimate limits.

Findings and Recommendations

Financial Planning

Finding 12-1

We have been unable to locate a Jefferson County Sewer System long-range financial plan, rate study, or affordability study conducted within the past twenty years. We have knowledge of a financial plan prepared in the early 1980s, and we have heard reports of a rate study prepared in the 1970s, and are aware of several short-range rate forecasts (which fall far short of constituting rate *studies)* prepared for the purpose of issuing new debt. We know of no affordability study ever conducted for the system. Affordability is the guideline specified by the EPA. It is defined as being less than two percent of the median household income.

Most large utilities, public and private, in the United States regularly update long-range financial plans, prepare and regularly update rate studies, and prepare and update affordability studies. A long-range financial plan presents forecasted income and cash flow statements and balance sheets based on carefully considered assumptions as to changes in revenue and expenses, capital expenditures and financing. A rate study allocates costs of service including capital and operating costs among classes of customers with the purpose of establishing rates by class of customer on the basis of a rational distribution of costs. An affordability study compares anticipated rates to anticipated household income of utility customers for the purpose of determining whether the customers can afford to pay the anticipated rates. If the affordability study reveals that the rates exceed EPA's guideline of one percent to two percent of median household income, the long-range financial plan should be modified and the rate study re-done. Long-range planning is important because it is difficult or impossible to cut costs once capital expenditures are committed. If affordability studies are delayed until *after* capital expenditures are committed, the utility's ability to reduce rates through changes in the Capital Improvement Plan is severely limited. This has occurred in Jefferson County.

Recommendation 12-1

We recommend that the County prepare and annually update a long-range financial plan for the sewer system. The plan should be jointly prepared by the Environmental Services and the Finance Departments, and should be the joint responsibility of these two departments, whose activities should be closely coordinated in financial matters. In addition, the long-range financial plan should be coordinated with the County and municipal land planning departments and plans for sewer improvements should be the subject of public notice and hearings. The long-range plan should list and describe anticipated major capital projects. The process of evaluating projects for addition to the plan should include evaluation of revenues likely to be generated by the project and consideration of alternatives, including lesser-cost alternatives. A formal review for the recently cancelled Cahaba Trunk Sewer Project, the Phase 3 Trussville Trunk Sewer Project, or the Morris Kimberly WWTP would likely show that these projects were not economically viable and should never have been approved.

Rate studies should be completed initially by an independent third party, should be updated internally annually, and should be reviewed every four years by an independent third party. (See additional recommendations on rates in this Section.) Affordability studies should be updated annually.

The County should plan its sewer system expansion with full analysis and notice in advance of the sewer service charges required to finance rehabilitation, replacement, or expansion of the system. If the sewer service charges appear to exceed levels deemed to be affordable, then less costly alternatives or alternative funding should be explored before commitments to expenditures are made. The capital program should be designed to fit within the reasonably available resources.

Sewer Use Rates and Affordability

Findings 12-2

Large sewer rate increases are, and will be, required in order to pay debt service on bonds already issued and system operating and maintenance expenses. Larger rate increases will be required if necessary, but currently undiscovered capital expenditures are financed with additional sewer revenue bonds. The observations and conclusions set forth in this subsection assume additional revenue bond financing and "pay-as-you-go" capital expenditures funded through further rate increases. Appendix 12B contains schedules setting forth key assumptions, historical and projected financial statements. Alternatives to a portion of these rate increases is suggested in Section 13.

The County's rate ordinance (administered by the County's Finance Director) provides for periodic automatic increases in sewer use rates in amounts required to comply with the Trust Indenture dated February 1, 1997, as amended ("Indenture"). After the completion of each fiscal year, system financial results are subjected to certain tests. Failure to satisfy the test results in the application of two rate-setting formulas. The rate ordinance calls for the greater of the two rates determined by application of the formulas.

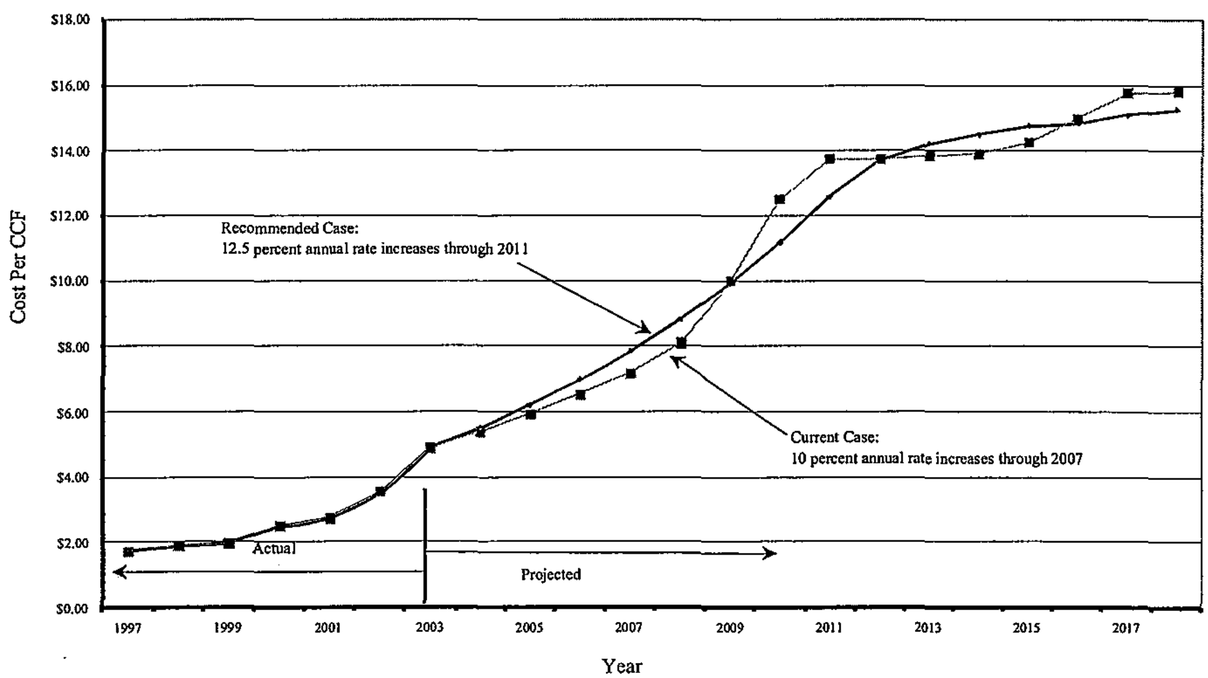
By contract, the Indenture (which is a legally binding contract with bondholders), requires only one of the two rate ordinance formulas to be applied in setting rates. The formula required by the Indenture can be characterized as a short-term rate setting formula. Thus, strict adherence to the automatic rate ordinance is not necessary in order to be in compliance with the Indenture's rate covenant.

In connection with recent bond restructurings and refundings, representatives of the County expressed an intention for sewer rate increase for the next several years to be approximately 10 percent per year. We understand that 10 percent rate increases would be applied starting in 2004 and extending to 2007 or 2008. It appears that such rate increases would likely result in compliance with the rate covenant of the Indenture, at least under the conditions assumed at the time that the restructurings and refundings were completed.

The financial projections underlying the financial analysis discussed in this section are consistent with the approach described in the preceding paragraph, except with regard to the size of rate increases. It is assumed that sewer use rates will be set so as to satisfy all of the following conditions: (i) comply with the minimum rates required by the Indenture, (ii) provide sufficient cash to make all payments required under the Indenture plus pay-as-you-go capital expenditures, and (iii) avoid rate shocks. (A rate shock is a situation where a future rate increase is substantially greater than a rate increase in a prior year, thus "shocking" the consumer.) Such a rate setting plan may result, from time-to-time, in rates above the level required by the Indenture but at variance (possibly greater or lesser) with the level that would result from operation of the rate ordinance formulas.

Rates should be set not only in view of the requirements of the Indenture, but also the operating imperatives of the utility.

Based on assumed O&M and capital construction requirements of the system, annual rate increases of 12.5 percent will be necessary through 2011. After 2011, the rate of increase may decline to near-inflationary levels (assumed to be about 2.0 percent per year), assuming no substantial capital expenditures necessitated by future regulatory requirements or demand for expansion. Sewer use rates are expected to increase to at least $15.00 and possibly as much as $16.00 per ccf by the year 2018, compared to the current rate of $4.90 per ccf. The graph below depicts projected rates.



Graph 12-2.1 Sewer Rate Projections per Hundred Cubic Feet Used

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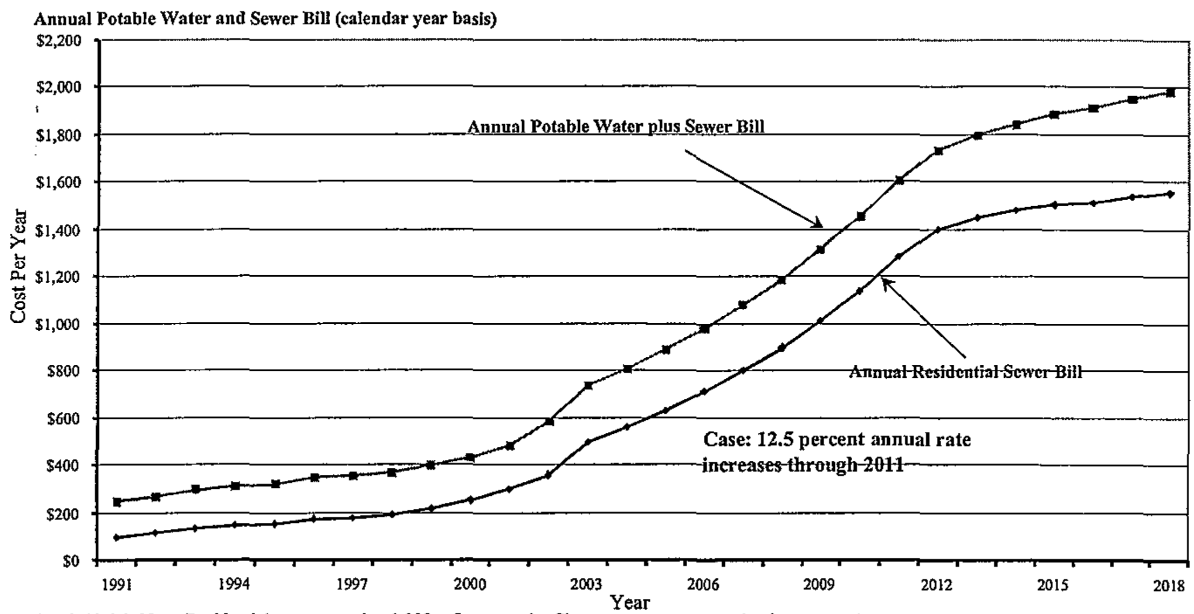
With projected capital requirements as described above, rate increases of 10 percent annually through 2007 are feasible ***only*** if the County is willing to accept 20-30 percent rate increases in 2009 and 2010. In addition, rates in 2018 would be greater than if rates are increased at a constant 12.5 percent per year.

Making only the 10 percent minimum increase in rates during 2004 through 2007 likely would result in sharp rate shocks in 2009 and 2010. Managing rate increases will require consideration of needs not only in the next few years, but also in the next seven-to-ten years.

The following graph depicts the total clean (potable) water and sewer bill for a typical residential customer in Jefferson County.



Graph 12-2.2 Note: Residential customer using 1,000 ccf per month. Clean water rates assumed to increase at 4 percent per year.

Sewer customers receive combined monthly clean (potable) water and sewer bills. The combined monthly bill is, therefore, a function of both clean water rates (set by the Birmingham Water Works and Sewer Board) and sewer rates. To the extent sewer use rates increase faster than clean water rates, the total effect is a moderation of sewer use rate increases (e.g. the sewer rate increase in January 2003 was 38.8 percent, but the perceived impact upon a typical residential user was only 25 percent when the water portion of the bill is considered in the equation).

To put rates for potable water and sewer service in context, median annual residential rates in Jefferson County for gas service are approximately $740 per year and for electrical service are

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approximately $900 per year, both including taxes. The water and sewer bill is growing to the same order of magnitude as bills for these other utilities.

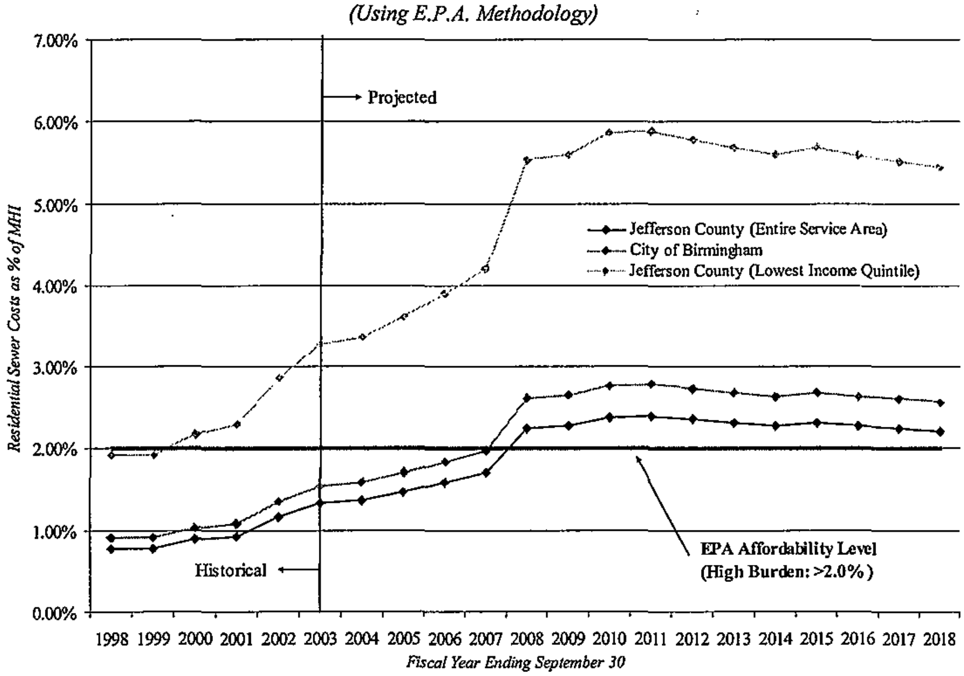
The existing rate design is probably inadequate under the circumstances of high and rapidly rising sewer rates. The existing rate design does not provide a direct relationship between customers' sewer use bills and the service being provided. For instance, customers are paying sewer charges for water that never enters the sewer system (e.g., outdoor watering), although residential customers receive a 15 percent discount in recognition of the likelihood of outdoor watering. There is also no provision for rate differentiation between customers in terms of the types of effluent produced (e.g., a commercial laundry versus a supermarket).

Residents of Jefferson County currently bear a medium financial burden with respect to costs associated with sewage treatment in the County. As defined by the EPA, a medium financial burden indicates sewage usage costs represent between one and two percent of the median household income of the service area.

Jefferson County, Alabama

Residential Indicator of Sewer Cost Affordability

(Using E.P.A. Methodology)



Our analysis follows EPA's methodology for the residential indicator of sewage use cost only, which is set forth in its publication, Combined Sewage Overflows –Guidance for Financial Capability Assessment and Schedule Development.

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Current projections indicate County residents may face a high financial burden (i.e., charges become unaffordable, exceeding two percent of median household income) as early as 2008.

While residents of the City of Birmingham currently experience a medium financial burden relating to sewer costs, our analysis indicates that City residents will face a high financial burden (i.e., unaffordable rates) beginning in 2008, and that the bottom one-fifth income level will be particularly hard hit.

Recommendations 12-2

We recommend that the County commission a rate design study to accomplish the following:

- Provide a defensible relationship of sewer use rates to cost of service (e.g., winter month averaging)
- Reduce system susceptibility to water demand fluctuations resulting from summer rainfall and temperature variation
- Eliminate private meters
- Reduce the revenue implication on the system of water conservation measures
- Provide a rate scale that differentiates among sewer users according to the amount of treatment required to sanitize their waste (e.g., a commercial laundry versus a supermarket)
- Provide the basis for increased sewer impact fees (as discussed in Section 13).

Manage staff and other O&M expenses as if the system were a for-profit entity. Every $1 million of expenses saved is equivalent to about $.05 reduction per ccf in sewer rate. Currently, O&M expense exceeds $50 million annually.

System Demand

Findings 12-3

Metered clean water consumption decreased over 4,000,000 ccf (about 13 percent) between fiscal 2000 and fiscal 2002. At current sewer use rates, this is equivalent to a loss in revenue of over $16 million annually. This decrease in demand was mostly in response to wetter and cooler weather and partly in response to increased water and sewer rates. System revenues are dependent on summer rainfall and temperatures. Over the last several years, there have been significant fluctuations in both rainfall and temperature.

Future clean water demand is expected to decrease almost two percent per year until 2010 and one percent per year thereafter as a result of increased sewer use rates, because consumers reduce consumption of a service when they experience higher prices. Under the existing rate design, the sewer system will lose revenues from conservation actions of its customers who:

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- Obtain private water meters to measure non-sewered water
- Reduce summer lawn sprinkling
- Substitute new technology into their households (low-flow fixtures)

Recommendations 12-3

We recommend that the County take every reasonable step to increase sewer service demand by considering the following:

- New subdivisions and homes with access to sewer systems should be required to hook up.
- Consider requiring existing homes that are currently in an area serviced by sewer, but are on a septic tank, to hook up. The County might consider waiving impact fees for homes initiating service after having been served by septic tanks for at least several years.
- Make a comprehensive search for system users who are tied into the system but who are not being billed.

Capital Requirements

Findings 12-4

The system varies in age and condition and will need additional capital funds beyond what is in the existing construction funds. Future capital maintenance of the system alone is expected to cost $35 million per year (in 2003 dollars). In addition, the CD requires continuing TV Inspection of pipes every year. The TV Inspection is expected to cost $4.5 million per year (in 2003 dollars).

Also, there is no capital included for expansion of the system in the projected requirements and rates of the system.

Recommendation 12-4

We recommend that the County implement a pay-as-you-go plan for funding capital maintenance as opposed to a borrowing plan. Borrowing for annual capital requirements will have the effect of pushing costs into the future and ultimately resulting in even greater rate increases.

Debt Financing Structures

Findings 12-5

The County's sewer financing structure reflects a desire to finance a very large capital program while delaying rate increases as long as possible. Because bonds were issued and expenditures

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were committed in advance of rate increases required to pay for them, there may have been insufficient discipline in planning for expenditures.

The County sewer financing system is characterized by (i) low debt service coverage requirements designed to delay rate increases, (ii) borrowing of interest during construction and reserve funds, likely resulting in borrowing in excess of the physical costs of the improvements, (iii) extended final maturities and average life of bonds outstanding, (iv) high debt to equity ratios, and (v) minimal exposure to variable interest rates which have been very low in recent years.

Given the Commission's policy decision to delay rate increases and make large amounts of funds available, the County's financing program has been effectively designed and implemented. The County has $3.3 billion in outstanding warrants. The County has thirteen outstanding issues and 94 percent of the debt is synthetically fixed using Bond Market Association and LIBOR-based long-dated swaps. The chart on the following page depicts the County's outstanding net debt service.

All bond offerings have been fairly priced when compared to benchmark indices. Additionally, the cost of insurance and underwriter's discounts appear reasonable when compared to other negotiated water and sewer revenue bond issues. However, the increasing cost of bond insurance over time (see Appendix 12C) is reflective of both a heavy debt burden and a capital structure of delayed principal payments.

The County had fund balances of $959.5 million (end of May 2003). Of that, $684 million in construction fund monies is directly available for capital improvements and $214 million of reserve funds is indirectly available. The required reserve may be reduced by approximately $6 million as a result of the 2003-B refunding. Additional monies are likely to be available for release as a result of the 2003-C refunding.

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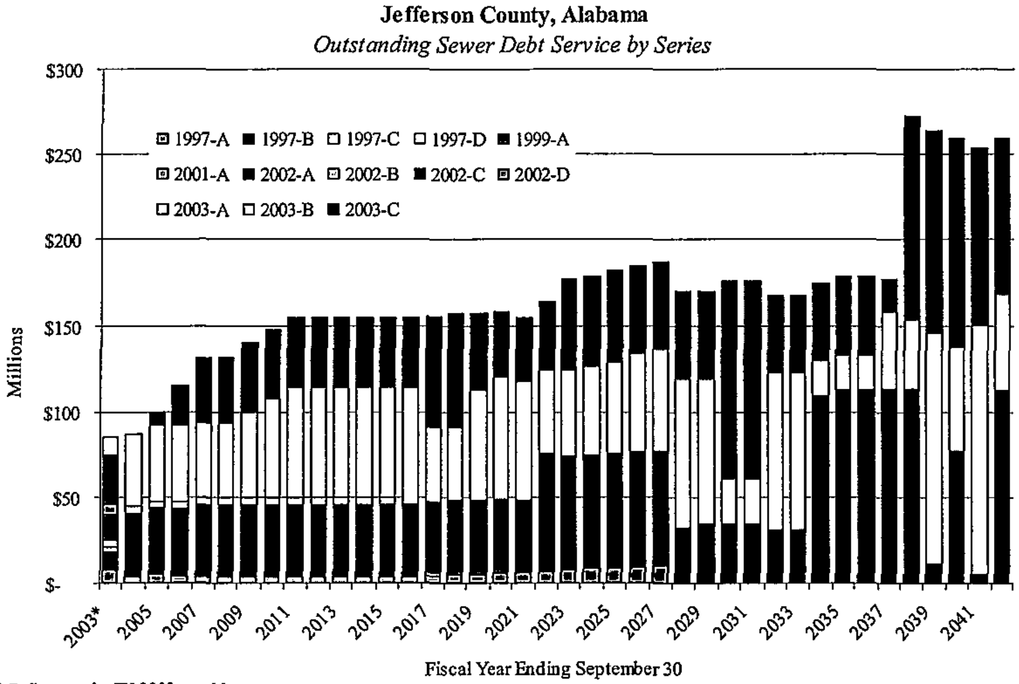
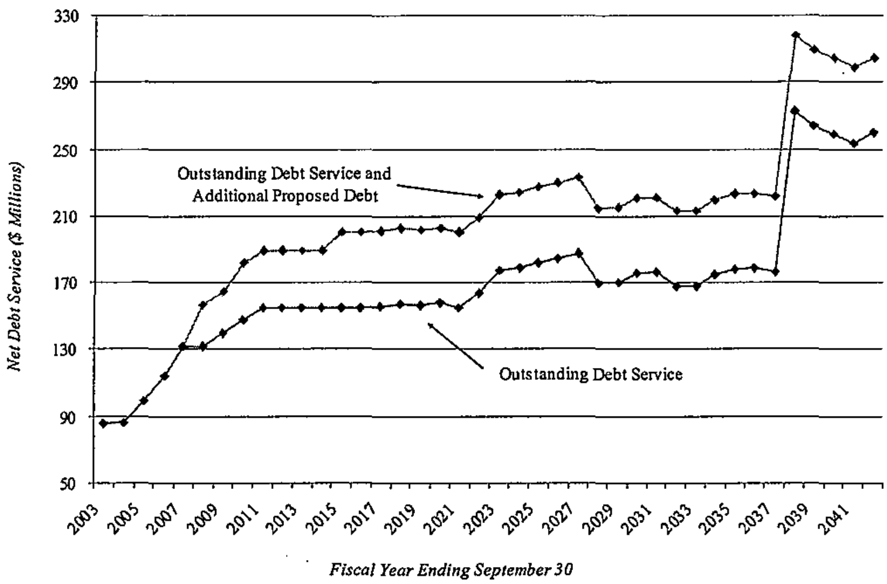


The following chart shows debt service as presently required compared to debt service that will be required in order to complete the Program and the additional capital expenditures necessary to repair known defects. Essentially, the County is committed to gross debt service of about $130 million per year growing to $272 million in 2038The additional capital required to complete the Program work and repair known defects will require the issuance of additional bonds, thus increasing the debt service burden substantially—up to a maximum of $317 million in 2038. The higher debt service becoming due in the years 2038 and later will likely be extended. It is unusual to have so much debt service "back-loaded" as rating agencies favor debt with shorter average lives. The main risk of such a "back-loaded" debt service schedule is that it reduces flexibility to incur debt to fund other needed capital expenditures, such as future environmental mandates that are expected to be imposed with respect to non-point source discharges and defective storm water systems.

Jefferson County, Alabama

Annual Net Debt Service, Outstanding and Projected



We note an area of concern that could have a moderate impact on debt service and sewer rates.

The County has entered into interest swaps in an aggregate notional amount of approximately $2.9 billion pursuant to which the County receives 67 percent of 30-day LIBOR, floating. The swaps purport to hedge a floating tax exempt obligation of like amount pursuant to which the County has paid since January 1, 2003, approximately 95 percent of 30-day LIBOR. Thus, in the current interest rate environment, the LIBOR swaps are imperfect hedges of the County's floating rate obligations as is shown in the chart on the following page. Two possible explanations for this mismatch or basis risk are (a) current low interest rates which may be disrupting historical relationships between short-term tax exempt rates and 30-day LIBOR, and (b) recent reductions in income tax rates which have the tendency to increase tax exempt rates in relation to taxable rates. The basis risk associated with the bonds can be significant, especially when one considers the $2.9 billion in notional amount subject to basis risk. A one basis point difference between the Bond Market Association Index and 67 percent of one-month LIBOR results in a $290,000 increase or decrease in debt service costs. A ten basis point differential would have a $2.9 million annual impact on debt service.

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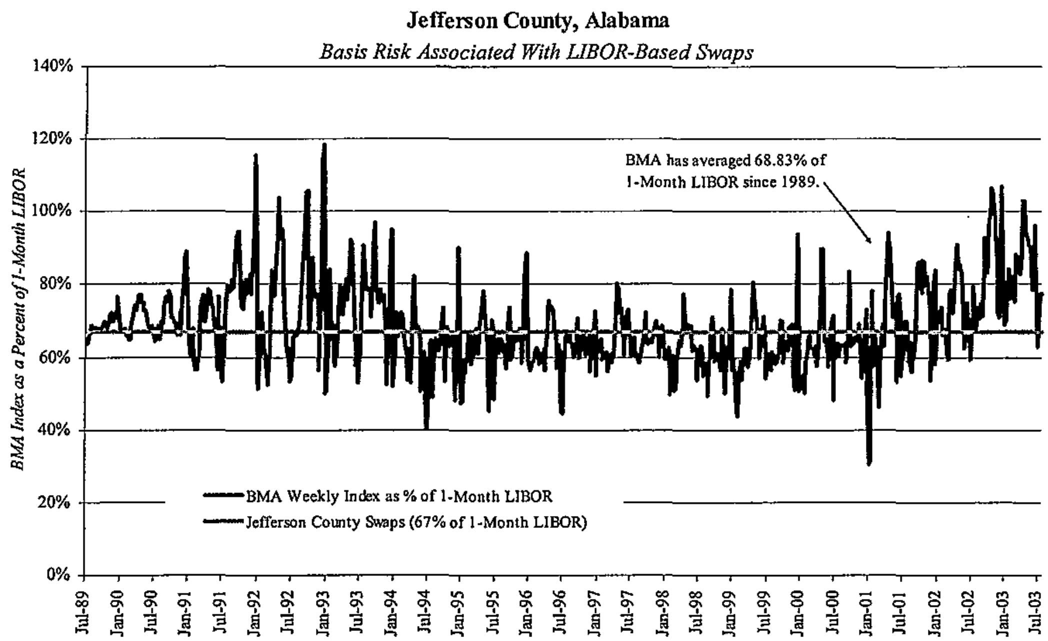

Recommendations 12-5

We recommend that the County plan for possible fluctuations in interest rates due to changes in marginal income tax rates. Decreases in tax rates will result in increases in interest rates. In higher rate environments, these increased rates may be material.

Sewer System Operation and Maintenance Cost

O&M costs of Jefferson County and other public utilities within the United States, and selected southern States with similar facilities have been analyzed. The purpose of this analysis is to assess the reasonableness of the County's wastewater system O&M costs per MGD, relative to similar utilities. For the purpose of this review the major annual O&M costs are considered to be salaries and power, as other costs are minimal and fairly static.

Jefferson County Historical Wastewater Treatment O&M Costs

A summary of the wastewater system annual O&M costs by operating unit and category for the period from 1997 to 2002 is provided in Table 1. The metric to be used for the comparison of wastewater utilities' O&M costs, as part of this analysis, is annual O&M cost as a function of annual average daily flow (AADF). A summary of the annual average daily wastewater treatment flows for the Jefferson County wastewater treatment plants (WWTPs) for the period from 1997 to 2002 is as follows:

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WWTP	Annual Average Daily Wastewater Flow (mgd)					
	1997	1998	1999	2000	2001	2002
Village Creek	**40.00**	**38.32**	**34.16**	**33.45**	**38.42**	**39.00**
Valley Creek	**44.28**	**45.68**	**48.91**	**35.41**	**43.68**	**45.00**
Five Mile	**15.83**	**16.40**	**13.40**	**12.30**	**16.20**	**19.25**
Cahaba	**10.40**	**8.80**	**8.90**	**8.90**	**9.90**	**9.30**
Leeds	**1.79**	**1.92**	**1.60**	**0.82**	**1.09**	**1.09**
Trussville	**2.16**	**1.98**	**2.05**	**1.96**	**2.17**	**2.05**
Turkey Creek	**6.50**	**4.23**	**4.51**	**4.22**	**4.15**	**4.02**
Totals	120.96	117.33	113.53	97.06	115.61	119.71

Table 1
Jefferson County, Alabama, Wastewater System Annual O&M Cost, 1997 - 2002

Annual O&M by Operating Unit and Category	1997	1998	1999	2000	2001	2002
Finance administration	$2,921,623	$2,939,027	$2,656,905	$2,911,700	$3,267,785	$3,561,094
Non-departmental	239,741	200,074	481,268	540,771	887,879	477,801
Indirect	1,237,718	1,548,950	1,597,040	1,971,602	2,444,327	2,981,498
Supplemental environmental	0	0	75,000	102,104	266,186	334,863
Sanitary administration	1,904,296	2,137,732	2,779,807	2,878,402	3,316,303	3,821,803
Old E&C combined	4,893,591	6,633,217	(474,582)	0	0	38,000
Admin E&C	0	5,611	273,104	545,709	605,634	210,287
Surveying E&C	0	14,372	765,998	703,312	717,346	823,723
Inspection E&C	0	13,535	1,462,759	1,485,096	1,747,706	1,847,518
E&C Sewer construction	0	3,873	916,788	959,229	975,732	1,049,510
E&C Admin line maintenance	0	6,821	760,651	888,467	1,561,096	834,588
E&C Village line maintenance	0	14,247	923,617	839,606	987,802	1,031,046
E&C Shades line maintenance	0	9,879	1,109,259	1,460,229	1,593,739	1,687,858
E&C TV inspection	0	9,789	732,074	966,514	999,562	1,064,938
Cahaba WWTP	2,209,294	2,278,938	2,012,573	2,311,084	2,455,941	2,817,499
Five Mile WWTP	1,467,623	1,728,240	1,693,327	1,789,498	1,881,954	1,851,340
Leeds WWTP	644,505	748,579	757,740	747,605	733,709	821,206
Trussville WWTP	334,384	476,615	628,435	690,895	694,639	689,781
Turkey Creek WWTP	368,380	424,594	434,905	448,529	524,577	512,648
Valley WWTP	4,024,358	4,112,836	4,259,277	3,591,676	4,535,271	4,497,440
Village Creek WWTP	3,056,949	3,058,730	3,146,165	3,699,296	4,635,564	4,749,716
Five Mile Maintenance	167,242	154,430	151,482	194,159	183,536	224,445
Valley Maintenance	278,078	239,240	228,294	228,189	275,282	258,214
Village Maintenance	294,203	308,091	256,295	315,778	309,533	327,098
Village Creek Electrical	363,310	452,047	548,034	672,360	607,735	702,852
Instrument shop	175,514	196,109	232,364	285,411	290,203	341,981
Package plants	1,371,541	1,917,679	2,353,629	2,701,642	2,984,922	3,119,546
Biosolids	0	0	202	752,576	745,145	805,530
Barton Lab	1,397,958	1,440,300	1,495,374	1,683,621	1,850,200	2,033,580
TOTAL	$27,350,307	$31,073,556	$32,257,783	$36,365,059	$42,079,310	$43,517,402
Annual Average Daily Flow (AADF), mgd	120.96	117.33	113.53	97.06	115.61	119.71
Total Operating Cost/day/AADF	$619.48	$725.59	$778.45	$1,026.48	$997.20	$995.95

It should be noted that the annual average flow data for the Prudes Creek and Warrior plants were not obtained because these plants are relatively small, and therefore, would not significantly affect the conclusions derived from this analysis.

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On the basis of the information provided in Table 1, the O&M costs for the Jefferson County wastewater system increased at an annual average rate of approximately 9.2 percent from 1997 to 2002, presumed to be a function of salary cost of living increases and utility cost increases. However, per the data presented above, the annual average daily MGD of wastewater treatment has not increased, and in 2002 was essentially equal to that experienced in 1997.

Comparative O&M Data from Other U.S. Utilities

The Association of Metropolitan Sewerage Agencies (AMSA) conducts an annual survey of its member utilities comparing their wastewater treatment O&M costs. In 2002, a total of 111 utilities responded to AMSA's survey. For the purposes of this comparison, it is appropriate to emphasize those utilities whose treatment requirements are similar to those of Jefferson County's. Because nearly all of Jefferson County's plants are considered to be tertiary treatment plants, only those utilities in the 2002 AMSA survey with tertiary treatment facilities were selected for comparison. The average daily cost per million gallons of treated wastewater is $1,124 for those utilities with tertiary treatment. The major annual O&M costs are salaries and power. This factor can vary significantly, depending on the location of the utility within the U.S. Therefore, the comparative 2002 AMSA data presented in Table 2 was further reduced to only include those utilities in the southern U.S. states where the salary and power costs would be expected to be similar to Jefferson County's. This data set is presented in Table 3. The average annual operating cost per million gallons of treated wastewater of the utilities presented in Table 3 is $1,371.48/MGD.

Comparison of Jefferson County's 2002 Annual O&M Costs to AMSA Utilities

On the basis of the information presented in Table 1, and the annual average daily flow data presented above, the 2002 daily O&M cost per million gallons of treated wastewater in Jefferson County was approximately $995.95. Compared to the 111 AMSA survey respondents, Jefferson County's average O&M costs in 2002 were lower than the national AMSA average. Similarly, the Jefferson County 2002 average annual O&M costs per million gallons were lower than the average annual O&M costs for the AMSA utilities with tertiary plants that are listed in Table 2. And finally, Jefferson County's 2002 average O&M costs per million gallons of treated wastewater were lower than the average of the AMSA utilities' in the southern U.S. states.

Finding 12-6

Based on the comparison of the 2002 operating costs data for Jefferson County and the representative data collected by AMSA, the Jefferson County wastewater treatment annual O&M costs compare favorably in terms of average cost per million gallons per day treated.

Recommendation 12-6

No additional action required by Jefferson County.

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Table 2
2002 AMSA Survey Results–Utilities with Tertiary Plants

Full Name	City	State	ADF	Total Plants	Primary	Secondary	Tertiary	Total Operating Cost ($)	TOC/MGD per ADF
Snyderville Basin Water Reclamation District	Park City	UT	3.4	2			2	3,332,723	2685.51
City of Tampa Department of Sanitary Sewers	Tampa	FL	49.7	1			1	42,597,300	2348.19
Charleston Commissioners of Public Works	Charleston	SC	19.7	2		1	1	14,153,857	1968.41
City of Orlando	Orlando	FL	41	3			1	27,885,232	1863.36
Mobile Area Water and Sewer System	Mobile	AL	33.9	3		2	1	21,958,990	1774.68
Pima County Wastewater Management	Tucson	AZ	65.4	11		7	2	40,721,748	1705.91
Chesterfield County Utilities	Chesterfield	VA	21.1	2			2	12,351,300	1603.75
City of Ames	Ames	IA	5.5	1			1	2,983,000	1485.93
Alexandria Sanitation Authority	Alexandria	VA	35	1			1	18,940,200	1482.60
City of Austin Water & Wastewater Utility	Austin	TX	95	4		1	2	49,864,000	1438.04
Clean Water Services	Hillsboro	OR	54.6	4		2	2	26,643,839	1336.94
Rock River Water Reclamation District	Rockford	IL	28.9	1			1	13,882,777	1316.09
Anchorage Water & Wastewater Utility	Anchorage	AK	29.8	3	1		2	13,733,377	1262.61
Fox Metro Water Reclamation District	Oswego	IL	30	1			1	13,514,772	1234.23
District of Columbia Water & Sewer Authority	Washington	DC	317.5	1			1	143,000,000	1233.96
City of Greeley	Greeley	CO	8.4	1			1	3,545,454	1156.38
City of Richmond, Department of Public Utilities	Richmond	VA	44	1			1	18,311,466	1140.19
City of Kalamazoo	Kalamazoo	MI	28.5	1			1	11,814,092	1135.70
South Bayside System Authority	Redwood City	CA	19.1	1			1	7,799,672	1118.79
City of Tulsa Public Works Department	Tulsa	OK	71.7	4		2	2	28,842,000	1102.08
Upper Trinity Regional Water District	Lewisville	TX	2.3	1			1	923,360	1099.89
City of Los Angeles Department of Public Works	Los Angeles	CA	442	4		1	1	172,896,112	1071.69
Fort Worth Water Department	Fort Worth	TX	100	1			1	37,999,096	1041.07
Jefferson County	**Birmingham**	**AL**	**119.71**	**10**				**43,517,402**	**995.95**
Charlotte Mecklenburg Utilities	Charlotte	NC	75.1	5			5	27,023,262	985.84
Clark County Sanitation District	Las Vegas	NV	82.8	1			1	28,406,040	939.91
Greater Peoria Sanitary District	Peoria	IL	23.1	1			1	7,861,000	932.34
Louisville & Jefferson County Metropolitan Sewer District	Louisville	KY	132.6	34		31	3	43,985,612	908.81
City of Corvallis - Public Works Department	Corvallis	OR	7.9	1			1	2,580,995	895.09
City of Lima, Utilities Department	Lima	OH	12	1			1	3,811,031	870.10
City of Akron Public Utilities Bureau	Akron	OH	64.2	1			1	19,865,280	847.75
North Shore Sanitary District	Gurnee	IL	53.5	3			3	16,397,110	839.69
Metropolitan Council Environmental Services	St. Paul	MN	289	8		3	5	84,076,000	797.04
Northeast Ohio Regional Sewer District	Cleveland	OH	230.4	3		2	1	65,828,872	782.78
City of Henderson	Henderson	NV	18.5	2		1	1	5,231,343	774.73
Henrico County Public Utilities	Richmond	VA	37	1			1	10,004,316	740.79
City of Phoenix Water Services Dept.	Phoenix	AZ	209.1	3			2	53,415,000	699.87
El Paso Water Utilities, Public Service Board	El Paso	TX	60.7	4			3	14,545,378	656.51
Metro Wastewater Reclamation District	Denver	CO	154	1			1	36,354,928	646.77
Madison Metropolitan Sewerage District	Madison	WI	41.8	1			1	9,242,759	605.80
Massachusetts Water Resources Authority	Charlestown	MA	348.7	3		1	1	69,191,856	543.64
San Bernardino Municipal Water Department	San Bernardino	CA	58	2		1	1	11,116,475	525.11
Metropolitan Water Reclamation District of Greater Chicago	Chicago	IL	1409	7		4	3	229,913,105	447.05
Central Valley Water Reclamation Facility	Salt Lake City	UT	52	1			1	8,096,208	426.57
Group Average									**$1,124**

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Table 3
2002 AMSA Survey Results–Southern States Utilities with Tertiary Plants

Full Name	City	State	ADF	Total Plants	Primary	Secondary	Tertiary	Total Operating Cost ($)	TOC/MGD per ADF
City of Tampa Department of Sanitary Sewers	Tampa	FL	49.7	1			1	42,597,300	2348.19
Charleston Commissioners of Public Works	Charleston	SC	19.7	2		1	1	14,153,857	1968.41
City of Orlando	Orlando	FL	41	3			1	27,885,232	1863.36
Mobile Area Water and Sewer System	Mobile	AL	33.9	3		2	1	21,958,990	1774.68
City of Austin Water & Wastewater Utility	Austin	TX	95	4		1	2	49,864,000	1438.04
Upper Trinity Regional Water District	Lewisville	TX	2.3	1			1	923,360	1099.89
Fort Worth Water Department	Fort Worth	TX	100	1			1	37,999,096	1041.07
Jefferson County	**Birmingham**	**AL**	**119.71**	**10**				**43,517,402**	**995.95**
Charlotte Mecklenburg Utilities	Charlotte	NC	75.1	5			5	27,023,262	985.84
Louisville & Jefferson County Metropolitan Sewer District	Louisville	KY	132.6	34		31	3	43,985,612	908.81
El Paso Water Utilities, Public Service Board	El Paso	TX	60.7	4			3	14,545,378	656.51
	Group Average								**$1,371**

13

Alternative Funding Methods

Introduction

This section addresses some possible alternatives to increasing sewer user rates or fees in order to finance the funds required to complete the Program. Potential sources of funds for expansion projects are discussed in Section 14.

Background

This report concludes that additional bond proceeds of approximately $365 million will be required by the end of FY 2005 to complete the Program, and that additional bond proceeds of approximately $246 million (in 2003 dollars) will be necessary to repair the known defects in the system. We have considered alternatives to pay all or a portion of these costs through means other than imposing additional user fees, either through one-time contributions to capital or annual streams of revenues supporting additional financing. We estimate that non-user fee annual revenues of approximately $44 million will be necessary in order to hold user fees at a level that would be considered affordable, applying a variation of EPA affordability standards.

Description of Alternative Funding Methods

Federal Funds

The Jefferson County sewer program is going forward at the same time as a similar Consent Decree Compliance Program is being implemented by the city of Atlanta, Georgia, and comparisons between the two programs are inevitable. Atlanta also faces problems with affordability of its user charges and even greater challenges than Jefferson County in achieving compliance with the CWA. Atlanta's discharge limits are on average tougher than those of Jefferson County, and Atlanta faces the additional problem of separating its storm water system from its sanitary sewer system.

Atlanta is behind Jefferson County in funds spent or committed to date, but aggregate expenditures to achieve compliance are expected to exceed Jefferson County expenditures. Atlanta has publicly released information on the scope and estimated cost of its Program, has determined that the total cost of the Program will be unaffordable under EPA methodology, and is actively seeking both federal funding and general tax revenues. Atlanta has sought and received a modification of its CD that has resulted in modest cost savings. Atlanta has also used and expects to use further a federally-funded state program subsidizing interest rates paid on debt

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incurred for sewer purposes, and has sought and obtained modifications to the state program to make it more useful to Atlanta.

Finally, the governments in the greater Atlanta area, at the instigation of the former Governor of Georgia, have created a high level, area-wide planning organization with responsibility for the combined planning of potable water, wastewater, and storm water utility services.

Finding 13-1

Anticipated sewer expenditures in Jefferson County will exceed the amounts considered affordable under EPA methodology. Under similar circumstances, the City of Atlanta, a competitive government and urban area, is seeking substantial federal funding for its Program.

Recommendation 13-1

Jefferson County should pursue all available alternatives for securing federal funding for its program, especially that portion of it that will cause the total cost of the Program to become unaffordable.

Ad Valorem Taxes

The public health and economic benefits from having an effective sewer system extend well beyond the properties that are actually connected to the system. Among the advantages of an ad valorem tax, as opposed to sewer service charges, is that the ad valorem tax applies to all property in the county, not just to property connected to the sewer, thus spreading the cost of building and operating a sewer system to include all property in the county. An ad valorem tax is also deductible for purposes of calculating income taxes, whereas sewer service charges are not.

Finding 13-2

Ad valorem taxes are the only area of local taxation and service fees where the County has a comparative advantage over other areas. The County has long levied and collected an ad valorem tax for sewer purposes. Currently this tax is a .7-mil tax, which produced approximately $3.1 million in FY 2002. Our research revealed that the County's ad valorem taxes are 40 percent lower than the mean ad valorem taxes of the 31 municipalities surveyed. (See Table 2, Section 10.)

A one-mil increase in ad valorem taxes in the County may produce approximately $6.3 million annually. To produce the $44 million annual revenue stream required to maintain the "affordability" of sewer service charges will require a 7-mil increase in ad valorem taxes, adjusted for the estimated effect of the "lid" on property taxes imposed by the Alabama Constitution. An increase of 7 mils would result in an increase of approximately $105 per year in the ad valorem taxes due on a house with a fair market value of $150,000. Commercial and utility properties would carry a relatively higher burden.

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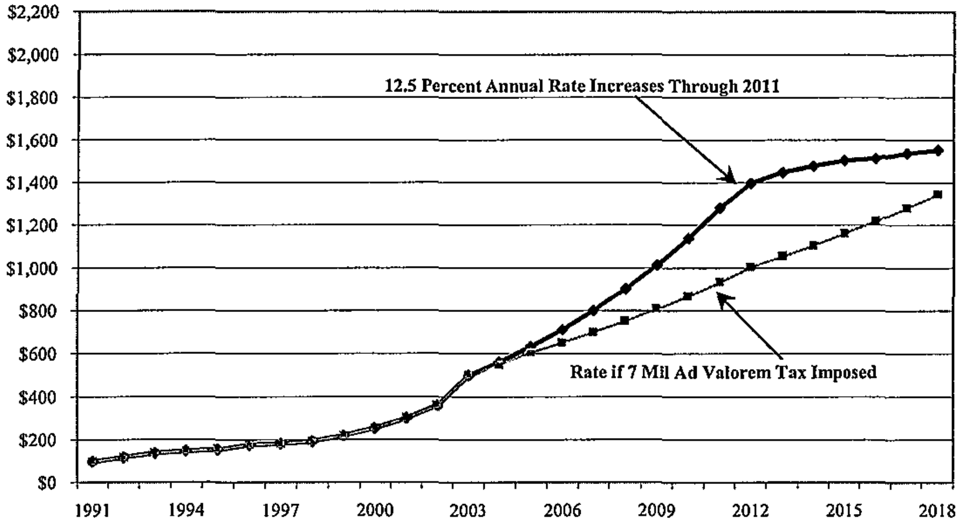
The following graph shows the combined sewer and potable water use fees per annum for the average household consumer that would be required in order to pay committed debt service and the additional costs of mandated or otherwise necessary improvements to the system, with or without a 7-mil ad valorem tax. If enacted, a 7-mil ad valorem tax would likely prevent sewer use fees from exceeding the EPA standard of 2 percent of median household income.

Table 13-1
Effects of a 7-mil Ad Valorem Tax on Annual Sewer Use Fees



Note: Residential customer using 1,000 ccf per month.

Recommendation 13-2

The County should consider seeking legislative and constitutional authority to increase ad valorem taxes for sewer funding purposes. An increase in ad valorem tax of approximately 7-mils would more realistically position the County within the group of metropolitan areas with similar population and average incomes. Total resident tax burden per capita would be marginally increased, but would still remain lower than many areas.

Release of Reserve Funds

The County has approximately $200 million in reserve funds under the Trust Indenture securing its outstanding sewer revenue bonds. These funds might be released if the County is able to obtain a surety bond providing the same protection as the reserve funds.

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Finding 13-3

If the reserve funds are released, the surety bond will have an associated cost. In addition, interest income on reserve fund balances will be lost. Such a release of reserve funds would be in addition to smaller releases resulting from reductions in debt service as a result of the 2003-B and 2003-C refundings.

The cost of a surety bond would likely be three-to-four percent of the value of a fully funded debt service reserve fund. Given that the final maturity of the County's debt is 40 years, the foregone interest earnings on reserve fund balances, on a present value basis, would be substantial. The marginal benefit from issuing a surety bond is not large and makes sense only if the County has no additional bonding capacity and has an immediate and essential need for the entire reserve fund corpus. Absent those conditions, it may be more beneficial for the County to use the cash flows created by interest earnings and reserve fund releases (occurring periodically as bond principal matures) to offset current year's debt service payments.

Recommendation 13-3

The County should cautiously evaluate the costs and benefits of replacing its reserve funds with a surety bond.

Leasehold Financing

According to news reports, the County is considering a lease and leaseback financing similar, but not identical to, leasehold financing closed by the Birmingham-Jefferson Civic Center a few years ago.

Finding 13-4

The risks of a lease and leaseback transaction include its complexity, the possibility that the transaction will be attacked by the Internal Revenue Service for having no economic purpose other than tax avoidance, and the possibility that the transaction will have unanticipated consequences. The benefits to the County of such financing in terms of up-front cash payments is directly related to the fair market value of the non tax-exempt bond financed depreciable assets available to be leased, and to interest rate levels prevailing at the time of the closing of the financing. The principal benefit of such a transaction is the payment of a substantial cash benefit that does not have to be repaid.

Under most leasehold financing structures, a lease to a private party of assets financed with tax exempt bonds causes the bonds to be classified as "private activity bonds" with interest no longer tax exempt (absent meeting certain technical conditions that may be impractical to meet in the case of Jefferson County). The principal asset of the Jefferson County System that has not been financed with tax-exempt bonds is the collector mains conveyed to the County about 1998 by the several municipalities for whom the County was then providing sewer treatment services. These collector mains have been valued on the County's books in excess of $1.4 billion. There are

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several reasons to believe that the collector mains are without value and should be written down to $0. First, the municipalities received no cash consideration for the mains, which implies that they were valueless at the time conveyed. Second, very large sums have been and will be spent rehabilitating the mains, implying that they were in such poor condition as to be valueless (or perhaps a net liability) at time of transfer. Third, a rough valuation of the system indicates that the economic value of the equity in the system (including the collector mains and after taking into consideration the outstanding debt on the system) is so low as to be indistinguishable from $0. Under these circumstances, it may be impossible to close a leasehold financing.

Recommendation 13-4

We recommend that the County entertain proposals for a leasehold transaction for the purpose of determining the potential benefits. Potential benefits should be carefully considered in relation to risks. Unless potential benefits are substantial in relation to risks, the time and resources of the County would be better spent pursuing other financing strategies.

Impact Fees or "System Development Charges"

Findings 13-5

The PARCA analysis indicates that Impact Fees, sometimes referred to as "System Development Charges," are one of the few user charges that are lower in the County than elsewhere. According to the professional literature, System Development Charges are imposed to equitably allocate costs between new users of the sewer system and old users. In effect, by paying a System Development Charge, the new user is "buying into the equity of the system." If the system equity is low, then the System Development Charge will tend to be low. Annual System Development Charges have been approximately $3.7 million per year in recent years. A 150 percent increase in the rate of System Development Charges could be accomplished without exceeding the approximate level of System Development Charges imposed in several other areas of the country, and would produce approximately $5.5 million of additional revenue per year. Whether such an increase would be deemed reasonable might depend on the determination in a rate study of whether the "equity" per house in the sewer system is at least $2,750, which is subject to question in view of the system valuation discussed under the topic, "Leasehold Financing."

Recommendation 13-5

The comprehensive rate study recommended in Section 12 of the Report should include consideration of an appropriate increase in the System Development Charge or impact fee, consistent with accepted methods of determining the reasonableness of such charges or fees.

Reorganizing to Manage Water, Wastewater, and Storm Water Systems in the Jefferson County Area

For many years, engineers and planners have known that the political boundaries in North Central Alabama do not correspond to the watersheds where potable water, wastewater, and storm water must be appropriately managed to meet the needs of an expanding urban population. Extending sewers into the watershed of a water utility can undermine the viability of an important source of water for the utility. On the other hand, management of the water resource so as to substantially reduce stream flow in dry weather increases the cost of treating sewage downstream. Ideally, management of wastewater and potable water in the same watershed would be coordinated.

To this reality should be added the increased interest of the federal government in storm water management and abating or treating pollution from non-point sources. It may be anticipated that in coming decades it will be important to coordinate the management of potable water systems, sanitary sewer systems, and storm water systems operating in the same watershed.

Common management of wastewater, potable water, and storm water may also permit cost shifting from one system to another. The Alabama Supreme Court has held, in at least one case, that revenues from water service can be used to subsidize sewer service, even under circumstances where the service areas of the water and sewer systems are not the same. While purists would prefer to see water, sewer, and storm water fees established on the basis of the cost of service of each system calculated separately, being able to combine resources may be a practical requirement in an era of very large capital expenditures mandated by environmental laws and regulations.

Finding 13-6

Consolidation of water, sewer, and storm water services into one organization may make it possible to realize significant economies of scale and achieve superior management.

Recommendations 13-6

The County should explore the possibility, jointly with other jurisdictions, of sponsoring the creation of a multi-county organization, with appropriate corporate and governmental powers, a governing body representative of the area served, and capital expenditures and rates subject to the jurisdiction of the Public Service Commission, to own and operate all public sanitary sewer, water, and storm water sewers in the area. The area of operation of the new organization would extend to watersheds in Jefferson and surrounding counties in which substantial urban populations are located, omitting watersheds that cannot be beneficially included. A task force should be appointed and a report generated and issued to the Commission as soon as possible

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14

Alternatives for Expansion

Introduction

High user charges, which are expected to increase further to cover costs of acquired capital improvements and expenses of operation, limit the County's ability to finance expansion of the sewer system by further increasing user charges. It may be difficult to expand the sewer system in anticipation of growth or to respond to new federal regulations mandating additional capital or operating expenditures.

Background

Before suggesting policy alternatives, it is important to understand the constraints under which Jefferson County is operating in financing sewer system improvements.

Jefferson County is in the midst of an approximate $2.67 billion capital expenditure program for sewers, with approximately $1 billion remaining to be spent in an effort to comply with federal CD mandated improvements to its system, and an additional $246 million required to correct known defects in the system. Since these expenditures are being financed almost totally by user charges, Jefferson County's user charges are among the highest in the nation, as documented in Section 10 of this report. Under these circumstances, it is not practical to finance further sewer system expansion with user charges.

Section 13 describes alternative funding methods not involving user fees that may be used to replace some of the increase in user charges required by the large capital program. This section deals specifically with alternatives for system expansion.

Observations

Funding Sources

Without the availability of user charges, funding sources will be difficult to find for expansion projects. The following alternatives are suggested.

Funding Source	Comment
General Tax Revenues	The County collects sales, occupation, ad valorem and business license taxes and uses them for a multitude of purposes. Sewer system expansion could be one of these purposes, although it would have to compete with existing uses of these funds.
General Sewer Service Fee	Closely related to an ad valorem tax is the fee currently charger every property owner in the County for storm water sewer service at the rate of $5 per single home and $15 per year for rental, commercial, and industrial properties. This fee has produced about $2.1 million per year for the past three years. It has been suggested that the County could charge a similar fee for sanitary sewer purposes. Such a fee would be charged on a per property basis rather than on the value of the property, but like an ad valorem tax, a sanitary sewer fee charged on a per property basis would spread the cost of sanitary sewers to all the property in the County, not just that connected to the sanitary sewers.
Community Development Block Grant Funds	Community development block grant funds can be used in the County outside municipal areas to fund sewer system extensions to low income areas.
Assessment Bonds	See below.

Sewer Expansion Revolving Fund

It would be desirable to pool general tax revenues, general sewer service fees, federal grants, and other sources of revenue to form a **sewer expansion revolving fund** for the purpose of funding critical system expansions for which no other source of funding is available. Monies paid out of the fund could be recouped through repayments from projects, including a portion of the ad valorem and occupational taxes generated by the projects. In situations where the projects benefit more than one taxing jurisdiction, the County could require inter-local agreements under which other jurisdictions would participate in the cost of the system expansion or remit some of

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the tax revenues derived from the assisted project. In order to assure that the revolving fund is used for high priority projects, the County should rely on the advice of a committee as suggested under the heading Priorities below.

Assessment Bonds

Assessment bond financing, a traditional method of sewer system financing, may provide a solution to the County's expansion needs in some, and perhaps many, circumstances.

The County has statutory power under Act No. 316 adopted at the 1969 Regular Session of the Legislature of Alabama to assess the cost of sewer system improvements against benefited properties (which might include not only property served by the sewer system but also property not served but benefited) to the extent of the increase in the value of the property resulting from such improvements. This statute might be used to (i) assess the cost of trunk lines against all property in the drainage area served by the trunk line, and (ii) assess the cost of interceptor or collector mains against the properties directly served. Such assessments can be paid in installments with interest, and the County has the power to borrow on security of the payment of the assessment installments. Interest costs of such borrowing might be subsidized under the federally subsidized state wastewater financing authority. Assessments are a first lien on the properties assessed.

An advantage of assessment bond financing is that projects must pass several procedural hurdles before they can be implemented. Plans must be drawn up, the economic consequences of constructing the improvements analyzed, public hearings held and the economic justification must be able to withstand attack in the courts. Perhaps of the greatest importance in view of the very high sewer rates being paid in Jefferson County, is the fact that costs of the sewer system expansion are paid by the property benefited by the expansion, not by existing users. A review of possible expansion projects indicates that the cost of a typical project will likely fall within the increase in property values resulting from the project. Under these circumstances, the most equitable (as well as the most feasible) way of financing expansion projects is to assess their cost against benefited properties.

In some cases where the cost of desirable projects exceeds the likely economic benefit to the property, it may be desirable to combine assessment bond financing with contributions from a sewer expansion revolving fund created as described in the preceding section.

Priorities

On the assumption that any resources available to expand the sewer system will be scarce, it is important to prioritize expansion projects. Priorities should be established both in terms of the economic impact of the project and consistency of the project with other governmental objectives.

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The following is a suggested order of priority for economic development projects in terms of the nature of the development to be supported by the expansion of jobs.

Nature of Project	Comment
Manufacturing Industry	Manufacturing jobs have the highest economic impact in terms of producing income and tax revenues for the area. The County should make every effort to avoid losing new manufacturing jobs. New or expanded manufacturing industries tend to favorably impact a broad area, thus justifying the expenditure of resources originating from a similarly broad area (i.e., County-wide taxes).
Housing	The greater Jefferson County area is a great place to live, and a major factor in making it so is the availability of an abundance of attractive housing. Maintaining the ability to improve the housing stock to meet demand is important to the economic future of the area, and sewer service is a necessary condition to building housing, particularly housing affordable to middle income home buyers that is unlikely to be located on lots large enough to accommodate the field lines associated with septic tanks.
Warehouse and Service Industry	These projects may have good economic impact, depending on the nature of the business. Operations centers, call centers and the like may attract or keep large numbers of jobs, although such jobs are usually lower paying on average than manufacturing jobs. On the other hand, warehouses typically employ very few people (and have little need for sewer service). Each project in this category should be analyzed for its economic impact and treated accordingly.
Retail	Unless they are super regional in nature, retail projects tend to relate to existing economic activity and are less likely to have large net favorable economic impact. Unless the economy is growing quickly, a retail project in one area is likely to draw sales and taxes from another area. Under these circumstances, it is not appropriate for the County to make an investment just to move sales from one

location to another. However, local municipalities may find it in their interest to support a development because of prospective collections of sales taxes.

When a project is found to be so desirable in terms of its impact on the Jefferson County economy as to justify the use of scarce public funds to pay for a sewer trunk line extension, several other issues should be explored.

Issue	Comment
Planning Approvals	In every instance, the sewer main extension should be consistent with applicable land use plans and zoning adopted by the County and any affected municipalities.
Alternative Sites	There should be no feasible alternative sites already served by sewer.
Alternative Technology	There should be no feasible alternative methods of disposing of the wastewater.
Least Possible Cost	The capital and operating costs of solving the wastewater disposal problem presented by the project should be the least costly possible.
No Other Financing Method	The County should be the only party available to pay the expansion costs.
Favorable Economic Impact	Each project should be scored for their economic impact in relation to cost, and forecast tax revenues to the County should be estimated using a commercially available econometric model and accepted economic multipliers as inputs.
Demand for Service	Forecasts of demand for sewer service should be carefully prepared and should be sufficient to justify the expenditure involved.
Conditional Recoupment of Cost	In the event a sewer is extended to support a project, some repayment commitment should be obtained in the event the project does not employ and continue to employ for a specified number of years the number of people to which it commits in order to induce the County to make the necessary sewer improvements.

The County should establish an independent committee to review and score projects to assist it in deciding what projects to support with sewer expansions. Membership on the committee should be representative of institutions with a stake in economic growth in the County as well as consumers. The reviews and scores should be documented and available for public inspection. The committee should endeavor to evaluate each project in relation to all others submitted so that third parties can understand the policy of the County. Actual approvals of projects by the Commission should be compared to recommendations of the committee.

Additional Alternative Considered

It has been suggested that the cost of a trunk line expansion could be financed by a developer who would receive reimbursement of costs through a combination of impact fees and diversion of a portion of the sewer service charge. Under this approach, a portion of the sewer service charge equal to the variable cost of treating the effluent would continue to be paid to the County. Sunk capital costs would be ignored under this plan. There are several questions and problems with this approach.

Among the questions are the following:

(1) Who will own title to the trunk line and have maintenance responsibility? How will this cost be funded?

(2) How long will the developer be entitled to a portion of the user service charges (for a term certain or until the developer recoups his cost), and will the developer be entitled to interest on his investment and, if so, how much?

Among the problems are the following:

(a) The Indenture pursuant to which Jefferson County sewer bonds are issued pledges all user charges, including impact fees, to the trustee for the benefit of the bondholders. The County is permitted to use excess revenues for sewer system purposes. The question arises as to whether diversion of user charges to a developer is permitted under the Indenture or under general law. Even if lawful, such diversion will be subject to the obligations of the County under the Indenture, and thus the developer may not be able to count on this revenue stream.

(b) The Indenture prohibits "free service." A special deal with a developer may be deemed free service. A special rate established for the class of rate payers who benefit from trunk lines extended by private developers might avoid this provision, but the rate would then be subject to attack for being unreasonable and discriminatory if based on an allocation of incremental costs rather than fully-allocated costs.

The County might be able to establish a wholesale rate to accept effluent from a privately owned sewer system. The County would meter the volume of effluent accepted from the system and charge accordingly. But the wholesale rate will likely have to be based on fully allocated costs, with the result that users will pay approximately what all users pay plus the cost of the trunk line extension.

Any use of sewer service charges to finance expansion of the system should be conditioned on the preparation of sewer rate studies demonstrating the reasonableness of rate increases.

Findings and Recommendations

Findings 14-1

To preserve a viable home-building industry in Jefferson County in the face of substantial increases in sewer system service and associated infrastructure costs, there is a need to reduce to the fullest extent possible non-essential burdens on the building industry. Based on contacts with municipal officials and individuals representative of the home-building industry in Jefferson County, there appears to be insufficient communication and coordination among ESD, municipal officials, and home builders. Municipal officials and home builders complain about the high cost of complying with county regulations, which leads, in the opinion of home builders, to unnecessarily high costs of constructing housing in Jefferson County. Regulations should be rigorously examined for economic impact, need, and consistency with regulations in adjacent jurisdictions and at the State level. A cost-benefit analysis should be prepared on all regulations leading to increased building costs.

Recommendations 14-1

We recommend that the County establish an advisory committee of municipal officials, homebuilders, and real estate developers to review sewer system rules, regulations, and practices that affect development in Jefferson County.

We recommend that the County establish a sewer system expansion revolving fund to assist with critically needed expansions of the system.

Findings 14-2

Methods are being found to accomplish expansion without the County having to accept the full burden of such projects. In the case of Morris, a new sewer plant project is being replaced with a pressure main connecting the area to another existing sewer plant at a substantially reduced cost. In the case of Trussville, it appears possible to replace a $13.5 million sewer main inside a tunnel running along the Cahaba River with a gravity main installed mostly remote from the river at a cost of less than $1 million. The City of Trussville and the developer of a portion of the property to be benefited by sewer service are discussing paying for the costs of the sewer system expansion.

Recommendation 14-2

We recommend that the County explore least-cost alternatives in the case of all expansion projects, whatever the funding source.

Developer and Municipal Financing of Expansion Projects

Findings 14-3

Like the case for a major development in Trussville, some sewer expansion projects will provide benefits sufficient to justify payment of the project costs by developers whose projects will be served or by municipalities who will realize tax collections from the served projects. This occurs in many areas of the country.

Recommendation 14-3

We recommend that the County induce developers or municipalities, where it is to their major advantage, to pay the costs of sewer expansion projects. Note that prohibitions against discriminatory rates may prevent the County from allocating sewer service fees or impact fees for sewer expansion projects financed in this manner.

Assessment Financing

Finding 14-4

Assessment financing may be the most robust and equitable source of financing sewer system expansion.

Recommendation 14-4

The County should commence work at an early date on a prototype sewer assessment financed expansion project in order to confirm the feasibility of this approach to system expansion.

Use of Advanced Technology for Package Plants and Other On-Site Treatment; Regulations and Procedures for Monitoring Alternative Treatment Facilities

Finding 14-5

Inability of the County to pay for sewer system expansion will inevitably lead to property developers attempting to install alternative wastewater treatment and disposal solutions. Alternatives likely to be attempted will include (i) pressure lines and pumps transporting sewage to County-owned lines, (ii) septic tanks, (iii) various enhanced septic tanks, and (iv) package plants with disposal of effluent through spray irrigation or in lagoons, or by discharge in rivers and streams, and perhaps others.

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Recommendation 14-5

We recommend that the County work with the Jefferson County Health Department, the State Health Department and the Alabama Department of Environmental Management to develop standards for permitting and inspecting alternative methods of wastewater treatment and disposal, and for an inspection system financed with user fees for the purpose of monitoring performance of alternative methods and assuring correction of any deficiencies.

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15

Public Awareness/Involvement

Introduction

The Jefferson County Commission requested that BE&K, as part of its report, evaluate the work performed on the Program to date. Public Relations and Public Involvement are important aspects of large capital expenditure Programs, particularly programs that impact rates and individual neighborhoods.

The focus of this section is a review of the Community Relations activities utilized by the ESD to involve the public in the Program. Findings and recommendations relate the County's past and current program practices in comparison to industry standard practices for similar programs of this magnitude.

Background

The Program has not received many favorable comments from the public, environmental groups, or the media. Historically, the County has seemed reluctant to volunteer information or to seek public involvement in a managed and coordinated manner. Any good news about the Program's intentions and accomplishments has been overshadowed by bad news, which imbalance suggests a lack of a managed community relation's effort. The County's contacts with the public have generally been limited to the reporting of problems or advising residents that they will be impacted by construction in their neighborhood. Media coverage tends to be negative and emphasizes sewer overflows, excessive payments to contractors, and other similar concerns. The BE&K review team found no evidence of a pro-active sustained effort to involve the general public in the Program, nor did we find any risk assessment associated with a decision not to have a structured public awareness program. The County did implement the following measures for discrete periods of times:

- Quarterly newsletter describing current ESD activities and construction projects.
- Public service announcements describing ESD activities.
- Information pamphlets included with monthly water bills.
- ESD or engineering consultant employees did actively attempt to inform residents who might be affected by Sewer Rehabilitation or Sewer Replacement Projects within a given area. Meetings were set up in areas affected by sewer projects in order to explain the work and the

responsibilities of the contractor performing the work. We were advised that the meetings were generally well received by the local residents.

The Commission organized the Environmental Services Citizens Advisory Committee in February 2003. The Environmental Services Commissioner worked with the Regional Planning Council in order to organize a forum to allow public input to the Commission. The committee consists of eighteen (18) people. Six (6) people were nominated to represent the general public, six (6) to represent the business community, and six (6) to represent government. The Citizens Advisory Council is to represent the public and help the Commission shape the County's vision of the ESD.

Observations

Large complex construction programs that require massive funding and demand public support, such as the Program, typically have proactive, sophisticated Community Relations efforts. The goals of Community Relations efforts are as follows:

- Inform the public (rate payers) of the general scope and schedule for the work to be performed and the impact of the work on the community (i.e., cleaner water, reduced overflows, higher rates, continued economic development, etc., and other improvements).
- Gain and maintain community support. Keep the public informed about progress, issues, and, if necessary, ask the public to assist with any political issues.
- Gain and maintain political support. Keep local leaders informed about issues, any assistance they can provide, progress, and achievements.
- Achieve positive local, state, and national recognition for the work being performed and for the people leading the work.
- Develop a system for team communication to the public regarding the project. This will include definition of key issues and methods for timely distribution of information.
- Provide a project "Ombudsman" to respond to specific issues raised by individual residents impacted by the project.

Experienced professionals generally manage Community Relations efforts. The manager of the Community Relations effort generally reports to the executive management or the Program Manager.

Findings and Recommendations

Finding 15-1

The Program does not have an organized, effective Community Relations effort.

Recommendation 15-1

Jefferson County should retain a full-time, experienced Community Relations professional to develop and maintain public involvement. The Community Relations function should report to the Program Manager. It should be supported by the ESD leadership.

A Community Relations Program will cost $100,000 to $200,000 per year, assuming that much of the effort is delivered by the Program Manager and his staff.

Finding 15-2

Diverse, public stakeholder groups can become the County's biggest advocates when the objectives, the data, and the constraints of a project are presented to them in a structured manner and they help make management decisions that affect the public. The stakeholders, justly or unjustly, are generally respected by the public as having a more unbiased opinion than the County. The County needs to restore the public's confidence that the County's infrastructure program is accomplishing its goals, considering the significant cost of the program. Also, stakeholder groups are viewed as making decisions that better consider the general public's best interest.

The County has formed the Citizens Advisory Council, which is a preliminary step to a structured stakeholders group, however, the Citizens Advisory Committee does not have a high profile within the County and would not likely be recognized as a viable stakeholders group.

Recommendation 15-2

It is recommended that the County develop a professionally structured and facilitated stakeholder involvement program for its wastewater programs. Stakeholder awareness is a component of public involvement and should not be substituted for public involvement.

The environmental stakeholder group members should be recognized leaders of business, environmental groups, regulatory agencies (Alabama Department of Environmental Management, Environmental Protection Agency), local governments, and individual ratepayers. A professional mediator or organization consultant who reports to the environmental commissioner should chair the group.

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Finding 15-3

The Atlanta area is in the process of complying with a CD. As part of its Program, Atlanta has developed a public involvement and a large diverse stakeholders group to assist the Atlanta local government in dealing with its CD issues.

Recommendation 15-3

The Jefferson County Commission should travel to Atlanta and review the public involvement and stakeholder group programs and use the information to develop similar programs for Jefferson County.

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Acronyms

AADF	Annual Average Daily Flow
CCF	One Hundred Cubic Feet
CD	Consent Decree
CII	Construction Industry Institute
CIP	Capital Improvement Program
CIPP	Cured-in-Place Pipe
CMOM	Capacity Maintenance and Operations Management
EPA	Environmental Protection Agency
ESD	Environmental Services Department
GPD/SF	Gallons Per Day Per Square Foot
I/I	Infiltration/Inflow
LIBOR	London Interbank Offered Rate (the rate that London banks borrow and lend among each other)
MGD	Million Gallons Per Day
MMADF	Maximum Month Average Daily Flow
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
PRC	Product Review Committee
RAS/WAS	Return Activated Sludge/Waste Activated Sludge
SOR	Surface Overflow Rate
SSES	Sewer System Evaluation Survey
SSO	Sanitary Sewer Overflow
TVI	TV Inspection
VE	Value Engineering
WTSCIP	Waste Treatment System Capital Improvement Plan
WWTP	Wastewater Treatment Plant

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KREBS
ARCHITECTURE / ENGINEERING

PAUL B. KREBS & ASSOCIATES, INC.

November 5, 2002

Report to the Commission of Jefferson County

Contained herein is a projection of the Environmental Services Department's rate revenues and related income, its operations and maintenance (O&M) expenses, and its annual debt service and debt coverage through the fiscal year ending September 30, 2006. The objective of this undertaking is to evaluate the adequacy of the current sewer user fee structure in light of the requirements created as a result of what is generally referred to as the "Consent Decree" which was entered with the United States District Court in Birmingham, Alabama on December 9, 1996 and the Commission's long term plan for other needed capital improvements.

The Consent Decree calls for the development and implementation of a remedial plan over a twelve-year period to eliminate bypasses and other unlawful discharges of untreated sewage into receiving streams in Jefferson County. Because that plan requires the rehabilitation of an extensive amount of lateral and collector sewers throughout Jefferson County, the undertaking is currently estimated to cost approximately $2.0 billion over the period which officially began in July 1995. While much has been accomplished during the first seven years of the twelve-year time frame set forth in the Decree, a considerable amount of work remains to be done. As compliance with the provisions of the Consent Decree continues to manifest itself through very substantial capital outlays by the County, it has become necessary to periodically increase the existing sewer user fee structure to accommodate the periodic financing of those improvements. Other needed improvements are currently projected to cost approximately $1.1 billion.

Proposed changes in the sewer user fee structure have historically been based on usage by existing customers at prevailing rates during the most recent fiscal year. While there can be no assurance that those customers will continue to use the County's sewer facilities at that same rate as user fees rise, it has historically been the amount of rainfall during a fiscal year which has been the most significant factor influencing the amount of sewer usage experienced. The fiscal year ended September 30, 2000 was a very dry one, while the following fiscal year was a very wet one according to National Oceanic and Atmospheric Administration records for the Jefferson County area. In our opinion, neither year was satisfactory for purposes of modeling the probable user rate increases required to fund the County's planned capital improvements program. Accordingly, in projecting rates for the Series 2002-B and thereafter debt offerings, we attempted to minimize the influence of an event at either extreme by making our forecast using the development of an "average year" usage model which considered usage data for those two fiscal years. The fiscal year ended September 30, 2002 proved to be one in which rainfall closely approximated that on which the "average year" model was based. However, the quantity of sewer services demanded during that year declined somewhat when compared with the average year. As a consequence, we must assume that either the public has begun to use water more wisely as a result of the drought in 2000, or the price of sewer services is beginning to result in conservation practices in some segments of the county rate base. Please see a more complete discussion of this subject in the body of the report.

To position itself in such a manner as to provide the maximum flexibility which will be required to meet its normal needs and comply with the terms of the Consent Decree, the Commission proposes to borrow an additional $475 million to maintain its rate of progress toward construction of projects mandated by the Consent Decree, other projects required to comply with the Clean Water Act, and discretionary projects which are necessary to meet the future needs of the system. This borrowing will finance the construction

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objectives scheduled for completion over the next two fiscal years. Additional borrowing may be required during the remaining years of the period set by the Consent Decree.

Sewer user fees accounted for approximately 74 percent of the Environmental Services Department's total revenues in the most recently completed fiscal year, and that percentage is expected to rise steadily in future years. The rate currently in effect is $3.53 per hundred cubic feet of water consumed. Residential customers receive a quantity exclusion equal to fifteen percent of their water usage, so the typical account in this customer group, assuming the use of 1,000 cubic feet of water per month, would currently receive a monthly bill of $30.01. With the implementation of the automatic rate increase which is projected to take effect January 1, 2003 and based upon the financing plan currently proposed, the sewer user fee would rise from $3.53 to $5.05 per hundred cubic feet. This would result in an increase in a typical residential user's monthly bill from $30.01 to $42.93 or an increase of approximately 43 percent. Utilizing the County's automatic rate increase ordinance, the projected rate increases to $6.26 per hundred cubic feet on January 1, 2004, to $7.18 per hundred cubic feet on January 1, 2005, and to $7.83 on January 1, 2006. All projections of sewer user fees contained in this report are contingent upon the actual implementation of the planned rate increases on the dates proposed herein.

Based on the financial and operating data available to us, it is our opinion that sewer rate revenues arising from the proposed sewer user charge system, when added to the other sewer operating revenues and resources which the Commission indicates are available to it, will be adequate to cover projected sewer operations and maintenance expenses, existing and currently proposed annual debt service, and debt service coverage as required by the governing indenture agreement. Projected annual net income available for debt service is $82.6, $104.1, $123.1 and $137.0 million for the fiscal years ending September 30, 2003, 2004, 2005, and 2006, respectively. A brief summary of projected revenues, operating expenses and annual debt service for these years may be seen in Exhibits A and B of this report.

Sources of information used to make rate revenue projections contained in this report included summary usage and billing data provided by the Water Works and Sewer Board of the City of Birmingham and the smaller municipal utilities in the Jefferson County sewer system. Other revenues and operating expenses are projected using historical financial information contained in the Commission's accounting system, operating expense budget data prepared by Commission professional staff, and other information provided by the professional engineers of the Environmental Services Department.

We appreciate very much the opportunity to serve the Commission on this project. If we can be of additional assistance, please do not hesitate to call on us.

Paul B. Krebs & Associates, Inc

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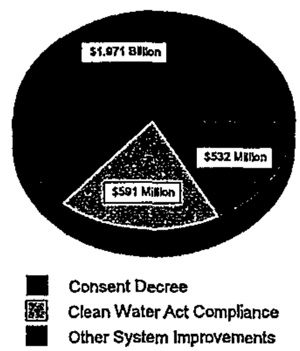
PROJECT OVERVIEW

This report is the fifth of a series arising out of the partial summary judgment granted in favor of the original plaintiff and the federal government by the District Court in December 1995. The case, which was brought against the Jefferson County Commission in 1993, alleged that the Commission violated certain provisions of the Clean Water Act of 1972, as amended. The District Court judgment mandated that the defendants in the litigation develop a plan of action now commonly known as the "Consent Decree", which set forth the manner in which the violations would be remedied. That plan was filed with the United States District Court, Northern District of Alabama, on December 9, 1996, and has provided the principal focus for the debt offerings which have followed the court ruling. Those bond offerings have also included funding for construction of some improvements which were deemed necessary by the Commission, but not required by the Consent Decree.

Total Projects



Engineering reports have been developed to support needed debt offerings in 1997, 1999, 2001 and earlier in 2002 in an effort to assist the Commission in complying with the terms of the Consent Decree and meeting other construction objectives, even though the total cost of the improvements to the system required had not yet been fully determined. As far as the Consent Decree is concerned, the Commission is obliged, within a twelve year time frame beginning in June 1995, to complete all of the improvements required to bring it into compliance with the Clean Water Act. The Series 1997, 1999, 2001, 2002-A and Series 2002-B debt offerings funded part of the needed improvements, but the Commission now seeks additional financing in the amount of $475 million to continue with its construction improvements plan for the work contemplated. It is anticipated that, after issuance costs and the funding of the debt service reserve and other funds, approximately $386 million will be available for use on planned sewer improvements. When this amount is combined with the proceeds made available from the Series 2002-B debt offering and funds on hand from prior financing efforts, it is projected that funds available for existing and proposed sewer projects will approach $837 million. Work remaining on contracts awarded by the Environmental Services Department as of September 30, 2002 is valued at $436 million, so approximately $401 million of the funds currently available for construction work can be devoted to new projects. The proposed use by the Jefferson Count Environmental Services Department of the unencumbered amounts is outlined in more detail in the sections which follow. The Commission continues to develop more accurate estimates for the cost of the work remaining to be performed, to identify other projects which will have to be constructed to meet announced but not yet implemented Environmental Protection Agency ("EPA") discharge standards, to identify other projects required to serve new growth, and to maintain the construction schedule required to obtain information needed to measure compliance with the Consent Decree on or before the EPA's scheduled benchmark dates.

As of the date of this report, the best estimate for the cost to complete both the already constructed and the proposed work is approximately $3.1 billion. This figure does not include approximately $97 million which the Commission spent on essential improvements before the Consent Decree became effective. The cost of the work remaining to be performed should continue to be considered an approximation until bids on all

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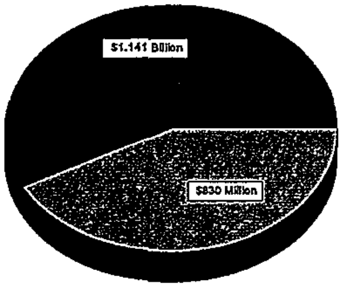
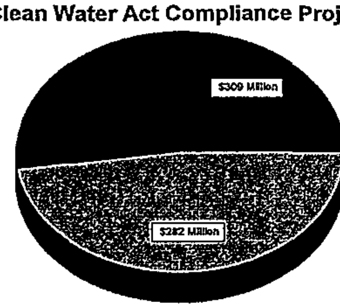
projects to be constructed have been received. This estimate is subject to adjustment as additional information becomes available. The financing plan which brought about the need for this report calls for the borrowing of approximately $475 million to be used to provide funding for projects during the next two years of planned construction activity for projects which can be classified into three groups: Consent Decree, Clean Water Act Compliance, and Other System Improvements.

Consent Decree Projects



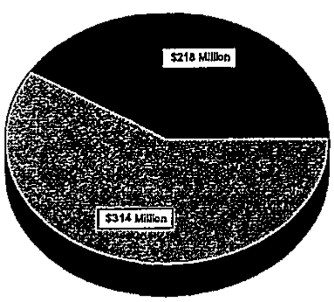
Consent Decree projects can be generally categorized as infiltration/inflow (I/I) program management, sewer rehabilitation and replacement projects, and the upgrading of some wastewater treatment plants to meet the discharge standards mandated in that document. The total cost of all Consent Decree projects is currently projected to be $1.971 billion. Of this amount, approximately $1.141 billion has been funded. Of the $830 million in projected remaining costs, it is anticipated that $559 million will be constructed with funds now available, leaving approximately $271 million to be funded from future resources as they become available.

Clean Water Act Compliance Projects



Clean Water Act Compliance projects include projects which, while not specifically mandated in the Consent Decree, must be constructed in the near term if the County is to bring some recently acquired facilities into compliance with existing EPA standards as well as modify others to meet the evolving discharge standards which may have been announced by the EPA but which are not yet effective. Such projects include sewer replacements, relief sewer construction, upgrades to wastewater pumping stations, and upgrades to wastewater treatment plants. The projected cost for all projects in this group as of the date of this report is $591 million. Of this amount, approximately $309 million has already been funded. Of the $283 million in remaining costs, it is anticipated that $190 million will be constructed with funds now available, leaving $93 million to be funded from future resources as they become available.

Other System Improvements



Other System Improvements include projects such as sanitary sewer extensions, new sewer pumping stations, and wastewater treatment plant expansions. All projects in this category are constructed for the purpose of providing additional capacity to serve new accounts. The projected cost for all projects included in this group is $532 million, and $218 million of this amount has already been funded, leaving $314 million to be funded. Of the $314 million in remaining projected costs, $89 million will be constructed with funds now available. The remaining projects, estimated at $225 million, will be funded from future resources as they become available.

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REVENUE REQUIREMENTS

General

To develop a rate structure which should provide the Commission with the system revenues required to discharge its responsibilities, it is necessary to consider the following requirements: (1) the amount of operating and maintenance (O&M) expenses to be incurred in a fiscal year, (2) the amount of debt service which the Commission will be required to satisfy during that period, and (3) the terms for the debt service as specified in the Trust Indenture.

After the revenue requirements for each major group have been properly identified, the total of those requirements may then be compared with revenues anticipated to be generated from the existing customer base under the Commission's current rate structure and other operating revenues. If the revenues generated are found to be inadequate, a new rate structure which will help satisfy the projected revenue requirements is then proposed. The current rate for sewer service is $3.53 per hundred cubic feet and has been in force since January 1, 2002. To meet its ongoing operating and capital needs, an increase in the sewer user fee will be required. The currently projected rate increase, scheduled for implementation on January 1, 2003, will increase the current volumetric charge to $5.05 for that same quantity. To comply with the Revenue Forecast provisions of the Trust Indenture, the $5.05 rate is proposed to rise again to $6.26 on January 1, 2004, to $7.18 on January 1, 2005, and to $7.83 on January 1, 2006.

O&M Expense

Starting points for determining an estimate of this revenue requirement are the Commission's unaudited financial statement for the most recently completed fiscal year and the budget for the current year. The Commission has an experienced professional staff that maintains a well-developed financial reporting system which both accumulates current financial information each month and compares current operating performance against budget on year-to-date basis. The budget and financial reporting system contains a great deal of data about actual financial performance in prior years as well as budget information on its various operating segments for the current fiscal year. The fiscal year for the Commission ends on September 30.

For the fiscal year ended September 30, 2002, total operating expense (as defined in the Trust Indenture) for the Environmental Services Department amounted to $44.6 million. For the fiscal year ending September 30, 2003, operations and maintenance expenses are budgeted at $56.6 million, or 27 percent higher than those in the preceding fiscal year largely because the County continues to increase its staffing and expenses to meet the requirements of the Consent Decree. Historically, the Environmental Services Department has underrun its operating budget by a considerable margin. For the most recently completed fiscal year, actual expenses were approximately 85 percent of budgeted amounts. However, we must assume that the budget for the current fiscal year will closely approximate what will ultimately be incurred.

Most of the operating expense groupings reflect moderate increases for the current fiscal year, but the largest single item in terms of both percentage and dollar increase is expected to be experienced in the Sanitary Administration expense grouping. This increase is largely due to the anticipated filling of additional positions in the that area. However, liquidity and remarketing fees arising out of the Series 2002-C refunding now constitute about 4.5 percent of projected operating expenses which the Environmental Service Department must also address in addition to regular operating expenses. For the fiscal years beginning October 1, 2003 and continuing through the fiscal year ending September 30, 2007, the professional staff of the Environmental Services Department has projected operating expenses to rise at an annual rate of between four and five percent. Accordingly, Operations & Maintenance (O&M) expense is projected to rise at a rate of approximately 4.5 percent per year for those fiscal years. For the fiscal years beginning October 1, 2007 and thereafter, however, it is the opinion of the professional staff of the Environmental Services

Department that there will be a decrease in the annual rate of growth in operating expense as construction spending winds down and emphasis can be placed on operating efficiencies. More specifically, those efficiencies are expected to include a leveling of or decrease in sewer line maintenance expense currently budgeted at $6.38 million, the significant reduction in the maintenance expense on the more than 100 sewer pumping stations acquired from surrounding municipalities once those facilities have been upgraded to county standards or taken out of service due to more efficient system operating configurations, and the implementation of a SCADA system for remote monitoring of certain operating facilities which will minimize the need for additional personnel. A more detailed examination of the components of projected O&M expense may be seen in Exhibit B of this report.

Debt Service

The Commission currently has sewer debt obligations outstanding which total approximately $2.55 billion. The County plans to issue additional parity indebtedness of approximately $475 million to continue with the System's construction during this year and subsequent years. A major portion of that amount will be used to construct the estimated $830 million in remaining construction required for compliance with the Consent Decree, while the remainder will be used to fund other sewer improvements already under contract. After issuance of the additional parity indebtedness, the County will have approximately $3.03 billion in sewer revenue debt outstanding. Maximum annual debt service (MADS) is projected to be approximately $171.9 million. Annual debt service numbers reflected in Exhibit A have been provided by J.P. Morgan Securities, Inc. The MADS figure has been provided by Sterne, Agee & Leach, Inc.

Debt Service Coverage

Debt service coverage is usually thought of in terms of the amount by which the bond documents require that annual net revenues available for debt service (NRADS) must exceed annual debt service. Under the terms of the Trust Indenture, there is a specific debt service standard which defines both the NRADS and Prior Years' Surplus (PYS) funds required to issue parity debt. For purposes of that Revenue Forecast, until the fiscal year beginning October 1, 2007, the required combined coverage test is 1.05 times maximum annual debt service (MADS). At least .75 of that coverage must be provided by NRADS, while the remaining .30 coverage requirement may be provided by certain resources, hereinafter referred to as Prior Years' Surplus (PYS) funds, which the County has accumulated from its operation of the Environmental Services Department in recent years. In the fiscal year beginning October 1, 2007, it will be necessary for NRADS to equal or exceed 1.05 times MADS.

SOURCES OF REVENUE

The major sources of revenue available to the Environmental Services Department, are: (1) sewer user fees, (2) sewer impact fees, (3) ad valorem taxes, (4) waste surcharges, (5) interest income, and (6) miscellaneous income. Of these, sewer user fees is by far the most important, contributing from 77 to 88 percent of projected total revenues during the years for which a forecast has been made. The Commission has undertaken a study of the adequacy and equity of all of its sources of operating revenue, and that report is scheduled for completion by the end of calender year 2002.

Sewer User Fees

Most of the sewer user fees are collected for the Commission by the Water Works and Sewer Board of the City of Birmingham (the "Board") and are based on water meter readings. In exchange for collection services, the Commission pays that entity a handling fee equal to the cost of collections as defined in the agreement between the Commission and the Board dated November 29, 1994. Billings through this entity

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accounted for about 87 percent of the sewer user fees billed in the fiscal year ended September 30, 2002. The County also provides sewer service to a smaller number of customers not served through the Water Works and Sewer Board of the City of Birmingham. Those entities are the boards or municipal governments of the cities of Bessemer, Graysville, Irondale, Leeds, Mulga, Roupes Valley and Trussville. The City of Bessemer both bills and collects for sewer service on the Commission's behalf, while the remaining six municipalities submit water usage data for their customers individually to Jefferson County, which then bills customers for their usage.

The customer base of the Environmental Services Department is currently composed of almost 141,000 residential, commercial and industrial accounts. Based on data available from the Birmingham Water Works & Sewer Board, the Commission's Finance - Sewer Services Department and the City of Bessemer, the distribution of and contribution to rate revenues by those groups for the fiscal year ended September 30, 2002 is reflected in the table which follows:

Customer	No. of Accounts	Percent of Revenue
Residential	127,600	41.8%
Commercial	13,133	56.1%
Industrial	90	2.1%
Total	**140,823**	**100.0%**

Source: Jefferson County Sewer Services Billing Department

To properly project the amount of additional revenue to be generated by the implementation of a proposed rate increase, it is important to have both actual cubic feet of sewer usage billed by customer class and the current dollar amount earned at the existing rate. Both usage and revenue data must be accumulated because the Commission permits certain discounts and allowances among various groups of customers, and knowledge of those discounts and allowances must be taken into consideration when forecasting the additional revenue to be generated by a change in the billing rate per hundred cubic feet. Revenue and usage data by customer class has been provided by the Water Works and Sewer Board of the City of Birmingham since 1991, and more recently by the smaller utilities within the Jefferson County system. As a result, it is possible to make some reasonable assumptions as to what can be expected in the way of additional revenues arising from a change in the billing rate, assuming no change in price elasticity of demand.

For a typical residential customer using perhaps 1,000 cubic feet per month, the change from the existing rate of $3.53 to the proposed rate of $5.05 per hundred cubic feet on January 1, 2003 will raise his or her monthly bill from $30.01 to $42.93. Actual and projected monthly bills for a typical residential customer from 2003 through 2006 may be seen in Exhibit A, however, the possible impact of the projected increase in rates on usage is difficult to predict.

It appears that the amount of rainfall experienced in a fiscal year is an influential factor in the level of billable sewer usage, and it is the intent of the rate model to attempt to project probable rate increases in what might be defined as a year in which a normal amount of rainfall could be expected to occur. A normal year is defined as the average amount of annual rainfall for the Jefferson County area from 1961 to 1990 as determined by the National Oceanic and Atmospheric Administration. During the two fiscal years ending September 30, 2000 and 2001, normal rainfall conditions did not occur. Billable sewer usage dropped approximately 15% from the 2000 to the 2001 fiscal year, while rainfall for the area was 36% higher in the 2001 fiscal year when compared with the 2000 fiscal year. As shown in the Rainfall Data exhibit, for the 2000 fiscal year, the rainfall total was approximately 10% lower than a normal year for Jefferson County.

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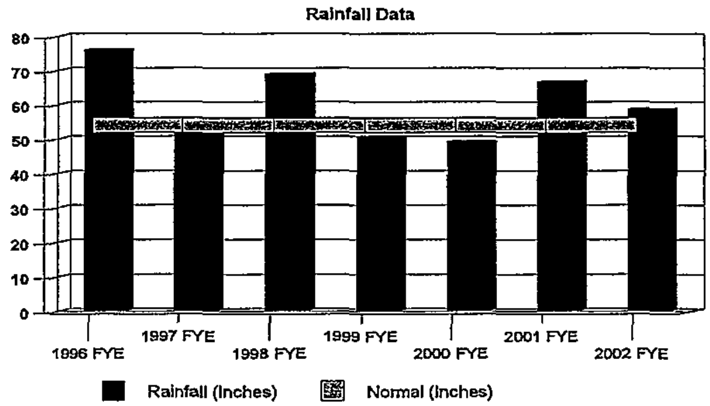
In the following fiscal year, however, the rainfall total was 22% higher than for a normal year. We used customer data in the two fiscal years just discussed to create what we believed to be a representative usage year, and we also found that in the normal year, the rainfall amount for the Jefferson County sewer service area could be expected to be 57.8 inches. For the fiscal year ending September 30, 2002, the rainfall amount for the area was 58.5 inches. As a consequence, we believe that usage actually experienced during the "normal" year for the rate model is appropriate for forecasting purposes. This average year was used in the Series 2002-B forecast for all classes of users to project growth in rate revenues for future years. Based on usage data now available for the fiscal year ended September 30, 2002, however, we have now elected to consider average usage by customer class during the three most recent fiscal years as a basis in our current model to forecast usage. This average year has been used for all classes of users to forecast growth in rate revenues for future years.



Residential units and apartment dwellers currently account for almost 42 percent of all billable usage, so an increase in cost of sewer service may not result in any meaningful reduction in usage from this group, but there may be a point at which this assumption is no longer valid Commercial and industrial customers, particularly the latter, could be a different matter. However, because industrial accounts represent only about 2.1 percent of rate revenues in the fiscal year ended September 30, 2002, it can be assumed that any action that a customer in this class might take would probably not seriously endanger the revenue generating capability of the proposed rate increase. Nevertheless, the impact of possible action by the commercial customers responsible for the remaining 56 percent of the annual rate revenues cannot be entirely discounted. However, it is our opinion that if conservation action was taken by customers in this group, such action would probably be confined to the larger users.

Over the years during which usage and account growth data has now been available, it has been calculated that the annual compound growth rate in billing units chargeable has been approximately 0.25 percent. However, based on the preliminary data for the fiscal year ended September 30, 2002 available as of the date of this report, we are obliged to assume that the factor of price elasticity of demand may be beginning to have some effect on usage. We currently do not have sufficient historical data to quantify the possible extent of that factor, but we believe that it would be prudent to assume no additional growth in usage until the influence of this variable can be more accurately ascertained. Projections made are predicated upon the continuance of the Commission's existing policies relating to credits and allowances for the various customer classes as we understand them. Any material change in the Commission's policy on credits and allowances could have a significant impact on rate revenues.

With the considerations outlined in the preceding paragraph in mind, a rate model has been developed calling for a user fee per hundred cubic feet of $5.05 to be implemented on January 1, 2003, $6.26 on January 1, 2004, $7.18 on January 1, 2005, and to $7.83 on January 1, 2006 to meet the projected revenue requirements determined in this report. Rate revenues of approximately $108.4, $138.3, $161.4 and $178.1 million are projected for the fiscal years ending September 30, 2003, 2004, 2005, and 2006, respectively. In our opinion, the foregoing projected rates, while at the higher end of sewer user fee structures currently being experienced by publicly operated treatment works, would be reasonable for sanitary sewer systems similar in size and character to the system which may be operating under similar legal and regulatory

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constraints. In assessing the character of the Jefferson County system, we considered historical usage data, composition of the customer base, operational requirements, and regulatory and legal requirements.

Sewer Impact Fees

Impact fee revenues have varied somewhat in recent years, ranging from approximately $3.6 to $4.4 million. The current impact or system development charge fee system has been in effect for many years. Impact fees are influenced by a number of factors including, but not limited to, interest rates, employment conditions, regulatory considerations and the possibility of an increase in amount, although the last of these factors normally has more of a one time rather than an ongoing impact. In Jefferson County the basis for impact fees is, as a general rule, an assessment per plumbing fixture unit, but there are variations of this rule for certain establishments such as restaurants or other higher use facilities. There may also be a nominal amount for connection of an existing structure to a new sewer service line installed where service did not previously exist. Because we believe that this source of revenue may be significantly impacted by changing economic conditions, it is appropriate to be conservative when projecting revenue from impact fees. The Commission has forecasted $3.7 million for impact fee revenues for the current fiscal year. Future growth is projected at 2 percent annually to allow for the unpredictability of this source of revenue. While it is not expected that such a move would generate a significant increase in the amount of revenue earned from this source, the methodology for developing the amount of the impact fee to be charged to a new customer should be periodically reviewed to ensure both adequacy of the charge and equity to the existing customer base.

Ad Valorem Taxes

Ad valorem tax revenues allocable to the Environmental Services Department has ranged from $2.9 to $4.5 million over the past five fiscal years. This source has experienced some variability in its most recent fiscal year due to changes in funding percentages both at the state and county levels. The Commission has recently revised its estimate for ad valorem revenues allocable to sewer operations to be $3.9 million for the current fiscal year to reflect the influence of both recurring and non-recurring adjustments which took place in the last fiscal year. One of those adjustments will also be reflected in the current fiscal year. Beyond the influence of those adjustments, we have assumed an annual compound growth rate of 2 percent per year. It is also our understanding that while revenues from ad valorem taxes allocable to the sewer operations may be counted for purposes of debt service coverage, they cannot be pledged toward the payment of the debt itself.

Waste Surcharges

Industrial waste surcharges earned in the fiscal year ended September 30, 2002 amounted to $1.9 million, up from $1.7 million in the preceding fiscal year. The schedule for these charges was revised in January 1996, and that schedule is undergoing review at the time of this report. Revenues from this source are largely dependent on Commission policy. Future revenues from this source are uncertain. The Commission anticipates $1.9 million from this source for the current fiscal year. In the interest of conservatism it is projected that this item will grow at an annual rate of 2 percent. Potential revenues from this source will be examined again when the Commission completes its review of its current charge methodology.

Interest Income

The projection amount of interest income to be earned by an entity is an approximation due to the volatility of short term interest rates. Such a forecast involves estimating interest earnings on the various indenture funds and on various other funds of the System. Those funds include interest earned on operating funds,

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all special purpose funds, debt service reserve funds, construction funds, and other related interest earning sources. Interest earnings for the fiscal years ending September 30, 2003, 2004, 2005, and 2006 are projected to be $20.2, $14.3, $12.5 and $12.1 million, respectively. The Construction Fund is projected to be spent in monthly installments through May 2004, and capitalized interest funds are scheduled to fund interest until six months after the construction fund is depleted. We believe that it is appropriate to assume an interest rate that corresponds to the one-year average life of these assets, which is 1.52% under market conditions as of October 2002. Debt service reserve funds, however, will remain in place through the final maturity of the warrants for which they were established. For example, the Series 1999-A Debt Service Reserve Fund will remain in place until the final maturity of February 1, 2039, and the Series 2002-B and 2002-D Debt Service Reserve funds will remain in place until the final maturity of February 1, 2042.. Due to the long average lives of these assets, it is assumed that the Series 2002-B Debt Service Reserve will earn the allowable yield of 5.03%, while the Series 2002-D fund will earn at the allowable yield of 5.19%. An interest rate of 5.25% is assumed on the 1997 and 1999 Debt Service Reserve Funds. The County has historically earned higher rates of return on its investments.

Miscellaneous Income

Sources of revenue making up this revenue grouping include other sanitation charges, septic tank dumpings, delinquency fees, developer assessments, and recovery of charged off balances. Although this source of revenue amounted to approximately $980,000 for the most recent fiscal year, revenues from this source have historically ranged from $700,000 to $900,000 annually. These items constitute less than 1 percent of total projected revenues of the Environmental Services Department. Little change in the size of the revenue stream is expected to occur. The County forecasts $1.0 million in miscellaneous revenues for the current fiscal year, and the growth rate used in projecting future revenue estimates arising from this source is 2 percent.

SUMMARY OBSERVATIONS

We have worked with the Commission on sewer revenue forecasts on several occasions in the last ten years, and that continuing relationship has afforded us the opportunity to become increasingly familiar with the financial reporting systems providing the information which is the basis for this report. We are confident that this information provided represents a good framework for both evaluating the resources currently available to the Environmental Services Department and projecting that department's future revenues and requirements.

Based on the information available to us, it is our opinion that the currently adopted and the proposed rate increases raising the rate from a level of $3.53 to $5.05 per hundred cubic feet effective January 1, 2003, to $6.26 on January 1, 2004, to $7.18 on January 1, 2005, and to $7.83 on January 1, 2006 will be sufficient to adequately fund the operations of the Environmental Services Department, provide for the orderly retirement of its debt for the period modeled and meet the other terms of the trust indenture, assuming that there is no material change in the economic or regulatory environment in which the Commission must operate. However, it should also be recognized that increasing conservation on the part of sewer system users may be expected as the cost of sewer service becomes more expensive, but the dollar value of potential conservation efforts is not quantifiable at this time.

The exhibits which follow provide an overview of projected revenues, operating expenses and debt service requirements which the Commission's Environmental Services Department can reasonably expect to experience over the years discussed herein, assuming implementation of the proposed change in sewer user fees as projected.

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Exhibit A
Jefferson County Commission
Environmental Services Department
Proforma Income Statement and Debt Coverage
(thousands)

	Fiscal Years Ending September 30			
	2003 (forecast)	2004 (forecast)	2005 (forecast)	2006 (forecast)
Revenues:				
Sewer service fees(1)	$108,393	$138,311	$161,376	$178,054
Impact fees	3,745	3,819	3,896	3,974
Ad valorem taxes	3,887	3,965	4,044	4,125
Waste surcharges	1,944	1,984	2,023	2,064
Interest income(2)	20,218	14,255	12,526	12,173
Miscellaneous	984	1,004	1,024	1,044
Total Revenues	139,171	163,338	184,889	201,434
Operating Expense:				
O & M Expense(3)	56,606	59,226	61,767	64,423
Excess of Revenues over Expenses	$82,565	$104,112	$123,122	$137,011
Current & Projected Annual Debt Service(4)(5)	$92,236	$105,097	$147,114	$149,518
Historic debt coverage	0.90	0.99	0.84	0.92
Prospective debt coverage (6)	0.79	0.71	0.82	0.92
Prospective w/PYS coverage(7)	1.71	1.37	1.32	1.34
Operation of Prior Years' Surplus funds (8)				
Beginning Balance	$106,513	$97,555	$97,292	$74,035
Contributions	0	0	0	0
Earnings	1,619	1,483	1,478	1,125
Transfers to Revenue Fund	(10,577)	(1,746)	(24,735)	(12,886)
Ending Balance	$97,555	$97,292	$74,035	$62,274
Rate per 100 cf	$5.05	$6.26	$7.18	$7.83
Implementation date	01/01/03	01/01/04	01/01/05	01/01/06
Average monthly residential bill (1000 cf) (after 15 % non-sewer allowance)	$42.93	$53.21	$61.03	$66.56

IMPORTANT : The accompanying notes are an integral part of this exhibit. Please see Trust Indenture for details.

1. Projected rate revenues assume no annual growth in billable wastewater units and the continued application of the existing rate structure in its current form. Actual growth experienced may differ from projected. Rate revenues and interest income projected from rate model.

2. Interest income includes interest earnings on all Trust Indenture funds (including the Construction Fund) and on various other funds of the System. Interest income earned is projected using appropriate interest rates currently available. See report for discussion of interest rate assumptions.

3. Operations and Maintenance (O & M) expenses are those expenses incurred to carry on the normal day-to-day operation of the System. The projections included herein reflect budgeted O&M expense for FYE 09/03 and normal growth. However, actual operating expenses could vary significantly from budgeted. See report for discussion of recent historical and budgeted O & M expenses.

4. For purposes of the Revenue Forecast as set forth in the Indenture, net revenues available for debt service (NRADS) in the Test Year (09/30/2006) must equal or exceed .75 times the maximum annual debt service (MADS) for the System. It is assumed that MADS will be approximately $171.9 million and will occur subsequent to the Test Year.

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IMPORTANT : The accompanying notes are an integral part of this exhibit.
Please see Trust Indenture for details.

5. It is anticipated that the Commission may issue additional debt in a future year to continue with its projected plan for funding proposed capital improvements. The actual date for and the amount of the proposed financing has not yet been finalized. Such debt, if issued, would result in an increase in sewer rates on January 1 of the following year.

6. Annual debt service for the fiscal year ending 09/30/2007 is $149,171,504.

7. Prior Year Surplus (PYS) Funds as defined in the Trust Indenture.

8. See the table below for a more detailed presentation of the operation of the Prior Years' Surplus Funds.

Operation of Prior Years' Surplus funds
(thousands)

	2003	2004	2005	2006
Rate Stabilization Fund				
Beginning balance	$59,659	$49,989	$49,003	$25,012
Contributions to RSF Acct.	0	0	0	0
RSF earnings (1)	907	760	744	380
Transfers to Revenue Fund	(10,577)	(1,746)	(24,735)	(12,886)
Ending balance	49,989	49,003	25,012	12,506
Depreciation Account Fund				
Beginning balance	$46,854	$47,566	$48,289	$49,023
Contributions to DA Fund.	0	0	0	0
DA Fund earnings (1)	712	723	734	745
Capital improv. withdrawals	0	0	0	0
Ending balance	47,566	48,289	49,023	49,768
Ending PYS Fund balance	$97,555	$97,292	$74,035	$62,274

1. A rate of 1.52% is assumed for all Prior Year Surplus funds.

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Exhibit B
Jefferson County Commission
Environmental Services Department
Projected Operations & Maintenance Expenses

O & M EXPENSES:

	2003 (Budget)	2004 (Forecast)	2005 (Forecast)	2006 (Forecast)
Finance - Sewer Services	$3,652,724	3,817,097	3,988,866	4,168,365
Provision for Bad Debts	1,955,195	2,043,179	2,135,122	2,231,202
Liquidity/Remarketing/Rating	2,563,973	2,752,403	2,752,403	2,752,403
Non - Departmental	3,432,563	3,587,028	3,748,445	3,917,125
Supplemental Environmental	276,475	288,916	301,918	315,504
Sanitary Administration	5,218,967	5,453,821	5,699,242	5,955,708
Administrative Engr. & Const.	402,126	420,222	439,132	458,893
Surveying Engr. & Const.	1,047,368	1,094,500	1,143,752	1,195,221
Inspection Engr. & Const.	1,945,797	2,033,358	2,124,859	2,220,478
Sewer Line Reconstruction	1,395,315	1,458,104	1,523,719	1,592,286
Administrative Line Maint.	1,292,664	1,350,834	1,411,621	1,475,144
Village Line Maintenance	1,385,787	1,448,147	1,513,314	1,581,413
Shades Line Maintenance	2,303,080	2,406,719	2,515,021	2,628,197
TV Inspection & Grouting	1,466,964	1,532,977	1,601,961	1,674,050
Cahaba River WWTP	2,873,964	3,003,292	3,138,441	3,279,670
Five Mile Creek WWTP	2,234,199	2,334,738	2,439,801	2,549,592
Leeds WWTP	874,415	913,764	954,883	997,853
Trussville WWTP	845,338	883,378	923,130	964,671
Turkey Creek WWTP	619,953	647,851	677,004	707,469
Valley Creek WWTP	5,473,135	5,719,426	5,976,800	6,245,756
Village Creek WWTP	5,459,704	5,705,391	5,962,133	6,230,429
Five Mile Creek Maint. Shop	285,996	298,866	312,315	326,369
Valley Maintenance Shop	373,951	390,779	408,364	426,740
Village Maintenance Shop	500,438	522,958	546,491	571,083
Village Electrical Shop	955,674	998,679	1,043,620	1,090,583
Instrument Shop	438,478	458,210	478,829	500,376
Package Plants/Pump Statns.	4,043,956	4,225,934	4,416,101	4,614,826
Biosolids Handling	1,015,568	1,061,269	1,109,026	1,158,932
Barton Lab	2,271,941	2,374,178	2,481,016	2,592,662
	$56,605,708	$59,226,016	$61,767,329	$64,423,000

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ENVIRONMENTAL SERVICES

March 31, 2003

Mr. Harry Chandler, Assistant Director
Jefferson County Environmental Services
716 Richard B. Arrington, Jr. Blvd., North
Suite A-300
Birmingham, Alabama 35203

Re: Projected Cost for an Impact Fee Study

Dear Harry:

Enclosed herewith are twenty copies of the final report as specified in the contract for services relating to this project. Based on our discussion of Thursday of last week, I have modified the cover letter of that report to briefly identify and quantify the potential immediate sources of revenue for the Environmental Services Department which I believe may be available to the Commission. Depending on the assumptions that one makes, the various recommendations could produce additional revenues system revenues available for debt service by $6.1 to $18.5 million. Conversely, that number could be reduced by the cost of any "lifeline" rate or credit which the Commission might ultimately decide to implement. There is a section near the end of the report which discusses that subject if anyone is interested in getting into considerations affecting that issue.

On the subject of the possible cost of an impact or system development charge fee study, I have done a brief take off the man-hours and labor rates of the people required for the work, and a rough estimate of the cost would be approximately $92,000. My preference for the time period in which to complete the work would be approximately six months, but it could perhaps be done in as little as four months if that is what the Commission wants and we are able to pull most of the information needed off of the County's financial records in a format that we can adapt to our report format. The availability of needed information in a format which we can readily use could significantly impact the cost of the study. Therefore, I would propose that we do the work on a cost plus fixed fee basis.

You asked what goes into an impact or system development charge fee study, so I will try to give you a brief overview of what must be done. First, it is necessary to complete what is called the "inventory and assessment" phase of the work. Because the objective of the study is to determine the net replacement cost of a gallon of treatment capacity given up every time there is a new connection to the system, the starting point is to determine what the value of assets already owned by the system.

To do this involves taking the schedule of fixed assets owned by the Environmental Services Department as of September 30, 2002 and indexing the value of those assets up to what it would cost to replace them if they had to be built today. The indexing process is achieved by comparing the Engineering News-Record building or construction cost index as appropriate for each asset when the improvement was actually constructed with the appropriate index value as of September 30, 2002. By developing a simple ratio between the two numbers, a factor can be developed which will yield a reasonable approximation of what it would cost to build that same structure or pipeline today. Without getting too much into the nuts and bolts of the work, after making the necessary adjustments for any grant funds that may have been received in past years, the adjusted or replacement value of each asset is then depreciated appropriately over the number of years that it has been in service. That process yields the net replacement value for each asset which is then allocated between system wide use and capacity for growth based to a large extent on the knowledge that you and your people have of the existing utilization of each asset in the sewer system. The data which you have been gathering over the past five to ten years or so will be very useful in this phase.

The current impact fee structure has not changed in almost 20 years, so it does very much need to be updated for many reasons. It is generally recommended that, once adopted, the impact or system development charge fee remain in place for five years. The reasons for this are several: (1) updating the study is a major undertaking, (2) developers like to know that they can count on things (their connection costs) not changing too rapidly, and (3) the fee structure developed should not only look at the historical costs of the assets actually constructed but the costs of improvements to be constructed in the next five years as well.

In addition to the cost of the assets actually constructed or to be constructed, it is also necessary to incorporate in the fee structure the present value of the financing cost of the improvements to the system because those assets constructed did not come to the Commission interest free. For Jefferson County, this facet of the system development charge will almost certainly be substantial.

Jeffco-000132

Once all of the components of the cost of the system have been identified and valued, it is then necessary to ascertain both utilization and capacity of existing and plant capacity plus the capacity to be added in the next five years. Once quantified, these capacities will then be tied to the net replacement cost of assets described earlier to develop both system wide and capacity for growth values per gallon. After that has been done, those values need to be translated from a per gallon amount into one of the four generally accepted formats for impact or system development charge fee structures so the system can be administered.

The preceding description of what goes into a system development charge study is necessarily brief, but it should provide you with a general understanding of the considerations involved. It is also important that the Commission understand that the impact fee constructed must have what is called both a constitutional and rational nexus. The first of these is not much of a problem because the Commission already has the power to adopt such a fee structure. What they must be careful of is that the structure adopted must have a rational connection to the service rendered and its cost, it must be objective, and it must not deprive a land owner of the beneficial use of his property. If it does not meet these conditions and is not properly implemented, there is an excellent chance that the result will be a law suit. And the Commission will lose; it is just that simple.

I promised when I started this letter to be as brief as possible without leaving any significant considerations unaddressed. I think that I have done that. If there is anything else that I can do for you, the Environmental Services Department, or the Commission, please do not hesitate to call on me at any time.

Sincerely,

C. M. Krebs
Chief Financial Officer

Jeffco-000133

ANALYSIS
OF
SOURCES OF REVENUE

FOR THE
JEFFERSON COUNTY
ENVIRONMENTAL SERVICES DEPARTMENT

MARCH 31, 2003

PBK JOB NO. 02512

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March 31, 2003

Report to the Jefferson County Commission

The Commission faces a major challenge as it attempts to comply with the Consent Decree dated December 1996. The cost of compliance with that decree and cost of related Clean Water Act compliance projects has substantially exceeded original estimates, and it must now find a way to accomplish the task of amortizing the debt incurred in connection with meeting those requirements.

For the fiscal year ended September 30, 2002, the Environmental Services Department earned revenues from all sources of approximately $116.5 million. However, in approximately six years, using projected operating costs, annual debt service and required debt service coverage, it is estimated that the revenue requirements for operating that utility could approximate $220 million, assuming no significant savings due to a favorable debt refunding and no additional borrowing. This change will represent a projected increase in revenue requirements of almost 89 percent over historical revenues, and it presents a significant problem in both debt management for the Commission and affordability by the rate payers. In view of the magnitude of the problem, the Commission has asked us to examine its current revenue sources and suggest alternatives, if any, for additional sources.

Where resources may be available, we have separated them into three groups: immediate, intermediate and long term options. The Commission's needs are immediate, so intermediate and long term options will be discussed in the body of the report for those interested. There are perhaps five or six changes which could be implemented during the current fiscal year and their possible impact on annual revenues or expenses could range from $6.1 to $18.5 million. Those possible changes are reflected below:

1. **Eliminate the 15% residential discount allowance.** At the current level for sewer rates, each 1% reduction in the residential discount will generate nearly $526,000. Therefore, elimination of the entire residential allowance would produce approximately $7.9 million more annually in rate revenues.

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2. **Ban the use of private meters for all but industrial uses where water is part of the manufacturing or production process.** There are slightly more than 8,200 private meters in existence at the present time, and this number is growing rapidly. If all of these meters were for residential usage (and they are not), the most conservative estimate of the potential savings at the rates currently in effect would be approximately $725,000 annually. It is probable that the real gain realized could approach $1.5 million annually.

3. **Update the impact fee structure to reflect the appropriate charge for a new connection.** Currently averaging between $2,000 and $2,250 for a typical new residential connection, it is projected that a properly calculated fee which takes into consideration the cost of the recent system upgrades and expansion could easily double or triple the amount of that fee. For the fiscal year ended September 30, 2002, the amount earned from impact fees was approximately $3.7 million. Doubling or tripling that connection fee, assuming all other things equal, could generate between $4 and $8 million more in annual revenues.

4. **Update other miscellaneous fees for things such as septic dumpings, inspection fees, line cleanouts due to grease discharge from restaurants and other contributors, and industrial waste surcharges to reflect the cost of actually providing those services.** Miscellaneous revenues for the fiscal year ending September 30, 2002 were approximately $1.5 million. Basing fees for services on the basis of the cost of providing them could generate between $250,000 and $500,000 more annually.

5. **Use the concept of a "benefitted property owner's agreement" to encourage developers to underwrite the cost of expanding service to new areas whenever possible.** This device relieves the County of having to finance the improvements, but it allows the developer to recover his sewer infrastructure costs over time if his development is as promising as he believes it to be. The present value of adding the average new residential account can be currently calculated to be approximately $6,311, but that number will become larger in the future as sewer rates rise. Said another way, each new average residential account added today could be expected to generate $500 more annually, and as rates rise in future years, it will obviously produce more.

6. **Decrease the rate of increase in the growth of operating (O&M) expenses of the Environmental Services Department.** Currently projected at approximately $56.8 million for the current year, those expenses are projected to rise at a rate of approximately 4.5 percent for the next several years. Each decrease of 1 percent in the rate of increase of growth in operating expenses would save approximately $568,000 annually.

Although not directly related to the Environmental Services Department, the Commission might wish to consider impact fees or system development charges for many services provided in other areas. Essentially, a system development charge is a charge imposed upon a new connection to or user of a service where the capacity to provide that service has been financed by the existing user or tax payer base. The charge is simply a recoupment by the existing users or tax payers of the cost of that capacity for growth which they have financed through the payment of user fees or taxes in prior years. The concept is not only applicable to the provision of water and sewer service, but also to storm water, public safety and fire protection, schools, libraries, parks, roads and many other public services. In fact, there are more than 20 different types of system development fees employed by communities across the country, and many of them may be applicable to Jefferson County's needs.

Intermediate sources of revenue could possibly include the increased allocation to the Environmental Services Department of higher sales, occupational or ad valorem taxes. The adoption of higher rates for these taxes should be considered very carefully because some are more regressive than others, and in some cases, the implementation of the wrong form of tax could result in a decrease in revenue rather than an increase. All appear to face substantial legislative and/or voter referendum hurdles before they can be effected.

The long term approach is, of course, to turn to federal government for assistance, but the prospect for substantially more funding through the U.S. Environmental Protection Agency ("EPA") funding is not currently very strong. There is, however, ground swell support growing for the creation of a national environmental trust fund which would be funded from specific "green" taxes and operate much like the highway trust fund currently does. While clearly not an immediate option, it should be kept in mind that Jefferson County's debt will be amortized over a 40-year period, so it may be advisable for the Commission to look ahead toward what might be achieved in future years through this potential funding vehicle. The proposal is discussed briefly in the body of the report and in considerably more detail in the Appendix.

It must be recognized that the revenues to meet the obligation outlined in second paragraph of this letter will have to be met, but it is also equally undeniable that there are many citizens who will be less able to do so as the burden grows. Because the Commission must necessarily concern itself not only with the financial burden which it will soon face but also with the ability of some of its rate payers to pay their sewer bills as they come due, it may wish to consider the concept of what is commonly termed a "lifeline" credit which are usually designed to provide assistance to those struggling to pay their bills, at least to the extent that it is in the interest of the public health to do so. Considerations which we believe are important in developing a meaningful and manageable "lifeline" credit program are discussed at the end of this report.

Regardless of the source from which the needed revenues must ultimately arise, they will have to be generated, and the plan for generating them cannot be popular with any of those who will be affected by an increase in taxes or user fees. Nevertheless, when the alternative of obtaining revenues through a plan over which the Commission has some control is compared with the action of a receiver should the system go into default, there can be little question as to which course of action would be preferable. There can also no debate about the urgency for action; this is not a matter on which action can be long deferred without serious consequences.

We appreciate the opportunity to serve the Commission on this matter, and we are available for a more detailed discussion of the issues at its convenience.

Paul B. Krebs & Associates, Inc.

A. INTRODUCTION

The matter of the Jefferson County sewer system and its compliance with the provisions of the Clean Water Act of 1972, as amended has it roots in a partial summary judgement in favor of the plaintiffs (United States Environmental Protection Agency("EPA"), R. Allen Kipp et al. and the Cahaba River Society, Inc.) by the United States District Court, Northern District of Alabama, Southern Division against the defendant (Jefferson County) on January 20, 1995. In that decision the court found Jefferson County and its sewer system in violation of the Clean Water Act, and it directed the parties to the suit to immediately engage in settlement discussions which would result in a solution satisfactory to the court. The parties to the dispute ultimately reached agreement on the terms of the settlement, and those terms were reflected in what is now known as the "Consent Decree" which was approved and entered by the District Court on December 9, 1996.

As a consequence of entering into the Consent Decree, the County's Environmental Services Department was obliged to resolve the problem to the satisfaction of the court and the plaintiffs in a period not to exceed twelve years from the date of the entry of the Consent Decree. The plan for resolution of the problem involved three steps or phases: (1) investigation and planning, (2) design of solutions, and (3) implementation of solutions. The Consent Decree also provided for penalties which could be assessed against Jefferson County if it failed to meet, for reasons within its control, specified time benchmarks for submitting to EPA progress reports on its movement toward compliance with the decree.

The significance of the terms of the Consent Decree should not be overlooked. Although Jefferson County was obliged to enter into the Consent Decree as a result of the partial summary judgement rendered in January 1995, it had only a rudimentary understanding of the extent of the undertaking which it was about to begin. In essence, an agreement to comply with the terms of the Consent Decree with little more than a very broad estimate of what it might cost to identify and then fix the problems alleged in the Consent Decree meant that the County's sewer rate payers were about to become at risk through their sewer rates for what would prove to be a very substantial debt obligation. The County had already spent nearly $97 million on essential sewer improvements before the Consent Decree became effective, but it would be years before it would discover that the actual cost of the remedial program specified in the Consent Decree could exceed $2 billion. It would also later find that it needed an additional $600 million to construct still other projects that would be required by the Clean Water Act.

In reviewing its plans for improvements as the investigative work developed, the professional staff of the County's Environmental Services Department also began to consider where it might be desirable to expand the existing sewer system to accommodate new connections thereto. Subsequent estimates of the projected construction costs for expansion improvements varied as projects were added to or deleted from the list of desired projects, but the most recent estimate reflected in the Official Statement for the Series 2002-D debt offering places that number at $532 million.

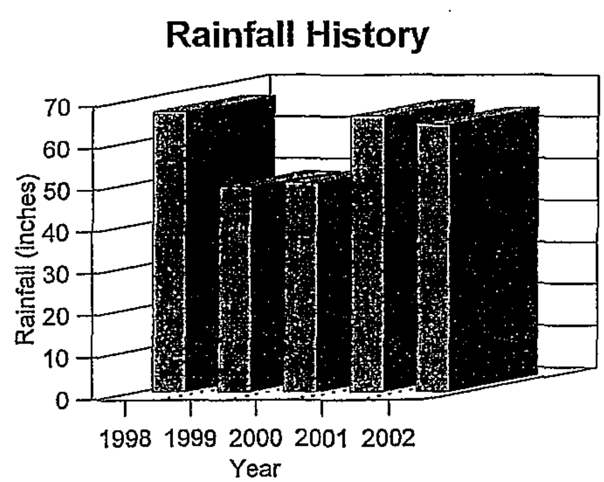
When the costs of all of these estimates are summarized, it can be projected that total spending requirements, including the amount spent on compliance before the Consent Decree became effective, might approach $3.2 billion. Included in that estimate, however, is approximately $225 million for expansion projects which have been removed from the initial construction budget, so at present it appears that projected construction related costs might now be slightly less than $3.0 billion. This amount, however, does not reflect the total amount of debt which would have to be incurred to meet the projected construction cost requirements. To the approximately $3.0 billion estimate just discussed it would be necessary to add the various debt funding requirements and the costs associated with the issuance of the debt required to finance the proposed improvements, so it is reasonable to make the assumption that Jefferson County's debt could be somewhat higher.

Jefferson County is, unfortunately, not blessed with a large rate base over which it can distribute the cost of financing the proposed improvements, and its growth rate in terms of new accounts and usage is, at best, minimal. Therefore, the cost of compliance will fall largely on today's customers. Even with the reduction in capital spending plans currently contemplated, the load projected is to fall increasingly heavily on the existing customers of the system.

1. Impending Revenue Requirements

In an attempt to assess the magnitude of the challenge facing Jefferson County, one needs only compare what is required of the County in the way of cash requirements today with those of four years from now. The starting point is the current cash needs of the Environmental Services Department at the end of the County's most recent fiscal year. For the fiscal year ending September 30, 2002, unaudited operating expenses were approximately $47 million, while debt service was slightly more than $78 million. Collectively, these two requirements amounted to approximately $125 million. By the end of the fiscal year ending September 30, 2006, however, it is projected that operating expenses will be in excess of $64 million, and annual debt service (not considering possible favorable refunding) will be almost $150 million per year. When these two requirements are summed, the result is $214 million, or 70 percent more than is required today. Beyond 2006 still larger requirements will exist. Starting in the fiscal year ending September 30, 2008, the bond indenture under which the Environmental Services Department must operate will require that rates not only cover the operating expenses for the year, but also 100 percent of the aggregate annual debt service for payable for that year and any subsequent year. The number for 2008 is currently almost $149 million. Collectively then, the total number for 2008 could approximate $220 million. If, however, it is necessary to borrow additional funds, then the revenue requirements would have to increase to reflect the conditions of govening bond indenture for new borrowings. Finally, even though Jefferson County has now incurred more than $3 billion of debt in connection with its sewer capital improvements plan, it is not finished. It is currently projected that, as a result of the amounts borrowed in late 2002, approximately $837 million was available at that time through the County's Construction Fund to construct new projects. Unfortunately, this will not be enough to construct all of the projects listed under the Consent Decree whose construction is deemed to be mandatory, so there can be no doubt that there will be little or no funds for a number of projects which fall into the Clean Water Act Compliance group. Though not mandated in the Consent Decree, these projects will, nevertheless, almost certainly have to be constructed because failure to do so could place Jefferson County in violation of the Clean Water Act. The most recent estimate of the cost of constructing projects which are currently unfunded is approximately $365 million. It is assumed that the approximately $225 million in proposed expansion projects which remain unfunded at this time will not be constructed in the foreseeable future.

2. External Factors Affecting Rate Revenues



Where does compliance with the Consent Decree leave the Jefferson County rate payer? The answer is not difficult to discern because the debt management over the forty years during which debt obligations incurred by the Environmental Services Department since 1997 will have to be amortized will, in itself, be extremely challenging. The mean or average monthly usage of a residential customer is frequently used to provide some indication of the problem faced because of its simplicity and ease of comprehension by the general public, but it is not necessarily the best tool for developing solutions to the revenue generation problems faced by the County's Environmental Services Department because it is simply the average of all users. A more comprehensive picture of just how those customers typically make demands upon the sewer system will be discussed later in this report, but for purposes of providing a benchmark, the "average" residential customer will be used. Over the five years during which the County has been involved in going to the bond market to meet its sewer financing needs, the accepted quantity or monthly usage for the typical customer has been 1,000 cubic feet. This quantity appears to have decreased by almost 20 percent over the last two years, but the decrease may be attributable to the fact that the last two years have been characterized by substantially more rainfall than was experienced in prior years. The graphic on the preceding page reflects rainfall quantities over the last five years.

It would be desirable to be able to predict with any certainty what the effect on the quantity of sewer service billable would be based on the increase or decrease in the amount of annual rainfall from a "normal" or "average" year, but that is not possible because it is not a valid assumption to assume that rainfall is the only determinant of sewer usage. While it appears to be a significant one, there is at least one other factor which impacts usage to varying degrees.

Another factor which is now probably influencing the amount of billable sewage recorded by the Environmental Services Department is what is sometimes referred to as "price elasticity of demand." Price elasticity of demand is an economic concept which simply reflects the change in the quantity of a good or service demanded as a result of a change in price for that good or service. Since January 1, 2001, only two years ago, the cost of sewer service has risen from $2.74 to $4.90 per hundred cubic feet. This represents a rise in the cost of the service of 79 percent during that period. While sewer service is admittedly a basic service which the vast majority of customers cannot do without, it must be recognized that the rise in the cost of sewer service has probably caused many rate payers, both residential and commercial, to begin to reexamine their usage. As the price of sewer service continues to rise, the impetus to conserve increases, and over the next several years, the influence of price elasticity of demand could easily become a more important factor than the weather.

3. Annual Sewer Bill and Per Capita Income

To the "average" residential customer using 1,000 cubic feet of water per month, the change over the two-year period in question has meant an increase in his monthly bill from $23.29 to $41.65 which, when annualized, amounts to $500. A recently completed survey by AMSA, an organization of municipal sewage systems, indicates that the average annual amount of sewer user fees paid by a residential customer in EPA Region IV (which includes Jefferson County) for the year 2002 was in the range of $550. Sewer service in Region IV appears to be the highest of all EPA regions for the year. This number is approximately twice the national average of $228 for a residential account. No data was available for the amount of monthly usage associated with this survey, so monthly usage of 1,000 cubic feet is assumed. At its current rate, it appears that the cost of sewer service in Jefferson County will soon be the place for the most expensive sewer service in the most expensive EPA region in the country. In a period of less than five years it is projected that, in the absence of significant change, the Jefferson County residential customer who averages using 1,000 per month can expect to pay almost $800 for sewer service annually. We are not aware of a more current source of per capita personal disposable income, but from data which is available it appears that per capita personal income in Jefferson County has been rising at a rate of about 4.25 percent annually for the last five years. Extrapolating Jefferson County per capita income data out to 2006 from the year 2000, which is the most recent year for which it is available, produces an annual per capita income number of approximately $38,377. If this per capita personal income forecast proves true, then it can be calculated that the average residential customer's annual sewer bill will constitute slightly more than two percent of his per capita personal income for that period. There is an EPA study which suggests that the two percent number is the limit for what is an acceptable amount to pay for sewer service, but we believe that this number is significant for a number of other reasons.

First, we have assumed that per capita personal income will continue to grow at the same rate that it did through the second half of the last decade. While this is an assumption based on a historical trend, it is not necessarily a valid one since the national economy has struggled considerably during the last several years, and Jefferson County has certainly been a part of that struggle. On the other hand, because the debt service schedule for the Environmental Services Department is essentially fixed and operating expenses are projected to rise between four and five percent per year, it is a relatively safe to assume that the projected average bill will approximate the actual one in 2006. Therefore, the probability is that the amount of money which the average residential consumer may have to dedicate to his sewer bill in 2006 ($799) could easily exceed the two percent of per capita personal income forecast.

Second, while the extrapolation just completed assumes that the usage in the rate base does not grow, it also assumes that it does not shrink either. The latter is, unfortunately, less valid than the former because the influence of the factor of price elasticity of demand will almost certainly begin to have an increasing effect, and conservation at some level will set in for all types of customers. This can be a particularly vexing problem at the commercial or industrial level because a business more so than a residential customer can be expected to more quickly begin to consider methods for controlling utilities costs. If that happens, the rate base could decline in size and causing rates to rise even faster than currently projected. To put the possible exposure to a reduction in the sewer rate base in perspective, it should be remembered that more than 58 percent of the billable sewer usage comes from commercial and industrial usage.

Third, and perhaps most critical from the residential perspective, it is, in our opinion, essential that the County remember that it is not in direct control of the sewer billing. As a result, it cannot cut off sewer service for nonpayment by a customer. The entities through which the County collects its sewer user fees should properly cut off water and sewer service when a nonpayment condition occurs, but there is an excellent chance that in a difficult environment, this may not actually occur. While it is possible and quite probable that the County could eventually recover the past due amounts through its lien procedure, there is an excellent chance that a significant number of delinquencies resulting in liens could result in a cashflow timing problem which could create real difficulties. Equally important from the psychological perspective, if water and sewer service is not cut off when nonpayment of sewer service occurs and the customer continues to get sewer service, the stage could be set for creating the impression in the mind of the delinquent account that it is not necessary to pay the sewer bill to have the service. It is our opinion that this condition must be avoided if at all possible because this environment could lay the groundwork for the possible financial collapse of the sewer system.

B. EXISTING SOURCES OF REVENUE

For those unfamiliar with the revenue sources of the Environmental Services Department, perhaps the best way to identify each and illustrate its relative importance is to provide the Commission with a statement of each revenue source for the most recent fiscal year and compare that with the projected revenue from that source in the fiscal year ending September 30, 2006. This comparison will provide an overview of what currently must change to meet the revenue requirements set forth in the bond indenture in less than four years. This comparison may be seen in the following table:

	(000s omitted)	
Sources of Revenue	**09/30/02**	**09/30/06**
	(unaudited)	(projected)
Sewer user fees	$82,859	$178,054
Impact fees	3,671	3,974
Ad valorem taxes	3,075	4,125
Waste surcharges	1,907	2,064
Interest income	23,487	12,173
Miscellaneous	1,492	1,044
Totals	$116,491	$201,434

The above table clearly illustrates the burden projected on user fees as a revenue source. They are projected to rise from their current percentage of total revenues of 71 percent to more than 88 percent in only four years. There are a number of reasons for this change, but the most obvious one is that the amount charged for user fees can be changed more readily than the others, and it is the one over which the County has the most control. We believe that other municipalities in the southeast face similar, though not as severe, increases in user fee rates over the period cited in the above table, but their problem is mitigated either by the fact that they have a considerably larger rate base over which to distribute the cost of compliance, or because they have another utility other than sewer which can be used to assist in carrying that burden.

1. User Fees

The format of the County's user fee structure has not changed since its creation. It has always had a very nominal minimum charge with the basis for the monthly bill being essentially a volumetric charge per hundred cubic feet. It complies with Section 204(b)(1)(A) of the Federal Water Pollution Control Act of 1972, as amended, and was specified as a condition for qualifying for United States Environmental Protection Agency grants or state revolving loan (SRF) financing of proposed wastewater improvements. Residential customers are given a discount or allowance equal to fifteen percent of the amount of water consumed before the sewer bill is computed. Prior to 1983, the volumetric rate was fairly inconsequential at $.49 per hundred cubic feet. In 1983 it doubled to $.98 where it remained for almost ten years. Starting in 1992, however, the rate increased to $1.15 per hundred cubic feet, and since that date, it increased at least annually to a point where the volumetric rate now stands at $4.90 per hundred cubic feet. It is projected to rise to $7.83 per hundred cubic feet by January 1, 2006.

User fee rate structures employed by other municipalities throughout the southeast vary considerably. Some have a billable summer usage amount which cannot exceed a certain percentage or multiple of the winter usage, some define the winter and summer base periods differently, some have a cap on the amount of gallons or cubic feet for which a residential customer can be charged but make up for it by setting a very substantial base charge which is charged regardless of usage, some have what a second or private meter system whereby non-domestic usage such as car washing and lawn maintenance is billed through a separate water meter, and there are many other variations in the methodology for setting rates for sewer service. In the final analysis, however, revenues must be generated from some source(s) in amounts adequate to fund the operation of the sewer system and to amortize the debt incurred to construct wastewater facilities required for the system.

As noted in an earlier paragraph, Jefferson County uses a volumetric rate structure which is applied to residential water usage after that amount has been decreased by fifteen percent in an attempt to make an allowance for non-domestic usage. However, the County also permits the use of second or private meters which the customer can have installed at his own expense. If the customer elects to have a second or private meter installed, then he or she is not eligible for the fifteen percent discount. The meter itself is usually located at a site behind the household or primary meter so that the Birmingham Water Works and Sewer Board, the City of Bessemer, or any one of the other small systems which provide billing data to Jefferson County reads only one meter. It is the responsibility of the individual who has the second meter to read that meter and then present that reading to the appropriate individual at Jefferson County for credit against his or her sewer bill. The number of private meters, while not yet large, has been growing rapidly in recent years. In 1998 there were only about 4,450 of them, but four years later that number had grown to nearly 8,200. The increase of 3,750 meters in four years represents a compound growth rate of more than 16 percent per year. At the current rate, this means that fully ten percent of the County's customer base will have private meters in less than five years from today's date, and this rate may accelerate if the proposed user fees are actually implemented on the schedule proposed in the Revenue Forecast which was the basis for the Commission's most recent debt offering (Series 2002-D). This trend will not help growth in the billable sewer volume, and it is our opinion that the County must move quickly to make this practice less attractive to the customer.

It is also our opinion that it may be possible to change the form of the existing rate structure somewhat, but the rate base itself is too small to accommodate any significant reduction in overall rate revenues. Additionally, there is the matter making certain that any changes made do not cause a conflict in the definition of System Revenues as set forth in the controlling bond indenture governing the Commission's management of its sewer debt. As a consequence, we believe that the adoption of the concept of a "lifeline" credit for those with low and/or fixed incomes must seek a funding source from other than from rate revenues.

2. Impact Fees

The term "impact fee" in one which apparently has unfavorable political and legal considerations, possibly because there may have been some court rulings against such fees where they had been improperly established and neither a rational nor a constitutional nexus for them could be proven. As a result, one of the first suggestions which we would make to the Commission would be to change the name of this source of revenue to one which more appropriately reflects what the charge is intended to achieve. We doubt that a legal challenge of any substance could be mounted purely based on the title assigned to the fee charged, but there is no reason for taking unnecessary risks.

The impact fee structure in Jefferson County has been in place since 1977, and it has been generally based on the number of plumbing fixtures in a new connection since 1980. In its current form (since 1983), it generally provides for a charge of $100 per plumbing fixture, and while that methodology employed is one of the four generally accepted ways of assessing this fee, the equity of the charge has almost certainly not kept pace with the County's changing cost of providing sewer service.

For the most recent fiscal year, impact fee revenues amounted to $3.67 million or slightly more than three percent of system revenues. In many systems it is not a source of revenue at all, and that is as it should be. Upon closer inspection, analysis of the basis for an impact fee or system development charge will reveal that it is not actually a source of revenue, but is instead more properly a recoupment by the system of the cost of the capacity for new growth financed by the existing rate payers. The nature of the revenue bond which is the basis for virtually all enterprise fund financing requires that new debt can only be financed when its orderly retirement can be assured through the imposition of user fees on the existing rate base. Said another way, revenue bond debt generally cannot be financed based on assumptions about future customers which may or may not materialize. However, because proper engineering design mandates that facilities be constructed to meet the needs of not only current customers but those who can reasonably expect to connect to the system over a future period (usually 20 years), it only follows that the existing customers must initially underwrite their needs as well as those who will connect over that period. Therefore, a properly computed system development charge is actually a recoupment of that cost of capacity for growth financed by the rate base in existence at the time the financing is undertaken. Moreover, although a revenue source, this item is not generally considered as funds generated for normal operating purposes. In theory, revenues received from this source are perceived as being set aside to be used only for construction of smaller capital improvements which might otherwise have only been realized through funds generated by additional rate increases. Many states such as Florida require that funds earned from this source be physically segregated from normal operating revenues and used only for the purpose cited in the preceding sentence. However, Jefferson County cannot afford to give up any source of revenue, and, as a consequence, cannot consider this course of action.

3. Ad Valorem Taxes

Since 1901 Jefferson County has allocated ad valorem taxes to the operation of its sanitary sewer system. The current rate is .7 mills and is applied to both real and personal property. To the best of our knowledge, this rate has been in force since

1981. This practice is not inconsistent with that in effect in a number of communities throughout the country. In fact, prior to the passage of the Clean Water Act of 1972, the use of ad valorem taxes to fund both construction and the operation of sanitary sewer systems was probably characteristic of most municipalities. However, with the advent of grant funding from the U. S. Environmental Protection Agency also came the requirement that user fees, rather than ad valorem taxes, be the primary source of funding for sanitary sewer operations. The .7 mills allocation has generated revenues which have ranged between $2 and $4.5 million over the past five years, and that should change very little in future years so long as the amount of mills allocated to that entity does not change. It should also be kept in mind that while revenues from ad valorem taxes allocable to sewer operations may be counted for purposes of debt service coverage, they cannot be pledged toward the payment of the debt service itself. This source of revenue is not normally found among the revenue sources of many of the municipal water and sewer utilities in the southeast. However, it should also be noted that the inclusion of the ad valorem revenues does not represent a distortion in the County's rates when compared with other municipalities in the southeast. On the contrary, the County's sewer rates appear to be higher than those of many other municipalities only because it has only the sewer utility with which to generate revenues. In other municipalities where both the water and sewer utilities are managed by a single entity, it is fairly common to have revenues from the water utility help meet the revenue requirements attributable to the operation of its sewer system. The net result of this practice by other utilities is to make the Jefferson County's rates appear to be higher than comparable sewer rates for other municipalities when, in fact, they might not be significantly higher if the municipalities with which the County is being compared put in force rates which truly reflected the cost of providing sewer service.

4. Industrial Waste Surcharges

For the year ended September 30, 2002, waste surcharges were $1.91 million, up from $1.68 million in the preceding fiscal year. The amount of industrial waste surcharge revenue has changed very little over the last five years, ranging from about $1.4 to $1.9 million and accounting for perhaps 1½ to 2 percent of system revenues. The application of a waste surcharge to special wastes is a practice followed by virtually all systems. In fact, if a municipality was fortunate enough to obtain grant funds from the U. S. Environmental Protection Agency back in the days when grant funds were available, that agency required that a municipality adopt a sewer use ordinance which specifically provided for the charging of a surcharge or a premium above the regular rate for what might be called "special" wastes. These "special" wastes were virtually all commercial or industrial wastes.

Generally speaking, where the character of the sewage, water or waste from a manufacturing or industrial plant, business or commercial location, building or premises has the chemical oxygen demand of more than a specified number of parts per million by weight or contains more than a similarly specified number of parts per million by weight of suspended solids, or both, and the sewage, water or waste are accepted into the sewage system for treatment, the discharger is obliged to pay to the publically operated treatment works ("POTW") a rate, fee, or charge designated as a surcharge. In most cases, the municipality has the right to deny the discharger treatment capacity based on its determination that the organic loading is above one, both, or a combination of the limits set by it and where it determines that their existence will hamper or reduce the operating effectiveness of its treatment facility. This charge is in addition to the normal or natural sewer rate.

In Jefferson County's case, the surcharge amounts for amounts received above the maximum allowable loading per pound may be generally described as being $.195 for Biochemical Oxygen Demand ("BOD"); $.195 for Chemical Oxygen Demand ("COD"); $.30 for Total Suspended Solids ("TSS"); $.10 for Fats, Oil and Grease; and $2.00 for Total Phosphorus. These fees are graduated based on the amount of loading and have been in effect since January 2003. Other municipalities around the southeast appear to have roughly similar levels at which surcharges apply, but the methodology for gathering the data required to assess the amount of a possible surcharge varies from municipality to municipality. Some have the customer submit the data while still others assume the responsibility for sampling.

5. Interest Income

For the fiscal year ended September 30, 2002 interest income was approximately $23.5 million. This constituted approximately 20 percent of total system revenues, but this number will decrease to about $12 million in less than next two years as the Construction Fund is depleted. After the Construction Fund has been completely exhausted, all interest earnings will come only from the Prior Years Surplus and Debt Service Reserve Funds which are effectively impressed funds where principal amounts cannot be touched unless the Commission does not have sufficient funds to amortize its debt according to the schedule specified. The ability to count Construction Fund interest toward coverage of debt service is somewhat unusual because it is not permitted in every bond indenture due to its nonrecurring nature, so the Commission was very fortunate that its professional staff, its bond counsel, its underwriter's counsel and the initial underwriters were able to make it count in that calculation. Had the Commission not been able to count Construction Fund interest, sewer rates would have risen much faster than they have, but that source of revenue is now gone and will not be available again unless the County again enters the bond market.

6. Miscellaneous Revenues

Revenues from this source accounted for approximately $1.5 million of the $116.5 million which the Environmental Services Department earned in the fiscal year ending September 30, 2002. Revenues in this group include sanitation charges, septic tank dumpings, developer assessments, delinquency fees, recovery of charged off balances, inspection fees, other sanitation charges and still other smaller sources of revenue. Septic tank dumping revenue is usually the largest single item in this group. The Commission currently charges a fee equivalent to $22.50 per hundred cubic feet of sewage for this service.

7. Summary

The previous pages in this section have briefly discussed the current sources of revenue for the Environmental Services Department and their overall role in its operation. As noted in the introduction to this section, the reliance on rate revenues is very substantial, and it is projected that they will constitute almost 90 percent of total system revenues in less than four years. This is perceived as inequitable by many of the current rate payers, and there is, in our opinion, a real possibility that many of those rate payers, particularly those with lesser incomes, could simply stop paying their sewer bill because of that perception. Jefferson County cannot afford for this to occur, and it must find a way to broaden citizen participation in financing what has essentially been a rebuilding of almost all of its sewer system. Some inequities do exist in some of the current fees and charges employed by the Environmental Services Department, but correction of them, while philosophically appealing, will do little to reduce the burden of the rate payers. Another revenue solution must be found.

C. ADDITIONAL SOURCES OF REVENUE

It cannot be mentioned too often that the next four years are extremely important ones for the Commission in the management of its Environmental Services Department. During that period sewer rates are scheduled to rise almost 60 percent from their current levels, and the occurrence of that event is likely to elicit actions ranging from public protest to refusal to pay for service. For those reasons and the fact that the Commission will be needing almost $215 million annually by 2006 to operate the Environmental Services Department, additional revenues must be found. In pursuing a broader base over which to spread the cost of providing sewer service, however, it must also be kept in mind that it is equally important to keep current customers of the system paying for that service, for if it is perceived by any customer that it is acceptable conduct not to pay his or her sewer bill, then the problem could quickly reach very serious proportions. If the reader accepts the premise that some customers may reach a point where they feel that they do not have the resources to pay and can rationalize that nonpayment is acceptable because the current user fee structure is inequitable, then it is becomes increasingly necessary for the Commission to consider development of what is commonly termed a "lifeline" credit for those customers to ensure their continued participation as customers of the system. We believe that some participation by all customers in underwriting the cost of the sewer system is essential, both economically and philosophically.

The preceding paragraph touched on the need for development of a "lifeline" credit for those who may not have the income necessary to pay the full cost of sewer service, but it should not be forgotten that the real focus of this study is on the possible new sources of revenue which will be needed to meet demands less than four years away. In the preceding paragraph mention was made of broadening the base from which revenue to support the sewer system might be obtained. It should be clearly understood that additional source of revenues will be mandatory if a "lifeline" credit is to be seriously contemplated because, by its nature, that concept must either require a supplement to system revenues or result in a decrease of them. It has already been established that system revenues must rise an estimated 60 percent or more in less than four years to meet its minimum revenue requirements, so any plan which results in a reduction of rate revenues cannot be a part of any viable plan to meet this goal. While it may be possible to adopt and implement a responsible "lifeline" credit plan, it must be recognized this can only be done if some revenue source supplement can be found to meet needs arising from such a plan. The possible revenue sources to meet projected needs can be roughly grouped into three classes: (1) immediate options, (2) intermediate term options, and (3) long term options.

For immediate consideration are other operating revenues of the system and expanding of the customer base by serving more customers already in the system's service area through new connections or through acquisition of nearby systems. We also believe that the County's "impact fee" system is very much in need of updating. Similar action may also be needed for commercial/industrial waste surcharges and septic tank dumping or tipping fees. Unfortunately, these revenue sources are comparatively small, and even substantial changes to them will not generate a significant amount of additional system revenue. The opportunity to expand the customer base by serving more customers with the system's service area also does not appear to be a viable option in light of the Commission's position on that subject as evidenced by its ruling in 2002 on the Cahaba River Trunk Sewer, but its position on acquisitions has not yet been defined. Because it has essentially new state of the art sewage treatment facilities with ample capacity, Jefferson County is in a position to offer excellent service to any surrounding systems wishing to become a part of its system. Other areas which could merit review include modifying the residential discount allowance and managing growth in operating expenses differently.

For the intermediate term, we are aware of only three possibilities: (1) an increase in the sales tax rate with an amount allocable to the Environmental Services Department, (2) an increase in the occupational tax rate with a similar allocation to that area, or (3) an increase in the amount of ad valorem taxes with a greater allocation to Environmental Services Department operations. None of these approaches are desirable, but it is our opinion that one or some are more desirable than the others. Yet other questions which must be asked are how much can possibly be gotten from these areas, and what is the rationale for selection of one possible source over another?

For the long term, a national movement is getting underway which supports the creation of an environmental trust fund which would operate in a manner similar to that of the highway trust fund in that it would be funded from specific related sources, and the user fees or taxes collected could only be used to provide funding for environmental needs. The EPA Clean Water and Drinking Water Infrastructure Gap Analysis Report issued in September 2002, states in part: "Estimates for capital needs for clean water from 2000 to 2019 range from $331 billion to $450 billion...." This estimate does not address drinking water needs. A number of bills supporting water and wastewater funding made it to various levels in the 107th Congress, but more pressure is needed from the local level to push needed legislation through to fruition. Sources of tax revenue for this fund would include taxing bottled water, boat motor fuel, water recreation site user fees, and "green fees" on products such as toilet paper, cooking oils, photo chemicals, detergents, paints, drain cleaners and other related products. This idea may take years to develop, but Jefferson County is faced with substantial annual debt service for the next 40 years, so there is an excellent chance that its problem will still exist when and/or if an environmental trust fund does become a significant source of funds in the future. A brief summary of the proposed plan is contained in Exhibit A of the Appendix and is entitled A National Trust Fund for Clean and Safe Water Infrastructure Investment along with the name of a contact person responsible for the preparation of the discussion paper. However, on a more regional basis, if the Commission determines that the concept is worth pursuing, it is suggested that it contact Mr. Billy G. Turner, President of the Columbus Water Works, in Columbus, Georgia. Mr. Turner is the chief executive officer for the water and sewer system for the City of Columbus, Georgia, and he has been active in an established lobbying effort supporting this plan for sometime now, so he is very knowledgeable on the subject.

1. **Immediate Options**

System Additions and/or Acquisitions

There has been some discussion earlier in this report on the granting of a type of "lifeline" credit to some customers of the sewer system as rates move higher, but it does not seem logical to assume that the revenues to finance such an idea could be generated by raising rates or user fees to an even higher level for the remaining customers to accommodate such a plan. Therefore, additional revenues will have to be gotten from other sources. Within the operating framework of the Environmental Services Department there are two areas which offer some promise of additional revenue.

The first of these is expansion of the system to serve new customers or acquisition of nearby sewer systems. The expansion route was largely eliminated with the decision to terminate development of the Cahaba River Trunk Sewer which was generally perceived as having possibly the largest potential for serving new growth areas. It is our understanding that Jefferson County has focused all of its efforts and resources on meeting the terms of the Consent Decree, and there will be no funds available for expansion projects for a number of years.

While obviously not as desirable from a developer's perspective, there is another way in which expansion into new areas may be achieved where the developer's financial resources are sufficient to address this methodology. Specifically, assuming that there are no legal impediments to doing so, a municipality and a developer may wish to consider entering into an agreement which goes by various names but in this report will be termed a "benefitted property owner's agreement." Under this arrangement, also assuming that the County's requisite engineering standards can be met, the municipality and the developer enter into an agreement wherein the developer agrees to construct or have constructed, at his expense, sewer line extensions and associated appurtenances to serve a specific area. In return, the municipality agrees to accept ownership of the improvements and maintain them upon completion of construction, and in exchange for the financing by the developer, the municipality gives the developer the right to recover all system connection fees realized from the project to the extent of the cost which he incurred for County approved sewer construction associated with his development for a period of time but usually for no more than ten years.

For example, assume that a developer must spend $1,000,000 to construct an 8" sewer line extension from the existing system to his subdivision. Assume also that the municipality's system development charge for a standard residential connection to its sewer system is $2,500. An 8" sewer line flowing at an average of 50% of capacity can accommodate almost 200,000 gallons daily. A flow of 50% should be assumed to be the optimum configuration (100% utilization) for a number of reasons which are discussed in more detail in Exhibit B of the Appendix. The average residential unit, sometimes called the equivalent residential unit ("ERU") can be expected to create a daily demand of between 200 and 250 gallons per day ("GPD") on the system. Assuming an average daily flow per residential connection of perhaps 250 gallons, it is a relatively simple matter to determine that the sewer line which the developer has caused to be installed can accommodate approximately 800 connections (200,000/250). Under the benefitted property owners agreement, the developer would recover the connection fees associated with the first 400 units ($1,000,000/$2,500), and the Environmental Services Department would receive all fees earned as the remaining 400 connections are made.

The disadvantage to the developer is that he would be obliged to provide the up front financing for the sewer line extension. However, if, in fact, his project was as promising as he believed it to be, he could recover his cost in ten years or less. He would, however, be out the financing cost for the work, and that could be substantial. If, for example, the cost of the sewer line extension cited in the preceding paragraph had to be financed at 7%, and the project built out the first 400 units at a rate of 80 units per year for five years, then the interest cost to the developer would be approximately $210,000. The actual cost to him would be less, of course, because of tax and timing considerations, but the gross $210,000 figure is used for purposes of illustration. Nevertheless, the point to be made is that there are ways to accommodate development even if the Environmental Services Department has limited funds for growth. Assuming that this approach could be developed to meet all related legal requirements, the Environmental Services Department could benefit considerably from such an arrangement. While it would be giving up the system development charge fees earned on the first 400 residential units constructed, it would not only gain a sewer line of that value, but also another $1,000,000 in fees when the development was fully built out. Additionally, each new connection to the system currently represents a future income stream whose present value can be computed to be approximately $6,311. This calculation assumes a Jefferson County cost of capital of 5%, an average usage of 1,000 cubic feet per month (before the residential discount) at the current rate, and an account life cycle of 20 years.

The example provided in the preceding paragraphs is but one approach to meeting needs where the municipality does not have the capital to meet them using traditional methods. There could undoubtedly be a number of variations which could be tailored to facilitate developer-municipality participation in growth. The critical component in a proposal such as this one is that both Jefferson County and the developer know what their respective costs actually are before going into such an arrangement. If a developer does not know what his costs are and the project does not build out on the desired schedule, he could face severe financial pain and possibly bankruptcy. Jefferson County could also suffer if it did not know its costs. If it has underpriced the value of a new connection to its system, the shortfall must be made up by the rate payers who actually have no obligation to finance that new growth. Conversely, if it overprices the value of that connection, it not only discourages new development in its service area, it also could also risk being charged with denying the developer beneficial use of his property and cause a law suit to be initiated against Jefferson County which could be very costly.

The second approach involves acquisition of those systems from surrounding municipalities which might fall within the current service area of the Environmental Services Department. As a result of efforts at compliance with the Consent Order, the Commission now has state of the art waste treatment facilities which have an ample supply of reserve capacity with which to meet future demand. Therefore, if it can acquire the system of a nearby municipality with the minimum change to its system and requiring a minimum cash outlay, the additional usage might enable it to better serve the acquired customers at a competitive price while possibly holding down the extent of the projected rate increases which it must currently envision. This course of action would be even more attractive if the acquired system itself had growth potential. Of course, the ultimate purchase price of the system considered for acquisition and any necessary system upgrades would prove to be the deciding factors in making any determination.

Changing the Residential Discount Allowance

A residential customer is currently allowed a discount of 15 percent on his or her water usage to compensate for what is considered to be an allowance for non-sanitary sewer usage. The use of the discount allowance has been in force for many years, apparently since 1972. One method of increasing revenues for the Environmental Services Department would be to reduce the amount of discount allowed, but this approach could meet with considerable public opposition because it has been in effect for many years. Nevertheless, its value as a potential revenue source should not be overlooked. Based on the computer rate models developed for use in the Revenue Forecast for the Series 2002-D sewer debt offering, at the current rate ($4.90 per ccf) each one percent decrease in the amount of the residential allowance should produce additional rate revenues of approximately $526,000, all other things being equal. Obviously, as rates rise, the amount of additional revenue generated by this change will also rise, although possibly not in a linear relationship due to the influence of future prices on conservation efforts.

c. ***The credit must have adequate controls to ensure its manageability.*** One of the potentially great weaknesses of a program such as the one discussed herein is that if is not properly constructed and managed from its inception, it can end up being a substantial detriment to the County rather than an asset as it was intended to be. Control of the program should have at least two facets. First, the Commission must be prepared to set a limit on the number of candidates who are eligible to participate in the program. This can be a difficult task, especially politically, but it can be managed to some degree by setting the criteria in such a manner as to limit the number who can qualify. The second control is assuring that, once granted, a lifelong entitlement, or worse, an inherited one, is not created. The second attribute can be controlled to some degree through computer programming. Specifically, it is suggested that when the Commission, or the agency to which it may ultimately assign the responsibility for management of this function, approves an account for participation in a "lifeline" credit program, the approval is for a period of no more than three years. With sufficient notice, logic could be written into the various computer billing programs utilized by the entities supplying usage data to the County that would include in the record for a customer the date on which he or she first qualified for the rate assistance. Once that date was in place, the computers of the various billing entities could be programmed to compare the current date to the qualifying date, and if the current date was longer than three years after the qualifying date, the account would automatically be returned to the normal billing rate schedule. The rate payer would then be required to requalify for the "lifeline" credit by providing the appropriate documentation. If that individual failed to requalify for the assisted rate due to improved economic status, he or she could be obliged to wait one year before reapplying for the credit.

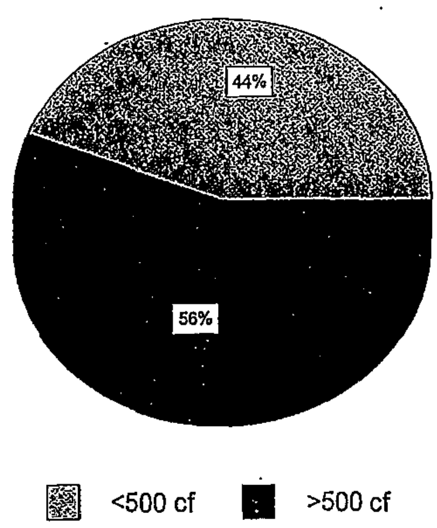
d. ***The credit adopted must be affordable by the Commission.*** As noted earlier in this discussion, the primary focus of this report is on where additional revenues may be derived to support the sewer system. As a consequence, any support of a "lifeline" credit system should come from an additional source of revenue. Affordability obviously must be quantified using the considerations outlined earlier in this section. As a rough approximation, the data in Exhibit C of the Appendix reveals the Commission can expect approximately 26 percent of its nearly 128,000 residential customers to use 400 cubic feet or less of sewer service in any one month. How many of that group might qualify for assistance? How many consistently using more than that amount will qualify? Obviously, that decision must be made by the Commission, but we are of the opinion that essential public health needs are probably met for most customers of the system at or below that level. What might a credit for the first 400 cubic feet cost the Commission? Using the current rate structure as a guide and applying the credit to the full amount, it is a relatively simple matter to ascertain that the granting of the credit would result in a loss of revenue to the Environmental Services Department of $16.66 (4*$4.90*.85)per residential customer receiving the credit per month. Annualized, that number becomes almost $200, so it is fairly easy to extrapolate that if ten percent of the residential customer base qualified for the credit and it was based on the 400 cubic feet limit, the cost to the sewer system in terms of lost revenues would be approximately $2.6 million. There appears to be a need for the Commission to consider the implementation of such a plan, but the amount of the possible usage credit and the extent of its application must be carefully weighed. If such a plan is implemented, it will be very important that the Commission know how many are participating in the plan and its annual cost. This information should be reported to the Commission on an ongoing basis no less than annually.

e. ***Everyone utilizing sewer services should pay some amount.*** It is our opinion that excusing someone from paying anything on their sewer bill is unwise because it tends to create the impression in their minds that sewer service has no real cost associated with it. Conversely, having every "lifeline" customer pay some minimum bill could create the perception in their minds the credit that he or she is receiving is not a subsidy but he or she is paying a fair share and helping shoulder the cost of rebuilding the Jefferson County sewer system. We suggest consideration of a minimum bill for any "lifeline" customer of $10.00 per month for the first 400 cubic feet and that the amount should rise $1.00 per month or more every time the Commission is obliged to raise rates for the general rate base. Beyond the 400 cubic feet level, all sewer customers should pay the full rate. The amount of assistance would start out as a comparatively small number, but it would grow as rates rise in the future.

Drafting a set of guidelines for the creation and management of a "lifeline"credit is the far easier part of getting a system in place. What must also be addressed is the matter of estimating the cost of placing a "lifeline" credit program in operation. Depending on how the plan will be administered, the administrative costs could be a comparatively small amount or a significant charge to operations. What is not needed is something which will add significantly to the existing operations and maintenance ("O&M") expense. That number was in the vicinity of $47 million for the fiscal year just ended and is budgeted to be nearer $57 million for the current one, so very little additional expense needs to be added to this revenue requirement if at all possible. The amount incurred to run the program will be a matter for the Commission to determine, but what is also needed is an estimate of how many customers might qualify and what the cost of the assistance provided might be. One way to obtain a better idea of how many sewer customers might be in a group which could qualify for the "lifeline" credit would be to develop what is called a frequency distribution of those customers in 100 cubic feet increments. This would also provide a much better picture of what mean, median and mode usage for residential customers actually are.

The mean, median and mode are statistical terms which are generally referred to as measures of central tendency; that is, they are used to describe how customers tend to use sewer service. Because the customers will be grouped by 100 cubic foot increments, however, the values for those indicators will necessarily have to be approximated to some degree. Nevertheless, a fairly good understanding of how the Environmental Services Department's customers use sewer services should be obtained. So that there is no confusion about the numbers, it should be understood that the mean is simply the arithmetic average of all of the observations, the median is the number which has an equal number of observations above and below it, and the mode is the most frequently occurring observation or usage level. Each of these can be useful in providing one with a picture of how the sewer customer base can be expected to use sewer service in the typical month.

Residential Sewer Customers (%)



Although the Commission receives sewer billing data from three principal sources, the Birmingham Water Works & Sewer Board, the City of Bessemer, and a group of smaller accounts which are generally referred to as the Jefferson County small systems, approximately 85 percent of the residential accounts are serviced by Birmingham Water Works & Sewer Board which provided the data base on which many of the assumptions contained in this report are based. Comparable data from the other two sources of information is not readily available, but we believe that data obtained from Birmingham Water Works & Sewer Board is sufficient to provide a representative overview of the Commission's customer base. As can be seen by the graphic associated with this discussion, the number of residential customers who typically use 500 cubic feet or less of sewer service per month can be expected to constitute almost 44 percent of all residential customers. Although the above graphic does not show it, median usage is approximately 600 cf (50 percent of the residential customers typically use less than this amount and 50 percent typically use more). The mode usage is 500 cf (the most frequently occurring usage). What does this mean? First, it is our opinion that the use of strictly an average number of cubic feet for the typical residential user does not properly describe the typical user. The mode, which is the most frequently occurring bill, is the one which we believe best typifies what the most residential customers expect to see when they receive their monthly bill. Second, when considered in conjunction with the detail contained in the Summary Usage Frequency Distribution in Exhibit C of the Appendix in this report, a much better picture of the usage habits of the customer base is obtained than was previously available. Finally, the Summary Usage Frequency Distribution tells one that while the "average" residential customer using 1,000 cubic may expect to receive a monthly sewer bill (at the current rates) of $41.65, the facts reveal that approximately 73 percent of the residential customer group can routinely expect to receive a bill of less than that amount. As a consequence, the 1,000 cubic feet number often cited in the media may not be the most representative number for measuring the impact of a change in sewer user fees.

Unfortunately, proving that many customers do not receive a bill which has been deemed the "average" bill does not make it any less difficult for those customers to pay the increasing cost of sewer service. New sources of revenue must be found if any appreciable rate relief is to be enjoyed.

E. SUMMARY

Within the Environmental Services Department, there are a number of options which can be utilized to increase system revenues somewhat, but it will be doubtful that any will be popular and few will appear to the public to be justified. For example, the concept of the residential discount allowance could be abolished, currently generating as much as $8 million more in rate revenues.

Private meters could also be banned. There are currently slightly more than 8,200 of these in existence and most are residential, but some are commercial, so estimating the lost revenue as a result of private meter installed would be extremely difficult. Using the most conservative estimate which would assume that all of the private meters were residential and that their use only saved the "average" owner the amount of the residential exemption, the disallowance of the use of the meters would currently result in about $725,000 more in rate revenue per year. However, when one considers that those owning private meters installed them because they were confident that the savings realized would substantially exceed the value of 15 percent discount permitted, the $725,000 becomes a very conservative estimate. Because actual use of private meters by both commercial and residential customers almost certainly exceeds the allowable residential discount percentage, the additional rate revenues could generate possibly many times the $725,000 number cited.

The development of an updated and equitable system development charge fee structure could easily double or triple the amount currently earned from this source ($3.7 million). Such a move might add $8 to $12 million in additional revenues, and this action on behalf of the existing rate payers is long overdue.

Other operating fees charged such as higher inspection fees, septic dumpings, line cleanouts due to grease discharge from restaurants and other contributors, and industrial waste surcharges should be raised to reflect the true cost of providing sewer services. Although it is difficult to accurately estimate a number which reflects the increase in revenues which might be earned from these services, it is conceivable that they could increase by perhaps $250,000 to $$500,000 annually.

The use of the concept of the benefitted property owner's agreement should be used wherever possible to encourage county-developer participation in growth. Where this concept can be successfully used, it usually requires minimal capital outlay by the Commission, but each new average residential connection added to the system creates a future income stream to the Environmental Services Department which can be conservatively estimated to have a current present value of $6,311. Moreover, the successful utilization of this technique should generate a substantial amount of system development charge fees or revenues, although the realization of them may be deferred by as much as five or ten years. Finally, where this concept is successfully applied, Jefferson County expands its property tax base and with almost an equal amount of certainty, its occupational and sales tax base as well. Similarly, if the opportunity presents itself to the Commission to acquire a sewer system of a nearby municipality for a reasonable value, it should not hesitate to do so. It is important to remember that the value of the acquisition is far more important than simply the purchase of the assets. The object of real value in the purchase is the acquisition of the income stream from new accounts and the ability to distribute the revenue requirements of the system over a larger rate base.

The focus should not be entirely on the production of new revenues. Equally effective is the reduction of operating costs. As noted earlier in this report, based on budgeted operating expenses for the Environmental Services Department for the current fiscal year, each one percent reduction in that number would result in a $568,000 reduction in revenue requirements.

The discussion of possible increases in sources of revenue or cost savings to this point have focused on changes within the Environmental Services Department. The Commission can also consider, within limits, generating revenue from sources outside that realm which can be allocated to it. These sources are generally not as desirable as are those within the system for a number of reasons. From the Commission's point of view, most of these options are ones over which it possesses lesser degrees of control. Moreover, it is our understanding such allocations are not generally considered to be system revenues within the terms of the bond indenture under which the Environmental Services Department must operate because while they can be counted for purposes of what is considered compliance with debt service coverage as specified in that document, they cannot be permanently pledged to that area because they are general tax revenues.

Although the concept is somewhat new to the Commission, we encourage it to consider the investigation and adoption, where appropriate, of system development charge fees for a number of services currently provided by Jefferson County to new residents at little or minimal additional cost. Specifically, we believe that it should explore the application of this concept to a host of other services from schools to streets, from libraries to public safety and fire protection. This recommendation is not offered to penalize developers. On the contrary, where properly done, it is our belief that the application of the concept will actually enhance responsible development, but the underlying reason for our advocacy of this concept is that it represents an excellent vehicle for reimbursing the existing tax or rate payer base for the capacity which it has financed for growth.

If the Commission can accept the premise that the system development cost concept outlined in the preceding paragraph is inherently equitable, it can then move forward with consideration of possibly allocating sales, occupational and/or ad valorem taxes to the operation of the Environmental Services Department.

The revenues to be potentially derived from theses sources have been discussed earlier, so they are only briefly mentioned here. Based on collections for the fiscal year ended September 30, 2002, a 1/10 of 1 percent increase in the sales tax rate can be conservatively expected to generate perhaps $7 million in additional revenues, all other things being equal. Unfortunately, that is not the case as capital is quite mobile, and it would not be surprising to see consumers increase their spending, particularly on larger items subject to the general sales tax, in Shelby County where the tax rate would be lower. Obviously, the extent of the increase in the sales tax rate would be a significant determinant in the amount of sales tax revenue flight as would the actions of the governments of the affected municipalities in surrounding counties if they perceived the action by Jefferson County in raising this tax as an opportunity to themselves raise taxes for their needs. While we do not support the raising of sales taxes to aid in the funding of the Environmental Services Department for reasons already outlined in this paragraph, we also do not support it on philosophical grounds. By its nature, a sales tax is regressive because it taxes all purchasers equally regardless of their ability to pay. As a consequence, it hurts those with lesser incomes more than those with larger incomes because their required use of their limited income to meet basic needs is further restricted. Additionally, it could work to impair the overall economic health of the Jefferson County as well because those with limited incomes would almost certainly have spent their money in Jefferson County anyway, but instead of recirculating their limited dollars in the local economy where it could benefit from the economic effect known as the multiplier, they would be removed from the economy to pay debt service.

The occupational tax and privilege licenses are another possible source of revenue, and we believe these areas to be much more justifiable sources of revenue to be generated in support of the operation of the Environmental Services Department because at least one of them tends to tax on the basis of one's ability to pay. Also, as noted earlier in this report, a recent study concerning the number who commute from out of county to work within Jefferson County showed that the number was substantial and growing. While possibly not using every service provided by the County on a continuous basis, these individuals do, nevertheless, have the opportunity to avail themselves of those services while within county boundaries. Based on occupational tax collection data for the fiscal year ended September 30, 2002, it appears that each 1/10 of 1 percent in the amount of the occupational tax would generate approximately $5.5 million in additional revenues. Both the matter of the revenues to be generated and the equity of the privilege license fee structure is considerably less obvious. A relationship between the amount required for a license and the income which one might earn as a result of being granted one by Jefferson County does not appear to exist. Unfortunately, because of the antiquated political structure under which the counties in this state must operate, little can be be done to correct this inequity.

Another source of revenue which should be considered is the ad valorem tax. While it would almost certainly be the most difficult to implement, it could be considered to be one of the most equitable sources of revenue because there is a very significant probability that those individuals living in Jefferson County who are not on the sewer system go to work in a location where sewer service is available. As a consequence, because the indirect benefit to them of the existence of the sewage system is, in our opinion, so substantial that there is justification for considering this tax as a source of revenues to be allocated to the Environmental Services Department. As with other sources of revenue, estimates of the revenue which might be earned from this source can only be estimated, but 1/10 of a mill produces approximately $525,000 in property tax revenues. This source of revenue is both progressive and can involve cost shifting. As noted earlier in this report, the greater the value of the property being taxed, the larger the amount of the tax to be paid, and, in most cases, those owning the more valuable properties have larger incomes and are better able to pay the additional tax. An additional benefit to the use of this approach is those paying the larger amount of tax tend to be the ones who itemize deductions on their state and federal income tax returns, and property taxes are generally deductible expense on their returns. As a consequence, except for the highest income earners, the real cost to the upper income tax payers is not 100 percent of the amount of the ad valorem tax increase but perhaps 20 to 40 percent less.

Finally, we believe that because the cost of sewer service is becoming so significant for some rate payers, there is a chance that it could become unaffordable by them. While the Commission has the responsibility taking actions necessary for sound fiscal management of its sewage system, it may also have a responsibility to provide help to those satisfying specific criteria in meeting the cost of their sewer service obligation. Should the Commission decide that this is an objective which it desires to meet, it must take the necessary action to implement a workable plan. We have noted earlier that we think that some of the criteria which should be met in administering such a plan, sometimes called a "lifeline" rate or credit, should include the attributes of applying only to essential usage, applying only to those who need economic assistance as determined by a quantifiable standard, be a plan which has adequate controls to ensure its manageability, be a plan which is affordable by the Commission, and that all users of the system should pay some amount, however nominal, for sewer service. Based on usage data provided to us by the Birmingham Water Works and Sewer Board, we were able to ascertain that essential usage for most residential users appears to approximate 400 cubic feet per month. The Commission must make the decision as to who qualifies for economic assistance, but, for example, we can assume that 10 percent of its residential rate base did qualify for a "lifeline" credit and were obliged to pay nothing for that quantity of service, it would currently cost the the Environmental Services Department possibly as $2.6 million in annual rate revenues. We do not recommend a blanket exemption from sewer fees at that level because the credit allowed must be something that the Commission can afford, and we feel that it is desirable both from the Commission's perspective and from that of the rate payer that everyone pay some amount for sewer service. Finally, the program must be manageable; that is, the Commission should know, at least annually, the amount of rate revenue given up by this plan, number of individuals qualifying for the credit, the quantity of wastewater not billed as a result of the implementation of the plan, and finally, that once granted, the exemption or credit remains only in the hands of those who truly deserve it. This final attribute can be achieved automatically largely through the assistance of computer programming. Qualifiers for the "lifeline" credit could and should be made to periodically requalify for the credit at intervals deemed appropriate by the Commission.

DRAFT

ANALYSIS
OF
SOURCES OF REVENUE

FOR THE
JEFFERSON COUNTY
ENVIRONMENTAL SERVICES DEPARTMENT

MARCH 13, 2003

PBK JOB NO. 02512

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Jeffco-000078

March 13, 2003

Report to the Jefferson County Commission

The Commission faces a major challenge as it attempts to comply with the Consent Decree dated December 1996. The cost of compliance with that decreè and cost of related Clean Water Act compliance projects has substantially exceeded original estimates, and it must now find a way to accomplish the task of amortizing the debt incurred in connection with meeting those goals.

For the fiscal year ended September 30, 2002, the Environmental Services Department earned revenues from all sources of approximately $116.5 million. However, in only slightly more than five years, using projected operating costs, annual debt service and required debt service coverage, it is estimated that the revenue requirements for operating that utility could approximate $248 million, assuming no significant savings due to a favorable debt refunding. This change will represent an increase in revenue requirements of almost 113 percent, and it presents a major problem in both debt management for the Commission and affordability by the rate payers. In view of the magnitude of the problem, the Commission has asked us to examine its current revenue sources and suggest alternatives, if any, for additional sources.

We have both consulted with other municipalities in the southeast on revenue sources and looked at other sources of revenue within Jefferson County, but we have found no material revenue sources that the Environmental Services is not already utilizing. On the matter of revenue sources available to other municipalities, our findings may be generally described as discovering that most have at least water and sewer services under the same management with water providing sewer operations with varying degrees of support, many have a much larger rate base over which to distribute revenue requirements, and all appear to have a lower amount of debt which must be amortized. Within Jefferson County itself, a number of sources of revenue have been identified, but we do not see them as major sources of support, and the Commission must also meet other currently pressing needs from them as well. Moreover, because changes in tax revenues are largely controlled by the state

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legislature, many of the material sources of revenue are beyond the Commission's direct influence.

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Although this report focuses on additional sources of revenue for the Environmental Services Department, it should be noted that the Commission might wish to consider what are more properly called "system development charges" in areas outside its sewage system for which it is also responsible. Essentially, a system development charge is a charge imposed upon a new connection to a service where the capacity to provide that service has been financed by the existing user or tax payer base. The charge is simply a recoupment by the existing users or tax payers of the cost of that capacity for growth which they have financed through the payment of user fees or taxes in prior years. This concept is growing rapidly throughout the United States with the increasing realization by the general public that growth is good only when those directly benefitting from it pay their fair share. The concept is not only applicable to the provision of water and sewer service, but also to storm water, public safety and fire protection, schools, libraries, parks, roads and many other public services. In fact, there are more than 20 different types of system development fees employed by communities across the country, and many of them may be applicable to Jefferson County's needs.

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The long term approach is, of course, to turn to federal government for assistance, but the prospect for substantially more funding through the U.S. Environmental Protection Agency ("EPA") funding is not currently very strong. There is, however, ground swell support growing for the creation of a national environmental trust fund which would be funded from specific "green" taxes and operate much like the highway trust fund currently does. While clearly not an immediate option, it should be kept in mind that Jefferson County's debt will be amortized over a 40-year period, so it may be advisable for the Commission to look ahead toward what might be achieved in future years through this potential funding vehicle. The proposal is discussed briefly in the body of the report and in considerably more detail in the Appendix.

It must be recognized that the revenues to meet the obligation outlined in second paragraph of this summary will have to be met, but it is also equally undeniable that there are many citizens who will be less able to do so as the burden grows. Because the Commission must necessarily concern itself not only with the financial burden which it will soon face but also with the ability of some of its rate payers to pay their sewer bills as they come due, it may wish to consider the concept of what is commonly termed a "lifeline" credit which are usually designed to provide assistance to those struggling to pay their bills, at least to the extent that it is in the interest of the public health to do so. Considerations which we believe are important in developing a meaningful and manageable "lifeline" credit program are discussed at the end of this report.

Regardless of the source from which the needed revenues must ultimately arise, they will have to be generated, and the plan for generating them cannot be popular with any of those who will be affected by an increase in taxes or user fees. Nevertheless, when the alternative of obtaining revenues through a plan over which the Commission has some control is compared with the action of a receiver should the system go into default, there can be little question as to which course of action is

c. ***The credit must have adequate controls to ensure its manageability.*** One of the potentially great weaknesses of a program such as the one discussed herein is that if is not properly constructed and managed from its inception, it can end up being a substantial detriment to the County rather than an asset as it was intended to be. Control of the program should have at least two facets. First, the Commission must be prepared to set a limit on the number of candidates who are eligible to participate in the program. This can be a difficult task, especially politically, but it can be managed to some degree by setting the criteria in such a manner as to limit the number who can qualify. The second control is assuring that, once granted, a lifelong entitlement, or worse, an inherited one, is not created. The second attribute can be controlled to some degree through computer programming. Specifically, it is suggested that when the Commission, or the agency to which it may ultimately assign the responsibility for management of this function, approves an account for participation in a "lifeline" credit program, the approval is for a period of no more than three years. With sufficient notice, logic could be written into the various computer billing programs utilized by the entities supplying usage data to the County that would include in the record for a customer the date on which he or she first qualified for the rate assistance. Once that date was in place, the computers of the various billing entities could be programmed to compare the current date to the qualifying date, and if the current date was longer than three years after the qualifying date, the account would automatically be returned to the normal billing rate schedule. The rate payer would then be required to requalify for the "lifeline" credit by providing the appropriate documentation. If that individual failed to requalify for the assisted rate due to improved economic status, he or she could be obliged to wait one year before reapplying for the credit.

d. ***The credit adopted must be affordable by the Commission.*** As noted earlier in this discussion, the primary focus of this report is on where additional revenues may be derived to support the sewer system. As a consequence, any support of a "lifeline" credit system should come from an additional source of revenue. Affordability obviously must be quantified using the considerations outlined earlier in this section. As a rough approximation, the data in Exhibit C of the Appendix reveals the Commission can expect approximately 26 percent of its nearly 128,000 residential customers to use 400 cubic feet or less of sewer service in any one month. How many of that group might qualify for assistance? How many consistently using more than that amount will qualify? Obviously, that decision must be made by the Commission, but we are of the opinion that essential public health needs are probably met for most customers of the system at or below that level. What might a credit for the first 400 cubic feet cost the Commission? Using the current rate structure as a guide and applying the credit to the full amount, it is a relatively simple matter to ascertain that the granting of the credit would result in a loss of revenue to the Environmental Services Department of $16.66 (4*$4.90*.85)per residential customer receiving the credit per month. Annualized, that number becomes almost $200, so it is fairly easy to extrapolate that if ten percent of the residential customer base qualified for the credit and it was based on the 400 cubic feet limit, the cost to the sewer system in terms of lost revenues would be approximately $2.6 million. There appears to be a need for the Commission to consider the implementation of such a plan, but the amount of the possible usage credit and the extent of its application must be carefully weighed. If such a plan is implemented, it will be very important that the Commission know how many are participating in the plan and its annual cost. This information should be reported to the Commission on an ongoing basis no less than annually.

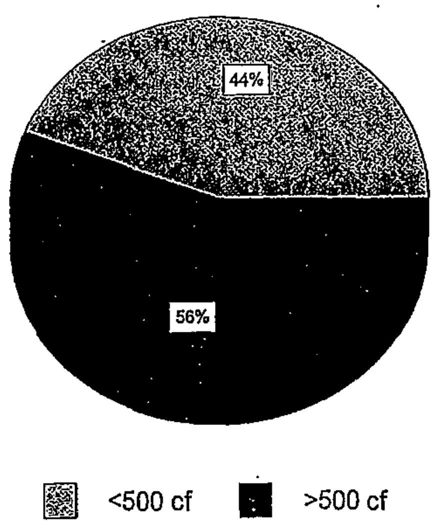
e. ***Everyone utilizing sewer services should pay some amount.*** It is our opinion that excusing someone from paying anything on their sewer bill is unwise because it tends to create the impression in their minds that sewer service has no real cost associated with it. Conversely, having every "lifeline" customer pay some minimum bill could create the perception in their minds the credit that he or she is receiving is not a subsidy but he or she is paying a fair share and helping shoulder the cost of rebuilding the Jefferson County sewer system. We suggest consideration of a minimum bill for any "lifeline" customer of $10.00 per month for the first 400 cubic feet and that the amount should rise $1.00 per month or more every time the Commission is obliged to raise rates for the general rate base. Beyond the 400 cubic feet level, all sewer customers should pay the full rate. The amount of assistance would start out as a comparatively small number, but it would grow as rates rise in the future.

Drafting a set of guidelines for the creation and management of a "lifeline"credit is the far easier part of getting a system in place. What must also be addressed is the matter of estimating the cost of placing a "lifeline" credit program in operation. Depending on how the plan will be administered, the administrative costs could be a comparatively small amount or a significant charge to operations. What is not needed is something which will add significantly to the existing operations and maintenance ("O&M") expense. That number was in the vicinity of $47 million for the fiscal year just ended and is budgeted to be nearer $57 million for the current one, so very little additional expense needs to be added to this revenue requirement if at all possible. The amount incurred to run the program will be a matter for the Commission to determine, but what is also needed is an estimate of how many customers might qualify and what the cost of the assistance provided might be. One way to obtain a better idea of how many sewer customers might be in a group which could qualify for the "lifeline" credit would be to develop what is called a frequency distribution of those customers in 100 cubic feet increments. This would also provide a much better picture of what mean, median and mode usage for residential customers actually are.

The mean, median and mode are statistical terms which are generally referred to as measures of central tendency; that is, they are used to describe how customers tend to use sewer service. Because the customers will be grouped by 100 cubic foot increments, however, the values for those indicators will necessarily have to be approximated to some degree. Nevertheless, a fairly good understanding of how the Environmental Services Department's customers use sewer services should be obtained. So that there is no confusion about the numbers, it should be understood that the mean is simply the arithmetic average of all of the observations, the median is the number which has an equal number of observations above and below it, and the mode is the most frequently occurring observation or usage level. Each of these can be useful in providing one with a picture of how the sewer customer base can be expected to use sewer service in the typical month.

Although the Commission receives sewer billing data from three principal sources, the Birmingham Water Works & Sewer Board, the City of Bessemer, and a group of smaller accounts which are generally referred to as the Jefferson County small systems, approximately 85 percent of the residential accounts are serviced by Birmingham Water Works & Sewer Board which provided the data base on which many of the assumptions contained in this report are based. Comparable data from the other two sources of information is not readily available, but we believe that data obtained from Birmingham Water Works & Sewer Board is sufficient to provide a representative overview of the Commission's

Residential Sewer Customers (%)



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customer base. As can be seen by the graphic associated with this discussion, the number of residential customers who typically use 500 cubic feet or less of sewer service per month can be expected to constitute almost 44 percent of all residential customers. Although the above graphic does not show it, median usage is approximately 600 cf (50 percent of the residential customers typically use less than this amount and 50 percent typically use more). The mode usage is 500 cf (the most frequently occurring usage). What does this mean? First, it is our opinion that the use of strictly an average number of cubic feet for the typical residential user does not properly describe the typical user. The mode, which is the most frequently occurring bill, is the one which we believe best typifies what the most residential customers expect to see when they receive their monthly bill. Second, when considered in conjunction with the detail contained in the Summary Usage Frequency Distribution in Exhibit C of the Appendix in this report, a much better picture of the usage habits of the customer base is obtained than was previously available. Finally, the Summary Usage Frequency Distribution tells one that while the "average" residential customer using 1,000 cubic may expect to receive a monthly sewer bill (at the current rates) of $41.65, the facts reveal that approximately 73 percent of the residential customer group can routinely expect to receive a bill of less than that amount. As a consequence, the 1,000 cubic feet number often cited in the media may not be the most representative number for measuring the impact of a change in sewer user fees.

Unfortunately, proving that many customers do not receive a bill which has been deemed the "average" bill does not make it any less difficult for those customers to pay the increasing cost of sewer service. New sources of revenue must be found if any appreciable rate relief is to be enjoyed.

E. SUMMARY

Within the Environmental Services Department, there are a number of options which can be utilized to increase system revenues somewhat, but it will be doubtful that any will be popular and few will appear to the public to be justified. For example, the concept of the residential discount allowance could be abolished, currently generating as much as $8 million more in rate revenues.

Private meters could also be banned. There are currently slightly more than 8,200 of these in existence and most are residential, but some are commercial, so estimating the lost revenue as a result of private meter installed would be extremely difficult. Using the most conservative estimate which would assume that all of the private meters were residential and that their use only saved the "average" owner the amount of the residential exemption, the disallowance of the use of the meters would currently result in about $725,000 more in rate revenue per year. However, when one considers that those owning private meters installed them because they were confident that the savings realized would substantially exceed the value of 15 percent discount permitted, the $725,000 becomes a very conservative estimate. Because actual use of private meters by both commercial and residential customers almost certainly exceeds the allowable residential discount percentage, the additional rate revenues could generate possibly many times the $725,000 number cited.

The development of an updated and equitable system development charge fee structure could easily double or triple the amount currently earned from this source ($3.7 million). Such a move might add $8 to $12 million in additional revenues, and this action on behalf of the existing rate payers is long overdue.

Other operating fees charged such as higher inspection fees, septic dumpings, line cleanouts due to grease discharge from restaurants and other contributors, and industrial waste surcharges should be raised to reflect the true cost of providing sewer services. Although it is difficult to accurately estimate a number which reflects the increase in revenues which might be earned from these services, it is conceivable that they could increase by perhaps $250,000 to $$500,000 annually.

The use of the concept of the benefitted property owner's agreement should be used wherever possible to encourage county-developer participation in growth. Where this concept can be successfully used, it usually requires minimal capital outlay by the Commission, but each new average residential connection added to the system creates a future income stream to the Environmental Services Department which can be conservatively estimated to have a current present value of $6,311. Moreover, the successful utilization of this technique should generate a substantial amount of system development charge fees or revenues, although the realization of them may be deferred by as much as five or ten years. Finally, where this concept is successfully applied, Jefferson County expands its property tax base and with almost an equal amount of certainty, its occupational and sales tax base as well. Similarly, if the opportunity presents itself to the Commission to acquire a sewer system of a nearby municipality for a reasonable value, it should not hesitate to do so. It is important to remember that the value of the acquisition is far more important than simply the purchase of the assets. The object of real value in the purchase is the acquisition of the income stream from new accounts and the ability to distribute the revenue requirements of the system over a larger rate base.

The focus should not be entirely on the production of new revenues. Equally effective is the reduction of operating costs. As noted earlier in this report, based on budgeted operating expenses for the Environmental Services Department for the current fiscal year, each one percent reduction in that number would result in a $568,000 reduction in revenue requirements.

The discussion of possible increases in sources of revenue or cost savings to this point have focused on changes within the Environmental Services Department. The Commission can also consider, within limits, generating revenue from sources outside that realm which can be allocated to it. These sources are generally not as desirable as are those within the system for a number of reasons. From the Commission's point of view, most of these options are ones over which it possesses lesser degrees of control. Moreover, it is our understanding such allocations are not generally considered to be system revenues within the terms of the bond indenture under which the Environmental Services Department must operate because while they can be counted for purposes of what is considered compliance with debt service coverage as specified in that document, they cannot be permanently pledged to that area because they are general tax revenues.

Although the concept is somewhat new to the Commission, we encourage it to consider the investigation and adoption, where appropriate, of system development charge fees for a number of services currently provided by Jefferson County to new residents at little or minimal additional cost. Specifically, we believe that it should explore the application of this concept to a host of other services from schools to streets, from libraries to public safety and fire protection. This recommendation is not offered to penalize developers. On the contrary, where properly done, it is our belief that the application of the concept will actually enhance responsible development, but the underlying reason for our advocacy of this concept is that it represents an excellent vehicle for reimbursing the existing tax or rate payer base for the capacity which it has financed for growth.

If the Commission can accept the premise that the system development cost concept outlined in the preceding paragraph is inherently equitable, it can then move forward with consideration of possibly allocating sales, occupational and/or ad valorem taxes to the operation of the Environmental Services Department.

The revenues to be potentially derived from theses sources have been discussed earlier, so they are only briefly mentioned here. Based on collections for the fiscal year ended September 30, 2002, a 1/10 of 1 percent increase in the sales tax rate can be conservatively expected to generate perhaps $7 million in additional revenues, all other things being equal. Unfortunately, that is not the case as capital is quite mobile, and it would not be surprising to see consumers increase their spending, particularly on larger items subject to the general sales tax, in Shelby County where the tax rate would be lower. Obviously, the extent of the increase in the sales tax rate would be a significant determinant in the amount of sales tax revenue flight as would the actions of the governments of the affected municipalities in surrounding counties if they perceived the action by Jefferson County in raising this tax as an opportunity to themselves raise taxes for their needs. While we do not support the raising of sales taxes to aid in the funding of the Environmental Services Department for reasons already outlined in this paragraph, we also do not support it on philosophical grounds. By its nature, a sales tax is regressive because it taxes all purchasers equally regardless of their ability to pay. As a consequence, it hurts those with lesser incomes more than those with larger incomes because their required use of their limited income to meet basic needs is further restricted. Additionally, it could work to impair the overall economic health of the Jefferson County as well because those with limited incomes would almost certainly have spent their money in Jefferson County anyway, but instead of recirculating their limited dollars in the local economy where it could benefit from the economic effect known as the multiplier, they would be removed from the economy to pay debt service.

The occupational tax and privilege licenses are another possible source of revenue, and we believe these areas to be much more justifiable sources of revenue to be generated in support of the operation of the Environmental Services Department because at least one of them tends to tax on the basis of one's ability to pay. Also, as noted earlier in this report, a recent study concerning the number who commute from out of county to work within Jefferson County showed that the number was substantial and growing. While possibly not using every service provided by the County on a continuous basis, these individuals do, nevertheless, have the opportunity to avail themselves of those services while within county boundaries. Based on occupational tax collection data for the fiscal year ended September 30, 2002, it appears that each 1/10 of 1 percent in the amount of the occupational tax would generate approximately $5.5 million in additional revenues. Both the matter of the revenues to be generated and the equity of the privilege license fee structure is considerably less obvious. A relationship between the amount required for a license and the income which one might earn as a result of being granted one by Jefferson County does not appear to exist. Unfortunately, because of the antiquated political structure under which the counties in this state must operate, little can be be done to correct this inequity.

Another source of revenue which should be considered is the ad valorem tax. While it would almost certainly be the most difficult to implement, it could be considered to be one of the most equitable sources of revenue because there is a very significant probability that those individuals living in Jefferson County who are not on the sewer system go to work in a location where sewer service is available. As a consequence, because the indirect benefit to them of the existence of the sewage system is, in our opinion, so substantial that there is justification for considering this tax as a source of revenues to be allocated to the Environmental Services Department. As with other sources of revenue, estimates of the revenue which might be earned from this source can only be estimated, but 1/10 of a mill produces approximately $525,000 in property tax revenues. This source of revenue is both progressive and can involve cost shifting. As noted earlier in this report, the greater the value of the property being taxed, the larger the amount of the tax to be paid, and, in most cases, those owning the more valuable properties have larger incomes and are better able to pay the additional tax. An additional benefit to the use of this approach is those paying the larger amount of tax tend to be the ones who itemize deductions on their state and federal income tax returns, and property taxes are generally deductible expense on their returns. As a consequence, except for the highest income earners, the real cost to the upper income tax payers is not 100 percent of the amount of the ad valorem tax increase but perhaps 20 to 40 percent less.

Finally, we believe that because the cost of sewer service is becoming so significant for some rate payers, there is a chance that it could become unaffordable by them. While the Commission has the responsibility taking actions necessary for sound fiscal management of its sewage system, it may also have a responsibility to provide help to those satisfying specific criteria in meeting the cost of their sewer service obligation. Should the Commission decide that this is an objective which it desires to meet, it must take the necessary action to implement a workable plan. We have noted earlier that we think that some of the criteria which should be met in administering such a plan, sometimes called a "lifeline" rate or credit, should include the attributes of applying only to essential usage, applying only to those who need economic assistance as determined by a quantifiable standard, be a plan which has adequate controls to ensure its manageability, be a plan which is affordable by the Commission, and that all users of the system should pay some amount, however nominal, for sewer service. Based on usage data provided to us by the Birmingham Water Works and Sewer Board, we were able to ascertain that essential usage for most residential users appears to approximate 400 cubic feet per month. The Commission must make the decision as to who qualifies for economic assistance, but, for example, we can assume that 10 percent of its residential rate base did qualify for a "lifeline" credit and were obliged to pay nothing for that quantity of service, it would currently cost the the Environmental Services Department possibly as $2.6 million in annual rate revenues. We do not recommend a blanket exemption from sewer fees at that level because the credit allowed must be something that the Commission can afford, and we feel that it is desirable both from the Commission's perspective and from that of the rate payer that everyone pay some amount for sewer service. Finally, the program must be manageable; that is, the Commission should know, at least annually, the amount of rate revenue given up by this plan, number of individuals qualifying for the credit, the quantity of wastewater not billed as a result of the implementation of the plan, and finally, that once granted, the exemption or credit remains only in the hands of those who truly deserve it. This final attribute can be achieved automatically largely through the assistance of computer programming. Qualifiers for the "lifeline" credit could and should be made to periodically requalify for the credit at intervals deemed appropriate by the Commission.

DRAFT

ANALYSIS
OF
SOURCES OF REVENUE

FOR THE
JEFFERSON COUNTY
ENVIRONMENTAL SERVICES DEPARTMENT

MARCH 13, 2003

PBK JOB NO. 02512

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March 13, 2003

Report to the Jefferson County Commission

The Commission faces a major challenge as it attempts to comply with the Consent Decree dated December 1996. The cost of compliance with that decree and cost of related Clean Water Act compliance projects has substantially exceeded original estimates, and it must now find a way to accomplish the task of amortizing the debt incurred in connection with meeting those goals.

For the fiscal year ended September 30, 2002, the Environmental Services Department earned revenues from all sources of approximately $116.5 million. However, in only slightly more than five years, using projected operating costs, annual debt service and required debt service coverage, it is estimated that the revenue requirements for operating that utility could approximate $248 million, assuming no significant savings due to a favorable debt refunding. This change will represent an increase in revenue requirements of almost 113 percent, and it presents a major problem in both debt management for the Commission and affordability by the rate payers. In view of the magnitude of the problem, the Commission has asked us to examine its current revenue sources and suggest alternatives, if any, for additional sources.

We have both consulted with other municipalities in the southeast on revenue sources and looked at other sources of revenue within Jefferson County, but we have found no material revenue sources that the Environmental Services is not already utilizing. On the matter of revenue sources available to other municipalities, our findings may be generally described as discovering that most have at least water and sewer services under the same management with water providing sewer operations with varying degrees of support, many have a much larger rate base over which to distribute revenue requirements, and all appear to have a lower amount of debt which must be amortized. Within Jefferson County itself, a number of sources of revenue have been identified, but we do not see them as major sources of support, and the Commission must also meet other currently pressing needs from them as well. Moreover, because changes in tax revenues are largely controlled by the state

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legislature, many of the material sources of revenue are beyond the Commission's direct influence.

Where resources may be available, we have separated them into three groups: immediate, intermediate and long term options. All of the options considered also assume no change in sewer rates and rate revenues as a result of a change in two possibly very influential factors, weather and price elasticity of demand, both of which are also beyond the Commission's control.

Among the factors which could be adjusted in the immediate term is an increase in what is currently termed "impact fees," industrial waste surcharges, other miscellaneous revenue items, a change in the Commission's policy on the residential discount allowance and private meters, a decrease in the rate of increase in Environmental Services Department's annual operating costs, but even very substantial changes those areas might not provide more than perhaps $20 million in additional revenues. Other changes which could make it possible for the Commission to acquire more new customers at minimal cost include the adoption of what is called a "benefitted property owner's agreement" with local developers, and/or the acquisition of nearby sewer systems which could benefit from the state of the art sewage treatment facilities which have been constructed in the last five years.

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The long term approach is, of course, to turn to federal government for assistance, but the prospect for substantially more funding through the U.S. Environmental Protection Agency ("EPA") funding is not currently very strong. There is, however, ground swell support growing for the creation of a national environmental trust fund which would be funded from specific "green" taxes and operate much like the highway trust fund currently does. While clearly not an immediate option, it should be kept in mind that Jefferson County's debt will be amortized over a 40-year period, so it may be advisable for the Commission to look ahead toward what might be achieved in future years through this potential funding vehicle. The proposal is discussed briefly in the body of the report and in considerably more detail in the Appendix.

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Regardless of the source from which the needed revenues must ultimately arise, they will have to be generated, and the plan for generating them cannot be popular with any of those who will be affected by an increase in taxes or user fees. Nevertheless, when the alternative of obtaining revenues through a plan over which the Commission has some control is compared with the action of a receiver should the system go into default, there can be little question as to which course of action is preferable. There can also no debate about the urgency for action; this is not a matter on which action can be long deferred without serious consequences.

We appreciate the opportunity to serve the Commission on this matter, and we are available for a more detailed discussion of the issues at its convenience.

Paul B. Krebs & Associates, Inc.

Case 11-05736-TBB9 Doc 2214-35 Filed 11/15/13 Entered 11/15/13 12:18:10 Desc C.344_Part86 Page 1 of 12

A. INTRODUCTION

The matter of the Jefferson County sewer system and its compliance with the provisions of the Clean Water Act of 1972, as amended has it roots in a partial summary judgement in favor of the plaintiffs (United States Environmental Protection Agency("EPA"), R. Allen Kipp et al. and the Cahaba River Society, Inc.) by the United States District Court, Northern District of Alabama, Southern Division against the defendant (Jefferson County) on January 20, 1995. In that decision the court found Jefferson County and its sewer system in violation of the Clean Water Act, and it directed the parties to the suit to immediately engage in settlement discussions which would result in a solution satisfactory to the court. The parties to the dispute ultimately reached agreement on the terms of the settlement, and those terms were reflected in what is now known as the "Consent Decree" which was approved and entered by the District Court on December 9, 1996.

As a consequence of the entering of the Consent Decree, the County's Environmental Services Department was obliged to resolve the problem to the satisfaction of the court and the plaintiff in a period not to exceed twelve years from the date of the entry of the Consent Decree. The plan for resolution of the problem involved three steps or phases: (1) investigation and planning, (2) design of solutions, and (3) implementation of solutions. The Consent Decree also provided for penalties which could be assessed against Jefferson County if it failed to meet, for reasons within its control, specified time benchmarks for submitting to EPA progress reports on its movement toward compliance with the decree.

The significance of the terms of the Consent Decree should not be overlooked. Although Jefferson County was obliged to enter into the Consent Decree as a result of the partial summary judgement rendered in January 1995, it had only a rudimentary understanding of the extent of the undertaking which it was about to begin. In essence, an agreement to comply with the terms of the Consent Decree with little more than a very broad estimate of what it might cost to identify and then fix the problems alleged in the Consent Decree meant that the County's sewer rate payers were about to become at risk through their sewer rates for what would prove to be a very substantial debt obligation. The County had already spent nearly $97 million on essential sewer improvements before the Consent Decree became effective, but it would be years before it would discover that the actual cost of the remedial program specified in the Consent Decree could exceed $2 billion. It would also later find that it needed an additional $600 million to construct still other projects that would be required by the Clean Water Act.

In reviewing its plans for improvements as the investigative work developed, the professional staff of the County's Environmental Services Department also began to consider where it might be desirable to expand the existing sewer system to accommodate new connections thereto. Subsequent estimates of the projected construction costs for expansion improvements varied as projects were added to or deleted from the list of desired projects, but the most recent estimate reflected in the Official Statement for the Series 2002-D debt offering places that number at $532 million.

When the costs of all of these estimates are summarized, it can be projected that total spending requirements could exceed $3.2 billion. This amount, however, does not reflect the total amount of debt which would have to be incurred to meet the projected construction cost requirements. To the $3.2 billion number it would be necessary to add the various debt funding requirements and the costs associated with the issuance of the debt required to finance the proposed improvements, so it is reasonable to make the assumption that Jefferson County's debt could actually exceed $3.5 billion.

Jefferson County is, unfortunately, not blessed with a large rate base over which it can distribute the cost of financing the proposed improvements, and its growth rate in terms of new accounts and usage is, at best, minimal. Therefore, the cost of compliance will fall largely on today's customers. Even with the reduction in capital spending plans currently contemplated, the load projected is to fall increasingly heavily on the existing customers of the system.

1. Impending Revenue Requirements

In an attempt to assess the magnitude of the challenge facing Jefferson County, one needs only compare what is required of the County in the way of cash requirements today with those of four years from now. The starting point is the current cash needs of the Environmental Services Department at the end of the County's most recent fiscal year. For the fiscal year ending September 30, 2002, unaudited operating expenses were approximately $47 million, while debt service was slightly more than $78 million. Collectively, these two requirements amounted to approximately $125 million. By the end of the fiscal year ending September 30, 2006, however, it is projected that operating expenses will be in excess of $64 million, and annual debt service will be almost $150 million per year. When these two requirements are summed, the result is $214 million, or more than 70 percent more than is required today. Beyond 2006 still larger requirements will exist. Starting in the fiscal year ending September 30, 2007, the bond indenture under which the Environmental Services Department must operate will require that rates not only cover the operating expenses for the year, but also 105 percent of what is called the country. In a period of less than five years it is projected that, in the absence of significant change, the Jefferson County residential customerwho averages using 1,000 per month can expect to pay almost $800 for sewer service annually. We are not aware of a more current source of per capita personal disposable income, but from data which is available it appears that per capita personal income in Jefferson County has been rising at a rate of about 4.25 percent annually for the last five years. Extrapolating Jefferson County per capita income data out to 2006 from the year 2000, which is the most recent year for which it is available, produces an annual per capita income number of approximately $38,377. If this per capita personal income forecast proves true, then it can be calculated that the average residential customer's annual sewer bill will constitute slightly more than two percent of his per capita personal income for that period. There is an EPA study which suggests that the two percent number is the limit for what is an acceptable amount to pay for sewer service, but we believe that this number is significant for a number of other reasons.

First, we have assumed that per capita personal income will continue to grow at the same rate that it did through the second half of the last decade. While this is an assumption based on a historical trend, it is not necessarily a valid one since the national economy has struggled considerably during the last several years, and Jefferson County has certainly been a part of that struggle. On the other hand, because the debt service schedule for the Environmental Services Department is essentially fixed and operating expenses are projected to rise between four and five percent per year, it is a relatively safe to assume that the projected average bill will approximate the actual one in 2006. Therefore, the probability is that the amount of money which the average residential consumer may have to dedicate to his sewer bill in 2006 ($799) could easily exceed the two percent of per capita personal income forecast.

Second, while the extrapolation just completed assumes that the usage in the rate base does not grow, it also assumes that it does not shrink either. The latter is, unfortunately, less valid than the former because the influence of the factor of price elasticity of demand will almost certainly begin to have an increasing effect, and conservation at some level will set in for all types of customers. This can be a particularly vexing problem at the commercial or industrial level because a business more so than a residential customer can be expected to more quickly begin to consider methods for controlling utilities costs. If that happens, the rate base could decline in size and causing rates to rise even faster than currently projected. To put the possible exposure to a reduction in the sewer rate base in perspective, it should be remembered that more than 58 percent of the billable sewer usage comes from commercial and industrial usage.

Third, and perhaps most critical from the residential perspective, it is, in our opinion, essential that the County remember that it is not in direct control of the sewer billing. As a result, it cannot cut off sewer service for nonpayment by a customer. The entities through which the County collects its sewer user fees should properly cut off water and sewer service when a nonpayment condition occurs, but there is an excellent chance that in a difficult environment, this may not actually occur. While it is possible and quite probable that the County could eventually recover the past due amounts through its lien procedure, there is an excellent chance that a significant number of delinquencies resulting in liens could result in a cashflow timing problem which could create real difficulties. Equally important from the psychological perspective, if water and sewer service is not cut off when nonpayment of sewer service occurs and the customer continues to get sewer service, the stage could be set for creating the impression in the mind of the delinquent account that it is not necessary to pay the sewer bill to have the service. It is our opinion that this condition must be avoided if at all possible because this environment could lay the groundwork for the possible financial collapse of the sewer system.

B. EXISTING SOURCES OF REVENUE

For those unfamiliar with the revenue sources of the Environmental Services Department, perhaps the best way to identify each and illustrate its relative importance is to provide the Commission with the a statement of each revenue source for the most recent fiscal year and compare that with the projected revenue from that source in the fiscal year ending September 30, 2006. This comparison will provide an overview of what currently must change to meet the revenue requirements set forth in the bond indenture in less than four years. This comparison may be seen in the following table which follows:

	(000s omitted)	
Sources of Revenue	**09/30/02**	**09/30/06**
	(unaudited)	(projected)
Sewer user fees	$82,859	$178,054
Impact fees	3,671	3,974
Ad valorem taxes	3,075	4,125
Waste surcharges	1,907	2,064
Interest income	23,487	12,173
Miscellaneous	1,492	1,044
Totals	$116,491	$201,434

The above table clearly illustrates the burden projected on user fees as a revenue source. They are projected to rise from their current percentage of total revenues of 71 percent to more than 88 percent in only four years. There are a number of reasons for this change, but the most obvious one is that the amount charged for user fees can be changed more readily than the others, and it is the one over which the County has the most control. We believe that other municipalities in the southeast face similar, though not as severe, increases in user fee rates over the period cited in the above table, but their problem is mitigated either by the fact that they have a considerably larger rate base over which to distribute the cost of compliance, or because they have another utility other than sewer which can be used to assist in carrying that burden.

1. User Fees

The format of the County's user fee structure has not changed since its creation. It has always had a very nominal minimum charge with the basis for the monthly bill being essentially a volumetric charge per hundred cubic feet. It complies with Section 204(b)(1)(A) of the Federal Water Pollution Control Act of 1972, as amended, and was specified as a condition for qualifying for United States Environmental Protection Agency grants or state revolving loan (SRF) financing of proposed wastewater improvements. Residential customers are given a discount or allowance equal to fifteen percent of the amount of water consumed before the sewer bill is computed. Prior to 1983, the volumetric rate was fairly inconsequential at $.49 per hundred cubic feet. In 1983 it doubled to $.98 where it remained for almost ten years. Starting in 1992, however, the rate increased to $1.15 per hundred cubic feet, and since that date, it increased at least annually to a point where the volumetric rate now stands at $4.90 per hundred cubic feet. It is projected to rise to $7.83 per hundred cubic feet by January 1, 2006.

User fee rate structures employed by other municipalities throughout the southeast vary considerably. Some have a billable summer usage amount which cannot exceed a certain percentage or multiple of the winter usage, some define the winter and summer base periods differently, some have a cap on the amount of gallons or cubic feet for which a residential customer can be charged but make up for it by setting a very substantial base charge which is charged regardless of usage, some have what a second or private meter system whereby non-domestic usage such as car washing and lawn maintenance is billed through a separate water meter, and there are many other variations in the methodology for setting rates for sewer service. In the final analysis, however, revenues must be generated from some source(s) in amounts adequate to fund the operation of the sewer system and to amortize the debt incurred to construct wastewater facilities required for the system.

As noted in an earlier paragraph, Jefferson County uses a volumetric rate structure which is applied to residential water usage after that amount has been decreased by fifteen percent in an attempt to make an allowance for non-domestic usage. However, the County also permits the use of second or private meters which the customer can have installed at his own expense. If the customer elects to have a second or private meter installed, then he or she is not eligible for the fifteen percent discount. The meter itself is usually located at a site behind the household or primary meter so that the Birmingham Water Works and Sewer Board, the City of Bessemer, or any one of the other small systems which provide billing data to Jefferson County reads only one meter. It is the responsibility of the individual who has the second meter to read that meter and then present that reading to the appropriate individual at Jefferson County for credit against his or her sewer bill. The number of private meters, while not yet large, has been growing rapidly in recent years. In 1998 there were only about 4,450 of them, but four years later that number had grown to nearly 8,200. The increase of 3,750 meters in four years represents a compound growth rate of more than 16 percent per year. At the current rate, this means that fully ten percent of the County's customer base will have private meters in less than five years from today's date, and this rate may accelerate if the proposed user fees are actually implemented on the schedule proposed in the Revenue Forecast which was the basis for the Commission's most recent debt offering (Series 2002-D). This trend will not help growth in the billable sewer volume, and it is our opinion that the County must move quickly to make this practice less attractive to the customer.

It is also our opinion that it may be possible to change the form of the existing rate structure somewhat, but the rate base itself is too small to accommodate any significant reduction in overall rate revenues. Additionally, there is the matter making certain that any changes made do not cause a conflict in the definition of System Revenues as set forth in the controlling bond indenture governing the Commission's management of its sewer debt. As a consequence, we believe that the adoption of the concept of a "lifeline" credit for those with low and/or fixed incomes must seek a funding source from other than from rate revenues.

2. Impact Fees

The term "impact fee" in one which apparently has unfavorable political and legal considerations, possibly because there may have been some court rulings against such fees where they had been improperly established and neither a rational nor a constitutional nexus for them could be proven. As a result, one of the first suggestions which we would make to the Commission would be to change the name of this source of revenue to one which more appropriately reflects what the charge is intended to achieve. We doubt that a legal challenge of any substance could be mounted purely based on the title assigned to the fee charged, but there is no reason for taking unnecessary risks.

The impact fee structure in Jefferson County has been in place since 1977, and it has been generally based on the number of plumbing fixtures in a new connection since 1980. In its current form (since 1983), it generally provides for a charge of $100 per plumbing fixture, and while that methodology employed is one of the four generally accepted ways of assessing this fee, the equity of the charge has almost certainly not kept pace with the County's changing cost of providing sewer service.

For the most recent fiscal year, impact fee revenues amounted to $3.67 million or slightly more than three percent of system revenues. In many systems it is not a source of revenue at all, and that is as it should be. Upon closer inspection, analysis of the basis for an impact fee or system development charge will reveal that it is not actually a source of revenue, but is instead more properly a recoupment by the system of the cost of the capacity for new growth financed by the existing rate payers. The nature of the revenue bond which is the basis for virtually all enterprise fund financing requires that new debt can only be financed when its orderly retirement can be assured through the imposition of user fees on the existing rate base. Said another way, revenue bond debt generally cannot be financed based on assumptions about future customers which may or may not materialize. However, because proper engineering design mandates that facilities be constructed to meet the needs of not only current customers but those who can reasonably expect to connect to the system over a future period (usually 20 years), it only follows that the existing customers must initially underwrite their needs as well as those who will connect over that period. Therefore, a properly computed system development charge is actually a recoupment of that cost of capacity for growth financed by the rate base in existence at the time the financing is undertaken. Moreover, although a revenue source, this item is not generally considered as funds generated for normal operating purposes. In theory, revenues received from this source are perceived as being set aside to be used only for construction of smaller capital improvements which might otherwise have only been realized through funds generated by additional rate increases. Many states such as Florida require that funds earned from this source be physically segregated from normal operating revenues and used only for the purpose cited in the preceding sentence. However, Jefferson County cannot afford to give up any source of revenue, and, as a consequence, cannot consider this course of action.

3. Ad Valorem Taxes

Since 1901 Jefferson County has allocated ad valorem taxes to the operation of its sanitary sewer system. The current rate is .7 mills and is applied to both real and personal property. To the best of our knowledge, this rate has been in force since

1981. This practice is not inconsistent with that in effect in a number of communities throughout the country. In fact, prior to the passage of the Clean Water Act of 1972, the use of ad valorem taxes to fund both construction and the operation of sanitary sewer systems was probably characteristic of most municipalities. However, with the advent of grant funding from the U. S. Environmental Protection Agency also came the requirement that user fees, rather than ad valorem taxes, be the primary source of funding for sanitary sewer operations. The .7 mills allocation has generated revenues which have ranged between $2 and $4.5 million over the past five years, and that should change very little in future years so long as the amount of mills allocated to that entity does not change. It should also be kept in mind that while revenues from ad valorem taxes allocable to sewer operations may be counted for purposes of debt service coverage, they cannot be pledged toward the payment of the debt service itself. This source of revenue is not normally found among the revenue sources of many of the municipal water and sewer utilities in the southeast. However, it should also be noted that the inclusion of the ad valorem revenues does not represent a distortion in the County's rates when compared with other municipalities in the southeast. On the contrary, the County's sewer rates appear to be higher than those of many other municipalities only because it has only the sewer utility with which to generate revenues. In other municipalities where both the water and sewer utilities are managed by a single entity, it is fairly common to have revenues from the water utility help meet the revenue requirements attributable to the operation of its sewer system. The net result of this practice by other utilities is to make the Jefferson County's rates appear to be higher than comparable sewer rates for other municipalities when, in fact, they might not be significantly higher if the municipalities with which the County is being compared put in force rates which truly reflected the cost of providing sewer service.

4. Industrial Waste Surcharges

For the year ended September 30, 2002, waste surcharges were $1.91 million, up from $1.68 million in the preceding fiscal year. The amount of industrial waste surcharge revenue has changed very little over the last five years, ranging from about $1.4 to $1.9 million and accounting for perhaps 1½ to 2 percent of system revenues. The application of a waste surcharge to special wastes is a practice followed by virtually all systems. In fact, if a municipality was fortunate enough to obtain grant funds from the U. S. Environmental Protection Agency back in the days when grant funds were available, that agency required that a municipality adopt a sewer use ordinance which specifically provided for the charging of a surcharge or a premium above the regular rate for what might be called "special" wastes. These "special" wastes were virtually all commercial or industrial wastes.

Generally speaking, where the character of the sewage, water or waste from a manufacturing or industrial plant, business or commercial location, building or premises has the chemical oxygen demand of more than a specified number of parts per million by weight or contains more than a similarly specified number of parts per million by weight of suspended solids, or both, and the sewage, water or waste are accepted into the sewage system for treatment, the discharger is obliged to pay to the publically operated treatment works ("POTW") a rate, fee, or charge designated as a surcharge. In most cases, the municipality has the right to deny the discharger treatment capacity based on its determination that the organic loading is above one, both, or a combination of the limits set by it and where it determines that their existence will hamper or reduce the operating effectiveness of its treatment facility. This charge is in addition to the normal or natural sewer rate.

In Jefferson County's case, the surcharge amounts for amounts received above the maximum allowable loading per pound may be generally described as being $.195 for Biochemical Oxygen Demand ("BOD"); $.195 for Chemical Oxygen Demand ("COD"); $.30 for Total Suspended Solids ("TSS"); $.10 for Fats, Oil and Grease; and $2.00 for Total Phosphorus. These fees are graduated based on the amount of loading and have been in effect since January 2003. Other municipalities around the southeast appear to have roughly similar levels at which surcharges apply, but the methodology for gathering the data required to assess the amount of a possible surcharge varies from municipality to municipality. Some have the customer submit the data while still others assume the responsibility for sampling.

5. Interest Income

For the fiscal year ended September 30, 2002 interest income was approximately $23.5 million. This constituted approximately 20 percent of total system revenues, but this number will decrease to about $12 million in less than next two years as the Construction Fund is depleted. After the Construction Fund has been completely exhausted, all interest earnings will come only from the Prior Years Surplus and Debt Service Reserve Funds which are effectively impressed funds where principal amounts cannot be touched unless the Commission does not have sufficient funds to amortize its debt according to the schedule specified. The ability to count Construction Fund interest toward coverage of debt service is somewhat unusual because it is not permitted in every bond indenture due to its nonrecurring nature, so the Commission was very fortunate that its professional staff, its bond counsel, its underwriter's counsel and the initial underwriters were able to make it count in that calculation. Had the Commission not been able to count Construction Fund interest, sewer rates would have risen much faster than they have, but that source of revenue is now gone and will not be available again unless the County again enters the bond market.

6. Miscellaneous Revenues

Revenues from this source accounted for approximately $1.5 million of the $116.5 million which the Environmental Services Department earned in the fiscal year ending September 30, 2002. Revenues in this group include sanitation charges, septic tank dumpings, developer assessments, delinquency fees, recovery of charged off balances, inspection fees, other sanitation charges and still other smaller sources of revenue. Septic tank dumping revenue is usually the largest single item in this group. The Commission currently charges a fee equivalent to $22.50 per hundred cubic feet of sewage for this service.

7. Summary

The previous pages in this section have briefly discussed the current sources of revenue for the Environmental Services Department and their overall role in its operation. As noted in the introduction to this section, the reliance on rate revenues is very substantial, and it is projected that they will constitute almost 90 percent of total system revenues in less than four years. This is perceived as inequitable by many of the current rate payers, and there is, in our opinion, a real possibility that many of those rate payers, particularly those with lesser incomes, could simply stop paying their sewer bill because of that perception. Jefferson County cannot afford for this to occur, and it must find a way to broaden citizen participation in financing what has essentially been a rebuilding of almost all of its sewer system. Some inequities do exist in some of the current fees and charges employed by the Environmental Services Department, but correction of them, while philosophically appealing, will do little to reduce the burden of the rate payers. Another revenue solution must be found.

C. ADDITIONAL SOURCES OF REVENUE

It cannot be mentioned too often that the next four years are extremely important ones for the Commission in the management of its Environmental Services Department. During that period sewer rates are scheduled to rise almost 60 percent from their current levels, and the occurrence of that event is likely to elicit actions ranging from public protest to refusal to pay for service. For those reasons and the fact that the Commission will be needing almost $215 million annually by 2006 to operate the Environmental Services Department, additional revenues must be found. In pursuing a broader base over which to spread the cost of providing sewer service, however, it must also be kept in mind that it is equally important to keep current customers of the system paying for that service, for if it is perceived by any customer that it is acceptable conduct not to pay his or her sewer bill, then the problem could quickly reach very serious proportions. If the reader accepts the premise that some customers may reach a point where they feel that they do not have the resources to pay and can rationalize that nonpayment is acceptable because the current user fee structure is inequitable, then it is becomes increasingly necessary for the Commission to consider development of what is commonly termed a "lifeline" credit for those customers to ensure their continued participation as customers of the system. We believe that some participation by all customers in underwriting the cost of the sewer system is essential, both economically and philosophically.

The preceding paragraph touched on the need for development of a "lifeline" credit for those who may not have the income necessary to pay the full cost of sewer service, but it should not be forgotten that the real focus of this study is on the possible new sources of revenue which will be needed to meet demands less than four years away. In the preceding paragraph mention was made of broadening the base from which revenue to support the sewer system might be obtained. It should be clearly understood that additional source of revenues will be mandatory if a "lifeline" credit is to be seriously contemplated because, by its nature, that concept must either require a supplement to system revenues or result in a decrease of them. It has already been established that system revenues must rise an estimated 60 percent or more in less than four years to meet its minimum revenue requirements, so any plan which results in a reduction of rate revenues cannot be a part of any viable plan to meet this goal. While it may be possible to adopt and implement a responsible "lifeline" credit plan, it must be recognized this can only be done if some revenue source supplement can be found to meet needs arising from such a plan. The possible revenue sources to meet projected needs can be roughly grouped into three classes: (1) immediate options, (2) intermediate term options, and (3) long term options.

For immediate consideration are other operating revenues of the system and expanding of the customer base by serving more customers already in the system's service area through new connections or through acquisition of nearby systems. We also believe that the County's "impact fee" system is very much in need of updating. Similar action may also be needed for commercial/industrial waste surcharges and septic tank dumping or tipping fees. Unfortunately, these revenue sources are comparatively small, and even substantial changes to them will not generate a significant amount of additional system revenue. The opportunity to expand the customer base by serving more customers with the system's service area also does not appear to be a viable option in light of the Commission's position on that subject as evidenced by its ruling in 2002 on the Cahaba River Trunk Sewer, but its position on acquisitions has not yet been defined. Because it has essentially new state of the art sewage treatment facilities with ample capacity, Jefferson County is in a position to offer excellent service to any surrounding systems wishing to become a part of its system. Other areas which could merit review include modifying the residential discount allowance and managing growth in operating expenses differently.

For the intermediate term, we are aware of only three possibilities: (1) an increase in the sales tax rate with an amount allocable to the Environmental Services Department, (2) an increase in the occupational tax rate with a similar allocation to that area, or (3) an increase in the amount of ad valorem taxes with a greater allocation to Environmental Services Department operations. None of these approaches are desirable, but it is our opinion that one or some are more desirable than the others. Yet other questions which must be asked are how much can possibly be gotten from these areas, and what is the rationale for selection of one possible source over another?

For the long term, a national movement is getting underway which supports the creation of an environmental trust fund which would operate in a manner similar to that of the highway trust fund in that it would be funded from specific related sources, and the user fees or taxes collected could only be used to provide funding for environmental needs. The EPA Clean Water and Drinking Water Infrastructure Gap Analysis Report issued in September 2002, states in part: "Estimates for capital needs for clean water from 2000 to 2019 range from $331 billion to $450 billion...." This estimate does not address drinking water needs. A number of bills supporting water and wastewater funding made it to various levels in the 107th Congress, but more pressure is needed from the local level to push needed legislation through to fruition. Sources of tax revenue for this fund would include taxing bottled water, boat motor fuel, water recreation site user fees, and "green fees" on products such as toilet paper, cooking oils, photo chemicals, detergents, paints, drain cleaners and other related products. This idea may take years to develop, but Jefferson County is faced with substantial annual debt service for the next 40 years, so there is an excellent chance that its problem will still exist when and/or if an environmental trust fund does become a significant source of funds in the future. A brief summary of the proposed plan is contained in Exhibit A of the Appendix and is entitled A National Trust Fund for Clean and Safe Water Infrastructure Investment along with the name of a contact person responsible for the preparation of the discussion paper. However, on a more regional basis, if the Commission determines that the concept is worth pursuing, it is suggested that it contact Mr. Billy G. Turner, President of the Columbus Water Works, in Columbus, Georgia. Mr. Turner is the chief executive officer for the water and sewer system for the City of Columbus, Georgia, and he has been active in an established lobbying effort supporting this plan for sometime now, so he is very knowledgeable on the subject.

1. Immediate Options

System Additions and/or Acquisitions

There has been some discussion earlier in this report on the granting of a type of "lifeline" credit to some customers of the sewer system as rates move higher, but it does not seem logical to assume that the revenues to finance such an idea could be generated by raising rates or user fees to an even higher level for the remaining customers to accommodate such a plan. Therefore, additional revenues will have to be gotten from other sources. Within the operating framework of the Environmental Services Department there are two areas which offer some promise of additional revenue.

The first of these is expansion of the system to serve new customers or acquisition of nearby sewer systems. The expansion route was largely eliminated with the decision to terminate development of the Cahaba River Trunk Sewer which was generally perceived as having possibly the largest potential for serving new growth areas. It is our understanding that Jefferson County has focused all of its efforts and resources on meeting the terms of the Consent Decree, and there will be no funds available for expansion projects for a number of years.

While obviously not as desirable from a developer's perspective, there is another way in which expansion into new areas may be achieved where the developer's financial resources are sufficient to address this methodology. Specifically, assuming that there are no legal impediments to doing so, a municipality and a developer may wish to consider entering into an agreement which goes by various names but in this report will be termed a "benefitted property owner's agreement." Under this arrangement, also assuming that the County's requisite engineering standards can be met, the municipality and the developer enter into an agreement wherein the developer agrees to construct or have constructed, at his expense, sewer line extensions and associated appurtenances to serve a specific area. In return, the municipality agrees to accept ownership of the improvements and maintain them upon completion of construction, and in exchange for the financing by the developer, the municipality gives the developer the right to recover all system connection fees realized from the project to the extent of the cost which he incurred for County approved sewer construction associated with his development for a period of time but usually for no more than ten years.

For example, assume that a developer must spend $1,000,000 to construct an 8" sewer line extension from the existing system to his subdivision. Assume also that the municipality's system development charge for a standard residential connection to its sewer system is $2,500. An 8" sewer line flowing at an average of 50% of capacity can accommodate almost 200,000 gallons daily. A flow of 50% should be assumed to be the optimum configuration (100% utilization) for a number of reasons which are discussed in more detail in Exhibit B of the Appendix. The average residential unit, sometimes called the equivalent residential unit ("ERU") can be expected to create a daily demand of between 200 and 250 gallons per day ("GPD") on the system. Assuming an average daily flow per residential connection of perhaps 250 gallons, it is a relatively simple matter to determine that the sewer line which the developer has caused to be installed can accommodate approximately 800 connections (200,000/250). Under the benefitted property owners agreement, the developer would recover the connection fees associated with the first 400 units ($1,000,000/$2,500), and the Environmental Services Department would receive all fees earned as the remaining 400 connections are made.

The disadvantage to the developer is that he would be obliged to provide the up front financing for the sewer line extension. However, if, in fact, his project was as promising as he believed it to be, he could recover his cost in ten years or less. He would, however, be out the financing cost for the work, and that could be substantial. If, for example, the cost of the sewer line extension cited in the preceding paragraph had to be financed at 7%, and the project built out the first 400 units at a rate of 80 units per year for five years, then the interest cost to the developer would be approximately $210,000. The actual cost to him would be less, of course, because of tax and timing considerations, but the gross $210,000 figure is used for purposes of illustration. Nevertheless, the point to be made is that there are ways to accommodate development even if the Environmental Services Department has limited funds for growth. Assuming that this approach could be developed to meet all related legal requirements, the Environmental Services Department could benefit considerably from such an arrangement. While it would be giving up the system development charge fees earned on the first 400 residential units constructed, it would not only gain a sewer line of that value, but also another $1,000,000 in fees when the development was fully built out. Additionally, each new connection to the system currently represents a future income stream whose present value can be computed to be approximately $6,311. This calculation assumes a Jefferson County cost of capital of 5%, an average usage of 1,000 cubic feet per month (before the residential discount) at the current rate, and an account life cycle of 20 years.

The example provided in the preceding paragraphs is but one approach to meeting needs where the municipality does not have the capital to meet them using traditional methods. There could undoubtedly be a number of variations which could be tailored to facilitate developer-municipality participation in growth. The critical component in a proposal such as this one is that both Jefferson County and the developer know what their respective costs actually are before going into such an arrangement. If a developer does not know what his costs are and the project does not build out on the desired schedule, he could face severe financial pain and possibly bankruptcy. Jefferson County could also suffer if it did not know its costs. If it has underpriced the value of a new connection to its system, the shortfall must be made up by the rate payers who actually have no obligation to finance that new growth. Conversely, if it overprices the value of that connection, it not only discourages new development in its service area, it also could also risk being charged with denying the developer beneficial use of his property and cause a law suit to be initiated against Jefferson County which could be very costly.

The second approach involves acquisition of those systems from surrounding municipalities which might fall within the current service area of the Environmental Services Department. As a result of efforts at compliance with the Consent Order, the Commission now has state of the art waste treatment facilities which have an ample supply of reserve capacity with which to meet future demand. Therefore, if it can acquire the system of a nearby municipality with the minimum change to its system and requiring a minimum cash outlay, the additional usage might enable it to better serve the acquired customers at a competitive price while possibly holding down the extent of the projected rate increases which it must currently envision. This course of action would be even more attractive if the acquired system itself had growth potential. Of course, the ultimate purchase price of the system considered for acquisition and any necessary system upgrades would prove to be the deciding factors in making any determination.

Changing the Residential Discount Allowance

A residential customer is currently allowed a discount of 15 percent on his or her water usage to compensate for what is considered to be an allowance for non-sanitary sewer usage. The use of the discount allowance has been in force for many years, apparently since 1972. One method of increasing revenues for the Environmental Services Department would be to reduce the amount of discount allowed, but this approach could meet with considerable public opposition because it has been in effect for many years. Nevertheless, its value as a potential revenue source should not be overlooked. Based on the computer rate models developed for use in the Revenue Forecast for the Series 2002-D sewer debt offering, at the current rate ($4.90 per ccf) each one percent decrease in the amount of the residential allowance should produce additional rate revenues of approximately $526,000, all other things being equal. Obviously, as rates rise, the amount of additional revenue generated by this change will also rise, although possibly not in a linear relationship due to the influence of future prices on conservation efforts.

Reducing the Rate of Growth in Operating Expenses

Although the focus of this report is on sources of revenue, it must be recognized that reduction in the rate of growth of operating (O & M) expenses could also be a factor in holding down the increase in sewer rates. For those unfamiliar with the process of rate setting it may be worth noting that the components of the revenue requirements which the governing bond indenture mandates will be met generally include three things: (1) operating expenses, (2) annual debt service, and (3) required debt service coverage. The second and third factors are largely fixed and beyond the Commission's control, but the first one is not is not nearly as fixed. However, the Commission should be aware of the fact that its facilities must be operated correctly to remain in compliance with the standards set by the Environmental Protection Agency. Moreover, some of the expenses in the operating group are not variable, so the ability of the Commission to impact these factors is substantially limited. Nevertheless, it should be aware of how significant expenses in this area actually are. For the fiscal year ending September 30, 2003, operating expenses are budgeted at approximately $56.6 million, and they are projected to rise at a rate of 4.5 percent annually. The reduction in the growth rate of this expense of one percent, at current expenditure level, would obviously free up $566,000 to be applied to debt service and debt coverage.

As noted in the preceding paragraph, the primary focus of this report has been on sources of revenue. However, from a management perspective, it may also be beneficial for the Commission to expand its thinking from purely a perspective on sewer rates which is expressed in hundred cubic feet (ccf) to one which looks at costs in that same manner as well. For example, to perhaps better judge how the Environmental Services Department is managing its costs, it might be informative to know what the cost per ccf both processed and sold was to operate its nine wastewater treatment plants each year, what the costs per ccf were to operate and maintain its collection system, what the costs per ccf were to handle annual debt service and debt service coverage, and so on. Costs should also be reflected as controllable or uncontrollable. It might also be worthwhile for the Environmental Services Department to prepare an annual report on its operations. The report could start as a brief summary of operations reflecting not only the annual financial information in the form which it is normally seen, but also other qualitative and quantitative information that would be useful to the Commission. Such information might include number of employees, number of new connections to the system, number of deletions from the system, significant events occurring during the year such as major projects undertaken, important regulatory changes implemented, wastewater treatment plant capacity and utilization, and similar matters. Such information could ultimately be presented in a manner which would enable the Commission to see trends developing so that they would not be surprised by future events when they did occur. Developing information on a per unit basis is certainly nothing new in business practice, and it can be a valuable aid in comprehending how effectively a business unit is operating, especially when compared with looking at a single number such as the $56.6 million operating budget figure.

Update of/or Adjustment in Other Operating Revenues

The Commission has historically relied on rate revenues as its principal source of funding for the upgrading or expanding of its sewer system, and this is clearly reflected in the fact that by 2006, it is projected that 88 percent of all system revenues will come from rate revenues. It is obvious that rate revenues will continue to bear the very substantial burden of financing the operation of the Environmental Services Department, but charges for other sewer services are, in our opinion, much in need of updating. While not large in amount, consideration should be given to making certain that the charges for those services reflect the true cost of providing them. Focus here should be directed to impact fees, waste surcharges, and septic dumping fees. Of the three, the impact or system development charge fees may be in most need of updating. Last changed in 1983, the Jefferson County impact fee may be generally described as a connection charge to the system of $100 per plumbing fixture. The philosophy of such a system is good in that it tends to charge a new connection to the system in some relation to its potential for utilizing the system; that is, one would logically expect a hotel to make a larger demand on the sewer system than a "starter" home. However, the current fee structure also assumes that the $100 per plumbing fixture charge properly reflects the cost of the capacity given up and which has been financed by the existing rate payers. Clearly, the $100 charge probably does not do this because it has been in force for 20 years without change, and there can be little doubt that the cost of improvements made to the system during that period have made that charge inappropriate.

When moving to update or establish what should properly be termed a "system development charge" instead of an "impact" fee, it is recommended that the Commission do so as quickly and as prudently as possible. The reasons for doing so are several. First, the name of the fee charged should be changed to both comply with Alabama law and to properly reflect its actual purpose. The objective of the imposing such a fee is to encourage the responsible development of the Commission's sewer system in a manner which treats equitably both those who currently use the system and those who may use it at some future date. Modification of the system development charge system currently in place should have objectivity as its first criteria; that is, the charge per plumbing fixture, if that is the basis on which the fee is to be set, should have a proven and objectively determined basis. While in our opinion there is not a problem in Jefferson County with its current fee structure, the imposition of such a fee on an arbitrary basis has been challenged in court elsewhere in the United States as a device for denying the property owner beneficial use of his property. In some cases the result has been that the courts have determined that the charge was not, in fact, a fee but an unauthorized tax and therefore refundable. This is not a very desirable outcome.

We believe that the appropriate charge for a new connection to the sewer system in Jefferson County should be as much as two to four times higher than currently called for by the existing fee structure. As almost everyone knows, since 1997, Jefferson County has incurred more than $3 billion in debt to upgrade and expand its sewer system, and that debt burden has been largely borne by the existing rate payers. However, during that period, the system development charge fee structure has not changed to reflect the increase in value of a connection to the sewer system. Admittedly, a considerable portion of the improvements made to the system were done on behalf of the existing customer base to bring it up operating standards set by the Environmental Protection Agency, but those improvements benefit not only the current customers of the system, but future connections to the system as well. Although design standards may differ slightly depending on the nature of the project being added or improved, it is generally recognized that engineering improvements planned are designed to meet the needs of the existing sewer customers plus the anticipated new growth for the next 20 years or more. Unfortunately for the existing customer base, it is the nature of revenue bond financing that funds can only be borrowed based on the capacity of the current rate base to amortize the debt. As a consequence, it should become readily recognizable that the cost of improvements to a sewer system is initially borne by the existing customers, and, as a consequence, a properly constructed system development charge fee structure simply represents the equitable recoupment on behalf of those rate payers of the cost of providing that capacity.

Even though there can be no disputing the need for an updating of the system development charge fees currently used by the Environmental Services Department, the doubling, tripling or quadrupling of this revenue source will not significantly ease the coming burden on sewer rates. To put matters in perspective, the revenues from this source currently amount to approximately $3.7 million annually. A tripling of these fees under a more proper fee structure might generate revenues of perhaps $11 million by 2006, but the revenue requirements of the Environmental Services Department are projected to nearly $215 million in that year. For the current year which is the one which will end on September 30, 2003, total system revenues of $139 million are projected by the Revenue Forecast in the Series 2002-D debt offering. Actual system revenues should be somewhat less than those projected for this period, however, because the rate increase required on January 1, 2003 was less than the one used in the Series 2002-D Revenue Forecast. This means that without further changes, even with the increased fees from a new system development charge fee structure but without further rate increases, a revenue shortfall of perhaps $70 million could still exist in 2006.

In addition to the recouping the fair cost of a new connection to the sewer system, it is extremely important that the associated future user fee income stream be captured as well. If it can be assumed that a new residential customer will remain one for 20 years and will use the 1,000 cubic feet per month currently assumed to be the standard usage, then at the current user fee level, it can be calculated that the Commission would earn $9,996 from that account over that time period. However, the correct approach is to look at a new account in terms of its present value; that is, what is that future income stream worth to the Commission today. Using the Commission's approximate cost of capital of 5 percent as the discount rate, the present value of the acquisition of a new residential sewer account at the current sewer user fee rate is approximately $6,311. Currently, the initiation phase of a new account, the assessment of a system development charge, is located in one operating area of the Commission, while the capturing of the account for future billing purposes in located in another. To the extent possible, we believe that it is in the Commission's best interest that those functions are consolidated under one department to ensure that every dollar of system revenues is easily accounted for from the initiation of the account to the ongoing monthly billing.

Another interesting consideration is the fee charged for tipping or septic tank dumpings. The rate per hundred cubic feet is currently approximately $22.50 per hundred cubic feet as compared with the regular retail rate of $4.90 for that same quantity. This is as it should be because it is far more expensive to handle waste treatment on a dumping basis, but the rate charged is considerably less than the rate charged by some municipalities. Moreover, based on our experience and discussions with those individuals overseeing the handling the septic haulings, there is not an easy way of determining the content of the wastes being dumped. Yet another consideration in setting an appropriate dumping rate should be whether on not it was possible for surrounding municipalities unable to meet the waste treatment standards set for them by the Alabama Department of Environmental Management ("ADEM"), could truck their problem wastes into Jefferson County. If this consideration existed, trucking could easily be their cheapest solution. While this may not be a problem, there could, nevertheless, be the potential for one if, for example, someone who had industrial waste problems chose to hire a septic hauler to transport those "special" wastes to another system as regular wastes rather than pay the surcharges which might otherwise be applicable to that waste. Septic dumpings should be charged at a considerably higher rate to reflect these additional exposures. The Jacksonville Electric Authority (FL) currently charges a septic dumping rate nearly 50 percent higher than that of Jefferson County's in an attempt to control the occurrence of such events.

Jefferson County provides many valuable services to existing and potential sewer customers in an attempt to further the quality of sewer service, and we believe that it is wise to continue to do so. However, some of the fees charged for services ranging from inspections to line cleanouts due to grease buildups appear to be nominal to us in that they may not fully cover the cost of the service rendered. We do not advocate raising fees for services to a point determined by what the market will bear, but we do think that the fees charged for all services should at least cover the cost of providing them.

Other Immediate Revenue Considerations

The use of an updated system development charge fee structure to interject more equity into the cost of sewer service equation addresses in part the issue of rate equity and who should pay for sewer service, but it is recommended that the Commission think beyond just its sewer system on this subject. It has been pointed out that the failure to do so in the case of revenue financed debt issue is inherently inequitable because it obliges the existing customer base to finance both its needs and the capacity for growth, but the same logic applies equally well to virtually all services which the County provides. Although general obligation ("GO") bonds are issued to meet other needs and are amortized through the collection of a myriad of taxes or fees from its residents, ***the fact remains that whenever a new library, park, public safety or fire station, road, school, hospital, or virtually any other municipal facility is constructed, it is constructed to meet the needs of both the existing and the future customer base; however, it is almost always the existing customer base which must pay for that resource because they form the basis for assuring those lending the money that the debt will be repaid. Therefore, it is only logical that new customers or taxpayers should be paying to the county an equitable recoupment fee for many of the facilities which they begin to enjoy as soon as they access those resources.*** To our knowledge, there are more than 20 various system development charges in force throughout municipalities in this country, and there may well be more. It is our opinion that the day of the existing rate or taxpayer financing growth is quickly coming to an end. Growth is only good when those receiving the immediate benefit pay their fair share for that benefit.

2. Intermediate Options

As noted earlier, there are three intermediate options for possible assistance to the Environmental Services Department in meeting its future obligations. Each has its merits and its shortcomings, but some are more logical than are others. All, however, appear to require approval of the state legislature. The three intermediate options available are increasing the sales tax rate, the occupational tax rate, or ad valorem taxes.

Sales Tax Increase

According to public records found on the Jefferson County website for the fiscal year ending September 30, 2002, the amount of sales tax collected was $81,519,000. While the tax rate for certain items such as automobiles is much lower, the general rate is one percent. There are a number of special sales tax rates in the Jefferson County which are lower than the general rate, but sales of items relating to those items do not change appreciably from year to year and they are not nearly as large as the general sales tax rate base. It was our understanding that the change in the sales tax rate would be considered a local act as opposed to one requiring legislative approval and/or a voter referendum. However, discussions with Jefferson County revenue personnel indicate that this is not a complete reflection of the Commission's power to act. Based on our discussions, the Commission does not have the power to change the rate of sales tax. It is restricted to no more than one-fourth of the state sales tax rate unless the local rate was higher than the one-fourth threshold when the state enabling sales tax rate statute was enacted. Moreover, Jefferson County cannot raise its sales tax rate even if the state raises its rate from the current level of four percent unless the legislature grants it permission to do so. On the assumption that the general sales tax rate base accounts for approximately 90 percent of the sales tax revenues collected during a year and the Commission was allowed by the legislature to do so, it can be estimated that each one tenth of one percent increase in the sales tax rate might produce approximately $7.3 million in additional revenues.

The use of sales tax as a means of generating revenues to be used in supporting the operation of the Environmental Service Department, while one option, is not without its potential drawbacks. For several reasons, this source should not be considered as the best choice for meeting those needs. First and foremost, a sales tax is regressive; that is, it removes disposable income from all taxpayers as though they were equal when, in fact, that is not necessarily a valid assumption. There is a generally accepted theory of economics referred to as *the theory of diminishing marginal utility* which should be considered here. In essence, this theory holds that after a certain point, with each additional dollar of income that an individual acquires, it becomes less useful in meeting his or her basic needs. In purely economic terms the theory is somewhat abstract, but when it is defined in everyday terms, it becomes very easy to both understand and accept. To illustrate this point, imagine an environment in which an individual acquires his first dollar. That dollar will probably be used to feed himself or his family to get them through that day. Each additional

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dollar acquired up to a certain point will be extremely valuable to him until he has satisfied the basic needs of food, clothing, shelter and so on. However, some individuals will continue to acquire additional dollars well after they have met their basic needs, and while those dollars will enable them to purchase things that give them satisfaction, those things will not be essential for meeting basic needs. Therefore, they will not be as useful (have as much utility) to them. For those who barely have enough dollars to meet basic needs, however, each dollar given up through sales taxes is a very heavy loss indeed. Moreover, if the individual with a limited amount of dollars is not obliged to give up any of his limited supply in additional taxes, he can spend that money in the community to meet basic needs where the economic concept of the multiplier effect can also take place. Not only will that individual be better off, but the community will also be better off because that dollar will turn over more times as part of what is called the consumption portion of the county gross domestic product than it will as a tax dollar.

The reasons for not using the vehicle of sales tax any more than necessary is not confined purely to economic theory. Equally important is the fact that the Commission must recognize that it has the power only to impact sales within the borders of Jefferson County, and it has long been recognized that capital is very mobile. Said another way, any significant disparity in sales tax rates between political subdivisions within what might be being within viewed as a single geographic area could easily result in the flight of taxable sales to an area where, assuming all other factors were equal, the tax rate was lower. The end result could be a decrease in tax revenues rather than an increase, and that obviously could be self-defeating. Based on data currently available from the Alabama Department of Revenue, the general sales tax rates for the counties surrounding Jefferson are as follows: Blount (2%), Bibb (3%), Shelby (1%), St. Clair (2%), and Walker (2%). Unfortunately, the county where we believe the most sales tax revenue could be lost is Shelby, not only because they would have a lower rate, but also because they almost certainly have the largest buying population with higher incomes as well.

Occupational Tax (Privilege License) Increase

When compared with sales tax as an alternative source for revenue to support the operation of the Environmental Services Department, we believe that occupational taxes and privilege licenses represent a considerably more equitable way to provide that support. For the fiscal year ended September 30, 2002, information available reveals that occupational tax collections amounted to $54,820,507, while privilege license revenues amounted to $1,764,996. The occupational tax, while still, in our opinion somewhat regressive, represents a far more responsible step in addressing the source of revenue support for the Environmental Services Department. Here the theory of diminishing marginal utility is much more appropriately applied because those making more and better able to pay would do so. However, the matter of equity is not fully addressed by this tax for several reasons. First, an increase in the occupational tax is a tax on all of those working in within Jefferson County, but those living outside the boundaries of its political subdivision may not be benefitting from all of the services which could be financed by an occupational tax. Conversely, it can be argued that the imposition of the tax on those who live out the county borders may indeed by justified because those individuals do, in fact, avail themselves of many of the services paid for by that tax. A recently study by U. S. Census Bureau for the year 2000 revealed that approximately 71,000 of those working in Jefferson County did, in fact, live outside its boundaries. The tax rate is currently ½ of one percent and generates almost $55 million in revenue annually. Therefore, it can be estimated that the increase of each additional 1/10 of 1 percent would produce an estimated $5.5 million in additional revenues which could be used for support of the operation of the Environmental Services Department if the Commission so desired. This assumes that Jefferson County could move ahead with such a proposal without having to obtain the approval of the state legislature.

While it is not a major revenue source, the area of privilege licenses should not be overlooked. The basis for the assessment of the privilege license fees arises from both state and county authority. The basis for the license fees charged to professionals is set by Code Section 40-12 of the state constitution, while the basis for license fees for other individuals or entities operating in Jefferson County is Ordinance No. 1172 dated January 24, 1989. Much of the fees collected from professionals licensed through the State of Alabama are not even available to Jefferson County for its operating needs. Instead, most of those fees appear to be directed back to the trade associations who regulate the individuals in those professions, so Jefferson County effectively receives little or no tax benefit from collecting those fees. Revenue from this area produced $1.765 million in revenue in the most recent fiscal year, but the license fees paid by those exempt from the occupational tax due to what most occupational taxpayers view as a very inequitable law appears to bear no relationship to the license holder's income producing ability. For example, many of professionals holding county licenses costing perhaps $25 would only have to earn $5,000 of taxable income in a year to produce the same amount of tax revenue to the county as is generated by the issuance of those licenses. However, in some cases Jefferson County does not even get the use of the minimal fees collected. A more detailed investigation of the incomes of those license holders might reveal that their incomes would generate ten, twenty, thirty or more times greater tax revenue if they subject to the occupational tax. Although the amount of additional revenue generated by such an increase in the privilege license fees might be relatively small when compared with the needs of the Commission in solving the problem of revenue shortfalls in the Environmental Services Department, such action would certainly interject some equity into the equation if those fees were raised five or ten-fold.

However, without approval of the legislature, the County can do very little to manage its affairs in this area.

Ad valorem Tax Increase

The rationale for using ad valorem taxes as a source of revenue for the Environmental Services Department can be substantial, even though it is believed that increasing this tax requires both legislative approval and a favorable voter referendum. Properly presented, however, it may be possible that public support could be garnered for such a tax increase. First, it has the argument of equity to support it. For example, there are many households in Jefferson County who are on a septic tank system rather than the sewer system, and who, as a consequence, do not have to pay sewer user fees. However, it is almost a certainty that the head(s) of those households go to work every day where access to the county sewer system does exist and where those jobs also probably exist because there is sewer service available. Therefore, it can be argued that the individual on the septic tank system is a beneficiary of the existence of the sewer system, even though his or her benefit may be an indirect one. Second, because the ad valorem tax base has some size to it, the revenue realized from a possible change in the tax structure has the potential for mitigating somewhat the size of user fee increases. Third, the ad valorem tax would be progressive; that is, it would put more of a burden on the individual who could best bear it. If, for example, the individual who had a $30,000 home was obliged $10 more in tax to support the sewer system, then the individual with the $300,000 home would pay $100 more. Fourth, because this source would take the form of a property tax, the effect of the increase on the more affluent taxpayers would be mitigated somewhat by the fact the expense could be deducted on one's income tax return, thereby reducing the actual cost of the increase. As a practical matter, some taxpayers making beyond a certain level would not be able to take advantage of the increase in the property taxes because of the expense deduction phase out considerations in the current tax law, but those individuals would get little sympathy from the general populace if they complained about the fact that they did not get the full tax deduction.

The question is how much support could the Environmental Services Department expect to get from such a tax allocation if collected? For the fiscal year ended September 30, 2002, the Environmental Services Department received $3.67 million in the form of an ad valorem tax allocation. Because the tax allocation is generally referred to as the .7 mill tax, it is a relatively simple matter to calculate that each additional 1/10 of a mill would currently produce about $525,000 more in revenues annually. If there could be any discretion in the application of an ad valorem tax, the question should be raised as to whether the increase should be applied to all property owners or just residential properties. After all, it is almost a certainty that virtually all commercial property is already on the sewer system.

3. Long Term Options

It was observed earlier that Jefferson County faces a very substantial annual debt service burden for the next 40 years. Therefore, it must not only find ways to meet the rapidly rising revenue requirements of the Environmental Service Department in the next several years, but it must also look for longer term solutions to meet those needs because Jefferson County will undoubtedly face other significant revenue demanding opportunities elsewhere during that time frame. It is of little comfort to know that many other municipal systems will face similar problems, and apparently particularly so in EPA Region IV. Nothing eases funding problems like sources of revenue from outside the community, so the proposed plan for a national environmental trust fund mentioned earlier could offer the prospect for substantial assistance in future years. It will, however, require substantial lobbying effort on the part of Jefferson County and many other communities just like it, but the concept has been proven through the use of the national highway trust fund. As a consequence, its potential cannot be ignored.

The concept of use of system development charge fees to finance growth not only in connection with sewer service but in virtually every other aspect of growth currently financed by the existing rate or tax payers should be explored. We believe that the time has come for growth to reflect its true cost. It is not fair to ask the existing rate or tax base to underwrite growth. Over the long term the rationally calculated system development charge approach will not impede growth: it will simply shift the cost of that growth from the existing rate base to the new accounts where it properly belongs.

D. SEWER RATE PAYER ASSISTANCE CONSIDERATIONS

The concept of a "lifeline" credit or rate adjustment is not a new one, and, in fact, it exists in a number of municipalities around the country. However, it should be recognized for what it is intended to be: a device for assisting those struggling to pay their utility bills to achieve that goal. Moreover, it should have a number of attributes upon which the Commission should insist if such a plan is to be adopted. In our opinion, some of the more important attributes of a subsidized rate plan are included in the discussion which follows.

a. ***The credit should apply only to essential usage.*** The objective of a "lifeline" credit program should be to assist those eligible for it in meeting only their basic needs, not for paying their monthly sewer bill. Therefore, the amount of "lifeline" credit assistance should be confined to only that part of a monthly bill deemed to be essential for public health. The assistance should not apply to the usage attributable to washing one's car or watering one's lawn. Assistance for personal cleanliness and sanitation should be the focus of the amount of assistance, so what form should that assistance take? A number for average usage by the typical residential customer in a month in a normal environment which has been used in many rate comparisons has been 1,000 cubic feet. This is the equivalent of about 7,500 gallons. However, during the most recent two years, the Jefferson County area has experienced rainfall considerably heavier than for a normal year (54 inches), and as a result, residential usage for the "average" account has fallen to about 820 cubic feet. This provides some feel for the influence of the rainfall factor. Clearly, however, considerable other non-essential usage is included in the remaining average usage amount. We propose that the Commission consider as an amount of 400 cubic feet per month as the ceiling for the "lifeline" credit. This is approximately one-half of the "adjusted" average usage per residential customer per month, and, we believe, a manageable number. Additionally, that number is just slightly below the mode or most frequently occurring monthly usage amount. While it cannot be said with absolute certainty that the 400 cubic feet number is the most indicative of the the number which best reflects essential usage, the data provided by the Birmingham Water Works & Sewer Board in a study of residential usage over a two year period (2001 - 2002) appears to support that contention because it is the most frequently observed number, regardless of the season.

b. ***The credit should only apply to those who need economic assistance.*** The objective of the "lifeline" credit is not to provide a subsidy, but to provide assistance to those who want to pay their sewer bills but do not have the financial resources to meet those obligations. We believe that it would be appropriate to use a number no greater than a nationally recognized standard such as the federally recognized amount for the poverty level in establishing one of the criteria for qualifying for special consideration of one's monthly sewer bill. That current standard is now income of approximately $18,000 per year for a family of four, but many users will be less than a family of four. If more applicable standards can be set, they should be considered. The Commission should have the final authority in setting those standards.

c. ***The credit must have adequate controls to ensure its manageability.*** One of the potentially great weaknesses of a program such as the one discussed herein is that if is not properly constructed and managed from its inception, it can end up being a substantial detriment to the County rather than an asset as it was intended to be. Control of the program should have at least two facets. First, the Commission must be prepared to set a limit on the number of candidates who are eligible to participate in the program. This can be a difficult task, especially politically, but it can be managed to some degree by setting the criteria in such a manner as to limit the number who can qualify. The second control is assuring that, once granted, a lifelong entitlement, or worse, an inherited one, is not created. The second attribute can be controlled to some degree through computer programming. Specifically, it is suggested that when the Commission, or the agency to which it may ultimately assign the responsibility for management of this function, approves an account for participation in a "lifeline" credit program, the approval is for a period of no more than three years. With sufficient notice, logic could be written into the various computer billing programs utilized by the entities which supply usage data to the County which would include in the record for a customer the date on which he or she first qualified for the rate assistance. Once that date was in place, the computers of the various billing entities could be programmed to compare the current date to the qualifying date, and if the current date was longer than three years after the qualifying date, the account would automatically be returned to the normal billing rate schedule. The rate payer would then be obliged to requalify for the "lifeline" credit by providing the appropriate documentation. If that individual failed to requalify for the assisted rate due to improved economic status, he or she could be obliged to wait one year before reapplying for the credit.

d. ***The credit adopted must be affordable by the Commission.*** As noted earlier in this discussion, the primary focus of this report is on where additional revenues may be derived to support the sewer system. As a consequence, any support of a "lifeline" credit system should come from an additional source of revenue. Affordability obviously must be quantified using the considerations outlined earlier in this section. As a rough approximation, the data in Exhibit C of the Appendix reveals the Commission can expect approximately 26 percent of its nearly 128,000 residential customers to use 400 cubic feet or less of sewer service in any one month. How many of that group might qualify for assistance? How many consistently using more than that amount will qualify?

Obviously, that decision must be made by the Commission, but we are of the opinion essential public health needs are probably met for most customers of the system at or below that level. What might a credit for the first 400 cubic feet cost the Commission? Using the current rate structure as a guide and applying the credit to the full amount, it is a relatively simple matter to ascertain that the granting of the credit would result in a loss of revenue to the Environmental Services Department of $16.66 (4*$4.90*.85)per residential customer receiving the credit per month. Annualized, that number becomes almost $200, so it is fairly easy to extrapolate that if ten percent of the residential customer base qualified for the credit and it was based on the 400 cubic feet limit, the cost to the sewer system in terms of lost revenues would be approximately $2.6 million. There appears to be a need for the Commission to consider the implementation of such a plan, but the amount of the possible usage credit and the extent of its application must be carefully weighed. If such a plan is implemented, it will be very important that the Commission know how many are participating in the plan and its annual cost. This information should be reported to the Commission on an ongoing basis no less than annually.

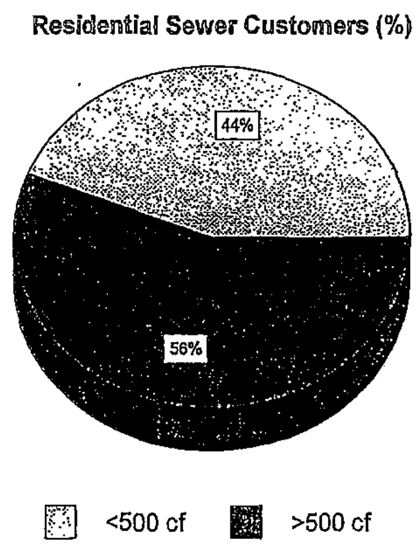
e. ***Everyone utilizing sewer services should pay some amount.*** It is our opinion that excusing someone from paying anything on their sewer bill is unwise because it tends to create the impression in their minds that sewer service has no real cost associated with it. Conversely, having every "lifeline" customer pay some minimum bill could create the perception in their minds the credit that he or she is receiving is not a subsidy but he or she is paying a fair share and helping shoulder the cost of rebuilding the Jefferson County sewer system. We suggest consideration of a minimum bill for any "lifeline" customer of $10.00 per month for the first 400 cubic feet and that the amount should rise $1.00 per month or more every time the Commission is obliged to raise rates for the general rate base. Beyond the 400 cubic feet level, all sewer customers should pay the full rate. The amount of assistance would start out as a comparatively small number, but it would grow as rates rise in the future.

Drafting a set of guidelines for the creation and management of a "lifeline"credit is the far easier part of getting a system in place. What must also be addressed is the matter of estimating the cost of placing a "lifeline" credit program in operation. Depending on how the plan will be administered, the administrative costs could be a comparatively small amount or a significant charge to operations. What is not needed is something which will add significantly to the existing operations and maintenance

("O&M") expense. That number was in the vicinity of $47 million for the fiscal year just ended and is budgeted to be nearer $57 million for the current one, so very little additional expense needs to be added to this revenue requirement if at all possible. The amount incurred to run the program will be a matter for the Commission to determine, but what is also needed is an estimate of how many customers might qualify and what the cost of the assistance provided might be. One way to obtain a better idea of how many sewer customers might be in a group which could qualify for the "lifeline" credit would be to develop what is called a frequency distribution of those customers in 100 cubic feet increments. This would also provide a much better picture of what mean, median and mode usage for residential customers actually are.

The mean, median and model are statistical terms which are generally referred to as measures of central tendency; that is, they are used to describe how customers tend to use sewer service. Because the customers will be grouped by 100 cubic foot increments, however, the values for those indicators will necessarily have to be approximated to some degree. Nevertheless, a fairly good understanding of how the Environmental Services Department's customers use sewer services should be obtained. So that there is no confusion about what the numbers mean, it should be understood that the mean is simply the arithmetic average of all of the observations, the median is the number which has an equal number of observations above and below it, and the mode is the most frequently occurring observation or usage level. Each of these can be useful in providing one with a picture of how the sewer customer base can be expected to use sewer service in the typical month.

Although the Commission receives sewer billing data from three principal sources, the Birmingham Water Works & Sewer Board, the City of Bessemer, and a group of smaller accounts which are generally referred to as the Jefferson County small systems, approximately 85 percent of the residential accounts are serviced by Birmingham Water Works & Sewer Board which provided the data base on which many of the assumptions contained in this report are based. Comparable data from the other two sources of information is not readily available, but we believe that data obtained from Birmingham Water Works & Sewer Board is sufficient to provide a representative



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overview of the Commission's customer base. As can be seen by the graphic associated with this discussion, the number of residential customers who typically use 500 cubic feet or less of sewer service per month can be expected to constitute almost 44 percent of all residential customers. Although the above graphic does not show it, median usage is approximately 600 cf (50 percent of the residential customers typically use less than this amount and 50 percent typically use more). The mode usage is 500 cf (the most frequently occurring usage). What does this mean? First, it is our opinion that the use of strictly an average number of cubic feet for the typical residential user does not properly describe the typical user. The mode, which is the most frequently occurring bill, is the one which we believe best typifies what the most residential customers expect to see when they receive their monthly bill. Second, when considered in conjunction with the detail contained in the Summary Usage Frequency Distribution in Exhibit C of the Appendix in this report, a much better picture of the usage habits of the customer base is obtained than was previously available. Finally, the Summary Usage Frequency Distribution tells one that while the "average" residential customer using 1,000 cubic may expect to receive a monthly sewer bill (at the current rates) of $41.65, the facts reveal that approximately 73 percent of the residential customer group can routinely expect to receive a bill of less than that amount. As a consequence, the 1,000 cubic feet number often cited in the media may not be the most representative number for measuring the impact of a change in sewer user fees.

Unfortunately, proving that many customers do not receive a bill which has been deemed the "average" bill does not make it any less difficult for those customers to pay the increasing cost of sewer service. New sources of revenue must be found if any appreciable rate relief is to be enjoyed.

E. SUMMARY

Within the Environmental Services Department, there are a number of options which can be utilized to increase system revenues somewhat, but it will be doubtful that any will be popular and few will appear to the public to be justified. For example, the concept of the residential discount allowance could be abolished, currently generating as much as $8 million more in rate revenues.

Private meters could also be banned. There are currently slightly more than 8,200 of these in existence and most are residential, but some are commercial, so estimating the lost revenue as a result of private meter installed would be extremely difficult. Using the most conservative estimate which would assume that all of the private meters were residential and that their use only saved the "average" owner the amount of the residential exemption, the disallowance of the use of the meters would currently result in about $725,000 more in rate revenue per year. However, when one considers that those owning private meters installed them because they were confident that the savings realized would substantially exceed the value of 15 percent discount permitted, the $725,000 becomes a very conservative estimate. Because actual use of private meters by both commercial and residential customers almost certainly exceeds the allowable residential discount percentage, the additional rate revenues could generate possibly many times the $725,000 number cited.

The development of an updated and equitable system development charge fee structure could easily double or triple the amount currently earned from this source ($3.7 million). Such a move might add $8 to $12 million in additional revenues, and this action on behalf of the existing rate payers is long overdue.

Other operating fees charged such as higher inspection fees, septic dumpings, line cleanouts due to grease discharge from restaurants and other contributors, and industrial waste surcharges should be raised to reflect the true cost of providing sewer services. Although it is difficult to accurately estimate a number which reflects the increase in revenues which might be earned from these services, it is conceivable that they could increase by perhaps $250,000 to $$500,000 annually.

The use of the concept of the benefitted property owner's agreement should be used wherever possible to encourage county-developer participation in growth. Where this concept can be successfully used, it usually requires minimal capital outlay by the Commission, but each new average residential connection added to the system creates a future income stream to the Environmental Services Department which can be conservatively estimated to have a current present value of $6,311. Moreover, the successful utilization of this technique should generate a substantial amount of system development charge fees or revenues, although the realization of them may be deferred by as much as five or ten years. Finally, where this concept is successfully applied, Jefferson County expands its property tax base and with almost an equal amount of certainty, its occupational and sales tax base as well. Similarly, if the opportunity presents itself to the Commission to acquire a sewer system of a nearby municipality for a reasonable value, it should not hesitate to do so. It is important to remember that the value of the acquisition is far more important than simply the purchase of the assets. The object of real value in the purchase is the acquisition of the income stream from new accounts and the ability to distribute the revenue requirements of the system over a larger rate base.

The focus should not be entirely on the production of new revenues. Equally effective is the reduction of operating costs. As noted earlier in this report, based on budgeted operating expenses for the Environmental Services Department for the current fiscal year, each one percent reduction in that number would result in a $566,000 reduction in revenue requirements.

The discussion of possible increases in sources of revenue or cost savings to this point have focused on changes within the Environmental Services Department. The Commission can also consider, within limits, generatingrevenue from sources outside that realm which can be allocated to it. These sources are generally not as desirable as are those within the system for a number of reasons. From the Commission's point of view, most of these options are ones over which it possesses lesser degrees of control. Moreover, it is our understanding such allocations are not generally considered to be system revenues within the terms of the bond indenture under which the Environmental Services Department must operate because while they can be counted for purposes of what is considered as compliance with debt service coverage as specified in that document, because they are general tax revenues, they cannot be permanently pledged to that area.

Although the concept is somewhat new to the Commission, we encourage it to consider the investigation and adoption, where appropriate, of system development charge fees for a number of services currently provided by Jefferson County to new residents at little or minimal additional cost. Specifically, we believe that it should explore the application of this concept to a host of other services from schools to streets, from libraries to public safety and fire protection. This recommendation is not offered to penalize developers. On the contrary, where properly done, it is our belief that the application of the concept will actually enhance responsible development, but the underlying reason for our advocacy of this concept is that it represents an excellent vehicle for reimbursing the existing tax or rate payer base for the capacity which it has financed for growth.

If the Commission can accept the premise that the system development cost concept outlined in the preceding paragraph is inherently equitable, it can then move forward with consideration of possibly allocating sales, occupational and/or ad valorem taxes to the operation of the Environmental Services Department.

The revenues to be potentially derived from theses sources have been discussed earlier, so they are only briefly mentioned here. Based on collections for the fiscal year ended September 30, 2002, a 1/10 of 1 percent increase in the sales tax rate can be conservatively expected to generate perhaps $7 million in additional revenues, all other things being equal. Unfortunately, that is not the case as capital is quite mobile, and it would not be surprising to see consumers increase their spending, particularly on larger items subject to the general sales tax, in Shelby County where the tax rate would be lower. Obviously, the extent of the increase in the sales tax rate would be a significant determinant in the amount of sales tax revenue flight as would the actions of the governments of the affected municipalities in surrounding counties if they perceived the action by Jefferson County in raising this tax as an opportunity to themselves raise taxes for their needs. While we do not support the raising of sales taxes to aid in the funding of the Environmental Services Department for reasons already outlined in this paragraph, we also do not support it on philosophical grounds as well. By its nature, a sales tax is regressive because it taxes all purchasers equally regardless of their ability to pay. As a consequence, it hurts those with lesser incomes more than those with larger incomes because their required use of their limited income to meet basic needs is further restricted. Additionally, it could work to impair the overall economic health of the Jefferson County as well because those with limited incomes would almost certainly have spent their money in Jefferson County anyway, but instead of recirculating their limited dollars in the local economy where it could benefit from the economic effect known as the multiplier, they would be removed from the economy to pay debt service.

The occupational tax and privilege licenses are another possible source of revenue, and we believe these areas to be much more justifiable sources of revenue to be generated in support of the operation of the Environmental Services Department because at least one of them tends to tax on the basis of one's ability to pay. Also, as noted earlier in this report, a recent study concerning the number who commute from out of county to work within Jefferson County showed that the number was substantial and growing. While possibly not using every service provided by the County on a continuous basis, these individuals do, nevertheless, have the opportunity to avail themselves of those services while within county boundaries. Based on occupational tax collection data for the fiscal year ended September 30, 2002, it appears that each 1/10 of 1 percent in the amount of the occupational tax would generate approximately $5.5 million in additional revenues. Both the matter of the revenues to be generated and the equity of the privilege license fee structure is considerably less obvious. A relationship between the amount required for a license and the income which one might earn as a result of being granted one by Jefferson County does not appear to exist. Unfortunately, because of the antiquated political structure under which the counties in this state must operate, little can be be done to correct this inequity.

Another source of revenue which should be considered is the ad valorem tax. While it would almost certainly be the most difficult to implement, it could be considered to be one of the most equitable sources of revenue because there is a very significant probability that those individuals living in Jefferson County who are not on the sewer system go to work in a location where sewer service is available. As a consequence, because the indirect benefit to them of the existence of the sewage system is, in our opinion, so substantial that there is justification for considering this tax as a source of revenues to be allocated to the Environmental Services Department.

As with other sources of revenue, estimates of the revenue which might be earned from this source can only be estimated, but 1/10 of a mill produces approximately $525,000 in property tax revenues. This source of revenue is both progressive and can involve cost shifting. As noted earlier in this report, the greater the value of the property being taxed, the larger the amount of the tax to be paid, and, in most cases, those owning the more valuable properties have larger incomes and are better able to pay the additional tax. An additional benefit to the use of this approach is those paying the larger amount of tax tend to be the ones who itemize deductions on their state and federal income tax returns, and property taxes are generally deductible expense on their returns. As a consequence, except for the highest income earners, the real cost to the upper income tax payers is not 100 percent of the amount of the ad valorem tax increase but perhaps 20 to 40 percent less.

Finally, we believe that because the cost of sewer service is becoming so significant for some rate payers, there is a chance that it could become unaffordable by them. While the Commission has the responsibility taking actions necessary for sound fiscal management of its sewage system, it may also have a responsibility to provide help to those satisfying specific criteria in meeting the cost of their sewer service obligation. Should the Commission decide that this is an objective which it desires to meet, it must take the necessary action to implement a workable plan. We have noted earlier that we think that some of the criteria which should be met in administering such a plan, sometimes called a "lifeline" rate or credit, should include the attributes of applying only to essential usage, applying only to those who need economic assistance as determined by a quantifiable standard, be a plan which has adequate controls to ensure its manageability, be a plan which is affordable by the Commission, and that all users of the system should pay some amount, however nominal, for sewer service. Based on usage data provided to us by the Birmingham Water Works and Sewer Board, we were able to ascertain that essential usage for most residential users appears to approximate 400 cubic feet per month. The Commission must make the decision as to who qualifies for economic assistance, but, for example, we can assume that 10 percent of its residential rate base did qualify for a "lifeline" credit and were obliged to pay nothing for that quantity of service, it would currently cost the the Environmental Services Department possibly as $2.6 million in annual rate revenues. We do not recommend a blanket exemption from sewer fees at that level because the credit allowed must be something that the Commission can afford, and we feel that it is desirable both from the Commission's perspective and from that of the rate payer that everyone pay some amount for sewer service. Finally, the program must be manageable; that is, the Commission should know, at least annually, the amount of rate revenue given up by this plan, number of individuals qualifying for the credit, the quantity of wastewater not billed as a result of the implementation of the plan, and finally, that once granted, the exemption or credit remains only in the hands of those who truly deserve it. This final attribute can be achieved automatically largely through the assistance of computer programming. Qualifiers for the "lifeline" credit could and should be made to periodically requalify for the credit at intervals deemed appropriate by the Commission.

APPENDIX

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DISCUSSION PAPER

A NATIONAL TRUST FUND FOR CLEAN AND SAFE WATER INFRASTRUCTURE INVESTMENT

INTRODUCTION

From the early days of the Republic, Congress has used its Constitutional authority to fund "internal improvements" to serve the Nation's public health, welfare and economic well being. This discussion paper provides information for moving clean and safe water infrastructure forward through the establishment of a National Clean and Safe Water Infrastructure Investment Trust Fund. Shifting federal budget priorities and increased deficits make expansion of construction funding from the General Fund very difficult to provide.

The most profound exercise of this Constitutional authority is the creation, and periodic strengthening, of the Highway Trust Fund, supported by fees on gasoline, tire and other related sales, and representative of the national economic benefits of highway infrastructure. The Transportation Equity Act for the 21st Century ("TEA-21") guarantees that the dedicated funds collected after 1999 are to be devoted to the purpose intended by the Congress. The Land and Water Conservation Fund, established in 1962, supported by royalties from drilling on the Outer Continental Shelf, supports the creation of National Parks and state park and recreation facilities. The most recent exercise of this Congressional authority is the expansion of conservation and infrastructure programs to address rural runoff and water and sewer facility requirements enacted in the 2002 Farm bill. By contrast, the federal government continues to provide only loans divided between the clean and safe water state revolving fund programs at a current total level of $2.1 billion annually.

Fundamental to these prior Congressional actions are (1) a clear national goal: new capital to move clean and safe water forward; (2) revenue source(s) sustained by the national economy: dedicated revenue for clean and safe water; and (3) constructive intergovernmental arrangements: local, state and federal cooperation building on the state revolving fund model.

NATIONAL REQUIREMENTS FOR CLEAN AND SAFE WATER

Adequately performing, sustainable and continuously improving wastewater and water infrastructure is critical for protection of public health and the environment and the advancement of economically strong and vibrant American communities. National requirements for such infrastructure are driven by (1) federal Safe Drinking Water Act and Clean Water Act enforced by the Environmental Protection Agency and delegated states; and (2) three waves of aging infrastructure constructed from the late 19th Century to post-World War II, the useful lives of which are now ending. Recent estimates for funding the cost of these drivers are all at very high levels:

The WINow 2000 Report issued by the Water Infrastructure Network documents $1 trillion in wastewater and water infrastructure capital costs, $450 million for drinking water treatment and distribution facilities and $550 billion for wastewater facilities to meet newly implementing federal requirements for wet weather and further water quality control, and to rehabilitate and replace aging or legacy infrastructure.

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indicates that public investments in wastewater and water facilities improve: (1) competitiveness for American industry, (2) private profitability, and (3) wages, which in turn yield higher tax revenues.[2]

- **Capture Down Stream Clean Water Benefits.** Under the present SRF loan program, down stream communities and their ratepayers realize, but do not contribute to, clean and safe water benefits from infrastructure improvements financed upstream. Expanded federal funding that includes federal grants supported by national revenue would capture those benefits.

- **Grant Funding Limits Community Shopping by Business:** Federal grant funding for drinking water and wastewater infrastructure to meet federal requirements limits the fiscal impact and thereby incentive for businesses to move to other communities where local rates are not as high.

- **Supports Technology Improvements:** Continuing advances in water and wastewater infrastructure technology, not addressed by the SRF programs, are critical to improved service, environmental protection and cost-effective asset management.

- **Grant Funding Is A Stronger Incentive:** Only a grant funding element administered under SRF programs can provide adequate incentive and capital for moving the national clean and safe water programs forward at an appropriate pace recognizing the burden of massive requirements placed on local governments.

- **"The Coming Water Crisis" Will Require Infrastructure Rebuilding.** "We are at the dawn of an era where utilities will need to make significant investments in rebuilding, repairing, or replacing their underground assets." Tom Curtis Deputy Executive Director, American Water Works Association, "The Coming Water Crisis", *U.S. News & World Report*, August 12, 2002, p. 24.

- **New Capital Formation is Necessary:** Local capital funding, municipal bond financing, and SRF loan paybacks increase local customer rates. As rates increase, the ability of local governments to repay bonds and SRF loans decreases and with it, local government credit ratings on which further loans are based. New capital formation from a source emblematic of the national commitment to, and requirements for, clean and safe water is necessary to supplement local revenue sources. Even with increased federal funding, most of the cost of infrastructure improvements will be financed by local customer rates.

A National Trust Fund & Dedicated Revenue for Clean & Safe Water

All Americans are the beneficiaries of clean and safe water that, provides the policy basis for new capital formation supported by national dedicated revenue sources. A key advantage of revenue dedicated to a specific purpose -- clean and safe water -- is that individual citizens and families know the purpose to which new revenue will be put. Public willingness to pay for public health and environmental objectives is well documented by opinion polls.

Congress has created many federal trust funds, fifteen of which are considered major funds. For the federal gasoline tax underlying the federal Highway Trust Fund, the public as a whole are the beneficiaries of the tax. The limited number of oil companies are the collecting entities, which avoids tax evasion by reliance on retail outlets for collection. The fiscal aspects of federal trust funds are managed by the U.S. Department of the Treasury while program aspects are managed by the federal agency having responsibility for the purpose or mission of the fund as established by Congress. Trust funds essentially link special federal revenues such as the federal gasoline tax or royalty payments from drilling on he

[2] Apogee Research Inc. for the Clean Water Council, December 1990.

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national commitment to clean and safe water. Local economies, on the other hand, are the source for utility operating revenue and the overwhelming amount of revenue to be spent for capital purposes.

2. A FEDERAL TAX ON LOCAL WATER FEES WOULD BE COUNTER PRODUCTIVE

- Local water and wastewater customer service fees fund over 95% of facility infrastructure improvements. Such rates will continue to increase in order to provide the vast majority of infrastructure funding through direct capital payments, municipal bond retirement, and repayment of SRF loans.
- A federal fee or tax on local water/wastewater customer charges would not expand the sources of funding or provide for new capital formation.
- Federal taxes placed on local water charges would tax local economies while national user fees on products in interstate commerce are supported by the national economy.
- A federal tax on local government water and wastewater utility customer rates would only serve to increase and redistribute local revenue alone and should be strongly opposed. .

3. ENSURING THE USE OF TRUST FUND BALANCES THROUGH BUDGET "FIRE WALLS"

A frequently cited issue with the implementation of federal trust funds is that balances in fund revenues sometime languish unspent in the U.S. Treasury and are used to offset deficits in the federal unified budget. There are initially two ways in which collected revenues could be assured of spend-out: (1) fire walls in coordination with the Federal Budget Enforcement Act of 1990; and (2) adjusting the revenue collection and distribution process through involvement of Congressional appropriations committees.

As with highways, water and wastewater infrastructure are long-term investments in the nation's economic well being, and are also vital to public health and environmental protection. Unlike the highway program, clean and safe water investments are mandated by federal law, which provides a further basis for guaranteeing the availability of revenue from sources dedicated for these purposes.

Firewalls in the federal budgetary process protect some federal discretionary spending programs from reductions in spending to achieve deficit reductions. The Budget Enforcement Act of 1990, which expires at the end of 2002, establishes annual discretionary spending caps to help achieve Congressional deficit reduction goals. Congress must adjust spending for all programs subject to the cap so that total discretionary spending does not exceed the annual cap.

The Transportation Efficiency Act ("TEA-21") guaranteed that $198 billion be available for obligation during the six-year period of the Act for highway construction and highway safety programs. It is this amount, which is protected by firewalls in the budgetary process. The annual guaranteed amount can be adjusted as new receipt projections from trust fund revenues are developed and actual receipts for earlier years become known. This adjustment is made each year during preparation of the President's budget.

The annual Congressional appropriations process could retain a role in adjusting resources made available from the trust fund consistent with the firewalls principle, and the need to move forward expeditiously to meet environmental requirements and expand economic benefits of infrastructure funding. Actions to achieve these objectives could include: (1) total annual revenue could be estimated and spending adjusted to avoid a surplus in a clean and safe water infrastructure investment trust fund; and (2) the appropriations process could also consider targeted obligations as may be needed.

grants, and authorizes $360 million for a one-time reduction in the backlog by using Commodity Credit Corporation funds.

H.R. 3930, the Water Financing Act of 2000. Wastewater infrastructure legislation funded by the oversubscribed General Fund was reported in the House as H.R. 3930, the Water Quality Financing Act of 2002 which would authorize only $20 billion over five years for reduced interest loans, including additional loan subsidies such as principal forgiveness and negative interest for disadvantaged communities, through the Clean Water Act's SRF Program.

H.R. 3996, the Water Quality Research, Development and Demonstration Act. H.R. 3996, the proposed Water Quality Research, Development and Demonstration Act, a product of the House Science Committee, would authorize only $20 million annually for FY' 2003 through 2007 for technology demonstration project grants and technical assistance.

S. 1961, the Water Investment Act of 2002. S. 1961, the Water Investment Act of 2002, approved for full Senate consideration, would authorize $20 billion over five years beginning with FY'03 for capital grants to SRFs for reduced interest loans and additional loan subsidies for disadvantaged communities. Additionally, S. 1961 as reported, authorizes $2.5 billion for grants to municipalities for construction of combined and separate sanitary sewer overflow controls. Other grants are authorized for small public water systems totaling $ 5 billion and $500 million for grants for nutrient removal for fiscal years 2003 through 2007. S. 1961 also authorizes $20 million per year for FY' 2003 through 2007 for demonstration grant projects to "promote innovations in technology and alternative approaches to water quality management and supply".

CWA Fine/Penalty Trust Fund Legislation. The Northeast-Midwest Senate Coalition has been developing legislation, which would establish a clean water trust fund supported by administrative, civil and criminal penalties imposed by the federal government under the federal Clean Water Act ("CWA"). EPA enforcement data show that approximately $65 million was collected in the most recently reported year.

Features of National Clean & Safe Water Investment Trust Fund Legislation

Legislative initiatives, supported by national goals and constituencies, begin with development of proposed legislation and supporting policy, and economic and social data from a variety of sources on and off Capitol Hill. The federal Highway Trust Fund and the Land and Water Conservation Fund have changed and expanded as experience has been gained with the administration of these programs. A clear and documented legislative concept, which addresses economic impacts on revenue sources, is critical to enacting legislation and providing a framework for future changes.

New, dedicated sources of revenue are the only avenue to appreciably increase clean and safe water investments. National trust fund legislation should build on the 2000 Water Infrastructure Network recommendations and provide for new revenue dedicated with the following features: (1) Markedly expand federal funding to core drinking water and wastewater treatment, distribution/collection, and transport facilities, and stormwater control facilities; (2) Authorize significant grant funding in amounts no less than 75% of annual capital grants to states at a 55% federal share (3) Administered jointly with loans through state revolving funds; and (4) Increase investments in technology improvements and demonstrations.

"B"

STATE OF ALABAMA

COUNTY OF JEFFERSON

AGREEMENT FOR EXTENSION OF SEWER LINES AND APPURTENANCES

THIS AGREEMENT made and entered into this the _________ day of _________, 2003, by and between The Commission of Jefferson County, Alabama, a municipal corporation (hereinafter referred to as "County") and _______________________, an Alabama Limited Liability Company, (hereinafter referred to as "Developer").

WITNESSETH:

WHEREAS, the Developer owns certain real property located inside the County limits at (location described in detail); and

WHEREAS, the County owns, maintains and operates an existing utility and facilities which would provide sewer services to the above described and adjoining benefited property if a connection is made available to the property; and

WHEREAS, the Developer will improve the system and construct the necessary sewer lines and appurtenances from the above described property to the County's system so as to provide service to the property, and the location of said sewer lines and appurtenances are shown on the approved plans on file with the County's Environmental Services Department, a reduced copy of which is attached hereto as Exhibit "A" and all of which by reference are made a part hereof; and

WHEREAS, the parties have determined that this instrument is necessary for the establishment of a formal agreement establishing the requisite capital fees and costs for the property of the Developer and providing for the reimbursement of certain improvements to the system to the Developer to be paid by designated third party property owners through the County who shall be benefitted by the use of the sewer lines and appurtenances which will have been constructed by the Developer.

NOW THEREFORE, in consideration of the mutual promises and covenants herein contained, it is agreed as follows:

1. The parties acknowledge and agree the real property owned by the Developer and which property is now served by sewer lines and appurtenances to be constructed by the County or by Developer under the County's direction is shown and described in Exhibit "A".

2. The County acknowledges the Developer will construct and complete sewer lines and appurtenances in accordance with the plans and specifications approved by the County with the cost of said project be borne exclusively by the Developer.

3. In an effort to provide the Developer a means for reimbursing it for the cost of the system improvements, the County agrees to assess a "benefited property owners fee". Such fee shall be charged to an individual unit, party or entity identified on the attached Exhibit "B" as a benefitted property owner who individually or who sells lots to third parties who desires to connect to the improvements constructed by the Developer. Such benefitted property owners and the fee to be charged shall be determined and computed as follows:

   a. Exhibit "B" identifies by description and as shown on the plat, the real property which is subject to the fee and shall benefit from the Developer's sewer lines and appurtenances construction project; and

   b. The County, as shown on the attached Exhibit "C" by reference incorporated herein, has projected or determined current costs for each benefitted property for various identified sewer connections and other costs, where applicable; and

   c. The County, as shown on the attached Exhibit "C" by reference incorporated herein, has projected or and determined the number of equivalent residential units to which the benefitted real properties can reasonably be put to use; and a fee shall be charged for each and every unit built on any of the benefited properties until the Developer's costs are recouped or the time for collection expires; and

   d. The County, as shown on the attached Exhibit "C" by reference incorporated herein, has determined the equivalent residential unit ("ERU") cost to be paid for each and every connection to the sewer line and appurtenances as applicable. Such fee shall be charged one time only to each and every party making such a connection and shall be payable prior to the issuance of the building permit to such third party; and

e. The County agrees to remit fees so collected monthly to the Developer. The County shall not be required to make such reimbursement to the Developer on any date later than _____ years after the date of this agreement and the total of all costs so reimbursed to the Developer shall not exceed $ ______________ (amount).

4. Developer hereby agrees to indemnify and hold harmless the County from any and all costs, expenses, and damages whatsoever, including legal fees and court costs, which the County may suffer by reason of any claims, demand or litigation arising from or out of the imposition and assessment of the benefited property owners fee described herein. If litigation is brought against the County as the result of the collection or attempted collection of any such fee, the Developer shall provide a defense on behalf of the County in such litigation, pay all cots, legal fees and expenses thereof, and pay any judgement or refund which the County may become obligated to pay as the result thereof. If the Developer defaults in the performance of any obligation imposed on it by the provisions of this paragraph, the obligation of the county to impose, assess, collection and distribute the benefited property owners fee shall cease and become null and void.

5. Developer shall execute any and all documents necessary or as may be required by the County to effect the provision of this agreement.

6. This agreement shall be construed and enforced according to the laws of the State of Alabama. If litigation arises out of this agreement with respect to the enforcement of any of the rights of any party hereto, the prevailing party in said litigation shall be entitled to reasonable attorney fees and expenses of litigation.

7. This agreement constitutes the entire agreement between the parties. All additions or modifications to this agreement shall be only in writing and signed by all parties and shall become an addendum to this agreement. There shall be no verbal agreements of any kind between the parties which vary the terms of this agreement.

IN WITNESS WHEREOF, the parties have hereunto caused these presents to be executed in the manner prescribed by law on the day and year first written above.

COMMISSION OF JEFFERSON COUNTY, ALABAMA

By: ______________________________

Title: ______________________________

Signed, sealed and delivered in the presence of:

____
Witness

____
Notary Public
My Commission Expires: ______________
(SEAL)

By: ______________________________

Title: ______________________________

Signed, sealed and delivered in the presence of:

____
Witness

____
Notary Public
My Commission Expires: ______________
(SEAL)

"B"

It is recognized that by the parties hereto that any sanitary sewer lines included as part of this Agreement shall be considered as 100 percent utilized when they are flowing at 50 % of theoretical capacity with values as reflected in the table below.

PIPELINE CAPACITIES, MANNING'S EQUATION

"n" FACTOR OF 0.013

		Depth of Flow, % of Pipe Diameter		
Pipe Size	Min. Slope (%)	100% (GPD)	67% (GPD)	50% (GPD)
8	0.40	490,781	323,915	198,766
10	0.29	757,564	500,000	306,813
12	0.22	1,073,115	708,256	434,612
15	0.16	1,659,287	1,095,129	672,011
18	0.12	2,336,696	1,542,219	946,362
21	0.10	3,217,632	2,123,637	1,303,141
24	0.08	4,108,909	2,711,879	1,664,108
27	0.067	5,146,994	3,397,016	2,084,533
30	0.06	6,541,845	4,317,618	2,612,997
36	0.04	8,566,201	5,653,693	3,469,311

Multipliers for 67% and 50% are .66 and .405 respectively.

The pipeline sizes chosen would handle the anticipated peak flow with the depth of flow not exceeding 50% of the pipe diameter for new lines. This capacity is chosen because it is not considered practical to design a pipe flowing full when one considers the methods of determining peak flows, the fact that debris which enters the sewer line will affect actual capacity, and the probability that a pipe flowing full will cause surcharging of manholes. The "n" factor will tend to increase with age. Also, a pipe flowing full will not allow the sewage to remain aerobic.

Commission of Jefferson County, Alabama
Residential Customer Sewer Usage
Usage Frequency Distribution
2001 - 2002

Monthly Usage (cu. ft.)	Number of Customers	Avg. Usage for Group
000 - 100	6,653	1
101 - 200	4,720	2
201 - 300	7,456	3
301 - 400	8,902	4
401 - 500	9,421	5
501 - 600	9,635	6
601 - 700	9,244	7
701 - 800	8,370	8
801 - 900	7,328	9
901 - 1000	6,198	10
1001 - 1100	5,183	11
1101 - 1200	4,196	12
1201 - 1300	3,392	13
1301 - 1400	2,737	14
1401 - 1500	2,181	15
1501 - 1600	1,780	16
1601 - 1700	1,440	17
1701 - 1800	1,179	18
1801 - 1900	962	19
1901 - 2000	797	20
2001 - 2500	2,724	25
2501 - 3000	772	30
3001 - 3500	1,939	35
Totals	107,209	

Source: Birmingham Water Works & Sewer Board Residential Customer Sewer Usage January 2001 - December 2002

Jeffco-000128

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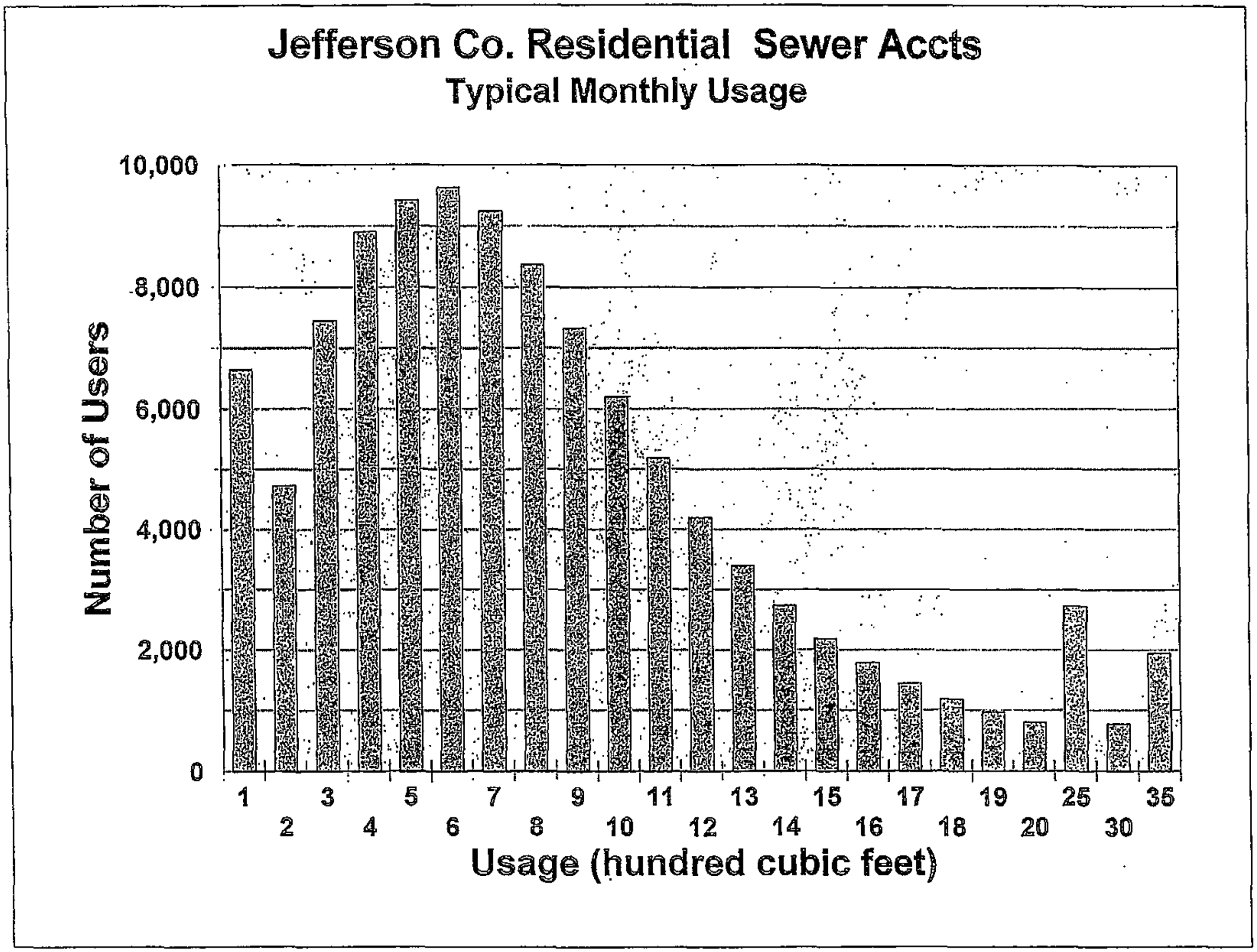
"C"

Commission of Jefferson County, Alabama
Residential Customer Sewer Usage
Usage Frequency Distribution
2001 - 2002

Monthly Usage (cu. ft.)	Number of Customers	% of Customers in Group	Cumulative % Customers
000 - 100	6,653	6.2	6.2
101 - 200	4,720	4.4	10.6
201 - 300	7,456	7.0	17.6
301 - 400	8,902	8.3	25.9
401 - 500	9,421	8.8	34.7
501 - 600	9,635	9.0	43.6
601 - 700	9,244	8.6	52.3
701 - 800	8,370	7.8	60.1
801 - 900.	7,328	6.8	66.9
901 - 1000	6,198	5.8	72.7
1001 - 1100	5,183	4.8	77.5
1101 - 1200	4,196	3.9	81.4
1201 - 1300	3,392	3.2	84.6
1301 - 1400	2,737	2.6	87.2
1401 - 1500	2,181	2.0	89.2
1501 - 1600	1,780	1.7	90.8
1601 - 1700	1,440	1.3	92.2
1701 - 1800	1,179	1.1	93.3
1801 - 1900	962	0.9	94.2
1901 - 2000	797	0.7	94.9
2001 - 2500	2,724	2.5	97.5
2501 - 3000	772	0.7	98.2
3001 - 3500	1,939	1.8	100.0
Totals	107,209	100.0	

Source: Birmingham Water Works & Sewer Board Residential Customer Sewer Usage
January 2001 - December 2002

Jeffco-000129



Jeffco-000130

Raftelis Financial Consultants, Inc. ("RFC") has been asked to examine the reasonableness of the current sewer rates of Jefferson County (the "County"). RFC is a financial consulting firm with extensive experience in assisting water and wastewater utilities across the country with financial and pricing issues. This document summarizes RFC's analysis and conclusions in assessing the reasonableness of the County's sewer rates and whether increases in rates would be reasonable. The document defines "reasonableness," examines the County's rates within this context, and concludes with RFC's findings and recommendations.

RFC QUALIFICATIONS

RFC has conducted approximately 600 finance and pricing engagements for water and wastewater utilities. In addition, RFC personnel have been active in the water and wastewater industry for over 30 years and are considered leaders in the industry. George Raftelis has written a book entitled *Water and Wastewater Finance and Pricing: A Comprehensive Guide*. Mr. Raftelis was also a member of the Rates and Charges subcommittee that compiled the updated American Water Works Association ("AWWA") *Manual M-1*. Mr. Sudhir Pardiwala contributed to the Water Environment Federation ("WEF") manual titled *Financing and Charges for Wastewater Systems*. Mr. Peiffer Brandt contributed to the WEF manual titled *Affordability of Wastewater Service*. In addition to these industry contributions, RFC personnel have held leadership positions in relevant AWWA and WEF committees.

DEFINITION OF REASONABLENESS

RFC is examining the County's rates in terms of reasonableness, as RFC understands that Alabama law subjects rates to a reasonableness standard. The water and wastewater industry does not have a standard that defines reasonable or unreasonable rates.[1] RFC believes, however, that there are two ways to assess reasonableness: 1) the "Comparative Approach" and 2) the "Affordability Approach". Under the first, the Comparative Approach, RFC analyzes reasonableness relative to the charges of other similar utilities. If a utility's charge compares favorably with the charges of other utilities, then the charge could be considered reasonable. This approach does have a weakness. If all charges are relatively low, then the highest charges may not be considered unreasonable. The second, the Affordability Approach, assumes affordability is a proxy for reasonableness. In other words, if rates are affordable, then they are deemed reasonable. Examining reasonableness from both perspectives provides a meaningful analysis.

COMPARATIVE APPROACH

RFC compared the County's rates with three groups: 1) over 60 of the largest wastewater utilities across the country; 2) large wastewater utilities in the Southeast; and 3) wastewater utilities serving a population of at least approximately 25,000 in Alabama. A residential comparison was compiled for all three groups and a non-residential comparison was compiled for the first group

[1] It should be noted that we are using the definition from *The Random House College Dictionary* for reasonable as "not exceeding the limit prescribed by reason; not excessive", and not using the definition "moderate in price; not expensive".

(over 60 of the largest wastewater utilities across the country). RFC also examined the percentage increases over the past ten years for a subset of the first group.

Residential Rates

RFC prepared two residential comparisons for each group, the first with usage of 8 hundred cubic feet ("ccf") (approximately 6,000 gallons) and the second with usage of 10 ccf (approximately 7,500 gallons) of water per month. These usage amounts are often quoted as average residential household usages. Summaries of each comparison are attached in Appendix A.

For the largest wastewater utilities comparison, the County's monthly charge is just under twice the median for 8 ccf and just over twice the median for 10 ccf. Furthermore, the County's monthly charge is the fifth and fourth highest for 8 ccf and 10 ccf, respectively. The utilities with higher monthly charges include the Metropolitan Sewerage District of Greater Cincinnati, ALCOSAN (Allegheny County, PA), the City of Atlanta, and the City of Seattle. RFC examined the customer groups from these utilities and found that all had a higher median household income ("MHI") and are, on the whole, more affluent. The City of Seattle and Fulton County (Atlanta) are considerably more affluent and Allegheny County and Hamilton County (Cincinnati) are slightly more affluent than the County. A summary of the distribution of residents by MHI is included in Appendix B.

The County's monthly charges were significantly higher than nine of the ten utilities in the regional comparison. With the exception of City of Atlanta, which has already been discussed as being higher, the County's monthly charge is approximately 40% and 50% higher than the next highest monthly charge at 8 ccf and 10 ccf, respectively.

In the State of Alabama comparison, the County is over 60% higher than the next highest utility at both usage levels.

Commercial Rates

RFC also conducted a comparison of commercial wastewater rates within the 60-plus largest wastewater utilities across the country. This comparison is based on a commercial customer with a 2-inch meter and 500 ccf (approximately 374,000 gallons) of monthly water usage. The County's monthly charge is the third highest of the surveyed utilities. Only the City of Seattle and the City of Atlanta have higher commercial wastewater charges than the County. The relative affluence of both of these utilities is discussed above. The County's charge is over 150% greater than the median and average of this group.

Recent Increases

The final comparative analysis conducted by RFC involved the history of increases in rates since 1998. RFC used data from the *RFC 1998 Water and Wastewater Rate Survey* (the "*1998 Survey*") to calculate the change in rates of those utilities that participated in the *1998 Survey*. Of the over 60 largest utilities, 42 (excluding the County) participated in the *1998 Survey*. The

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County's rates have increased the most during that period and have increased at more than three times the average and median rates. A summary of this analysis is included in Appendix A.

Comparative Summary

Even though there is not a definitive link between monthly charge comparisons and affordability, the County's position at or near the top (and often by a large margin) provides strong evidence that the County's customers cannot bear the burden of additional rate increases. In addition, the County's customers have endured the largest percentage change since 1998. Therefore, from a national, regional, and particularly a local perspective, the County's rates could be considered to exceed the upper limits of reasonableness.

AFFORDABILITY APPROACH

Despite a growing effort by industry leaders to reach consensus on some type of standardized affordability measures, there is still significant disagreement as to which metrics are the most appropriate for evaluating affordability. RFC believes that there is not one "best" criterion. Instead, criteria should be examined on the basis of the availability of data and the characteristics of the service area.

There are several approaches for conducting a basic evaluation of the affordability of sewer rates for County residents. The most frequently quoted metric is 2% of median household income. This metric was initially developed by the EPA to assess the long-term affordability of combined sewer overflow consent decrees. Though it was not meant to signify basic affordability of water and wastewater service, it has evolved to serve in this role. Appendix C contains a summary on affordability considerations within the water and wastewater industry.

Affordability Analysis Using EPA Guidelines

<u>Basic Analysis</u>

A simple approach for defining affordability is to calculate the percentage of MHI for a typical bill. The first step is to determine the MHI. The simple answer is to use the County's MHI ($43,435).[2] The problem with this approach is that the County does not provide service to all citizens within the County, with some areas having a significant number of residences on septic systems. To account for this unconventional characteristic, RFC calculated an estimated service area MHI of $40,608. The methodology used to calculate this MHI is summarized in Appendix D. The next step is to define the usage of a typical customer. For County customers, we have used averages often quoted in the water and wastewater industry, 8 ccf (approximately 6,000 gallons) and 10 ccf (approximately 7,500 gallons). Using these monthly volumes, the County MHI, and the estimated service area MHI, the wastewater charges are below the 2.0% benchmark.

[2] The MHI is from the 2006 census extrapolated to 2008 by the annual increase from 2000 to 2006.

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Table 1 – Percentage of MHI of Annual Charges

Monthly Usage (Annual Bill)		Median Household Income	
		$40,608	$43,435
	8 ccf ($604)	1.49%	1.39%
	10 ccf ($755)	1.86%	1.74%

We also calculated what the rates would have to be to reach the 2.0% metric. The following table summarizes the results. If this was the only metric to evaluate the affordability (and reasonableness) of rates, then it would appear that the County's rates could be increased before they were deemed unaffordable.

Table 2 – Rates (per ccf) at which Annual Bill is 2.0% of MHI

Monthly Usage		Median Household Income	
		$40,608	$43,435
	8 ccf	$ 9.95	$ 10.65
	10 ccf	$ 7.96	$ 8.52

Note: Current Rate is $7.40

RFC does not believe this approach provides the only appropriate metric for affordability. In particular, it does not take into account the distribution of customer MHIs.

<u>MHI Distribution Analysis</u>

If a utility has a bell shaped distribution of household incomes, with most of its customers around the MHI, then the first approach would have more validity. For a utility that has a high percentage of low income customers (like the County), the first approach does not capture the fact that these customers are disproportionately burdened by the sewer charge. Therefore, a second approach involves determining the percentage of customers that would have bills above a certain percentage of their MHI at various charges per ccf. In increments of 1 ccf, RFC calculated the annual bills for sewer service based on usages of 4 ccf through 10 ccf per month. The necessary annual incomes were determined by setting the sewer rates to 2.0% and 2.5% of annual MHI. The resulting incomes were compared to the household incomes of the County residents, by population and accounts and by zip codes and census tracts to determine the percentages of the County customers that had incomes below income levels associated with each percentage.

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Table 3 – Percentage of Customers above Affordability Metrics

Usage	Bill Amount		Affordability Over 2%		Affordability Over 2.5%	
CCF	Monthly	Annually	Annual Income Required for 2%	Percentage of Customers	Annual Income Required for 2.5%	Percentage of Customers
4	$ 25.16	$ 301.92	$ 15,096	0%	$ 12,077	0%
5	31.45	377.40	18,870	3%	15,096	0%
6	37.74	452.88	22,644	9%	18,115	0%
7	44.03	528.36	26,418	22%	21,134	6%
8	50.32	603.84	30,192	27%	24,154	16%
9	56.61	679.32	33,966	42%	27,173	26%
10	62.90	754.80	37,740	47%	30,192	27%

This analysis indicates that a substantial number of the County's customers, 47% at 10 ccf, are significantly burdened by current wastewater rates.

Financial Capability Assessment

RFC also performed a Financial Capability Assessment. This analysis was developed by the EPA to determine the affordability of long-term capital projects associated with consent decrees. Typically, it is used to examine the impact of future costs, but RFC used it to evaluate the current status of the County. The assessment is a two-phase analysis that results in the production of the Financial Capability Matrix to evaluate the financial burden of the system's costs on its customers. The first phase of the analysis develops a Residential Indicator, that is, the cost of the system on individual households. In particular, a cost per household as a percentage of MHI is calculated and a utility is categorized as "Low" (below 1.0%), "Mid-Range" (1.0% to 2.0%), and "High" (above 2.0%). The second phase develops the County's Financial Capability Indicators which evaluates the County's financial and economic position. The average score is calculated for a utility, and the utility is categorized as "Strong" (above 2.5), "Mid-Range" (1.5 to 2.5), and "Weak" (below 1.5). Using these categories, the EPA has a nine square matrix and defines the following as utilities with a "High Burden".

Residential Indicator (Phase 1)	Financial Capability Indicator (Phase 2)
Mid-Range	Weak
High	Weak
High	Mid-Range

RFC completed three alternative financial assessments for the County's sewer system ("System"). The alternative that RFC believes is the most relevant has a Phase I value of 2.1% (High) and a Phase II score of 1.7 (Mid-Range). Together, these scores indicate that the County's customers are in the High Burden Range. The complete Financial Capability Assessment is included in Appendix E.

Commercial Rate Affordability

There is not a commercial or non-residential measure that is equivalent to median household income. Therefore, it is much more difficult to develop a metric or set of metrics for defining affordability for these customers. RFC does not have knowledge of a specific non-residential affordability test.

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RFC believes that one approach for determining commercial affordability is to use residential affordability as a proxy. The other aspect of this analysis is whether the residential and commercial customers are allocated an equitable share of costs or if one of the classes subsidizes the other. This two dimensional analysis can be summarized by the following matrix.

	Residential Rates are Affordable	Residential Rates are Unaffordable
Residential Subsidizes Commercial	1	2
Equitable Allocation	3	4
Commercial Subsidizes Residential	5	6

The commercial affordability can then be determined by block in which the County falls. The key for the matrix is below.

- Block 1 - Commercial rates are assumed to be affordable because residential rates are affordable and commercial customers are not paying for the full cost of service
- Block 2 – Not definitive (affordability depends on the level of subsidy and level of residential rate unaffordability)
- Block 3 – Commercial Rates are assumed to be affordable because residential rates are affordable and costs are equitably allocated
- Block 4 – Commercial rates are assumed to be unaffordable because residential rates are affordable and costs are equitably allocated
- Block 5 – Not definitive (affordability depends on the level of subsidy and level of residential rate affordability)
- Block 6 – Commercial rates are assumed to be unaffordable because residential rates are unaffordable and residential customers are not paying for the full cost of service

RFC reviewed the County's most recent cost of service study. Based on the analysis within the cost of service study, it appears that the residential customers are subsidizing the non-residential customers. Since the residential rates were found to be unaffordable, the County would be in Block 2 in the matrix described in the previous paragraph. It is difficult to confirm the magnitude of the subsidy because the study does not contain a table that shows a comparison of cost of service to revenues generated by customer class. It is RFC's opinion that non-residential rates could be increased without undermining cost of service principles, which may lead to increased revenue. Appendix F contains a summary of RFC's review of the cost of service study and other relevant documents.

SUMMARY OF FINDINGS

The County's sewer rates place a substantial burden on many of the System's customers. The combination of rates and median household income distribution places the rates at the limit of reasonableness. Rates are as high relative to MHI as any across the country, with the possible

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exception of the City of Atlanta, which has materially higher rates but only a marginally stronger median household income distribution. The primary reasons that RFC believes the rates are at the limit of affordability include:

- Of the almost 90 utilities surveyed, all but four had lower rates;
- In the past 10 years, the County's rates have increased more than any of 42 other large utilities;
- Analysis indicates that 47% of the County's customers have a sewer bill that is at least 2% of their median household income; and
- Based on the Financial Capability Assessment, the County's customers face a High Burden.

Even though it is RFC's opinion that current sewer use rates are at the limit of affordability, RFC believes it would be imprudent for the County to not consider rate increases in the near term. It would not be inappropriate to expect the County's customers to face some level of rate increases. However, given the burden already borne by the County's customers and the rapid rate of increases over the past 10 years, such increases should be minimized. Based on recent industry trends, if the County had cost of living rate adjustments over the next few years, other utilities' sewer charges would approach the County's.[3] At some point, it would be more appropriate for the County to accelerate its increases. RFC recommends that once the County's charges fall from the 95th percentile to the 75th percentile (third quartile), that the County consider rate increases at least consistent with the industry average.

[3] Based on the RFC/AWWA 2006 Water and Wastewater Rate Survey, wastewater rates have increased by approximately 1.5% more per year than inflation. RFC anticipates this trend continuing and perhaps accelerating.

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APPENDIX A – RATE COMPARISONS

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Jefferson County
Residential Sewer Bill Comparison

	City	State	Service Provider	Monthly Bill 8 ccf 5,984 gal
1.	Memphis	TN	City of Memphis	$ 7.49
2.	Chicago	IL	Chicago Department of Water Management	$ 7.69
3.	Los Angeles County	CA	LA County Sanitation Dist.	$ 9.67
4.	Milwaukee	WI	Milwaukee Metropolitan Sewerage District	$ 10.03
5.	Salt Lake City	UT	Salt Lake Public Utilities	$ 10.56
6.	Denver	CO	City of Denver	$ 12.13
7.	Phoenix	AZ	City of Phoenix	$ 12.61
8.	Riverside	CA	City of Riverside	$ 13.05
9.	Omaha	NE	City of Omaha	$ 13.55
10.	Oakland	CA	East Bay Municipal Utility Dist	$ 13.92
11.	Wichita	KS	City of Wichita	$ 14.76
12.	Fountain Valley	CA	Orange County Sanitation District	$ 15.17
13.	San Antonio	TX	San Antonio Water System	$ 16.14
14.	Las Vegas	NV	Clark County Sanitation Dist	$ 16.25
15.	Tucson	AZ	Pima Co. Wastewater Management	$ 17.01
16.	Virginia Beach	VA	Hampton Roads Sanitation Dist.	$ 17.53
17.	Oklahoma City	OK	City of Oklahoma City	$ 17.59
18.	Tulsa	OK	City of Tulsa	$ 18.25
19.	Sacremento	CA	Sacraento Regional Co Sanitation Dist	$ 18.50
20.	Houston	TX	City of Houston	$ 18.59
21.	El Paso	TX	El Paso Water Utilities	$ 19.25
22.	Lauderdale Lakes	FL	Broward County Environmental Services	$ 19.35
23.	Miami	FL	Miami-Dade Water and Sewer Dept.	$ 19.41
24.	New York City	NY	New York City Water Board	$ 20.95
25.	Kansas City	MO	City of Kansas City	$ 22.29
26.	Louisville	KY	MSD of Louisville	$ 23.46
27.	San Jose	CA	City of San Jose	$ 23.56
28.	Akron	OH	City of Akron	$ 24.24
29.	Los Angeles	CA	City of Los Angeles	$ 24.40
30.	St. Paul	MN	City of St. Paul	$ 25.20
31.	Baton Rouge	LA	City of Baton Rouge	$ 25.35
	Median 8 CCF Bill			*$ 25.35*
32.	Fort Worth	TX	City of Fort Worth	$ 25.62
33.	St. Louis	MO	Metropolitan St. Louis Sewerage Dist	$ 25.74
34.	Chattanooga	TN	City of Chattanooga	$ 26.01
	Average 8 CCF Bill			*$ 26.41*
35.	Dallas	TX	City of Dallas	$ 27.01
36.	Cleveland	OH	Northeast Ohio Regional Sewer Dist	$ 27.08
37.	Charlotte	NC	Charlotte-Mecklenburg Utilities	$ 27.56
38.	Washington	DC	DCWASA	$ 27.85
39.	Laurel	MD	Washington Suburban Sanitary Commission	$ 28.14
40.	Nashville	TN	City of Nashville	$ 28.61
41.	Colorado Springs	CO	Colorado Springs Utilities	$ 28.79
42.	Orlando	FL	City of Orlando	$ 29.27
43.	Baltimore	MD	City of Baltimore	$ 29.28
44.	Detroit	MI	Detroit Water and Sewerage Dept	$ 29.62
45.	St. Petersburg	FL	City of St. Petersburg	$ 30.59
46.	Philadelphia	PA	City of Philadelphia	$ 30.77
47.	New Orleans	LA	Sewerage and Water Board of NO	$ 32.15
48.	San Diego	CA	San Diego Metropolitan Wastewater	$ 32.18
49.	Jacksonville	FL	JEA	$ 32.59
50.	Columbus	OH	Columbus Public Utilities	$ 34.10
51.	Marietta	GA	City of Marietta	$ 36.55
52.	Boston	MA	Boston Water & Sewer Commission	$ 38.88
53.	Austin	TX	City of Austin	$ 42.07
54.	San Francisco	CA	San Francisco Public Utilities	$ 44.81
55.	Portland	OR	City of Portland	$ 45.60
56.	Honolulu	HI	City and County of Honolulu	$ 47.94
57.	Jefferson Co.	AL	Jefferson County	$ 50.32
58.	Cincinnati	OH	MSD of Greater Cincinnati	$ 50.36
59.	Pittsburgh	PA	ALCOSAN	$ 52.05
60.	Atlanta	GA	City of Atlanta	$ 59.81
61.	Seattle	WA	City of Seattle	$ 62.00

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Jefferson County
Residential Sewer Bill Comparison

	City	State	Provider	Monthly Bill 10 ccf 7,480 gal
1.	Memphis	TN	City of Memphis	$ 8.80
2.	Chicago	IL	Chicago Department of Water Managemen	$ 9.61
3.	Los Angeles County	CA	LA County Sanitation Dist	$ 9.67
4.	Salt Lake City	UT	Salt Lake Public Utilities	$ 10.56
5.	Milwaukee	WI	Milwaukee Metropolitan Sewerage Distric	$ 12.07
6.	Riverside	CA	City of Riverside	$ 13.05
7.	Phoenix	AZ	City of Phoenix	$ 14.63
8.	Oakland	CA	East Bay Municipal Utility Dis	$ 14.94
9.	Omaha	NE	City of Omaha	$ 15.00
10.	Denver	CO	City of Denver	$ 15.05
11.	Fountain Valley	CA	Orange County Sanitation Distric	$ 15.17
12.	Las Vegas	NV	Clark County Sanitation Dis	$ 16.25
13.	Wichita	KS	City of Wichita	$ 17.50
14.	Sacramento	CA	Sacraento Regional Co Sanitation Dis	$ 18.50
15.	San Antonio	TX	San Antonio Water System	$ 19.06
16.	Tucson	AZ	Pima Co. Wastewater Management	$ 19.83
17.	Virginia Beach	VA	Hampton Roads Sanitation Dist	$ 21.49
18.	El Paso	TX	El Paso Water Utilities	$ 21.54
19.	Oklahoma City	OK	City of Oklahome City	$ 21.99
20.	Tulsa	OK	City of Tulsa	$ 22.81
21.	Lauderdale Lakes	FL	Broward County Environmental Service	$ 23.39
22.	San Jose	CA	City of San Jose	$ 23.56
23.	Miami	FL	Miami-Dade Water and Sewer Dept.	$ 25.58
24.	Kansas City	MO	City of Kansas City	$ 25.89
25.	Louisville	KY	MSD of Louisville	$ 26.26
26.	New York City	NY	New York City Water Board	$ 27.37
27.	Houston	TX	City of Houston	$ 28.76
28.	Baltimore	MD	City of Baltimore	$ 29.28
29.	St. Louis	MO	Metropolitan St. Louis Sewerage Dist	$ 29.50
30.	Akron	OH	City of Akron	$ 30.29
31.	Los Angeles	CA	City of Los Angeles	$ 30.50
	Median 10 CCF Bill			*$ 30.50*
32.	Baton Rouge	LA	City of Baton Rouge	$ 30.67
33.	Fort Worth	TX	City of Fort Worth	$ 30.90
34.	St. Petersburg	FL	City of St. Petersburg	$ 30.90
	Average 10 CCF Bill			*$ 32.03*
35.	Chattanooga	TN	City of Chattanooga	$ 32.52
36.	Dallas	TX	City of Dallas	$ 32.89
37.	Colorado Springs	CO	Colorado Springs Utilities	$ 32.99
38.	Orlando	FL	City of Orlando	$ 33.55
39.	Cleveland	OH	Northeast Ohio Regional Sewer Dist	$ 33.85
40.	Charlotte	NC	Charlotte-Mecklenburg Utilities	$ 34.00
41.	Detroit	MI	Detroit Water and Sewerage Dept	$ 34.14
42.	Washington	DC	DCWASA	$ 34.31
43.	Philadelphia	PA	City of Philadelphia	$ 34.31
44.	St. Paul	MN	City of St. Paul	$ 35.70
45.	Nashville	TN	City of Nashville	$ 36.13
46.	Laurel	MD	Washington Suburban Sanitary Commission	$ 37.11
47.	New Orleans	LA	Sewerage and Water Board of NO	$ 37.29
48.	San Diego	CA	San Diego Metropolitan Wastewater	$ 37.96
49.	Jacksonville	FL	JEA	$ 39.70
50.	Columbus	OH	Columbus Public Utilities	$ 40.35
51.	Marietta	GA	City of Marietta	$ 45.69
52.	Boston	MA	Boston Water & Sewer Commission	$ 48.60
53.	Honolulu	HI	City and County of Honolul	$ 50.15
54.	Austin	TX	City of Austin	$ 52.81
55.	Portland	OR	City of Portland	$ 57.00
56.	Cincinnati	OH	MSD of Greater Cincinnat	$ 57.23
57.	San Francisco	CA	San Francisco Public Utilities	$ 60.94
58.	Jefferson Co.	AL	Jefferson County	$ 62.90
59.	Pittsburgh	PA	ALCOSAN	$ 63.27
60.	Atlanta	GA	City of Atlanta	$ 77.17
61.	Seattle	WA	City of Seattle	$ 77.50

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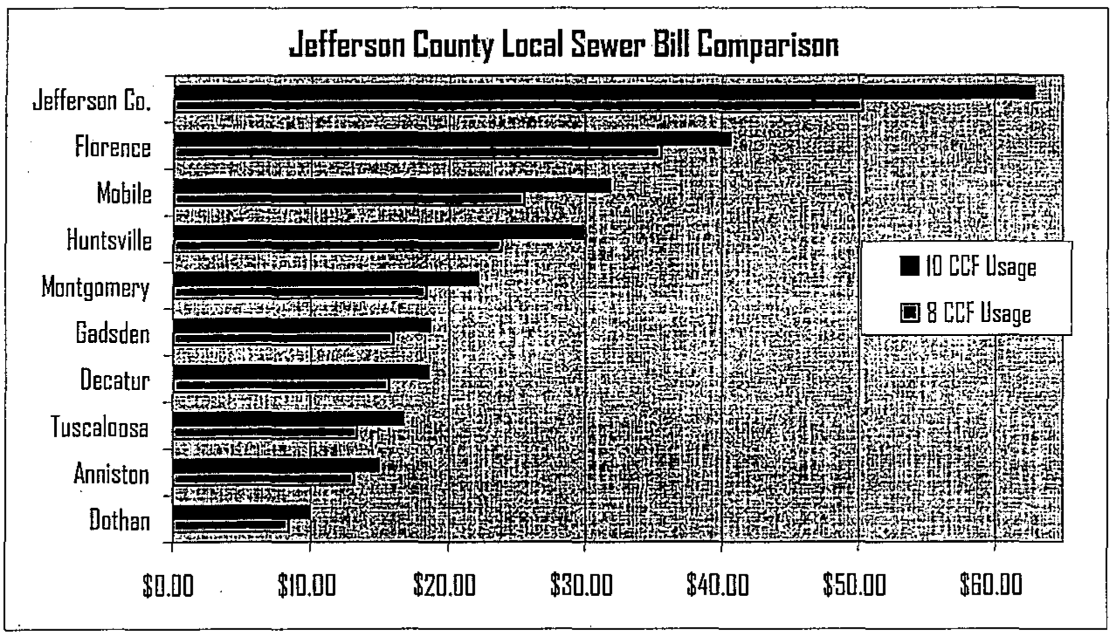
Jefferson County
Residential Sewer Bill Comparison - Local

	City	State	Provider	Base Charge	Volumetric Charge 8 ccf	Volumetric Charge 10 ccf	Monthly Bill 8 ccf	Monthly Bill 10 ccf
1.	Dothan	AL	Dothan Utilities	$ 2.10	$ 6.28	$ 7.85	$ 8.38	$ 9.95
2.	Anniston	AL	Anniston Water Works & Sewer Board	$ 6.00	$ 7.12	$ 8.90	$ 13.12	$ 14.90
3.	Tuscaloosa	AL	City of Tuscaloosa	$ -	$ 13.36	$ 16.70	$ 13.36	$ 16.70
4.	Decatur	AL	Decatur Utilities	$ 4.00	$ 11.61	$ 14.51	$ 15.61	$ 18.51
5.	Gadsden	AL	Gadsden Water Works and Sewer Board	$ 5.16	$ 10.80	$ 13.50	$ 15.96	$ 18.66
6.	Montgomery	AL	Montgomery Water Works and Sanitary Sewer Board	Included in water charge - Bill is estimated at 1/2 of water bill			$ 18.39	$ 22.17
7.	Huntsville	AL	City of Huntsville	$ -	$ 23.88	$ 29.85	$ 23.88	$ 29.85
8.	Mobile	AL	Mobile Area Water and Sewer System	$ 10.65	$ 14.84	$ 21.21	$ 25.49	$ 31.86
9.	Florence	AL	City of Florence	$ 15.26	$ 20.35	$ 25.43	$ 35.61	$ 40.69
10.	Jefferson Co.	AL	Jefferson County	$ -	$ 50.32	$ 62.90	$ 50.32	$ 62.90



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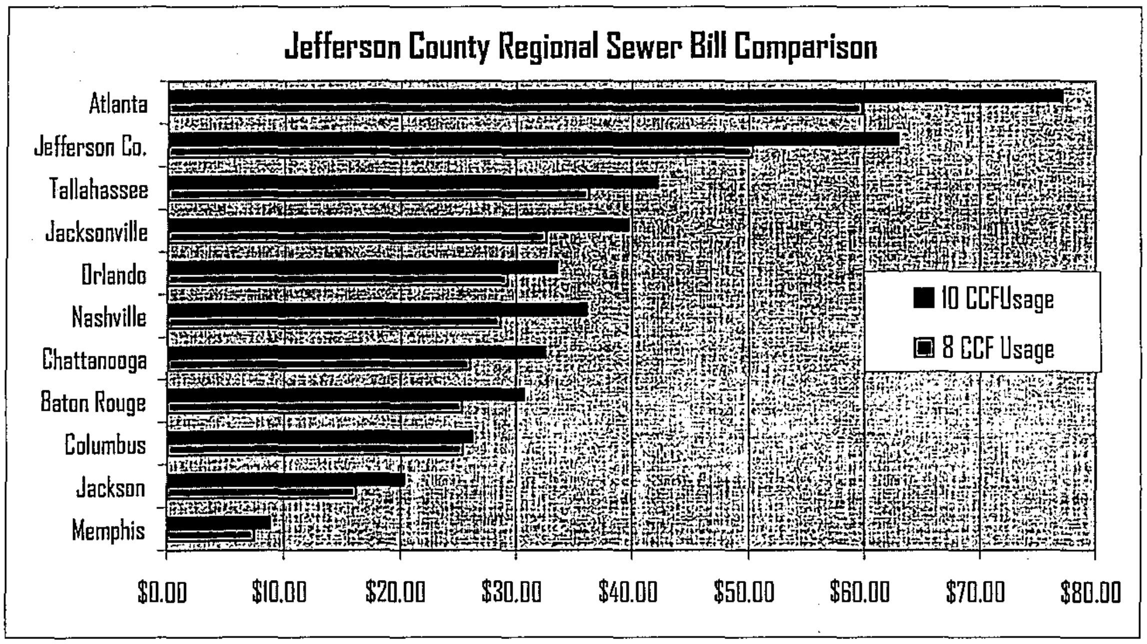
Jefferson County
Residential Sewer Bill Comparison - Regional

	City	State	Provider	Base Charge	Volumetric Charge 8 ccf	Volumetric Charge 10 ccf	Monthly Bill 8 ccf	Monthly Bill 10 ccf
1.	Memphis	TN	City of Memphis	$ 2.25	$ 5.24	$ 6.55	$ 7.49	$ 8.80
2.	Jackson	MS	City of Jackson	$ 5.48	$ 10.76	$ 14.82	$ 16.24	$ 20.30
3.	Columbus	GA	Columbus Water Works	$ 2.02	$ 19.36	$ 24.20	$ 25.41	$ 26.22
4.	Baton Rouge	LA	City of Baton Rouge	$ 14.71	$ 10.64	$ 15.96	$ 25.35	$ 30.67
5.	Chattanooge	TN	City of Chattanooge	$ -	$ 26.01	$ 32.52	$ 26.01	$ 32.52
6.	Nashville	TN	City of Nashville	$ 6.05	$ 22.56	$ 30.08	$ 28.61	$ 36.13
7.	Orlando	FL	City of Orlandc	$ 12.16	$ 17.11	$ 21.39	$ 29.27	$ 33.55
8.	Jacksonville	FL	JEA	$ 4.17	$ 28.42	$ 35.53	$ 32.59	$ 39.70
9.	Tallahassee	FL	City of Tallahassee	$ 12.48	$ 23.82	$ 29.77	$ 36.30	$ 42.25
10.	**Jefferson Co.**	**AL**	**Jefferson County**	**$ -**	**$ 50.32**	**$ 62.90**	**$ 50.32**	**$ 62.90**
11.	Atlanta	GA	City of Atlanta	$ 3.63	$ 56.18	73.54	$ 59.81	$ 77.17



Jefferson County
Commercial Bill Comparison

	City	State	Provider	Monthly Bill 500 ccf 374,000 gal
1.	Memphis	TN	City of Memphis	$ 329.50
2.	Chicago	IL	Chicago Department of Water Managemen	$ 349.97
3.	Omaha	NE	City of Omaha	$ 371.39
4.	Milwaukee	WI	Milwaukee Metropolitan Sewerage Distric	$ 513.67
5.	Riverside	CA	City of Riverside	$ 541.55
6.	El Paso	TX	El Paso Water Utilities	$ 633.74
7.	Wichita	KS	City of Wichita	$ 695.41
8.	Phoenix	AZ	City of Phoenix	$ 717.90
9.	Denver	CO	City of Denver	$ 729.30
10.	San Antonio	TX	San Antonio Water System	$ 734.87
11.	Salt Lake City	UT	Salt Lake Public Utilities	$ 875.00
12.	Louisville	KY	MSD of Louisville	$ 892.81
13.	Virginia Beach	VA	Hampton Roads Sanitation Dist	$ 902.39
14.	Kansas City	MO	City of Kansas City	$ 923.50
15.	Dallas	TX	City of Dallas	$ 933.74
16.	St. Louis	MO	Metropolitan St. Louis Sewerage Dist	$ 978.10
17.	Oklahoma City	OK	City of Oklahome Cit	$ 1,002.32
18.	Colorado Springs	CO	Colorado Springs Utilities	$ 1,160.78
19.	Tucson	AZ	Pima Co. Wastewater Management	$ 1,180.72
20.	San Jose	CA	City of San Jose	$ 1,300.00
21.	Philadelphia	PA	City of Philadelphia	$ 1,320.70
22.	Baton Rouge	LA	City of Baton Rouge	$ 1,334.07
23.	Lauderdale Lakes	FL	Broward County Environmental Service	$ 1,344.56
24.	St. Petersburg	FL	City of St. Petersburg	$ 1,415.93
25.	Akron	OH	City of Akron	$ 1,426.06
26.	St. Paul	MN	City of St. Paul	$ 1,445.00
27.	Oakland	CA	East Bay Municipal Utility Dis	$ 1,455.25
	Median			$ 1,463.92
28.	Baltimore	MD	City of Baltimore	$ 1,463.92
29.	Chattanooga	TN	City of Chattanooga	$ 1,463.92
30.	Detroit	MI	Detroit Water and Sewerage Dept	$ 1,485.71
31.	Cincinnati	OH	MSD of Greater Cincinnat	$ 1,508.39
32.	Los Angeles	CA	City of Los Angeles	$ 1,525.00
	Average			$ 1,563.78
33.	San Diego	CA	San Diego Metropolitan Wastewater	$ 1,572.69
34.	New Orleans	LA	Sewerage and Water Board of NO	$ 1,574.21
35.	Fort Worth	TX	City of Fort Worth	$ 1,584.50
36.	Columbus	OH	Columbus Public Utilities	$ 1,600.29
37.	New York City	NY	New York City Water Board	$ 1,601.27
38.	Charlotte	NC	Charlotte-Mecklenburg Utilities	$ 1,611.80
39.	Washington	DC	DCWASA	$ 1,618.92
40.	Cleveland	OH	Northeast Ohio Regional Sewer Dist	$ 1,692.50
41.	Orlando	FL	City of Orlando	$ 1,719.35
42.	Nashville	TN	City of Nashville	$ 1,760.32
43.	Houston	TX	City of Houston	$ 1,775.74
44.	Jacksonville	FL	JEA	$ 1,809.94
45.	Miami	FL	Miami-Dade Water and Sewer Dept	$ 1,875.48
46.	Marietta	GA	City of Mariette	$ 2,285.13
47.	Austin	TX	City of Austin	$ 2,598.92
48.	Pittsburgh	PA	ALCOSAN	$ 2,719.51
49.	Boston	MA	Boston Water & Sewer Commission	$ 2,855.50
50.	Portland	OR	City of Portland	$ 2,930.00
51.	Honolulu	HI	City and County of Honolul	$ 2,954.60
52.	San Francisco	CA	San Francisco Public Utilities	$ 3,006.80
53.	Jefferson Co.	AL	Jefferson County	$ 3,700.00
54.	Seattle	WA	City of Seattle	$ 3,875.00
55.	Atlanta	GA	City of Atlanta	$ 4,330.37

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Jefferson County

Historical Residential Sewer Bill Comparison

	City	State	Provider		Monthly Bill 10 ccf 7,480 gal	1998 Monthly Bill 10 ccf 7,480 gal	Change From 1998 to Present
1.	Denver	CO	City of Denver	$	15.05	13.67	10.1%
2.	Akron	OH	City of Akron	$	30.29	26.84	12.9%
3.	Miami	FL	Miami-Dade Water and Sewer Dept.	$	25.58	22.12	15.6%
4.	Tucson	AZ	Pima Co. Wastewater Management	$	19.83	16.60	19.5%
5.	San Diego	CA	San Diego Metropolitan Wastewater	$	37.96	31.37	21.0%
6.	Phoenix	AZ	City of Phoenix	$	14.63	11.66	25.5%
7.	San Antonio	TX	San Antonio Water System	$	19.06	14.83	28.5%
8.	Orlando	FL	City of Orlando	$	33.55	25.97	29.2%
9.	Milwaukee	WI	Milwaukee Metropolitan Sewerage District	$	12.07	9.24	30.6%
10.	Tulsa	OK	City of Tulsa	$	22.81	17.35	31.5%
11.	Salt Lake City	UT	Salt Lake Public Utilities	$	10.56	8.00	32.0%
12.	San Jose	CA	City of San Jose	$	23.56	17.81	32.3%
13.	Houston	TX	City of Houston	$	28.76	21.49	33.8%
14.	Chattanooga	TN	City of Chattanooga	$	32.52	23.47	38.5%
15.	Las Vegas	NV	Clark County Sanitation Dist	$	16.25	11.57	40.4%
16.	Riverside	CA	City of Riverside	$	13.05	9.25	41.1%
17.	Dallas	TX	City of Dallas	$	32.89	23.29	41.2%
18.	Oakland	CA	East Bay Municipal Utility Dist	$	14.94	10.56	41.5%
19.	New York City	NY	New York City Water Board	$	27.37	19.08	43.5%
20.	Wichita	KS	City of Wichita	$	17.50	11.18	56.5%
21.	Omaha	NE	City of Omaha	$	15.00	9.47	58.4%
22.	Fort Worth	TX	City of Fort Worth	$	30.90	18.50	67.0%
23.	Honolulu	HI	City and County of Honolulu	$	50.15	29.05	72.6%
24.	Portland	OR	City of Portland	$	57.00	31.47	81.1%
	Average 10 CCF Bill			*$*	*31.64*	*$ 17.27*	*83.2%*
25.	St. Louis	MO	Metropolitan St. Louis Sewerage Dist	$	29.50	16.07	83.6%
26.	Virginia Beach	VA	Hampton Roads Sanitation Dist.	$	21.49	11.38	88.8%
	Median 10 CCF Bill			*$*	*30.59*	*$ 16.07*	*90.3%*
27.	Seattle	WA	City of Seattle	$	77.50	40.50	91.4%
28.	Charlotte	NC	Charlotte-Mecklenburg Utilities	$	34.00	17.55	93.7%
29.	Memphis	TN	City of Memphis	$	8.80	4.39	100.3%
30.	Austin	TX	City of Austin	$	52.81	26.27	101.0%
31.	Columbus	OH	Columbus Public Utilities	$	40.35	19.26	109.5%
32.	Baltimore	MD	City of Baltimore	$	29.28	13.93	110.2%
33.	Los Angeles	CA	City of Los Angeles	$	30.50	13.56	124.9%
34.	Boston	MA	Boston Water & Sewer Commission	$	48.60	19.92	144.0%
35.	Colorado Springs	CO	Colorado Springs Utilities	$	32.99	12.94	154.9%
36.	Baton Rouge	LA	City of Baton Rouge	$	30.67	11.76	160.8%
37.	Cincinnati	OH	MSD of Greater Cincinnati	$	57.23	21.85	161.9%
38.	Detroit	MI	Detroit Water and Sewerage Dept	$	34.14	12.61	170.7%
39.	New Orleans	LA	Sewerage and Water Board of NO	$	37.29	13.66	173.0%
40.	Pittsburgh	PA	ALCOSAN	$	31.14	9.94	213.3%
41.	Sacramento	CA	Sacraento Regional Co Sanitation Dist	$	18.50	5.37	244.5%
42.	Atlanta	GA	City of Atlanta	$	77.17	22.00	250.8%
43.	**Jefferson Co.**	AL	**Jefferson County**	$	62.90	15.98	293.6%

APPENDIX B – MHI DISTRIBUTIONS

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Percentage of Households in 2008 by Income Blocks in Respective Service Areas					
Income Block	Jefferson Co.	Hamilton Co. (Cincinnati)	Allegheny Co. (Pittsburgh)	Fulton Co. (Atlanta)	Seattle
Less than $10,000	8.6%	10.5%	8.6%	8.0%	7.5%
$10,000 to $14,999	7.2%	6.1%	7.0%	4.7%	4.3%
$15,000 to $24,999	13.0%	10.5%	12.5%	9.0%	8.9%
$25,000 to $34,999	11.7%	12.1%	11.3%	9.6%	7.7%
$35,000 to $49,999	14.8%	13.2%	13.6%	12.4%	11.5%
$50,000 to $74,999	18.3%	17.4%	18.2%	15.7%	17.5%
$75,000 to $99,999	10.2%	12.1%	11.2%	9.9%	13.2%
$100,000 to $149,999	9.5%	10.1%	10.8%	13.3%	15.9%
$150,000 to $199,999	2.9%	3.6%	3.5%	7.3%	6.3%
$200,000 or more	3.7%	4.4%	3.5%	10.0%	7.2%
MHI	$ 43,435	$ 45,954	$ 45,640	$ 57,484	$ 63,229

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APPENDIX C – AFFORDABILITY DISCUSSION

Affordability Concepts

Before the reasonableness of the County's wastewater rates can be evaluated, it is first necessary to understand some basic concepts regarding utility rate affordability. What is affordability? Why is it important? And why is it difficult to measure?

What Is Affordability?

Affordability may be defined as **the ability of customers to pay for utility services billed to them**. Exactly how affordability should be measured, however, is dependent upon the objectives of the reviewer. Is utility management interested primarily in evaluating affordability for "average" residential customers? Or do they want to estimate how many low income customers might have trouble paying their water bills? Or maybe the utility needs to demonstrate whether or not a new federal mandate will pose an unmanageable financial burden. Each of these situations would create a different perspective on how affordability should be measured. Furthermore, each utility's customer base is unique, both in terms of economic profile, demand patterns, and data availability. For all of these reasons, affordability is very much an art at least as much as it is a science.

Why Affordability Is Important

Rate affordability is not merely an abstract concept. Charging rates that many customers cannot afford to pay will result in real costs to the utility. These costs are in addition to the social issues and potential public health risks created when a segment of the population cannot afford access to clean water.

- **Bill delinquency**
  - Uncollectible receivables
  - Turn-on / turn-off costs
  - Increased administrative overhead
  - Costs for hiring outside collection firms
  - Need for higher reserves to cover uncollectible accounts

- **Revenue shortfalls**
  - Expected revenues may not materialize if new rates are burdensome.

- **Customer conflict**
  - The mere perception of non-affordability will result in customer rebellion.
  - A public good-faith effort at preserving affordability can improve customer relations.

Measuring Affordability Can Be Difficult

Translating affordability concepts into numerical measures requires due diligence and careful judgment. Any affordability test that does not consider the context and purpose of the test is of limited usefulness except as an academic exercise. In order to provide affordability measurements that are of real value to decision-makers, the analyst should consider the following issues:

- Relevance to the decisions being considered and the utility's environment (financial, political, and operational context);
- Feasibility of the proposed analysis (data availability, level of expertise required, level of effort);
- Understandability (not so complex as to baffle the user); and
- Credibility of the analysis (data integrity, supporting documentation, precedence).

Although it may not be possible - or even necessary – to satisfy every objective, decision-makers should be skeptical of measurements that do not take each of these objectives under careful consideration. Simply selecting the easiest and most convenient affordability test will rarely be of value in making well-informed decisions.

Affordability Criteria

Despite a growing effort by industry leaders to reach consensus on some type of standardized affordability measurements, there is still significant disagreement as to what metrics are the most appropriate for evaluating affordability. It is our opinion that there is no one "best" criteria. Instead, criteria should be examined on the basis of the availability of data and the characteristics of the service area.

As shown in the exhibit below, the data used in measuring affordability fall into two categories. The first category relates to the financial strength and economic well-being of the community as a whole. The second category focuses on the rate burden for a hypothetical customer from a specific billing class or sub-class.

Community Financial Strength Indicators
- Utility and municipal bond ratings - Median Household Income/Adjusted National MHI - Unemployment rate (local/national) - Property tax collection rates - Net debt/property market value - Property tax revenues/total property market value

Customer Burden Indicators
- Typical bill amount - Household income (low income, average, other statistics) - Consumer Price Indices - # of customers at different burden levels - Poverty levels - Bill ranking against other utilities - Account delinquency

A thorough affordability analysis will include multiple indicators from both categories. Each financial indicator is discussed in more detail below.

Community Financial Strength

Community strength indicators provide a context within which customer burden measurements may be interpreted. As important as customer affordability tests are, they lose some of their value if presented in a vacuum. Even though utility managers may strive to avoid burdensome or inequitable rate impacts, their options are limited by the financial strength of the utility and of the community. Utilities enjoying robust financial health have the option of mitigating rate impacts by using low income assistance programs, rate stabilization funds, financial planning studies, sophisticated rate restructuring, and creative financing arrangements not available to financially weaker utilities. Utilities located in financially strong communities usually benefit from expanding customer bases and business development programs. In short, strong systems typically have access to multiple options for reaching their affordability objectives, while systems with weak fundamentals may have few or no options.

The following financial indicators are generally useful in evaluating community financial strength.

- **Bond Rating.** Moody's, Standard and Poor's, and Fitch bond ratings provide universally recognized benchmarks of municipal financial strength and stability. Utilities and municipalities with substandard bond ratings are likely to have less financial flexibility for dealing with affordability issues. If a particular bond rating is listed as "insured", it should likely be disregarded as a measurement of underlying community financial health.

- **Community MHI as a Percentage of National Average MHI.** This ratio provides a comparison of local household earning power to average households nationwide. Median household income data for many communities may be obtained from the U.S. Census Bureau.

- **Unemployment Rate.** When calculated as a percentage of the national average unemployment rate, this number provides an indication of whether an above-average

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portion of the population is likely to be financially distressed due to joblessness. Unemployment data at the national, regional, and metropolitan levels may be obtained from the U.S. Labor Department's Bureau of Labor Statistics.

- **Property Tax Collection Rate.** This percentage is an indicator of the community's general financial health. Cities with above-average delinquency rates are the most likely to be financially distressed. Collection rate data may be extracted from state property tax statistical reports published by the state revenue department.

- **Net Debt as a Percentage of Property Market Value.** This ratio measures debt paid from property tax revenues as a percentage of the total market value of all taxed properties. The resulting ratio provides an indication of the community's ability to generate increased property tax revenues in the future. "Net Debt" values may typically be obtained from year-end financial statements. Total Property Market Value is often available from property tax statistical reports published by the state revenue department.

- **Property Tax Revenues as a Percentage of Total Property Market Value.** This ratio provides another indication of the community's ability to generate increased future property tax revenues. For many communities, Property Tax Revenue Data and Total Property Market Value may be extracted from the state property tax statistical report published by the state revenue department.

- **Poverty Levels within the Service Area.** Poverty levels should be viewed in terms of both absolute numbers and in relation to poverty areas regionally and nationwide. By comparing poverty levels to median and average household income data, policymakers can estimate the degree to which their customer base is economically stratified. This data will be useful in evaluating possible assistance programs and rate design options.

In order to appreciate the economic realities faced by a utility, a combination of indicators should be examined. It is to be expected that some data may be unavailable, outdated, or inaccurate, and therefore limited in its usefulness. This limitation makes it all the more important to examine multiple financial measurements.

<u>Customer Burden Indicators</u>

Rate affordability for specific customer groups cannot be determined without a way to measure the rate <u>burden</u> for these groups. This burden is most frequently quantified by an index that represents the percentage of household income consumed by water and wastewater bills. If this index exceeds a certain percentage for a certain category of household, the water and wastewater rates are considered to be "unaffordable" for that particular household. Determining the parameters of this index requires answering several questions.

- Should the index represent the typical residential customer, an economically disadvantaged customer, or a range in between?

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- Should an affordability index be calculated for commercial customer classes?
- What monthly water/wastewater demand should be assumed for calculating the bill? Should indices be calculated for multiple demand levels?
- How should income levels be estimated for the representative customer?

The answers to each of these questions depend on the goals of utility management, the utility's financial and technical resources, and the financial planning decisions under evaluation.

Supporting Data

In an analysis of this nature it is necessary to compile data from a wide range of sources and, where necessary, apply inflationary adjustments or other modifications in order to make the data as compatible as possible. The data list for any thorough affordability index should at a minimum include the following information:

- **Poverty levels and incomes within the service area.** Poverty level data should include both local data and a review of how local levels relate to national levels. By comparing poverty levels to median and average household income data, policymakers can further estimate the degree to which their customer base is economically stratified. [4]
- **Median and average household income.** In addition to measuring household financial capabilities, the disparity between median and average incomes also provides an indicator of the extent to which the service area is economically stratified.
- **Historical Consumer Price Indices.** It is likely that at least some of the income data will be from prior year surveys. This data will need to be escalated to current year dollars using the Consumer Price Index.
- **Bill Frequency Data.** Tasks that require bill frequency data include:
  - Determining the demand patterns of different customer groups;
  - Determining the monthly demand to be used for the selected affordability target group(s) (e.g. monthly consumption for average households of one, two, three persons, etc.); and
  - Estimating the impacts of different affordability approaches on both utility revenues and customer bill impacts.
- **Local and regional cost of living indices.** Cost of living indices are useful for minimizing distortions that would otherwise be caused by regional variations in income and costs.
- **A comparison of local water and wastewater bills for peer utilities in the region.** This type of rate comparison serves as a useful reality check when reviewed in conjunction with other data in and around the utility's service area.
- **Account Delinquency Patterns.** Account delinquency data should be reviewed for statistical relationships to specific customer classes and usage levels.

Practical Considerations

Utility financial managers are not interested in going through an analysis purely as an abstract academic exercise. A successful analysis must provide information that helps management make

[4] Some communities may have a relatively high median household income despite having a large percentage of customers at or below the poverty level.

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long-term policy and financial planning decisions. To be of practical value, customer affordability profiles should respect practical considerations such as:

- What customers are the most likely to be financially burdened by water and wastewater bills?
- Can the accounts of these customers be identified using available data?
- How many of these customers are in the utility service area?
- What are the demand patterns of these customers?

Finally, the resulting customer burden indices must be examined in the context of the regional strength indices. Interpreting the customer burden index in the absence of regional financial strength indices may not provide a true picture of the customer's or the utility's respective ability to absorb major cost increases. The affordability of monthly water and wastewater bills is a function of regional, local, and household economic conditions, and there is no "one-size-fits-all" affordability index. For example: The *1998 Water Affordability Programs* report[5] by the AWWA Research Foundation suggests that water bills become unaffordable at two percent of impoverished household income. However, this equates to a four percent total water and wastewater rate burden, and it could be argued that this percentage is rather high for those customers that are impoverished. Because poverty level customers have a smaller percentage of income available for covering utility costs than higher income customers, their affordability thresholds tend to be relatively low. If the utility is financially well-off, it may be able to absorb the cost of a low-income assistance program. If not, the utility will need to explore other strategies for keeping rates affordable for low-income ratepayers.

EPA Affordability Standards

Since the 1990s, the EPA has used affordability criteria to assess the ability of utilities to pay for new treatment processes. One example of such criteria is the 1997 financial capability tests established as part of the EPA's Combined Sewer Overflow Control Policy. In 2002, however, EPA was directed by Congress to reevaluate how it measures affordability for small systems. As a result, the EPA has been working with the National Drinking Water Advisory Council and the Science Advisory Board to determine what changes should be made to the EPA's standardized national affordability criteria. Because EPA affordability criteria are inevitably also adopted by many decision-makers for general-purpose use, they have a significant influence on how the industry views affordability. This is true even though these affordability tests were originally designed primarily to evaluate the utility cost burden of new regulations.

After extensive discussion among members of the working group and the EPA, there is still deep disagreement as to what affordability criteria would be most suitable. The EPA and most workgroup members have indicated a preference for measuring affordability as a percentage of Median Household Income (MHI), which has been used as a central component of EPA affordability measures for more than 10 years. Because MHI data is readily available, simple to understand, and already used in EPA's affordability test, it's appeal is easily understood. However, the proposed MHI standard has met with strong objections from members representing small rural water utilities.

[5] *Water Affordability Programs*, AWWA Research Foundation, Publication 90732, 1998

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These are two of the concerns raised regarding the proposed MHI standard.

1. Not one utility has an average water bill that exceeds the 2.5% of MHI threshold currently used by the EPA. Even if the percentage were lowered to 2%, all average water bills would still be beneath this threshold.
2. Analysts have made a very strong case that, in most cases, Median Household Income is a poor tool for measuring affordability unless it is supplemented by other measurements.

The first issue is significant because decision-makers often view EPA affordability thresholds as definitive general-purpose affordability measures. The fact that no utilities have average bills exceeding the EPA threshold implies that, by adopting the EPA threshold, decision-makers are likely approve rates that would be flagged as unaffordable under more rigorous standards. As a result, EPA affordability standards have the potential for hindering the detection of serious affordability issues in some systems until the problem becomes unmanageable. The temptation to rely on the EPA's criteria stems from the fact that, although other water affordability methods have been published, most of these other methods require more complex and subjective analysis than the EPA standards. Even within the systemwide funding focus of the EPA workgroup, there is significant disagreement among the advisory council members as to whether or not 2.5% of MHI is the most appropriate metric. As a result, decision-makers should be skeptical of suggestions that the EPA criteria be the primary measure of whether or not customers can afford to pay their water bills in the real world.

The second issue questions whether or not Median Household Income is the best tool for measuring affordability in the first place. If a decision-maker wants to predict how many customers might have trouble paying their water bills, it seems unlikely that much will be learned by studying households in the middle income brackets. Middle and upper income households are the most likely to have the flexibility to modify their spending so that basic utilities are paid. At lower income brackets, however, utility bills makeup and much larger percentage of total household income. In cases where a middle income household may have to make a decision between paying their water bill and dining out, a low income household may have to decide between the water bill and paying for medical care, food, or heat. Although it is true that some percentage of customers will always have difficulty paying their water bills regardless of the rates, no one's interests are served by affordability measurements that obscure the scope of the problem.

Affordability analysis is a relatively young field. For several years, the EPA's affordability measurement criterion was the most established in the industry by the simple fact that few alternatives had been examined in depth. This is no longer the case. Over the past decade, analysts have produced numerous publications examining different ways of measuring utility affordability within the water and wastewater industry. The question facing decision-makers is: which approach makes the most sense for my situation?

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APPENDIX D – MHI CALCULATION

Determination of Jefferson County Customer MHI

To examine the affordability of sewer rates for the County, the financial state of the residents must be considered. The median household income ("MHI") is a widely accepted statistic representative of the economic status of residents of a particular region, and will be used here as the basis for determining affordability for the customers of the County Sewer Service.

Economic characteristics for 2008 are not available from the U.S. Census Bureau. Values for 2008 were extrapolated from 2000 U.S. Census MHIs using an escalation factor derived from the Bureau's 2000 Census and 2006 American Community Survey. The MHIs for the County from 2000 and 2006 were collected and the compounded yearly escalation rate was calculated. Populations for 2008 were determined in a similar manner. Although, it is the opinion of this firm that county data does not most accurately represent the sewer customers, the MHI and population escalation rates were used to escalate more region specific data, namely zip code and census tract, because of lack of recent data for the county subdivisions. By examining characteristics of county subdivisions, like the zip code areas and census tracts, economic data will be more applicable to the customer base.

From census data, MHIs were determined for each of the 147 census tracts and 59 zip codes within the County. Populations for the census tracts were also established, but zip code populations were not. Census tracts are entirely within the County, but some zip code areas consist of more than one county. Instead, populations for the County zip codes were calculated by matching census tracts to appropriate zip codes and summing the respective census tract populations. Additionally, weighted average MHIs for each zip code were calculated using census tract MHIs and populations. Birmingham Water Works Board ("BWWB") provided billing data in the form of customers per zip code, which supplied an essential link between general socio-economic data of the County and customers served by the System. While BWWB does not exclusively bill for the County, it does bill for the majority of accounts, so we assumed it to be representative of the entire customer base.

After the escalation and collection of population, economic and billing data, there were essentially two sets of data, one for each county subdivision (zip code and census tract). Values for the MHI, population, and number of customers for each census tract were known. Values corresponding to the MHI, weighted average MHI, population, and number of customers of each zip code were known. At this point, several approaches concerning the most accurate method to assess the MHI of System customers were considered.

For both sets of data, a median MHI and an average MHI can be calculated. These two do not correlate to the customer data. Also, when averaging, it is probable the value will be skewed by very small or very large incomes. The skew would likely be upwards because there is a lower bound of the incomes ($0), but not an upper bound. Weighted average MHIs can be calculated based on population or number of customers. These two values are more statistically accurate than the first two approaches because they incorporate residential data, but their averaged numbers still may not be perfectly representative. Also, any MHI assessed or computed using population will not represent the sewer customer base as accurately as the number of accounts.

The method for assessing the best representation of the System's customers is to determine the MHI corresponding to the account at the true numerical halfway point of the total number of customers from an ascending list of MHIs and their respective accumulated number of customers. This method can be applied to both census tract data and zip code data, but is most accurate and effective using zip code data since that is the original form of the billing data. No translation is necessary, therefore eliminating any additional sources of error. The resultant value is the income at the true median of customers and therefore most accurately represents the MHI of customers served by the System.

Applying this method to the zip code data and the escalated U.S. Census MHIs, the resulting MHI for the County customers is $40,608. For verification, the method was applied to the zip code data and respective weighted average MHIs, calculated using census tract data described above. This value equaled $40,162. Even though the MHIs for each zip code for the second calculation were weighted average MHIs, the final value is only slightly more than 1% different than the first. This gives merit to the process and applicability of the method, and validity to the the System's customer MHI of $40,608.

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APPENDIX E – FINANCIAL CAPABILITY SUMMARY

Financial Capability Summary

In February 1997, the Environmental Protection Agency ("EPA") published a document, *Combined Sewer Overflows – Guidance for Financial Capability Assessment and Schedule Development,* with the objective of providing a planning tool for evaluating financial resources a permittee has available to implement combined sewer overflow (CSO) controls, and to assist the permittee, EPA, and state National Pollution Discharge Elimination System (NPDES) authorities in developing an implementation schedule for CSO controls. Besides implementation of a CSO control system, the assessment has evolved into a tool for determining the financial affordability position of a public utility.

The assessment is a two-phase analysis that results in the production of the Financial Capability Matrix to evaluate the financial burden of the system's costs on its customers. The first phase of the analysis develops a Residential Indicator, that is, the cost of the system on individual households. The second phase develops the Permittee Financial Capability Indicators which evaluates the permittee's financial and economic position.

The Financial Capability Assessment includes a ten-step system, divided into two phases. RFC completed three alternative financial assessments for the System. The differences between the three analyses are only in Phase I and involve the system costs and the MHI.[6] The three analyses included in attachment A. Each step is described in detail and the referenced line numbers refer to the numbering system used in the EPA guidelines.

Phase One – The Residential Indicator

The first step is determining the cost per household of the system. The current annual debt service and operations and maintenance expenses were taken from the System's annual projections for fiscal year 2008 expenses. Our analysis is only concerned with the present situation of the County and as such we are not concerned with any projected costs at this time. Based on projected operating and capital costs, the total annual System costs for Scenario 1 were determined to be $183.9 million (Line 106). Scenario 2 uses projected System revenues for FY 2008 which are calculated to be $186.6 million. Scenario 3 is based on the projected volumetric revenues only, $153.4 million. Based on actual fiscal year 2007 revenues, the residential customers were responsible for approximately 60% of the cost, or $110.5 million (Line 107, Scenario 1), $112.1 million (Scenario 2), and $92.2 million (Scenario 3). Line 108 asks for the total number of households in the service area. In order to more accurately represent the System's current situation and burden, we used the number of residential accounts in the system, 128,953. Dividing the residential share of the cost by the number of residential accounts, we calculate an annual cost per household of $857 for Scenario 1, $869 for Scenario 2, and $715 for Scenario 3.

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[6] We only show three for the Working Group. We anticipate showing only one in the final report.

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The next step is to determine the Residential Indicator Score. The score is based on the cost per household as a percentage of the service area's median household income ("MHI"). For Scenario 1 we used an adjusted MHI based on an analysis of the System's customers, $40,608.[7] In Scenarios 2 and 3, we used a basic MHI calculation. According to 2006 US Census data, the MHI for the County was $41,691; an annual escalation rate of 2.07% was used to arrive at the adjusted MHI for 2008, $43,435 (Line 203). The cost per household of $857 (Scenario 1) then calculates to a Residential Indicator Score of 2.109% (Line 205); Scenario 2 calculates to a Residential Indicator Score of 2.002% and Scenario 3 produces a Score of 1.645%.

A Residential Indicator between 1.0% and 2.0% is considered to have a mid-range financial impact. Above 2.0% is high impact and below 1.0% is low impact. The three analyses show that the County is currently on the border between the mid-range and high impact zones; it is possible that, for Scenarios 2 and 3, the MHI has not increased by 2.07% in the previous two years due to the slowing economy, which would make the results even more high impact.

Phase Two – Permittee Financial Capability Indicators

The first permittee Indicator is the bond rating. The most recent Standard & Poor's bond rating for Jefferson County Sewer Warrants is a D (Line 303); this rating was given on April 1, 2008. This rating is considered weak.

The net system debt as a percent of full market property value (FMV) measures the debt burden on residents and the ability of the System to issue additional debt. The debt included in the calculation "excludes general obligation bonds that are payable from some dedicated user fees or specific revenue source other than the general tax revenues" (EPA, p 24). As such we only included debt from Series 2004-A, 2005-A, and 2005-B Limited Obligation School Warrants. The total outstanding debt for these obligations, taken from the *Jefferson County, Alabama Annual Report* dated March 28, 2008, is $925.8 million (Line 403). From the same report, the FMV of real property in 2007 was $7.7 billion (Line 404). The resulting indicator is 11.95%; any value above 5.0% is considered weak.

Unemployment rates are used to assess the general well-being of residential users in the System's service area. The unemployment rate is taken from the February 2008 Bureau of Labor Statistics published unemployment data. The County had an unemployment rate of 3.90% (Line 501); the national average was 4.10% (Line 503). A difference of plus or minus one percentage point from the national average is considered a mid-range indicator.

The next Indicator compares System MHI relative to the National average to analyze a community's earning capacity. The National MHI for 2006 was $48,200. Adjusting this figure using the same annual escalation factor, 2.07%, the 2008 National MHI is calculated to be $50,216 (Line 604). The difference in the National and County MHI ($43,435) is 13.5% and the difference between the National and the System MHI ($40,608) is 19.1%; a difference of plus or minus 25% from the National average is considered mid-range.

[7] A summary of the analysis used to calculate the adjusted MHI is described in Attachment B.

The System's financial management ability is determined by the property tax revenues as a percent of the FMV. The same full market value used to determine the debt burden is used here. Ad Valorem taxes collected in 2007 were $501.1 million (Line 702). This amount was also taken from the *Jefferson County, Alabama Annual Report.* The tax revenue equates to 6.47% of the full market value. Any indicator above 4.0% is considered weak.

The tax collection rate is used as an indicator of tax collection efficiency. As mentioned, in 2007 $501.1 Ad Valorem taxes were collected. This compares to $509.4 million in Ad Valorem taxes that were levied (Line 802) which results in a property tax collection rate of 98.4% (Line 803). The collection rate above 98.0% is considered a strong indicator.

To arrive at an overall Permittee Financial Capability Indicator, we combine the six indicators on a common scale. A weak indicator is allocated one point, a mid-range indicator is allocated two points, and a strong indicator is allocated three points. The System has weak indicators for its bond rating, net debt as a percent of FMV, and tax revenue as a percent of FMV. The System has mid-range indicators for unemployment rate and MHI. The System's only strong indicator is for property tax collection rate. The average of these, and the Permittee Financial Capability Indicator, is 1.7.

Financial Capability Matrix

The Residential Indicator and Permittee Financial Capability Indicator are combined based on the following chart to determine the System Financial Capability Assessment. We have identified the location of the three analyses within the matrix. As you will notice, Scenarios 1 and 2 produced outcomes indicating High Financial Burden and Scenario 3 shows Medium Financial Burden.

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Outcomes for Financial Capability Assessment, Jefferson County Sewer System

Permittee Financial Capability Indicator		Residential Indicator (Cost per Household as a % on MHI): Low (Below 1.0%)	Residential Indicator (Cost per Household as a % on MHI): Mid-Range (1.0% to 2.0%)	Residential Indicator (Cost per Household as a % on MHI): High (Above 2.0%)
	Weak (Below 1.5)	Medium Burden	High Burden	High Burden
	Mid-Range 1.5 to 2.5	Low Burden	3 Medium Burden	2 1 High Burden
	Strong Above 2.5	Low Burden	Low Burden	Medium Burden

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Attachment A

Scenarios 1, 2, & 3

Jefferson County Financial Capability Assessment

Financial Capability Assessment

Jefferson County, Alabama

Preliminary Draft Scenario 1

WORKSHEET 1 - COST PER HOUSEHOLD

Line No.	Current Costs			
100	Annual Operations and Maintenance Expenses (Excluding Depreciation)		$	52,000,000
101	Annual Debt Service (Principal and Interest)		$	131,851,000
102	Subtotal		$	183,851,000
	Projected Costs			
103	Estimated Annual Operations and Maintenance Expenses (Excluding Depreciation)		$	-
104	Annual Debt Service (Principal and Interest)		$	-
105	Subtotal		$	-
106	Total Costs		$	183,851,000
107	Residential Share of Total Costs		$	110,457,681
108	Total Number of Households in Service Area	[No. of Accounts]		128,953
109	Cost Per Household		$	857

WORKSHEET 2 - RESIDENTIAL INDICATOR

Line No.	Median Household Income		
201	Census Year MHI		
202	MHI Adjustment Factor		
203	Adjusted MHI	$	40,608
204	Annual Cost Per Household	$	857
205	Residential Indicator Score		2.109%
	Annual Cost per Household as percent of adjusted Median Household Income		

WORKSHEET 3 - BOND RATING

Line No.		
301	Most Recent General Obligation Bond Rating	
	Date	
	Rating Agency	
302	Most Recent Revenue (Water or Sewer) Bond Rating	D
	Date	4/1/2008
	Rating Agency	Standard & Poor's
	Bond Insurance	
303	Summary Bond Rating	D

WORKSHEET 4 - OVERALL NET DEBT AS A PERCENT OF FULL MARKET PROPOERT VALUE

Line No.			
401	Direct Net Debt	$	925,780,000
	(G.O. Bonds Excluding Double-Barreled Bonds)		
402	Debt of Overlapping Entities	$	-
	(Proportionate Share of Multijurisdictional Debt)		
403	Overall Net Debt	$	925,780,000
404	Market Value of Property	$	7,744,422,422
405	Net Debt as Percent of FMV		11.95%

Financial Capability Assessment

Jefferson County, Alabama

Preliminary Draft Scenario 1

WORKSHEET 5 - UNEMPLOYMENT RATE		
Line No.		
501	Unemployment Rate - Permittee	3.90%
502	Unemployment Rate - County (If Permittee's Rate is unavailable)	
503	Benchmark - US National Unemployment Rate	4.10%

WORKSHEET 6 - MEDIAN HOUSEHOLD INCOME		
Line No.		
601	Median Household Income - Permittee	$ 40,608
602	Census Year National MHI	$ 48,200
603	MHI Adjustment Factor	104.18%
604	Adjusted National MHI	$ 50,216

WORKSHEET 7 - PROPERTY TAX REVENUES AS A PERCENT OF FULL MARKET PROPERTY VALUE		
Line No.		
701	Full Market Value of Real Propoerty	$ 7,744,422,422.00
702	Property Tax Revenue	$ 501,067,572
703	Tax Revenue as Percent of FMV	6.47%

WORKSHEET 8 - PROPERTY TAX REVENUE COLLECTION RATE		
Line No.		
801	Propoerty Tax Revenue Collected	$ 501,067,572
802	Property Taxes Levied	$ 509,403,085
803	Property Tax Collection Rate	98.36%

WORKSHEET 9 - SUMMARY OF PERMITTEE FINANCIAL CAPABILITY INDICATORS		Column A	Column B
Line No.	Indicator	Actual Value	Score
901	Bond Rating	D	1.0
902	Overall Net Debt as a Percent of FMV	11.95%	1.0
903	Unemployment Rate	3.90%	2.0
904	Median Household Income	$ 40,608	2.0
905	Tax Revenue As Percent of FMV	6.47%	1.0
906	Property Tax Collection Rate	98.36%	3.0
907	Permittee Financial Capability Indicators Score		1.7

WORKSHEET 10 - FINANCIAL CAPABILITY MATRIX SCORE		
Line No.		
1001	Residential Indicator Score	2.109%
1002	Permittee Financial Capability Indicators Score	1.7
1003	Financial Capability Matrix Category	High Burden

Financial Capability Assessment

Jefferson County, Alabama

Preliminary Draft Scenario 2

WORKSHEET 1 - COST PER HOUSEHOLD			
Line No.	Current Revenue		
100	Total Sewer Use Revenue	$	153,397,000
101	Total Miscellaneous Revenue	$	33,223,000
102	Subtotal	$	186,620,000
	Projected Costs		
103	Estimated Annual Operations and Maintenance Expenses (Excluding Depreciation)	$	-
104	Annual Debt Service (Principal and Interest)	$	-
105	Subtotal	$	-
106	Total Revenue	$	186,620,000
107	Residential Share of Total Revenue	$	112,121,296
108	Total Number of Households in Service Area	[No. of Accounts]	128,953
109	Revenue Per Household	$	869

WORKSHEET 2 - RESIDENTIAL INDICATOR			
Line No.	Median Household Income		
201	Census Year MHI	$	41,691
202	MHI Adjustment Factor		104.18%
203	Adjusted MHI	$	43,435
204	Annual Cost Per Household	$	869
205	Residential Indicator Score		2.002%
	Annual Cost per Household as percent of adjusted Median Household Income		

WORKSHEET 3 - BOND RATING		
Line No.		
301	Most Recent General Obligation Bond Rating	
	Date	
	Rating Agency	
302	Most Recent Revenue (Water or Sewer) Bond Rating	D
	Date	4/1/2008
	Rating Agency	Standard & Poor's
	Bond Insurance	
303	Summary Bond Rating	D

WORKSHEET 4 - OVERALL NET DEBT AS A PERCENT OF FULL MARKET PROPOERT VALUE			
Line No.			
401	Direct Net Debt	$	925,780,000
	(G.O. Bonds Excluding Double-Barreled Bonds)		
402	Debt of Overlapping Entities	$	-
	(Proportionate Share of Multijurisdictional Debt)		
403	Overall Net Debt	$	925,780,000
404	Market Value of Property	$	7,744,422,422
405	Net Debt as Percent of FMV		11.95%

Financial Capability Assessment

Jefferson County, Alabama
Preliminary Draft Scenario 2

WORKSHEET 5 - UNEMPLOYMENT RATE

Line No.		
501	Unemployment Rate - Permittee	3.90%
502	Unemployment Rate - County (If Permittee's Rate is unavailable)	
503	Benchmark - US National Unemployment Rate	4.10%

WORKSHEET 6 - MEDIAN HOUSEHOLD INCOME

Line No.			
601	Median Household Income - Permittee	$	43,435
602	Census Year National MHI	$	48,200
603	MHI Adjustment Factor		104.18%
604	Adjusted National MHI	$	50,216

WORKSHEET 7 - PROPERTY TAX REVENUES AS A PERCENT OF FULL MARKET PROPERTY VALUE

Line No.			
701	Full Market Value of Real Propoerty	$	7,744,422,422.00
702	Property Tax Revenue	$	501,067,572
703	Tax Revenue as Percent of FMV		6.47%

WORKSHEET 8 - PROPERTY TAX REVENUE COLLECTION RATE

Line No.			
801	Propoerty Tax Revenue Collected	$	501,067,572
802	Property Taxes Levied	$	509,403,085
803	Property Tax Collection Rate		98.36%

WORKSHEET 9 - SUMMARY OF PERMITTEE FINANCIAL CAPABILITY INDICATORS

Line No.	Indicator	Column A Actual Value	Column B Score
901	Bond Rating	D	1.0
902	Overall Net Debt as a Percent of FMV	11.95%	1.0
903	Unemployment Rate	3.90%	2.0
904	Median Household Income	$ 43,435	2.0
905	Tax Revenue As Percent of FMV	6.47%	1.0
906	Property Tax Collection Rate	98.36%	3.0
907	Permittee Financial Capability Indicators Score		1.7

WORKSHEET 10 - FINANCIAL CAPABILITY MATRIX SCORE

Line No.		
1001	Residential Indicator Score	2.002%
1002	Permittee Financial Capability Indicators Score	1.7
1003	Financial Capability Matrix Category	High Burden

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Financial Capability Assessment

Jefferson County, Alabama

Preliminary Draft Scenario 3

WORKSHEET 1 - COST PER HOUSEHOLD			
Line No.	Current Revenue		
100	Total Sewer Volumetric Revenue	$	153,397,000
101	Total Miscellaneous Revenue	$	-
102	Subtotal	$	153,397,000
	Projected Costs		
103	Estimated Annual Operations and Maintenance Expenses (Excluding Depreciation)	$	-
104	Annual Debt Service (Principal and Interest)	$	-
105	Subtotal	$	-
106	Total Revenue	$	153,397,000
107	Residential Share of Total Revenue	$	92,160,918
108	Total Number of Households in Service Area	[No. of Accounts]	128,953
109	Revenue Per Household	$	715

WORKSHEET 2 - RESIDENTIAL INDICATOR			
Line No.	Median Household Income		
201	Census Year MHI	$	41,691
202	MHI Adjustment Factor		104.18%
203	Adjusted MHI	$	43,435
204	Annual Cost Per Household	$	715
205	Residential Indicator Score		1.645%
	Annual Cost per Household as percent of adjusted Median Household Income		

WORKSHEET 3 - BOND RATING		
Line No.		
301	Most Recent General Obligation Bond Rating	
	Date	
	Rating Agency	
302	Most Recent Revenue (Water or Sewer) Bond Rating	D
	Date	4/1/2008
	Rating Agency	Standard & Poor's
	Bond Insurance	
303	Summary Bond Rating	D

WORKSHEET 4 - OVERALL NET DEBT AS A PERCENT OF FULL MARKET PROPOERTY VALUE			
Line No.			
401	Direct Net Debt	$	925,780,000
	(G.O. Bonds Excluding Double-Barreled Bonds)		
402	Debt of Overlapping Entities	$	-
	(Proportionate Share of Multijurisdictional Debt)		
403	Overall Net Debt	$	925,780,000
404	Market Value of Property	$	7,744,422,422
405	Net Debt as Percent of FMV		11.95%

Financial Capability Assessment

Jefferson County, Alabama

Preliminary Draft Scenario 3

WORKSHEET 5 - UNEMPLOYMENT RATE

Line No.		
501	Unemployment Rate - Permittee	3.90%
502	Unemployment Rate - County (If Permittee's Rate is unavailable)	
503	Benchmark - US National Unemployment Rate	4.10%

WORKSHEET 6 - MEDIAN HOUSEHOLD INCOME

Line No.		
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WORKSHEET 7 - PROPERTY TAX REVENUES AS A PERCENT OF FULL MARKET PROPERTY VALUE

Line No.		
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WORKSHEET 8 - PROPERTY TAX REVENUE COLLECTION RATE

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WORKSHEET 9 - SUMMARY OF PERMITTEE FINANCIAL CAPABILITY INDICATORS

		Column A	Column B
Line No.	Indicator	Actual Value	Score
901	Bond Rating	D	1.0
902	Overall Net Debt as a Percent of FMV	11.95%	1.0
903	Unemployment Rate	3.90%	2.0
904	Median Household Income	$ 43,435	2.0
905	Tax Revenue As Percent of FMV	6.47%	1.0
906	Property Tax Collection Rate	98.36%	3.0
907	Permittee Financial Capability Indicators Score		1.7

WORKSHEET 10 - FINANCIAL CAPABILITY MATRIX SCORE

Line No.		
1001	Residential Indicator Score	1.645%
1002	Permittee Financial Capability Indicators Score	1.7
1003	Financial Capability Matrix Category	Medium Burden

APPENDIX F – SUMMARY OF DOCUMENT REVIEW

Review of Documents Submitted by the County

Review of Red Oak Consulting Cost of Service Study

RFC reviewed the report titled "Final Technical Report" produced by Red Oak Consulting ("Red Oak"), a division of Malcolm Pirnie. Red Oak was asked by the County's Environmental Service Department to conduct a detailed cost of service study. RFC reviewed this study to determine if the Department's current rate structure is inequitable to any customer class. The following observations were noted from reviewing the cost of service study performed by Red Oak:

1. Revenue requirements were developed under 6 scenarios and the resulting rate adjustments over a five-year period were forecast for each scenario. The report indicated that the most likely revenue requirements would follow Scenario 4 which included the following: 1) Not making rate stabilization and depreciation transfers 2) Not using the maximum debt service from the 2003 OS 3) Not maintaining the MADS coverage requirement and 4) Funding 100% of the CIP. The resulting rate adjustments under this scenario were as follows: 7% in '06, 8.2% in '07, 12.8% in '08, 4.5% in '09 and 7% in '10. The resulting revenue requirements from this scenario were suppose to be used for the detailed cost of service study, though the numbers actually used are different than those shown in Scenario 4. The sum of O&M, debt service and other operating revenues in Figure 6 (Section 2) equal $155.2 million while the revenue requirements in Table 3-5 equal $144.5 million.

2. Fixed assets were classified into Flow, TSS, BOD, Phosphorous and Oil & Grease. The treatment related assets "did not provide sufficient detail to assign the assets to a cost-causative component". Therefore the treatment facilities as a whole were divided into the categories "based on analyses prepared for similar systems". The CIP was also handled in this manor. The O&M costs were classified into the same categories. While this is not an unreasonable approach, it is hard to determine the accuracy of the allocation without having the detail behind each allocation factor used. Typically, engineers would visit each plant to determine the process and then determine the appropriate allocation factors.

3. Residential sewer flow was obtained from the Birmingham Water Works Board, the City of Bessemer or from the County. A bill frequency analysis was not available for commercial or industrial customers. In the report, residential customers accounted for 35.92% of flow, commercial for 60.23% and industrial 3.85%. If you compare these percentages to current billable data given by the County, these percentages imply that multi-family customers are part of the commercial class. This is not uncommon. However, it does not appear that inflow and infiltration ("I&I") is considered in the total flow numbers. Adding I&I to the total flow would change the outcome of the results since the majority of I&I is associated with the residential customer class.

4. Surcharge data was obtained from the Barton lab based on sampling of industrial charges for certain industrial customers in the industrial surcharge program and based on industrial billed flow.

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5. Residential and commercial customers are not sampled so strength characteristics for these customers were based on published industry data, specifically from the California State Resources Control Board Revenue Guidelines 1998 City of Reno Nevada and the Washington State Department of Health Research Report on Wastewater Quality/Strength/Content (2002). While this is an accepted approach used by consulting firms, typically, the commercial class and industrial class would not be applied one discharge characteristic. Instead, these customers would be segregated into more sub-classes. For example, a commercial customer that is book store will discharge very low strength wastewater compared to a restaurant. Therefore it is more appropriate to classify customers by strength and then assign the corresponding discharge strength.
6. Of the total revenue requirements, 71% get allocated to flow, 15% to BOD, 10% to TSS, 1% to phosphorous, 1% to O&G, and 2% to customer billing. Again, while this appears to be a reasonable allocation it is difficult to determine the true ultimate allocation without having more information on how each allocation factor was developed.
7. Based on the results calculated by Red Oak for the cost of service analysis, it shows that the residential customers are paying slightly more than their fair share for two reasons. First, the surcharge rates would increase by 600% if they were to follow the COS study. The '07 rate would have been $8.95 per kgal instead of $9.19 if the industrial customers paid their fair share of surcharges. Therefore, if the $0.24 difference is multiplied by the residential flow (in kgals) of 6,066,270, the residential customers paid approximately $1.4 million more than they should have. Second, the residential customers should pay a discount of approximately $700,000 compared to the commercial and industrial customers based on the COS analysis. In total, based on the report, the residential class pays approximately **$2.1 million** more than their fair share in FY 2007. Since total revenues are approximately $158 million, this does not appear to be a significant variance. However, as mentioned previously, without knowing the detail behind the allocation factors or the impact of using one discharge characteristic for each class, the results could be different than those shown in the report.
8. The report does not ever show the allocated revenue requirements for each customer class. The revenues for each class are shown but it must be inferred that the revenues collected equal the allocated costs.
9. The study showed several different rate structures and the rates under each rate structure. It appears that the County did not alter their rate structure as a result of the cost of service study.

The study also included an analysis of other revenue enhancements. The study calculated an updated impact fee of $4,200 per single-family residence which was higher than the existing impact fee of $3,150. A rate comparison was conducted and the County's existing and proposed impact fees were both higher than those of most other comparable utilities. The study also explored the ability of the County to divert additional ad valorem taxes to the sewer system, fees for reclaimed water, and special assessments (cost to connect to the system). Each of these revenue sources would require further investigation before a decision could be made as to whether or not they would be viable revenue sources.

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Budget Review

The Department provided RFC with a spreadsheet which listed the fiscal year 2008 budget by Fund Center. The current budget is $100,882,414 of which approximately $40 million is for construction projects. The budget amount doesn't include any debt service. In comparison, total revenues in 2007 were $158 million (which includes all revenue sources).

Audited Financial Statements September 30, 2006

RFC reviewed the audited financial statements for the fiscal year ending September 30, 2006 which was performed by Warren, Averett, Kimbrough, and & Marino LLC. According to the audited financial statements the total revenues were $153 million and total O&M expenses (excluding depreciation) were $51.5 million. Interest paid was $158.3 million. The Department has $503 million in cash and investments. However, it was noted in the audit that the auditor was not provided the information for the previous year and therefore the September 30, 2005 net asset balances was unable to be accurately determined. The County disclosed that it recognized $2.7 million in other post employee benefits (OPEB) costs, though the detailed data was not provided to the auditor. As of the 2006 audit, the Department had not determined the effect of GASB 45 requirements for OPEB. The Department paid $13.2 million to the General Fund.

BE&K Report

RFC reviewed the report titled "Jefferson County Program Review" produced by BE&K Engineering Company, CH2M Hill, Public Affairs Research Council of Alabama (PARCA), and Porter, White & Company. The report was the result of the County Commissioners wanting an outside audit and a review of the Department's consent decree ("CD") and prior events leading up the Department's financial situation.

The report pointed out the following findings:

- The CD was scheduled to be completed by 2007. It was estimated that the CD would costs $365 million more than anticipated, and that the County would need to invest an additional $246 million to repair known defects. As a result, rates would have to increase from 12.5% per year from 2004 to 2011 in order to cover the additional costs.
- The CD included costs for the County taking over the collection systems of 21 municipalities. The County did not know that these systems were in as bad of shape as they were, and that the County would have to invest heavily in order to have the entire system meet regulatory requirements.
- The County also spent $1 billion for expanding the capacity of the system when average daily flow had remained unchanged.
- The County's situation worsened due to the lack of a program to prioritize and review cost-saving alternatives. In the past, the County spent $35 million per year on capital projects but this increased to $250 million per year during the CD. The County did not have a dedicated program manager or way of evaluating the cost-benefit of each project.

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- The County had a prequalification process for contractors which limited the number of bids, thus increasing the bid amount due to lack of competition. The recommendation of the BE&K report were to :

    1. Create an integrated water management task force
    2. Retain experienced wastewater program management
    3. Develop a strategic plan for the environmental service department
    4. Commission a rate study
    5. Evaluate funding sources to address future regulatory issues and expansion
    6. Implement a comprehensive stakeholder education and involvement program

The study also included a comparison of property taxes, local taxes, water and sewer bill (for residential, commercial and industrial), and O&M costs to those of other utilities. The County ranked high (meaning poorly) in all comparisons except that for O&M. The County actually had low O&M costs relative to similar utilities.

Bond Ordinance

RFC reviewed the original bond indenture dated February 1, 1997. According to Article XII, Section 12.5, the Rate Covenant is as follows:

(i) the sum of Net Revenues Available for Debt Service for given Fiscal Year and the Prior Year's Surplus as of the beginning for such Fiscal Year shall not be less than 110% of the aggregate amount payable during such Fiscal Year as debt service on all outstanding Parity Securities and

(ii) the Net Revenues Available for Debt Service for a given Fiscal Year shall not be less than 80% (or in the case of an y Fiscal Year beginning on or after October 1, 2007, 100%) of the aggregate amount payable during such Fiscal Year as debt service on all outstanding Parity Securities

"The County hereby covenants, in the event of the delivery of any such notice of failure to satisfy the Historical Evaluation or the Immediate Prospective Evaluation (or both), to make an increase in the rates and charges for services furnished by the System, in an amount intended to result in compliance with the rate covenant contained in subsection (b) with such rate increase to be effective no later than January 1 in such Fiscal Year."

On February 12, 1997, the Commission amended the Ordinance to allow for automatic rate adjustments for January 1st of the following year. If the Historical Evaluation shows failure of coverage then the new rate is calculated as follows: existing rate + 4/3 [(existing rate X a/b) – Existing Rate], where "a" is the revenue target amount and "b" is the aggregate amount of revenues received from user charges during the then most recently completed fiscal year. If the Extended Prospective Evaluation shows failure of the coverage test, then the new rate = existing rate X [(b+ 35% (a-b))/b]

According to Article X Additional Parity Securities, Section (I), a Revenue Certificate must be provided to show that:

(ii) the sum of (A) the Prior Year's Surplus as of the beginning of the Fiscal Year that immediately preceded the Fiscal Year in which such certificate is delivered and (B) the Net Revenues Available for Debt Service during the then most recently completed Fiscal Year or during any period of 12 consecutive months preceding the date of issuance of the Additional Parity Securities is not less than 105% of the Maximum Annual Debt Service payable on outstanding Parity Securities and the Additional Parity Securities and,

(iii) the Net Revenues Available for Debt Service during the then most recently completed Fiscal year or during any period of twelve consecutive months was not less than 75% of the Maximum Annual Debt Service payable during the outstanding Parity Securities and the Additional Parity Securities

If rates and charges for services were increased and put into effect by the County after the beginning of the Fiscal Year or other twelve-month period to which a Revenue Certificate refers and not thereafter reduced, an Independent Engineer may certify the gross revenues from the System that would have been received by the County had such increased rates and charges been in effect during the entire Fiscal Year. In addition, a Revenue Forecast prepared by an Independent Engineer that begins on the first day of the Fiscal Year that succeeds the Fiscal Year in which the proposed Additional Parity Securities are issued and that shall not be longer than five fiscal years. The forecast must show that the two tests described above are passed in each of the five-year forecast. The Independent Engineer can make projections of the rates and charges to be imposed during the forecast, **"so long as such Independent Engineer certifies, with respect to any projected rates and charges that are higher than the actual rate and charges in effect as of the date of the Revenue Forecast, that such projected rates and charges would be reasonable for public sanitary sewer systems similar in size and character to the System...".**

__Other Data Sources__

The County currently assesses all customers a rate of $7.40 per ccf of water usage. Rates have increased on average by almost 15% per year since 1997. The rate ordinance states that residential customers are assessed this rate on only 85% of their water flow. However, based on the file titled "revenue sheet for due diligence" provided by the County, there are some commercial and industrial customers that get billed on less than 100% of their total water usage.

The total number of water accounts from the Birmingham Water Works Board has decreased on average by 1.0% per year from 2003 to 2007. Customers served by other water providers actually had an increase in the number of water customers over this same time period. As a result, the County's total customer base decreased by 0.1% per year over this same time period. The County's total water usage over this time period decreased on average by 2% per year. While the County was increasing rates significantly, the revenues did not equal the desired rate increase due to reduced water consumption and decrease in the overall number of customers.

Residential customers also pay $5 per year to the Jefferson County Stormwater Management Authority and commercial customers pay $15 per year for the monitoring of stormwater runoff and testing of waterways for pollution.

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REPORT OF THE SPECIAL MASTER

Assessment of the Jefferson County Environmental Services Department

Submitted by
JOHN S. YOUNG, Jr., P.E.
American Water

January 20, 2009

A-12

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ABBREVIATIONS USED

A/R	accounts receivable
AMR	automated meter reading
BCW	Bessemer City Water Works
BOD_5	biochemical oxygen demand$_{5\ day}$
BWWB	Birmingham Water Works Board
ccf	hundred cubic feet
CIP	capital improvement program
CWA	Clean Water Act
DMRs	Discharge Monitoring Reports
EPA	United States Environmental Protection Agency
FOG	fats, oil and grease
FY	Fiscal Year
Fitch	Fitch Ratings
FTE	full-time equivalent
GAAP	Generally Accepted Accounting Principles
IPP	industrial pre-treatment program
I/I	infiltration and inflow
JCESD	Jefferson County Environmental Services Department
LF	linear foot
LIMS	laboratory information management system
MAWSS	Mobile Area Water and Sewer System
mg/L	milligrams per liter
MGD	million gallons per day
MHI	median household income
Moody's	Moody's Investor Service
NPDES	National Pollutant Discharge Elimination System
S&P	Standard & Poor's
SCADA	supervisory control and data acquisition
SDWA	Safe Drinking Water Act
TMDL	Total Maximum Daily Load
TSS	total suspended solids
UV	ultraviolet light
WWC	wastewater collection
WWTPs	wastewater treatment plants

I. INTRODUCTION

This report assesses several aspects of the Jefferson County Environmental Services Department (JCESD) in an attempt to identify opportunities to enhance the availability of funds to meet their debt service obligations and principle payment requirements. Additionally, the JCESD has faced challenges over the past decade involving the Consent Order, significant rate increases, corruption and the credit market impact on their debt. Therefore, the recommendations in this report may assist in providing a stable and efficient environment to support future operations and refinancing efforts.

This assessment examines multiple areas of the JCESD including operating issues and efficiencies, budget challenges, the adequacy of the capital investment program and the appropriate level of operating cash reserves. Additionally, opportunities to increase revenue through either increased rates, other service charges and/or revised practices and procedures were evaluated. The specific recommendations were developed based on limited due diligence of the JCESD operations, input from the County finance department, review of selected consultant's reports issued over the past seven years, and input from the parties involved in the current litigation.

The implementation of some of the recommendations contained in this report may be a challenge given some of the JCESD's past practices, and administrative constraints controlling the operation of the JCESD. Some operational and revenue enhancements and policy changes can be implemented immediately while other recommendations will require political and/or legal support. Many of the recommendations will require that specific implementation plans be developed and adequate resources be provided to insure timely and comprehensive implementation of the enhancements.

II. OPERATING ISSUES AND EFFICIENCIES

To confirm the funds available from the JCESD for debt service in 2009, a review of the Fiscal Year (FY) 2009 JCESD budget was conducted. Additionally, to enhance operating efficiencies and maximize the availability of future funds for debt service, an operational review was conducted. The findings and recommendations associated with these revenues are found below.

Revenue Assumptions

In the order of significance, the major JCESD revenue streams greater than $1 million annually are:

- BWWB user charges
- BCW user charges
- Interest
- Jefferson County user charges
- Sewer Impact fees
- Ad Valorem – current

Total FY2009 revenues of $182,134,505 are projected to decrease by 0.89 percent ($1,633,541) in the FY2009 budget. This budget presentation indicates that sewer rates need to increase by three percent against the same water consumption as the previous year; however, the detailed budget values reflect that sewer rates will increase 2.65 percent or $3,990,468, as detailed in Table 1 below. If sewer rates are not raised as projected, there will be a revenue shortfall of $3.9 million, which represents 6.8 percent of the total Operating Budget Request ($58,969,240).

Table 1. Sewer Rate Revenue Summary

	FY2008 BUDGET	FY2009 BUDGET	$ INCREASE	% INCREASE
BWWB User Rates	130,784,532	134,425,000	3,640,468	2.78%
BCW User Rates	12,000,000	12,200,000	200,000	1.67%
County User Rates	8,000,000	8,150,000	150,000	1.88%
Total - User Rates	150,784,532	154,775,000	3,990,468	2.65%
Total Revenues	183,768,046	182,134,505	(1,633,541)	-0.89%

Interest revenue assumptions in the budget are $12 million. However, due to significant reductions in cash reserve balances and declining interest rates, the revised interest revenue forecast is approximately $2 million, as reported by JCESD, representing an additional $10 million projected loss in revenue.

The use of water consumption values similar to the previous year is considered another potential revenue projection vulnerability. American Water's regulated utilities across the country have experienced declines in water consumption ranging from 0.5 percent to 1.72 percent per annum during the period from 1998 to 2006. Raftelis Financial Consultants, Inc. (Raftelis) reported that water consumption in the county has dropped two percent per year from 2003 to 2007. Using a direct correlation, should annual water consumption follow the local trend, a revenue shortfall of two percent ($3,015,691) will occur.

Undefined revenue vulnerabilities may also occur due to a number of national and local issues. For example, in the FY2009 budget impact fees have been reduced by $5.2 million, from $12.4 million in the prior year's budget to $7.2 million in the current budget. However, the FY2009 budget projects impact fee collections $1.51 million greater than FY2008 actual revenues of $5.69 million. In a December 26, 2008 article, The *Birmingham Business Journal* referenced Federal Deposit Insurance Corporation data that concluded single family housing starts in Alabama were down 26.5 percent and 40.1 percent in the third quarters of 2007 and 2008 respectively. A revised impact fee revenue projection of $4,183,658, calculated based on a 26.5 percent reduction of the actual 2007 impact fees ($5,692,052), represents a vulnerability of $3,016,342. The total revenue vulnerability due to losses in revenues from sewer rates, interest revenue, impact fees and the projected drop in consumption is $20,022,501, representing 34 percent of the total operating budget request.

The current practice of JCESD in response to delinquent sewer accounts is to lien the property. The lien remains against the property until the debt is paid or the property is sold, at which time the debt must be paid in full for the sale to proceed. This is typical of a "mechanics lien" that does not result in foreclosure proceedings on the property. This practice is likely to be affected in the near future, as a recent legislative change, Act No. 2007-362 amending the Constitution of Alabama of 1901, was voted on in the recent election, but has yet to be certified. In simple terms, the amendment transfers all responsibility for sewer charges from the owner/landlord to the tenant(s). Further, the amendment makes it clear that such sewer bills "shall not constitute a lien on the property," thus changing the debt from a property debt to a personal debt.

JCESD is currently reviewing the potential impact of this legislation, which could have serious, unintended consequences to its cash flow and collections. It is possible that delinquent sewer charges for multi-unit apartments and leased commercial developments could become essentially uncollectable, unless local water companies participate in shut-off programs for delinquent sewer accounts.

This may occur because water utilities which bill sewer charges on behalf of JCESD apply payments against their outstanding debt first, and then satisfy all new water charges before sewer fees are credited. With this payment priority, where partial payments are received, sufficient funds to pay at least some part of new sewer charges will not be available. This does not appear to affect revenues, but would lead to delayed cash flow.

At this time, there is no formal process within the JCESD to audit sewer accounts and sewer charges, or to verify payment records forwarded by the water utilities. JCESD currently relies on the Statement on Auditing Standards No. 70, or SAS 70, reports prepared by each water utility. Further, it is possible that some customers may be receiving sewer services for which they are not billed. While the potential loss of revenue cannot be defined, opportunities to maximize such revenue and cash flow are discussed later in this report.

Labor Expenses

The FY2009 budget presentation reflects personnel costs of $32,579,878, or 55.3 percent of total budget, representing a total of 591 budgeted positions. At the time the budget was presented, 510 positions were listed as being filled, 59 were in the process of being filled and 22 were vacant. A November 7, 2008 "Position Strength Report" provided by the JCESD shows 493 filled positions and 98 vacancies, or 17 percent. The JCESD administration reported their intent to manage vacant positions to these levels. On a straight line comparison basis, managing vacancies to these levels could result in a $5,617,000 reduction of labor expense. However, the potential savings are not fully corroborated by a comparison of the FY2008 budget to actual results. Actual personnel costs in FY2008 were $28,616,425 against the budget of $32,583,897, and while savings of $3.967 million were achieved, this amount falls approximately $1.57 million short of the benefit projected from leaving these vacancies unfilled. There could be several reasons the savings were not fully realized; however, there is also a concern that the full labor savings achieved through managing vacancies may not be realized.

Expenses – Not Budgeted

The JCESD administration acknowledged receipt of in-kind services and direct expense relief from Jefferson County. The in-kind services provided include, but may not be limited to, services for building use, non-departmental, finance, accounting, payroll, budgeting, purchasing, county attorney, treasurer, risk management, personnel board, information services, fleet management, printing, building services and county commission. It is estimated the total annual contribution from these in-kind services in FY2009 could exceed $6.6 million per annum.

Following the budget submission, the JCESD became aware of electricity rate increases starting in January 2009 that would exceed budget projections. The budget allocated $8,321,500 to electricity costs, with a projected electrical rate increase of six percent, or $524,125. The actual electricity rate increase is reportedly 14 percent, which results in increased electrical expenses of eight percent ($698,833) for the FY2009 budget.

The United States Environmental Protection Agency (EPA) imposes "Stipulated Penalties" of $1,000 per sanitary sewer overflow (SSO) event. The FY2009 budget does not include these anticipated costs. Based on 273 SSO events in 2007 and 245 for the first ten months of 2008, the projected FY2009 expenses would be in the $240,000 to $300,000 range.

Hourly labor rates are established on a merit-based system under a county-wide Personnel Board. Reportedly, the wage schedule has some 50 job classifications, each having up to ten merit bands, incrementally five percent higher for each year of employment. The budget is reported to include the projected movement of employees to higher merit-pay bands in the fiscal year. Additionally, the Commission approved an overall two percent increase to the entire wage schedule for the FY2009 budget. It is not clear how these increased costs are accounted for in the budget as the labor expense is only $13,981 greater than previous year. Adjusting the wage schedule by two percent alone would increase labor by $651,957, based on a straight-line calculation.

JCESD has several maintenance groups who perform routine and major maintenance at the wastewater treatment plants (WWTPs). Larger WWTPs also have maintenance employees on-site to perform routine maintenance work. The maintenance budget allocated for the WWTP operations, excluding labor, is $0.8 million (2.9 percent) of the total WWTP budget. This is $0.34 million (39 percent) below the expected four percent range for such expenses. Four percent is considered appropriate for routine maintenance where a suitable Repair, Replacement, and Renewal Program (RRRP) is implemented using capital funding sources. Therefore, it is concluded that routine maintenance expenses are either partly allocated to other cost centers or the budget for such work is insufficient.

Other Items

The JCESD reports that the capital purchases included in the FY2009 operating budget will come from funds associated with the sale of bonds. This represents an expense reduction in the amount of $2,179,788, which is 3.7 percent of the total operating budget. This is reflected in the difference between the total operating budget approved, $58.97 million, and the budget loaded into the SAP financial management system used by the JCESD.

The sewer billing cost center (6805) includes expenses for meter reading, billing and collection services from BWWB of $4.8 million, a total of $1.1 million from Bessemer City Water Works (BCW), Trussville Utilities and other water utilities for similar services, along with $0.87 million of JCESD costs. Table 2, on the next page, reflects the customer accounts by water utility. Based on monthly billing, a minimum of 1,730,088 bills are prepared annually. The table also reflects the per bill cost for each customer group.

By way of comparison, typical American Water costs per bill are approximately $2.80. Broken out into individual components, this would be $0.75 for meter reading, $0.46 for issuing a ~~bill~~ and ~~$1.60~~ ~~for customer service,~~ collection and bill edits. The incremental cost for adding sewer charges to existing water bills is in the $0.75 to $0.85 range, but can vary depending on customer service and call handling requirements. There was no information readily available to verify the appropriateness of the costs associated with services provided by BWWB, BCW or other utilities. Opportunities for billing services are discussed later in this report.

Table 2. Customer Accounts

			COUNT	PERCENT	$/BILL
BWWB			116,465	80.1%	3.48
Bessemer			16,605	11.5%	5.52
Other Utilities	Irondale	2,027			
	Trussville	5,422			
	Roupes Valley	1,259			
	Graysville	421			
	Leeds	2,598			
	Mulga	346			
Total Other Utilities			12,073	8.4%	5.98
Surcharge*			31	0.0%	5.98
Total			144,174		

* Industrial Surcharge Agreements

The utility consumption, electricity consumption, chemical costs and other budget line items appear appropriate in review. Biosolids removal and disposal costs are financially supplemented by the County which pays for gasoline and diesel fuel, as previously noted. It is unclear if recent chemical price increases, seen across the country, are fully included in the budget. There has been a 20 percent to 40 percent increase in alum and polymer costs in the past year alone.

Table 3 on the following page summarizes the revenue and expense vulnerabilities of the FY2009 budget. While it is unlikely that 100 percent of the combined losses will be realized, there is the real potential, without additional revenue generation, for a significant deleterious impact.

Table 3. Budget Vulnerability Summary

REVENUE	VULNERABILITY	% OPS BUDGET
3% Revenue For Sewer Rates	3,990,468	6.8%
Interest Revenue Reforecast	10,000,000	17.0%
Water Consumption (2 Percent Reduction)	3,015,691	5.1%
Potential Impact Fee Reduction	3,016,342	5.1%
Effect Of Legislative Change (Act No. 2007-362) [a]	n/a	n/a
Sub Total [a]	20,022,501	34.0%

EXPENSE	VULNERABILITY	% OPS BUDGET
Managed Labor Vacancies [b]	(5,541,636)	-9.4%
2% Cost of Living Adjustment (COLA) [c]	651,957	1.1%
Wage Scale Increases [c]	n/a	n/a
Routine Maintenance	340,014	0.6%
Electricity Rate Increase	698,833	1.2%
Capital Purchases Funded From Bond Sales	(2,179,788)	-3.7%
SSO Stipulated Penalties	300,000	0.5%
Sub Total [a][b]	(5,730,620)	-9.7%
TOTAL POTENTIAL VULNERABILITY [b]	14,291,881	24.2%

Notes:
[a] The financial impact cannot be defined at this time
[b] This amount could be reduced by $1.57MM
[c] JCESD reports this amount is included in budget expenses

This $14.3 million potential vulnerability represents a $1.2 million/month reduction in funds available for debt service.

Operational Review

A key activity in defining potential operating efficiencies is a review of current system performance. In simple terms, the primary function of the wastewater collection system is to collect and convey all sources of wastewater to a treatment facility without sanitary sewer overflows. The function of the wastewater treatment facilities is to fully treat all incoming wastewater and its byproducts in compliance with current regulations and within discharge limits set out in National Pollutant Discharge Elimination System (NPDES) permits.

Reviews of reported SSOs from the municipal and county systems are compiled in Tables 4 and 5 on the following pages. The review was conducted to look at the source location of overflows, their cause, the remedial action taken and the rain conditions at the time of individual SSO events. The tables segregate data into three periods: January to October 2007, November to December 2007, and January to October 2008.

Table 4. Municipal Collection System SSO Analysis

	JAN - OCT 2007		NOV - DEC 2007		JAN - OCT 2008	
	COUNT	PERCENT	COUNT	PERCENT	COUNT	PERCENT
BY WEATHER CONDITION						
No Rain	166	91%	59	98%	173	87%
Light Rain	15	8%	0	0%	13	7%
Moderate Rain	1	1%	1	2%	8	4%
Heavy Rain	1	1%	0	0%	6	3%
BY SOURCE						
Manhole	142	78%	45.5	76%	154	77%
Service Clean Out / Clean Out / Clean Out Box	18	10%	10.5	18%	29	15%
Pump Station	8	4%	2	3%	13	7%
Pipe / Service Line	15	8%	2	3%	1	1%
Air Relief Valve	0	0%	0	0%	1	1%
Junction Box	0	0%	0	0%	2	1%
BY CAUSE*						
Grease	94	51%	34	57%	97.5	49%
Debris / Rocks	45.5	25%	12	20%	43.5	22%
P. S. Equipment Failure	10	5%	2	3%	12.5	6%
Roots	14.5	8%	5.5	9%	24	12%
Rags	6.5	4%	3	5%	8.5	4%
Wood	0.5	0%	0	0%	0	0%
Construction Damage	4.5	2%	0.5	1%	1	1%
Vandalism	2	1%	1.5	3%	4	2%
Break	5.5	3%	1.5	3%	2.5	1%
Rain Surcharge	0	0%	0	0%	3	2%
Power Outage / Other	0	0%	0	0%	3.5	2%
BY ACTION TAKEN						
Blockage removed	164	90%	57	95%	181	91%
Pump Station Repaired	10	5%	2	3%	12	6%
Line Repaired	8	4%	1	2%	6	3%
Power Restored	1	1%	0	0%	1	1%
Investigation Only	0	0%	0	0%	1	1%
Blowback	0	0%	0	0%	1	1%
TOTAL EVENT COUNT	183		60		200	

* Note: Multiple codes for single events are prorated for each event.
Data interpretation and rounding errors apply

Table 5. Original County Collection System SSO Analysis

	JAN - OCT 2007		NOV - DEC 2007		JAN - OCT 2008	
	COUNT	PERCENT	COUNT	PERCENT	COUNT	PERCENT
BY WEATHER CONDITION						
No Rain	20	83%	6	100%	40	89%
Light Rain	2	8%	0	0%	3	7%
Moderate Rain	2	8%	0	0%	2	4%
Heavy Rain	0	0%	0	0%	0	0%
BY SOURCE						
Manhole	16.5	69%	4	67%	35	78%
Service Clean Out / Clean Out / Clean Out Box	2	8%	0	0%	5	11%
Pump Station	4.5	19%	2	33%	2	4%
Pipe / Service Line	1	4%	0	0%	3	7%
Air Relief Valve	0	0%	0	0%	0	0%
Junction Box	0	0%	0	0%	0	0%
BY CAUSE *						
Grease	5.5	23%	3	50%	22.5	50%
Debris / Rocks	7	29%	0.5	8%	5.5	12%
P.S. Equipment Failure	4	17%	2	33%	2.5	6%
Roots	2.5	10%	0	0%	5	11%
Rags	0	0%	0.5	8%	3	7%
Wood	0	0%	0	0%	0	0%
Construction Damage	0.5	2%	0	0%	0	0%
Vandalism	0	0%	0	0%	1.5	3%
Break	3.5	15%	0	0%	4.5	10%
Rain Surcharge	0	0%	0	0%	0	0%
Power Outage / Other	1	4%	0	0%	0.5	1%
BY ACTION TAKEN						
Blockage removed	15	63%	4	67%	37.5	83%
Pump Station Repaired	4	17%	2	33%	2.5	6%
Line Repaired	4	17%	0	0%	4.5	10%
Power Restored	1	4%	0	0%	0.5	1%
Investigation Only	0	0%	0	0%	0	0%
Blowback	0	0%	0	0%	0	0%
TOTAL EVENT COUNT	24		6		45	

* Note: Multiple codes for single events are prorated for each event
Data interpretation and rounding errors apply

A high level summary shows that for the corresponding ten-month periods in 2007 and 2008, very similar patterns occurred in all categories. More than 83 percent of the events occurred in dry weather conditions. Manholes were the major source locations, followed by cleanouts and pumping stations. In order of significance, the main causes for SSOs are grease, debris or rocks, roots and pumping stations. The most common remedy to correct an SSO – greater than 90 percent in the municipal collection systems – was to remove blockages. For the ten-month comparison period, there were 38 (18 percent) more events in 2008 than in 2007. As supported by the data, elimination of internal obstructions in the sewer system should be the main focus of the JCESD. Further, there is no apparent correlation between wet weather and significant contributions to SSO events.

However, while rain may not cause significant numbers of SSO events, raw wastewater influent characteristics indicate that additional efforts may be required to reduce groundwater infiltration and inflow (I/I). Raw wastewater concentrations for separated sanitary sewer systems generally are expected in the "medium" to "strong" range of 220 to 350 milligrams per liter (mg/L) for total suspended solids (TSS) and 220 to 400 mg/L for biochemical oxygen demand$_{5\ day}$ (BOD_5). The Water Environment Federation's *Manual of Practice 8* also reflects typical raw wastewater strength of 220 mg/L for TSS and 240 mg/L for BOD_5. Table 6 reflects that for the majority of the WWTPs, the raw wastewater is of weak to medium strength, indicative of influent dilution due to dry weather I/I into the sewer systems.

Table 6. Raw Wastewater Characteristics

RAW WASTEWATER RANGES [a]	TSS	BOD_5 [b]
Weak	100	110
Medium	220	220
Strong	350	400
WWTP - 24 MONTHLY AVERAGE	**TSS**	**$CBOD_5$ [b]**
Turkey Creek	153	104
Cahaba River	146	105
Valley Creek	170	111
Warrior	335	151
Five Mile Creek	203	74
Prudes Creek	225	81
Leeds	160	153
Trussville	137	128
Village Creek #1	154	109
Village Creek #2	78	68
COMBINED AVERAGE	176	108

[a] Data source is Metcalf and Eddy *Wastewater Engineering: Treatment and Reuse*- 2nd Edition
[b] Typical ranges are presented a BOD_5 while monthly plant averages are stated as $CBOD_5$. $CBOD_5$ values are typically lower than BOD_5 values.

While the EPA is not likely to accept anything less than zero SSO events, it is apparent that upon completion of the verification process necessary to resolve a federal consent decree, some level of SSOs will likely remain. The JCESD will be required to demonstrate continuous improvement through an effective Collection System Management, Operations and Maintenance (CMOM) Program. Another key program to ensure continuous improvement is the Grease Control Program which was initiated in 2006.

Internal bypasses at WWTPs resulting in effluent blending, a mix of full and partially treated wastewater, are also reportable discharges. There were none reported in 2007 or 2008, which reflects well for the adequacy of treatment plant and off-line detention basin capacities. WWTP performance can most easily be assessed by comparing effluent quality against discharge limits specified in each facility's NPDES permit. Table 7, found on the following page, shows the exceedance history for each facility as retrieved from Discharge Monitoring Reports (DMRs) and the EPA Evirofacts Warehouse. At the Cahaba WWTP there have been two instances where the toxicity test was reported as a failure. However, the NPDES permit does not have a toxicity discharge requirement. Rather, it is a reporting requirement for monitoring purposes. Technically, these are not likely considered exceedances of the NPDES permit.

Therefore, since the end of 2006 there have been only three exceedances. This performance is not ideal, but representative of a high percentage of compliance when compared to potential opportunities to exceed discharge requirements. Table 8, which immediately follows Table 8, beginning on the page after Table 7, summarizes the NPDES permit requirements reflecting both the discharge limits and monitoring requirements for permit compliance.

A detailed review of effluent quality reflects a treatment efficacy greater than what is required in the current NPDES permits. The design capacity for biological treatment of most JCESD facilities exceeds the average day flows in order to provide adequate biological treatment for wet weather events. While this is helpful in maintaining permit compliance, there are increased costs associated with this practice. For example, the Village WWTP essentially has two treatment plants on site. On an average day basis, one plant alone would provide effective treatment; however both need to be kept biologically active to handle wet weather events. It can easily be seen that there is a resultant financial cost for utilities, labor and repair/maintenance attributed to this method of operation.

Table 7. Summary of NPDES Permit Requirements

Exceedances of NPDES Permits, Jefferson County, AL

WWTP	Parameter	Unit	Limit	Actual Value	Date	Source
Cahaba River	TKN, Weekly Avg.	mg/L	3.0	4.0	Oct-06	EPA
	Toxicity, Chronic, Pimephales			Fail	Aug-06	EPA
	Toxicity, Chronic, Pimephales			Fail	Aug-07	DMR
Leeds	Copper, Total Recoverable	µg/L	45	46	Apr-07	DMR, EPA
Prudes Creek	Fecal Coliform, Daily Max	#/100mL	2000	4300	Jan-07	DMR, EPA
	Fecal Coliform, Daily Max	#/100mL	2000	2600	Oct-06	EPA
	Fecal Coliform, Daily Max	#/100mL	2000	10000	Sep-05	EPA
	Fecal Coliform, Daily Max	#/100mL	2000	2600	Feb-05	EPA
	Fecal Coliform, Daily Max	#/100mL	2000	3100	Jan-05	EPA
	Fecal Coliform, Daily Max	#/100mL	2000	2500	Nov-04	EPA
	Fecal Coliform, Daily Max	#/100mL	2000	3500	Aug-04	EPA
	Ammonia-N, Monthly Avg.	mg/L	1.0	2.5	Nov-05	EPA
	Ammonia-N, Weekly Avg.	mg/L	1.5	6.5	Nov-05	EPA
	Ammonia-N, Weekly Avg.	lb/d	7.5	11.2	Nov-05	EPA
	Ammonia-N, Weekly Avg.	mg/L	1.5	2.3	Oct-06	EPA
	TKN, Monthly Avg.	mg/L	4.0	4.1	Nov-05	EPA
	TKN, Weekly Avg.	mg/L	6.0	10.5	Nov-05	EPA
Turkey Creek	Fecal Coliform, Daily Max	#/100mL	2000	2800	May-03	EPA
	Toxicity, Chronic, Pimephales			Fail	Aug-03	DMR, EPA
	Toxicity, Chronic, Pimephales			Fail	Aug-06	EPA
Valley Creek	Toxicity, Chronic, Ceriodaphnia			Fail	Aug-06	EPA
Warrior	TSS, Weekly Avg.	mg/L	35	51.5	Mar-06	EPA
	TSS, Weekly Avg.	lb/d	33	31	Mar-06	EPA

Note: Data was retrieved from DMRs and/or EPA Envirofacts Data Warehouse

Table 8. Summary of NPDES Permit Requirements

Cahaba River WWTP AL0023027

Parameters	unit	Daily Minimum	Daily Maximum	Monthly Avg. May-Nov / Dec-Apr	Weekly Avg. May Nov / Dec-Apr
DO	mg/L	7.0			
pH		6.0	8.5		
TSS	mg/L			30	45
TSS	lb/d			3002	4503
TSS % Removal	%			85	
Ammonia N	mg/L			1.0 / 2.0.	1.5 / 3.0
Ammonia N	lb/d			100 / 200	150 / 300
TKN	mg/L			2.0 / 4.0	3.0 / 6.0
TKN	lb/d			400	600
Fecal Coliform, Geo Mean	#/100 ml		2000	200 / 1000	
BOD5	mg/L			4.0 / 10.0	6.0 / 15.0
BOD5	lb/d			400 / 1000	600 / 1501
BOD5 % Removal	%			85	

5 Mile WWTP AL0026913

Parameters	unit	Daily Minimum	Daily Maximum	Monthly Avg. May-Nov / Dec-Apr	Weekly Avg. May Nov / Dec-Apr
DO	mg/L	6.0			
pH		6.0	9.0		
TSS	mg/L			30	45
TSS	lb/d			5004	7506
TSS % Removal	%			85	
Ammonia N	mg/L			1.6 / 5.0	2.4 / 7.5
Ammonia N	lb/d			266 / 834	400 / 1251
TKN	mg/L			3.2 / 10.0	4.8 / 15.0
TKN	lb/d			533 / 1668	800 / 2502
Chlorine Residual*	S.U.		0.022		
Fecal Coliform, Geo Mean	#/100 ml		4000	2000	
BOD5	mg/L			9.0 / 13.5	13.5 / 19.5
BOD5	lb/d			1501 / 2168	2251 / 3252
BOD5 % Removal	%			85	

* Chlorination ceased and ultraviolet disinfection began here in October 2007

Prudes Creek WWTP AL0056120

Parameters	unit	Daily Minimum	Daily Maximum	Monthly Avg. May-Nov / Dec-Apr	Weekly Avg. May Nov / Dec-Apr
DO	mg/L	6.0			
pH		6.0	9.0		
TSS	mg/L			30	45
TSS	lb/d			150	225
TSS % Removal	%			85	
Ammonia N	mg/L			1.0 / 10.0	1.5 / 15.0
Ammonia N	lb/d			5.0 / 50.0	7.5 / 75.0
TKN	mg/L			4.0 / 20.0	6.0 / 30.0
TKN	lb/d			20.0 / 100.0	30.0 / 150.0
Fecal Coliform, Geo Mean	#/100 ml		2000	200 / 1000	
BOD5	mg/L			14.0 / 25.0	21.0 / 37.5
BOD5	lb/d			70 / 125	105 / 187
BOD5 % Removal	%			85	

Table 8 (Continued). Summary of NPDES Permit Requirements

Warrior WWTP AL0050881

Parameters	unit	Daily Minimum	Daily Maximum	Monthly Avg. May-Nov / Dec-Apr	Weekly Avg. May-Nov / Dec-Apr
DO	mg/L	6.0			
pH		6.0	8.5		
TSS	mg/L			24.0	36.0
TSS	lb/d			20	30
TSS % Removal	%			85	
Ammonia N	mg/L			1.2 / 2.1	1.8 / 3.1
Ammonia N	lb/d			1.0 / 1.8	1.5 / 2.6
TKN	mg/L			6.0	9.0
TKN	lb/d			5.0	7.5
Chlorine Residual	S.U.	0.03			
Fecal Coliform, Geo Mean	#/100 ml		2000	1000	
BOD5	mg/L			18.0 / 25.0	27.0 / 37.5
BOD5	lb/d			15.0 / 20.8	22.5 / 31.2
BOD5 % Removal	%			85	

Leeds WWTP AL0057057

Parameters	unit	Daily Minimum May-Nov / Dec-Apr	Daily Maximum	Monthly Avg. May-Nov / Dec-Apr	Weekly Avg. May-Nov / Dec-Apr
DO	mg/L	6.0 / 6.5			
pH		6.0	8.5		
TSS	mg/L			24.0	36.0
TSS	lb/d			400	600
TSS % Removal	%			85	
Ammonia N	mg/L			2.0 / 3.0	3.0 / 4.5
Ammonia N	lb/d			33.3 / 50.0	50.0 / 75.0
TKN	mg/L			4.0 / 8.0	6.0 / 12.0
TKN	lb/d			67 / 133	100 / 200
Total Phosphorus	mg/L			1.0	1.5
Total Phosphorus	lb/d			16.6	25.0
Copper, Total Recoverable	µg/L		59	45	
Chlorine Residual	S.U.	0.02			
Fecal Coliform, Geo Mean	#/100 ml		2000	200 / 1000	
BOD5	mg/L			4.0 / 10.0	6.0 / 15.0
BOD5	lb/d			66.7 / 166.0	100 / 250
BOD5 % Removal	%			85	

Trussville WWTP AL0022934

Parameters	unit	Daily Minimum May-Nov / Dec-Apr	Daily Maximum	Monthly Avg. May-Nov / Dec-Apr	Weekly Avg. May-Nov / Dec-Apr
DO	mg/L	6.5 / 6.0			
pH		6.0	9.0		
TSS	mg/L			30.0	45.0
TSS	lb/d			1000	1501
TSS % Removal	%			85	
Ammonia N	mg/L			1.0	1.5
Ammonia N	lb/d			33.3	50.0
TKN	mg/L			2.0 / 3.0	3.0 / 4.5
TKN	lb/d			66.7 / 100.0	100 / 150
Fecal Coliform, Geo Mean	#/100 ml		2000	200 / 1000	
BOD5	mg/L			3.0 / 10.0	4.5 / 15.0
BOD5	lb/d			100 / 333	150 / 500
BOD5 % Removal	%			85	

Table 8 (Continued). Summary of NPDES Permit Requirements

Turkey Creek WWTP AL0022926

Parameters	unit	Daily Minimum	Daily Maximum	Monthly Avg. May-Nov / Dec-Apr	Weekly Avg. May Nov / Dec-Apr
DO	mg/L	6.0			
pH		6.0	8.5		
TSS	mg/L			30.0	45.0
TSS	lb/d			1000	1501
TSS % Removal	%			85	
Ammonia N	mg/L			1.5 / 3.3	2.2 / 4.9
Ammonia N	lb/d			50 / 110	75 / 165
TKN	mg/L			3.0 / 6.6	4.5 / 9.9
TKN	lb/d			100 / 220	150 / 330
Fecal Coliform, Geo Mean	#/100 ml		2000	200 / 1000	
BOD5	mg/L			25.0	37.5
BOD5	lb/d			834	1251
BOD5 % Removal	%			85	

Valley Creek WWTP AL0023655

Parameters	unit	Daily Minimum	Daily Maximum	Monthly Avg. May-Nov / Dec-Apr	Weekly Avg. May Nov / Dec-Apr
DO	mg/L	6.5			
pH		6.0	8.5		
TSS	mg/L			24.0	36.0
TSS	lb/d			17,013	25,520
Ammonia N	mg/L			1.0	1.5
Ammonia N	lb/d			709	1063
TKN	mg/L			3.0 / 4.0	4.5 / 6.0
TKN	lb/d			2126 / 2835	3190 / 4253
Fecal Coliform, Geo Mean	#/100 ml		2000	1000	
BOD5	mg/L			8.0	12.0
BOD5	lb/d			5671	8506

Village Creek WWTP AL0023647

Parameters	unit	Daily Minimum	Daily Maximum	Monthly Avg. May-Nov / Dec-Apr	Weekly Avg. May Nov / Dec-Apr
DO	mg/L	6.0			
pH		6.0	8.5		
TSS	mg/L			24.0	36.0
TSS*	lb/d			12009	18014
TSS % Removal	%			85	
Ammonia N	mg/L			1.0	1.5
Ammonia N*	lb/d			500	750
Chlorine Residual	S.U.	0.01			
Fecal Coliform, Geo Mean	#/100 ml		4000	2000	
BOD5	mg/L			4.0 / 6.0	6.0 / 9.0
BOD5*	lb/d			2001 / 3002	3002 / 4503
BOD5 % Removal	%			85	

*Combined outfall 001 and outfall 002

Operating Efficiencies

A high-level operational review, including limited site visits, was conducted. Two operational areas offering the potential for significant efficiencies were identified: labor reduction and reorganization and changes to the methods for billing and collection. Each is examined below. In addition, a number of areas were examined that present opportunities for continuous improvement.

Labor Reduction and Reorganization: As noted earlier in this report, the JCESD is managing budgeted vacancies to decrease operating expenses. Currently, it is very difficult for the JCESD to make any significant reductions to labor other than through attrition. The County Personnel Board has stringent rules limiting work that can be performed by employees in the different wages classifications. Under such rules, cross training and utilization of employees is difficult, if not impossible.

Further, the operator classification does not allow the JCESD to require operator certification as a mandatory job requirement and there is insufficient wage incentive for employees to obtain certification. The state requires that certified operators be in attendance at the WWTPs all or part of the day, depending on the facility. JCESD operators who do not achieve certification cannot be used to satisfy the state requirements. In effect, this creates a new class of employees who cannot be used efficiently. In addition, laborers are not classified under the Personnel Board, but the JCESD reports that there have been recent challenges after laborers performed work, even on an intermittent basis, that is included in other job classifications covered by the Personnel Board. This severely limits the beneficial work that can be performed by laborers.

The organization structure of the JCESD has been reviewed and a conceptual labor optimization proposal is presented in Table 9, found on the following page, which reflects the full-time equivalent (FTE) positions included in the budget, the current vacant positions and the potential optimization of FTEs. It is our belief that this optimization proposal is highly representative of an organization where employees are cross-trained and cross-utilized, and where the supervisory control and data acquisition (SCADA) system has adequate automation, remote control and monitoring capabilities. Unless significant restructuring changes and modifications to job duties are permitted by the Personnel Board, there will be limited ability to achieve an optimized organization structure.

The above proposal includes the consolidation the grease program and industrial pretreatment program (IPP) group into a sewer use control group and centralization of laboratory services. Sewer inspectors within various departments would be cross-utilized and laborer numbers would be reduced, as would administrative assistants. Some reduction to operator numbers would occur, but a requirement for all operators to be state-certified would be implemented. Additionally, certain supervisory and managerial positions would be eliminated. Finally, the proposal is not intended, or expected, to reduce permit compliance or impact service levels.

Table 8. Conceptual Labor Optimization

COST CENTER	CURRENT POSITIONS BUDGETED	CURRENT POSITIONS FILLED	CURRENT POSITIONS PROPOSED
6805 ES: Sewer Billing	16	13	13
7100 ES: Sanitation Administration	37	28	22
7100 ES: Sanitation Administration (Sewer Impact Section)	22	19	16
7210 ES: Administration & Construction	3	2	2
7212 ES: Survey Engineering & Construction	12	9	9
7214 ES: Inspection Engineering & Construction	21	16	14
7230 ES: Construct Sewer Line	23	16	13
7250 ES: Administration Line Maintenance	12	11	8
7252 ES: Village Line Maintenance	27	24	21
7253 ES: Shades Line Maintenance	40	31	32
7270 ES: TV Inspection & Grouting	27	21	20
7301 ES: Cahaba River WWTP	33	29	22
7302 ES: Five Mile Creek WWTP	31	25	24
7303 ES: Leeds WWTP	12	11	7
7304 ES: Trussville WWTP	9	6	6
7305 ES: Turkey Creek WWTP	9	7	8
7306 ES: Valley Creek WWTP	68	60	47
7307 ES: Village Creek WWTP	72	64	50
7308 ES: Five Mile Maintenance Shop	6	8	6
7309 ES: Valley Maintenance Shop	7	7	7
7310 ES: Village Maintenance Shop	7	5	7
7311 ES: Village Electrical Shop	9	9	9
7312 ES: Instrument Shop	7	7	7
7313 ES: Package WWTP & Pump Stations	32	24	16
7314 ES: Biosolids Handling	18	14	10
7400 ES: Barton Lab	31	23	21
TOTALS	591	493	421
% Reduction From Budgeted Positions		16.6%	34.5%
% Reduction From Current Filled Positions			14.6%

__Billing and Collection:__ At the present time, 115,465 customers (80.1 percent) are billed by BWWB and 16,605 (11.5 percent) by BCW. In each case, the utility uses water consumption meter reads to generate and issue bills, and also manages customer service and collection functions. Six other utilities supply water consumption information for an additional 12,703 (8.4 percent) customers, which the JCESD bills and manages customer service and collection. The JCESD also bills and collects funds from 31 firms with individual surcharge agreements. These agreements set out charges based on the percentage of water consumption returned through the sewers and the strength of their individual discharges.

The unit cost per bill and combined cost for billing, customer service and collections is considered excessive. Further, there are no activities by JCESD to independently verify customers, nor do they review or audit charges raised or collected on customer accounts. For more than 90 percent of its customers and revenue, JCESD relies on the metering, meter reading and collection practices and capabilities of independent water companies. It is not known if these companies follow best management practices for meter changeouts for residential and significant users. As water meters fail, they register reduced water consumption and in the case of many users, and especially major water users, such errors can result in significant revenue losses. In addition, customer accounts need to be verified to ensure that some connections are not receiving sewer services free of charge. Both field verification and matching account records to block and lot tax records are recommended. (See additional discussion of this in "IV. Revenue Enhancement" below.)

Both the various water companies and the JCESD would benefit from a cooperative approach to meter management and meter reading. A state of the art automated meter reading (AMR) system would eliminate the need for manual meter reading and allow real-time, any time access to customer accounts and consumption data. AMR by radio may be very costly in Jefferson County due to the local topography and the need for radio repeating towers. Another option is radio-read meter sets that can be read on a walk-by or drive-by basis.

The JCESD should conduct a detailed review of a separate sewer billing system. It is estimated it will cost approximately $2- to $3 million and take two years to implement a new customer service and billing system. However, a consolidated approach to billing is viewed as being more efficient than the current practices. Even with the implementation of a separate billing system for the JCESD, the other water utilities would still need to provide consumption data in a timely and readily usable format. The cost of doing so should be at these water utilities' actual cost, as set out in paragraph 14 of Alabama State Law Act 619. However, legislative change may be necessary to this paragraph to require the water utilities to submit data in a timely fashion and in suitable electronic format.

To ensure appropriate collection of sewer charges, JCESD would have to establish a cooperative shut-off program. Further, the JCESD should pursue legal challenges and/or legislative changes to the Alabama State Law Act No. 2007-362. As discussed in the Budget Review at the start of this section, this new legislation will have unintended and dire consequences for the collection of sewer charges from multi-unit and tenant customer locations. It is already unclear how aggressive the water utilities currently are in their on-going collection programs.

Continuous Improvement Opportunities

Additional areas of review were conducted and opportunities for continuous improvement and incremental savings were identified. Each is discussed briefly below.

Biosolids Removal and Disposal: Current treatment practices range from aerobic digestion to thermophilic-mesophilic anaerobic digestion, followed by drying bed, belt press or centrifuge dewatering. Several sites use lime stabilization in order to meet vector attraction reduction limits. Removal and disposal is achieved by trucking the material for land application at several former mining sites, where the material is beneficially reused as a soil amendment. Since the County pays for truck repairs and fuel, and disposal sites are free, readily available and secure, the removal and disposal of biosolids is very cost-effective. Nevertheless, the JCESD should consider at least partial use of the drying beds at sites where belt presses or centrifuges are installed, in order to reduce dewatering costs. Other technologies such as bio-tubes should be investigated to save on power and polymer costs.

Utilities: Power costs are considered to be fairly well optimized. The major facilities have backup or on-demand power generation capabilities and therefore enjoy interruptible power rates. Additionally, most facilities have converted to time-of-use rates rather than demand rates. The installed treatment capacity of the Village WWTP facility is so large, compared to the average daily flow it receives, that a significant expense is incurred simply in keeping the two treatment trains biologically active for treatment of wet weather events. Many plants utilize ultraviolet light (UV) disinfection instead of chlorination. UV disinfection is power intensive and uses special bulbs that are costly. The UV process should be optimized to match varying WWTP operating conditions and further study of energy savings is recommended.

Chemicals: Typical chemicals used are alum, polymer, chlorine, sulfur dioxide and lime. Where required, the WWTPs typically use biological nutrient removal and UV disinfection which reduce chemical consumption. In consideration of future Total Maximum Daily Load (TMDL) limits, the JCESD has been testing various chemical dosages to determine the treatment efficacy that can be achieved with the current processes. Once sufficient data has been accumulated to optimize treatment, the JCESD should suspend such trials to prevent overtreatment with chemicals at increased expense. Any savings from reduced chemical consumption is likely to be negated by recent price increases. For alum and polymer specifically, 20 to 40 percent price increases have been experienced in the past year alone.

Vehicles: The County's fleet management oversees the procurement, maintenance and replacement of all JCESD vehicles and rolling stock. Fleet management also provides gasoline and diesel fuel for the vehicles assigned to the JCESD. Vehicles are purchased on a cash accounting basis, so there is no ongoing costs in the budget for asset depreciation. Additionally, since the County provides fleet management, repairs and fuel at no cost to the JCESD, there is little opportunity to reduce expenses. Nevertheless, vehicle selection and allocation should be carefully managed. Apparently such decisions are currently made by fleet management ~~and not the JCESD.~~

WWTP Maintenance: As discussed in the budget review earlier, the routine maintenance allocation is less than expected. While the average WWTP asset age class is considered low, consistent preventative maintenance practices are needed to ensure the long-term maximization of asset life. A computerized maintenance management system does not exist and should be implemented to plan and track maintenance activities. Planned, preventive and predictive maintenance activities should be performed on an 80:20 ratio with corrective maintenance activities. Conversion to a condition-based method of maintenance management is highly recommended.

EPA Verification: Following the completion of the work associated with the consent decree, concerns over the work performed led the EPA and JCESD to agree upon a detailed wastewater collection (WWC) work verification process for each sewershed. JCESD reports that in the two systems reviewed for which the consent decree has been revoked, the verification process showed that the WWC work was essentially completed as originally intended. A technical argument could be made to the EPA to reduce or eliminate the WWC verification process in order to save money. While such an argument can be made, neither the Special Master or the JCESD strongly recommends this action because of the negative perception associated with doing so, and the potentially damaging effect on JCESD's relationships with the Alabama Department of Environmental Management, the EPA and local conservation associations. The lasting damage would be more problematic than simply finishing the work as planned. It is estimated that completing the verification process will require approximately three FTEs over a four- to six-month period.

Grease Program: As noted previously in this report, fats, oil and grease (FOG) cause or contribute to the majority of SSOs in the collection system. The FOG program will be an essential component for continued compliance with SSO reduction requirements. It is recommended that the IPP and FOG program personnel be combined into a sewer use control group. Currently the annual FOG permits generate $300,000 in revenues, but the expenses associated with the management of the program, including eight employees, far exceed the permit fees. Therefore, consideration should be given to raising fees to cover the costs of the program. Stipulated penalties are expected to decrease as the program continues; however there has been no reduction in 2008 over 2007. Grease is received from registered haulers at the Village WWTP, where it receives separated treatment. Consideration should be given to injecting the grease directly into the digesters to increase gas production, thereby reducing the purchases of natural gas.

__Aqua Zoom:__ Zoom camera technology provides a cost-effective method of examining more linear feet of sewer in a shorter period of time as the technology is less intrusive than other methods. The JCESD has ordered two pole-mounted zoom cameras, and with experience, consideration should be given to adding truck-mounted units. This will enable JCESD to examine additional pipe and manholes, reducing the need for cleaning before inspection while reducing the need for tractor-mounted camera inspections and manual manhole inspections.

__Laboratory:__ The JCESD manages its analytical needs through a central facility, Barton Laboratory, as well as on-site labs at several WWTPs. Additionally, external contract laboratory services are used for low volume and specialized analytical testing, and further serve as backup to the Barton lab. Lab services are distributed so WWTPs have access to expedited results and weekend analysis. With available holding times for samples, this practice should be re-examined. Dispersed laboratory services can lead to reduced efficiencies and increased cost. JCESD purchased a laboratory information management system (LIMS), but has not implemented the system. The LIMS should be put in place as soon as possible. Barton Lab is committed to performing benthic analysis until at least 2011, after which the provision of this service should be re-examined. Finally, a review of every type of test should be considered, given the number of samples performed, the costs of equipment and its maintenance, as well as the utilization of staff. Analytical tests that cannot be performed on an economical basis should be contracted out.

III. CAPITAL IMPROVEMENT PROGRAM

The JCESD provides wastewater collection and treatment services for approximately 478,000 people in 21 different municipalities in Jefferson County. The system is currently comprised of approximately 3,150 miles of sanitary sewer lines, 185 pump stations, nine WWTPs, and ancillary centralized administration, maintenance, and laboratory facilities. Each year, JCESD undertakes a number of capital improvements projects to upgrade, expand, repair or replace infrastructure assets. Over the past 12 years, the capital improvement program (CIP) has been driven by the need to comply with a federal consent decree, as well as to meet increasingly stringent regulatory requirements under the Clean Water Act (CWA). Going forward, the CIP is focused primarily on renewing or replacing aging buried infrastructure, with some specific projects to maintain compliance with the CWA or to meet anticipated growth needs.

Consent Order Completion

In 1996, Jefferson County entered into a federal consent decree which required the implementation of improvements to eliminate SSOs in its service area. Since that time, the JCESD has expended over $3 billion to renovate, upgrade or replace sewers, pump stations and WWTPs to reduce I/I and increase conveyance and treatment capacity. As of December 2008, two of the County's nine wastewater sub-basins (Warrior and Turkey Creek) have been released from the CD, and JCESD is nearing completion of the capital improvements and documentation necessary to satisfy consent decree requirements for the remaining seven sub-basins. However, EPA has mandated that JCESD conduct extensive inspections of sewer line repairs and replacements to verify and document that the necessary improvements were made to demonstrate compliance with the CD. In addition, due to below average precipitation in 2008, JCESD may be required to collect an additional year's worth of performance data for certain sub-basins to adequately demonstrate compliance with the SSO reduction requirements set forth in the CD. As a result, JCESD may not be fully released from the consent decree until 2010.

Capital Program Adequacy

According to records furnished by JCESD, a total of approximately 657 miles of sewer mains were rehabilitated using cured-in-place lining or other trenchless technologies and another 80 miles of sewer line were completely replaced over the 12-year duration of the CD. In addition, the equivalent of more than 20,000 manholes were either rehabilitated or replaced. The work was completed based on the results of comprehensive condition assessments, which identified where renovations and replacement needs were greatest. As a result, it appears likely that the majority of Jefferson County's sanitary sewer system is currently in "good" condition.

JCESD also made significant capital investments over the past 12 years to rehabilitate, upgrade, and expand numerous sewer pump stations and its nine WWTPs. Combined, the pump station and WWTP capital expenditures amounted to over $1.1 billion, approximately 64 percent of which was attributed to compliance with the consent decree and the remainder to comply with other CWA requirements. Based on a review of recent discharge monitoring reports, these investments have succeeded in allowing the nine WWTPs to achieve consistent compliance with their respective NPDES permit limits.

Table 10 presents a summary of JCESD's proposed CIP budget through 2019. An annual average expenditure of $33.2 million is currently projected for the next ten years to finance needed capital improvements. The plan includes budgeted funds for ongoing repair and replacement of buried infrastructure assets, as well as upgrades and improvements to pump stations and WWTPs. Over the next several years, money is also budgeted to complete surveys and inspections of areas of the collection system that have not yet been fully investigated. It is presumed that at least a portion of the planned sewer repair/replacement budget will be expended on needs identified in these areas.

Table 10. JCESD Long Term Capital Improvement Program

	PROJECTED ANNUAL BUDGET ($ MILLIONS)[a]											
PROJECT DESCRIPTION	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	AVG
Engineering Services	$0.6[b]	$0.6	$0.6	$0.6	$0.6	$0.7	$0.7	$0.7	$0.7	$0.7	$0.0	$0.6
OPS MH Survey & TV Inspection	$1.5	$4.1	$2.9	$2.8	$2.9	-	-	-	-	-	-	$1.3
Flow Monitoring/Modeling	$1.2	$1.3	$1.3	$1.4	$1.4	$1.7	$1.7	$3.3	$5.0	$0.9	$0.9	$1.9
Sewer Rehabilitation (CIP)	$4.5[b]	$2.4	$6.2	$11.7	$10.4	$9.9	$14.1	$19.0	$20.0	$10.4	$14.7	$13.0
Sewer Replacement	$4.0[b]	$2.9	$4.2	$8.1	$8.4	$3.3	$9.5	$9.8	$9.8	$10.0	$10.2	$7.4
Participation/Expansion	$2.0	$2.0	$2.1	$2.1	$3.2	$3.3	$3.4	$3.4	$3.5	$3.8	$3.7	$3.0
Pump Station Upgrades	$2.5[b]	$5.0	$3.2	$2.2	$2.2	$2.3	$2.3	$2.4	$2.4	$2.6	$0.3	$2.5
ROW Acquisition	$0.1[b]	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1
WWTP Improvements	$5.7[b]	$8.3	$6.2	$4.2	$0.0	$0.0	$0.1	$1.9	$5.2	$6.7	$3.0	$3.4
ANNUAL TOTAL	$22.3	$24.6	$26.7	$33.2	$27.9	$21.9	$31.9	$40.8	$47.4	$45.0	$33.0	$33.2
	ANNUAL ASSET RENEWAL RATE											
Sewer Renewal Rate[c]	0.8%	0.6%	0.8%	1.0%	0.9%	0.8%	1.1%	1.4%	1.5%	1.3%	1.1%	1.0%
PS/WWTP Renewal Rate[d]	0.8%	0.6%	0.5%	0.4%	0.1%	0.1%	0.2%	0.2%	0.4%	0.6%	0.2%	0.3%
Overall Renewal Rate[c,d]	0.5%	0.5%	0.6%	0.7%	0.6%	0.4%	0.7%	0.9%	1.0%	1.0%	0.7%	0.7%

NOTES
[a] Assumed CIP Inflation Rate = 2%
[b] The current year budget includes a $7.0M line item for current active projects. The value of this line item was distributed across the line item categories indicated based on the relative percentage that each category represents within the 10 year plan.
[c] Sewer investment rate based on an assumed total asset value of $2.4 billion reported in JCESD Fixed Asset List. Percentages include a proportional fraction of the engineering services budget line item, but exclude budget for future system expansion.
[d] PS/WWTP investment rate based on an assumed total asset value of $1.8 billion reported in JCESD Fixed Asset List. Percentages include a proportional fraction of the engineering services budget line item.

Table 10 also shows how the projected CIP budget compares as a percentage of the estimated acquisition value for the County's wastewater infrastructure assets. The acquisition values were derived from a spreadsheet entitled "Fixed Asset List Fund 34" that was furnished by JCESD. The fixed asset list includes acquisition, depreciation, and resultant current book value of all of the County's wastewater assets, including sewer lines, pump

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stations, WWTPs, property, easements, and rights-of-way, as well as other less significant asset categories, such as vehicles, tools and capital equipment, office furnishings, etc. To facilitate this analysis, the value of these major assets were divided into the following two broad asset categories:

- Buried infrastructure valued at $2.8 billion
- Physical plant assets such as pump stations and WWTPs valued at $1.5 billion.

A high level assessment was made to determine if the reported acquisition value reasonably reflects the actual replacement value of the assets. According to JCESD's sewer system inventory, approximately 65 percent of the collection system is comprised of 8-inch diameter sewer, and over 85 percent is 24 inches or smaller. A 2005 Unit Price Cost Tracking Study by the firm of Burk-Kleinpeter, Inc. indicated that average construction costs for 8-inch sewer line replacement in Jefferson County ranged between $66 per linear foot (LF) and $90/LF, depending on depth. Given that the average pipe diameter is somewhat larger than eight inches, it was assumed that the average cost to replace the sewer collection system in Jefferson County would be in the range of $150/LF, including allowances for manholes, appurtenances, and administrative costs. Multiplying this unit cost by the 3,150 miles of sewer yields an estimated replacement value of $2.5 billion, which closely matches the reported acquisition value above.

It is more difficult to estimate the value of physical plant assets because each has unique properties and requirements. Wastewater pump stations can range in cost from less than $100,000 for a small can-type duplex station to greater than $5 million for a large central lift station. The size and capacity of the County's 185 pump stations is not known, but if we assume an average cost of $250,000 to $500,000 that would yield an estimated replacement value between $45 and $90 million. The County's nine WWTPs range in capacity from 0.1 million gallons per day (mgd) to 65mgd. Based on cost curves developed by Jordan, Jones & Goulding for the Metropolitan North Georgia Water Planning District, the replacement cost for these facilities is estimated to be in the range of $1.6 billion. Combined, the estimated replacement value of the pump stations and WWTPs also appears reasonably close to their reported acquisition value.

On average, JCESD's proposed CIP budget represents an annual investment of approximately one percent of the reported acquisition value of its buried infrastructure assets and 0.3 percent of its physical plant assets. In aggregate, the proposed CIP budget represents approximately 0.8 percent of the total reported acquisition value each year.

Several reports have been published over the past few years regarding the need for, and adequacy of, investment in wastewater infrastructure renewal on a national basis. According to the EPA's 2002 Clean Water and Drinking Water Infrastructure Gap Analysis, the useful life of different infrastructure assets varies, with collection system piping having a life expectancy of 80 to 100 years, treatment plant and pump station structures being on the order of 50 years, and process equipment ranging between 15 and 25 years. Based on these life expectancies, JCESD's one percent average annual rate of investment in buried infrastructure renewal appears sufficient to sustain the sewer collection system in adequate working condition, especially given that such a significant amount has been so recently invested to upgrade assets that were in the poorest condition.

By comparison, the projected investment rate of 0.3 percent in JCESD's physical plant assets is substantially below the long-term average need of two to five percent based on structural and equipment life expectancies. However, it is common for capital investments in treatment facilities to be made on a more intermittent basis. In addition, the County is completing a $1.1 billion program of capital investments in its physical plant facilities, so there should be a reduced need for capital improvements at these facilities over the next ten years. It should be noted, however, that this situation could change if the Alabama Department of Environmental Management imposes any significantly more stringent treatment plant discharge limits in the near future.

Opportunities

Based on the preceding high level analysis, JCESD's proposed CIP budget appears to be reasonable and prudent. As a result, there are only limited opportunities for reductions in the CIP budget. One potential opportunity may be in the budget line item for funding sewer system expansion. Approximately nine percent, or $29 million, of the CIP budget over the next ten years is reserved for funding expansion-type projects. Doing so is consistent with Jefferson County's long-term goal of "maintaining the health, safety, and welfare of the public through water resource protection and proper removal and treatment of wastewater," as stated in its Sanitary Sewer Extension and Expansion Policy. In addition, adding new customers can spread fixed costs over a larger customer base to help reduce rate impacts on existing customers. However, according to U.S. Census Bureau statistics, the population of Jefferson County actually declined slightly between 2000 and 2007, and the projected growth rate for the state as a whole between 2010 and 2020 is only 0.3 percent per year. Given current economic conditions, as well as the limited anticipated growth in the region, the County may not need to expend significant capital for sewer system expansion over the next ten years.

Capitalization Practices

JCESD's CIP budget is derived from a separate capital reserve fund that is limited exclusively to the funding of capital projects. As a result, even if JCESD can reduce its annual CIP budget as discussed in the previous section, it does not appear that such a reduction would increase the availability of funds for debt service because of the restrictions on the use of capital reserve funds. Therefore, consideration was given as to whether any other activities that have historically been funded as operating expenses could legitimately be recategorized as capital expenditures.

JCESD does not currently have any policies regarding how to capitalize internal labor expenses. In addition, there appear to be inconsistencies in the way that JCESD and Jefferson County account for capital expenditures. According to U.S. Generally Accepted Accounting Principles (GAAP), to qualify for capitalization, costs must relate to the addition or replacement of property, plant and equipment. Costs related to the improvement or enhancement of an existing property unit can be capitalized when they result in the extension of the estimated useful life of the property unit. Normal, periodic or emergency repair and maintenance activities do not materially add value or extend the estimated useful life of a property unit. Instead, they remedy the effects of having used the property unit in the past and help facilitate its continued use through its estimated useful life. Costs related to repair and maintenance activities should be expensed to operations.

Based on interviews with JCESD officials, the department generally does not capitalize most of the work performed by its internal sewer construction crews, even if the result of a repair activity is replacement of a segment of sewer main. In FY 2007/08, only one percent of JCESD's annual costs were ultimately charged to capital. Based on this understanding, following are some possible activities that may be considered for cost recovery as capital expenditures:

- Labor and expenses for sewer main repair work that results in replacement of pipeline or manhole materials
- Labor and expenses related to capital projects, such as expenses for temporary pumping that may be necessary to allow replacement of a sewer main
- Engineering inspection of capital projects
- Labor associated with inspection of new customer services
- Management time associated with capital program planning, financing and administration

Table 11 presents a summary of JCESD's 2009 proposed operating budget. As currently presented, 100 percent of the $55.5 million would be charged to operating expense accounts. However, many JCESD staff are involved in the types of capital program delivery activities outlined above on a daily basis. Therefore, an estimate was made of the percentage of each budget line that could potentially be recovered as a capital expense instead of an operating expense. Based on the estimates shown in Table 11, it is conceivable that ten percent, or $5.4 million, of the total current operating budget could be eligible for recovery as a capital expenditure.

For comparison, American Water is engaged in water/wastewater utility operations and construction activities similar to JCESD. On average, 20 to 25 percent of American Water's annual labor costs are expensed to capital recovery accounts every year. Based on this metric and JCESD's 2009 budgeted labor cost of $33 million, it is conceivable that an even greater percentage of JCESD's current operating expenses could be capitalized than the theoretical estimate shown in the following table.

Table 11. Conceptual Redistribution of OPEX Budget to CAPEX

DIVISION NUMBER	BUDGET DIVISION	CURRENT OPEX BUDGET	CONCEPTUAL DISTRIBUTION OPEX	CONCEPTUAL DISTRIBUTION CAPEX	ADJUSTED OPEX BUDGET	ADJUSTED CAPEX BUDGET
6805	Sewer Billing	$6,810,501	100%		$6,810,501	$0
7100	Administration	$6,164,865	90%	10%	$5,548,397	$618,489
7210	Sewer Construction Admin	$187,368	0%	100%	$0	$187,368
7212	Survey	$683,130	75%	25%	$512,348	$170,783
7214	Inspection	$1,514,082	0%	100%	$0	$1,514,082
7230	Construction	$1,509,448	25%	75%	$377,362	$1,132,086
7250	Line Administration	$1,096,243	0%	100%	$0	$1,096,243
7252	Village Line Maintenance	$1,288,781	80%	20%	$1,031,025	$257,756
7253	Shades Line Maintenance	$2,104,758	80%	20%	$1,683,806	$420,952
7270	TV Inspection	$1,678,698	100%		$1,678,698	$0
7301	Cahaba River	$3,013,029	100%		$3,013,029	$0
7302	Five Mile Creek	$2,397,866	100%		$2,397,866	$0
7303	Leeds	$915,179	100%		$915,179	$0
7304	Trussville	$823,507	100%		$823,507	$0
7305	Turkey Creek	$759,277	100%		$759,277	$0
7306	Valley Creek	$6,950,532	100%		$6,950,532	$0
7307	Village Creek	$7,069,125	100%		$7,069,125	$0
7308	Five Mile Maintenance	$386,665	100%		$386,665	$0
7309	Valley Maintenance	$468,911	100%		$468,911	$0
7310	Village Maintenance	$530,513	100%		$530,513	$0
7311	Village Electrical	$900,787	100%		$900,787	$0
7312	Instrumentation	$615,778	100%		$615,778	$0
7313	Pump Stations	$3,887,613	100%		$3,887,613	$0
7314	Biosolids	$1,065,229	100%		$1,065,228	$0
7400	Barton Lab	$2,697,754	100%		$2,697,754	$0
	TOTAL	$55,519,659	90%	10%	$50,123,901	$5,395,758

Based on the estimates above, JCESD may be able to recover between $5 million and $8 million of its annual operating budget from its capital recovery account, which should make additional operating funds available for debt service. Additionally, a revised capitalization policy can be enacted for prior years to further increase the funds available. However, prior to implementing the policy for prior years, the materiality of the impact, the need for restatement of financial records and the requirements of the bond indentures need to be considered.

This policy change would place a greater burden on funds available for the capital program. Given the JCESD's projected capital spending, this proposed increased capitalization rate would accelerate depletion of these funds by approximately 20 percent. Therefore, a proper and strategic balance between operational and capital expenditures needs to be maintained. Additional review and analysis may need to be performed by JCESD to validate appropriate capitalization levels.

IV. REVENUE ENHANCEMENTS

An increase in the availability of funds to satisfy debt service can be achieved through either operating cost reductions or revenue enhancements. This section of the report addresses revenue enhancements that should be further investigated and/or implemented to help meet this goal. Throughout the years, the JCESD has commissioned a number of studies and reports that included analyses of alternative revenue sources to reduce the JCESD's reliance on volumetric-based customer rates to cover the revenue requirement. These studies include:

- Analysis of Sources of Revenue for the Jefferson County Environmental Services Department, Paul B. Krebs & Associates, Inc., March 31, 2003 (Krebs Report)
- Final Report, Jefferson County Program Review, BE&K Engineering, 2003 (BE&K Report)
- *Final Technical Report*, Red Oak Consulting (a division of Malcolm Pirnie), January 31, 2007 (Red Oak Report)

As indicated, one of these studies is two years old while the other two were completed in 2003. With the exception of increasing impact fees and a few other minor fees and charges, we are not aware that the JCESD has implemented any of the suggestions in the reports.

R.W. Beck Report

In March, 2008, King & Spalding retained the services of R.W. Beck to conduct an assessment of the JCESD to identify revenue enhancements and/or potential cost reductions or deferrals that could assist the JCESD in payment of its operating costs and debt obligations. The R.W. Beck study identified 12 areas as potential revenue enhancements and estimated the annual impact of each. According to the R.W. Beck report, revenues could be enhanced by approximately $57.8 million to $68.8 million annually. Table 12 from the R.W. Beck report, found on the next page, summarizes these findings.

The R.W. Beck report reflects a useful attempt to identify additional sources of revenue for the JCESD. However, we have reservations regarding some of the suggested actions, as well as the amount of incremental revenues the report estimates will be produced. For the reasons stated below, we believe a more realistic and optimistic level of revenue enhancements would be in the range of $5 to $10 million.

Brief reviews of each of the proposals in the R.W. Beck report, including which recommendations should be adopted and the likely range of resulting revenue enhancements, are presented below. It should be noted that, other than as observed below, separate analyses of anticipated incremental revenues or other attempts to verify the R.W. Beck estimates were not conducted.

Table 12. Potential Revenue Enhancements and Annual Impact by R.W. Beck

Revenue Enhancement	Estimated Annual Revenue
Monthly Base Charge	$10,000,000
Impact Fee	2,500,000
Clean Water Charge	25,000,000
Industrial Surcharge Rate	4,000,000
Eliminate Private Water Meters or Private Water Meter Administrative Fee	1,000,000 – 12,000,000
Eliminate 15% Residential Credit	1,500,000
Unauthorized Inflow Fee	N/A
Sewer Tap	125,000
Line Location Fee	N/A
Grease Trap Fee	N/A
Unbilled Accounts	1,200,000
Commercial Accounts at 100%	2,500,000
Total	$57,825,000 – 68,825,000

Change in Monthly Base Rates: As discussed later herein, in order to enhance revenue stability, the minimum monthly charge should be eliminated and a monthly fixed fee should be established to provide a larger percentage of revenues from a fixed charge. However, this change will not provide any incremental revenue as it simply changes the revenue recovery method to more reliably achieve the recovery of the full appropriate revenue requirement. Hence, this change is not considered a revenue enhancement.

Impact Fees for New Development: Based on the Red Oak cost of service analysis, an increase in impact fees for a single-family residence from the current $3,150 to $4,200 would be appropriate. This estimate is actually based on a recommended increase from $225 per plumbing fixture to $300 per fixture, utilizing an average of 14 plumbing fixtures per residential unit. However, given the current economic conditions and limited development and growth, it is difficult to estimate the short-term revenue impact associated with this adjustment. Based on projected growth rates, the revenue increase is estimated to be $1 million to $2 million per year.

Reserve Capacity Charge: As proposed in the R.W. Beck report, those Jefferson County residents who currently do not receive sewer service because they utilize septic systems could be charged a monthly clean water charge. Such a charge is similar to a reserve capacity charge, but there are differences between the two. A reserve capacity fee is typically associated with a septic system owner who is located in sufficient proximity to the JCESD to allow a connection to the system if desired. A clean water charge would be appropriate for septic system owners who cannot effectively connect to the JCESD systems. However, this charge would be justified on the basis that all county residents receive an indirect benefit from improved environmental quality that results from the JCESD's compliance with the consent decree.

While both types of charges are appropriate, the charge to the septic system owner who can actually access the JCESD system should be higher. However, the RW Beck report recommends a similar charge for all 100,000 septic system owners, whether or not they can access the JCESD's system. This charge was based on a similar charge by the Mobile Area Water and Sewer System (MAWSS). The MAWSS charge to non sewer customers amounts to approximately 42 percent of the monthly sewer bill for customers who are connected to the system, at eight hundred cubic feet (ccf) of water usage/month. For the JCESD, the average residential sewer bill at 8ccf is $50.32. Applying a similar charge to the over 100,000 septic systems it claims are located in the JCESD, the R.W. Beck report estimates such a charge would yield approximately $25 million in incremental revenue. At water consumption levels of 10ccf and resulting monthly bills of $62.90, estimated annual incremental revenues would be somewhat higher.

The concern is that only customers that have access to sewer collection lines should be charged the reserve capacity rate. While we agree that charges for both types of septic system owners may be appropriate, the charges to those owners who cannot access the JCESD systems should be lower. It is difficult and inequitable to require septic system owners to pay a reserve capacity charge if they have no practical way of connecting to the system. Based on information provided by the JCESD, approximately 5,000 potential septic system customers are in reasonable proximity of the system to justify a reserve capacity charge. Therefore, implementation of this charge at a monthly rate of approximately $30 would result in approximately $1.8 million of additional revenue. A lower charge to the remaining Jefferson County septic system owners is addressed later in this report.

<u>Industrial Surcharge Rate:</u> The R.W. Beck report recommends that industrial surcharge rates should be increased based on the cost of service study in the Red Oak report, and estimates that this will produce $4 million in incremental revenue. However, the Red Oak report notes that raising surcharge rates to the highest level defensible under its cost of service study would result in these rates being up to 600 percent higher than the current surcharge rates. There is no indication, however, what impact such increases would have on the JCESD industrial customer base. Although such increases may be justified on a cost of service basis and the industrial surcharge rates have not been adjusted for many years, a significantly increased surcharge may have adverse elasticity impacts and effects on JCESD economic development, job creation and retention. It is recommended that the JCESD consider such impacts and increase industrial surcharge rates gradually over time from the current charges to those indicated as the highest defensible charges under the Red Oak study, pending completion of a new cost of service study and further investigation of potential

economic development impacts. This approach might provide immediate incremental annual revenues of approximately $1 million that increase to approximately $4 million over time.

Elimination of Private Water Meters or Private Water Administrative Fee: The R.W. Beck report notes that eliminating private water meters and, therefore, the deduction from the primary water meter's water consumption for irrigation or sprinkler systems for billing purposes, would increase revenues from $10 to 12 million annually. Alternatively, the report recommends implementing a $5 per month fee to cover the costs of administering the private irrigation water meter credit programs, which would yield additional revenue of approximately $1 million, based on 16,000 private water meters. We cannot agree that eliminating private water meters and the deduction of irrigation water from total water used is appropriate. This approach would not be consistent with cost of service principles, nor would it be fair or equitable. These private meters represent water usage that does not place a burden or a cost on the sewer system and charging for such usage would not be justified.

However, charging a fee to cover legitimate costs to administer the program is appropriate. The R.W. Beck report assumes a $5 monthly charge to the 16,000 private water meters would produce approximately $1 million in additional revenue. Based on discussions with the JCESD, the actual cost to administer this program is approximately $2 per meter per month. This charge is appropriate and it is recommended that the JCESD develop information that would support a cost-based rate to cover the costs to administer the credit programs. Based on $2 per meter per month, the anticipated revenue enhancement would be approximately $0.4 million.

Elimination of 15 Percent Residential Credit: The R.W. Beck report recommends elimination of the 15 percent volume credit for residential customers, which it estimates would yield approximately $11.5 million of annual incremental revenue. While we have no reason to dispute this estimate, eliminating the discount would not be consistent with cost of service principles. As with the private water meters, the 15 percent discount should represent water usage that does not constitute a burden on, or costs to, the wastewater system, such as for lawn irrigation, where the usage does not flow into the sewer system. Charging for uses that do not burden the system would not be appropriate. It is recommended, however, that the JCESD perform a study to determine whether 15 percent represents the appropriate level of the discount.

Unbilled Accounts: The R.W. Beck report utilized an increase in revenue of two percent to estimate possible annual incremental revenues of approximately $1.2 million if this program is pursued. We agree that pursuit of unbilled accounts is a good business practice and should be enhanced. We note, however, that extending this program throughout the system will increase costs and it is unlikely that the JCESD will net the full $1.2 million the R.W.

Beck report estimates. Additionally, all of the unbilled customers will not be immediately identified. Therefore, it is assumed that recognition of unbilled customers will enhance revenues by $200,000 per year over the next five years.

Commercial Accounts at 100 Percent of Water Usage: The R.W. Beck report notes that within the commercial class, customers with similar water consumption uses are charged varying percentages of water consumption. The report concludes that basing commercial accounts at 100 percent of water usage might increase revenues by approximately $2.5 million. It is not apparent that these differences are cost-justified. In addition, there is some evidence, as noted in the Raftelis report, that the residential class may be paying slightly more than its fair share of cost of service, but that the variance is not significant (approximately $2.1 million out of a then current revenue requirement of approximately $158 million). However, based on discussions with the JCESD, it appears that this revenue enhancement opportunity is less than $1 million.

Other Revenue Enhancements in the R.W. Beck report

The R.W. Beck report identified several other potential sources of incremental revenue where the amount of increased revenue was either *de minimus* or unquantifiable at the time of the study. These include:

Sewer Tap Fees: The JCESD recently increased sewer tap fees from $35 to $150. The R.W. Beck study maintained that such fees should be based on the average cost of providing sewer taps by size of tap, the length of the tap and/or whether a street cut must be made. The report implies that the current fee of $150 is too low and assumed a fee of $700 per tap to arrive at an estimate of $125,000 in incremental revenue. However, the current $150 fee appears to be adequate to fund the limited services provided by the JCESD for a tap. Therefore, this does not represent a revenue enhancement opportunity.

Line Location Fee: This fee is intended to cover the cost to the JCESD associated with requests to locate a sewer line, such as from customers or developers in connection with construction activities. It is recommended that a fee not be charged for this service. Such a fee could be a disincentive for some parties to notify the JCESD of impending construction activities and to seek the locations of facilities that may be impacted by such construction. This could lead to accidents and remedial work, the cost of which could exceed any incremental revenues.

Grease Trap Inspection Fees: While the number of grease trap inspections could increase, the cost of these inspections should reflect the actual cost of the inspection, resulting in no net revenue enhancement other than minor adjustments of the fee to reflect the actual cost of service.

Unauthorized Inflow Fee: Legal proceedings would appear to be more effective than an additional fee to encourage customers to disconnect unauthorized sewer system connections.

Given the current economic situation that the JCESD and the county face, there is significant uncertainty as to the amount of incremental revenues the above measures will produce. However, we believe that a reasonable range of revenue enhancement from these measures as a whole could be between $5 and $10 million. Several of these enhancements will require legal or policy changes which will impact the timing of their implementation. Unfortunately, the short-term impact of such revenue enhancements, even if estimated incremental revenues are fully achieved, would be minimal. Nonetheless, it is important for the JCESD, given the extremity of its financial condition, to implement all reasonable revenue enhancements as soon as possible. If nothing else, these can help mitigate any budgetary short-falls and/or revenues losses from reduced water consumption that could occur as a result of implementing any potential wastewater rate increases.

The potential impact of revenue enhancements that can actually result in incremental revenues is summarized below.

Table 13. Impact of Enhancements Likely Resulting in Incremental Revenues

Revenue Enhancement	Estimated Annual Revenue
Impact Fee	$1- to $2 million
Reserve Capacity Charge	$1.8 million
Industrial Surcharge	$1- to $4 million
Private Water Meter Administration	$0.4 million
Unbilled Accounts	$0.2- to $1 million
Commercial Accounts @ 100%	$0.5- to 41 million
TOTAL	$4.9-to-$10.2 million

Tax or Other Government Subsidies

As a general principle, system user rates are the preferred method to fully cover all costs of service. This approach enhances financial viability and the ability to attract necessary capital at reasonable cost, sends appropriate signals to customers about the value of the services they utilize and promotes a more efficient allocation of scarce resources. However, given the unique and dire financial circumstances that the JCESD faces, and the extreme potential impacts of increases necessary to support existing debt on customers and the County, it is appropriate to seek mitigation of these impacts through additional revenue contributions from taxes or other forms of government subsidies, at least in the short term.

As discussed below, increased tax contributions play a role in the rate increase recommendations in this report. These recommendations include meeting a revenue requirement from a combination of increases in user charges and additional contributions from tax sources. It is important to note that, since most ratepayers are also taxpayers, the full burden on the JCESD customer will include not only the user rate increases but increases in taxes to provide additional contribution to meeting the revenue requirement. Nevertheless, meeting the revenue requirement in part through increased tax revenues can enhance revenue stability for the JCESD and, at least to some extent, mitigate the impacts of necessary rate increases on some customers.

As noted earlier, a clean water charge for county septic system owners who do not currently have access to the sewer system is justified on the basis that all county residents receive an indirect benefit from the improved environmental quality that results from compliance with the consent decree. These improvements enhance the quality of life, property values and prospects for economic development of the county as a whole. However, the clean water charge should be lower than the reserve capacity charge for septic system owners who can access the sewer system. In our view, a charge of $20 per month would be appropriate for this purpose. Of the over 100,000 septic systems the R.W. Beck report estimates are located in the JCESD, information provided by the JCESD indicates that about 5,000 septic systems have reasonable access to the sewer system. Therefore a $20 per month charge for the remaining 95,000 septic systems could yield approximately $23 million in revenue.

V. RATES AND RATE DESIGN

General Principles

A fundamental principle of ratemaking for essential, monopolistic public utility services, such as the wastewater services provided by JCESD, is that revenues should be sufficient to cover the costs of providing the service. This ratemaking approach captures <u>all</u> costs, including operating expenses and the cost to attract and service necessary capital. In the case of government entities that provide these services, the revenues can be derived from a number of sources, including rates and other charges to customers, tax revenues, or various other forms of subsidies. The rationale behind this principle is that if revenues do not cover all the costs that must be borne, provision of a service essential to the public welfare will be jeopardized. Where revenues are not sufficient to cover all costs, necessary capital will eventually be unavailable, or available only at a significantly higher cost, and service to customer will be impaired or cease.

A corollary to this principle is that rates to the various classes of customers should be established, to the extent practicable, based on the costs incurred in servicing those customer classes. Basing rates on cost-causative principles promotes equity by minimizing subsidization of one class of customers by another. It also sends appropriate price signals to customers about the true cost of the services they are using and provides for a more efficient allocation and use of the scarce resources necessary to produce these services.

These principles are not just theoretical constructs. They directly impact the availability and quality of service, capital attraction and the cost of capital, capacity planning and construction, environmental quality, and many other factors that directly affect the health, welfare and economic viability of a community.

Although rates that are set to recover all the costs of service may be considered "reasonable," ratemaking is clearly not simply a matter of mathematical calculation. Professor James Bonbright, perhaps the most authoritative source regarding principles of public utility ratemaking, has noted a number of general attributes of a sound rate structure which can appropriately be considered in establishing rates to customers. These include the following:

- Effectiveness in yielding total revenue requirements
- Revenue and rate stability and predictability for the utility and customers
- Rate structures that discourage wasteful use while promoting justified and beneficial uses
- Reflection of present and future social costs and benefits
- Fairness in apportioning costs of service to customer classes
- Avoidance of undue discrimination, caused by the cross subsidization of one customer class by another

- Economic efficiency
- Practical considerations such as simplicity, certainty, convenience of payment, economy in collection, understandability, public acceptance and feasibility of application
- Avoidance of controversies as to interpretation[1]

Professor Bonbright notes that although such lists are useful in reminding the rate maker of appropriate considerations, they can nonetheless be ambiguous and inconsistent, and by themselves offer no basis for establishing priorities among them. For this purpose, Professor Bonbright has identified three primary objectives of ratemaking. These include the revenue requirement/financial need objective, the optimum use/consumer rationing (avoidance of waste) objective, and fair cost apportionment (avoidance of cross subsidy) objective.[2]

In summary, ratemaking is not merely a mechanical exercise. It necessitates the exercise of informed judgment by the rate maker, based on the facts and circumstances of the particular situation, and the taking into account of many factors that impact the utility and its customers in ways that may be inconsistent, contradictory or uncertain. However, a primary consideration remains that rates should be established to produce revenues that will cover the costs to provide service.

JCESD Current Rate Structure

All customers currently pay a volumetric charge of $7.40/ccf. Water usage of residential customers is multiplied by 0.85 to determine the volume to be charged for wastewater service. For non-residential users, volumes used to charge for wastewater service are based on 100 percent of water usage, less certain deductions for private meter readings or a defined percentage. There is also a minimum monthly charge of $2. Due to this rate structure, the vast majority of JCESD's revenues are derived from the volumetric charges. It should be noted that this type of rate structure makes the JCESD's revenues particularly vulnerable to any elasticity effects. These effects may result from customers reducing water usage to minimize wastewater bills after significant rate increases, as well as weather and other variables that affect water use. As a result of a rate structure based on volume, revenues anticipated to result from a rate increase may not fully materialize.

Current and Projected Rates Under the Ordinance

The JCESD has entered into certain bonded indebtedness and incurs various operating expenses to provide wastewater service to its customers. Much of the bonded indebtedness was incurred to comply with the 1997 consent decree. In order to attract the financing necessary to comply with the consent decree, the JCESD passed an ordinance in 1997 estab-

[1] Principals of Public Utility Rates; James C. Bonbright, Albert L. Danielson, David R. Kamerschen, Public Utility Reports, 1988, pp 382-386.
[2] Id at 385

lishing a procedure for annual automatic rate increases necessary to service that debt and to otherwise cover the capital and operating costs necessary to provide continued service.

For the year 2009, the JCESD's law firm, Haskell, Slaughter, Yound, and Rediker, LLC, calculated rates that would be necessary to support the JCESD's current debt service under existing bond indenture requirements. Based on 10ccf (approximately 7,500 gallons) of average residential consumption, this calculation would require monthly volumetric rates to increase from $7.40/ccf to $36.39/ccf, or an increase of approximately 392 percent, for fiscal year 2009. Average monthly volumetric residential charges would, therefore, increase from approximately $62.90 to approximately $309.00. Average annual volumetric residential charges would increase from approximately $780 to approximately $3,700.

The rate increases under this calculation are based on a shortfall of $458,420,782 in revenues from user volumetric rates for 2009 just to service debt obligations, as calculated by the JCESD's attorney. This, together with current user volumetric revenues of $152,076,841, means that the revenue target from user charges to service debt for 2009 is $610,497,623. The following is a summary of these calculations:

Table 14. Jefferson County Sewer Rate Calculation

	Immediate Prospective Evaluation
Operating Revenues	166,716,302.00
Adjustment for 1/08 Rate Increase	2,927,479.00
Subtotal	169,643,781.00
Operating Expenses	50,647,787.00
Net Revenues Available for Debt Service	118,995,994.00
Total Debt Service	577,416,776.00
Debt Service	577,416,776.00
Net Revenues Available for Debt Service	118,995,994.00
Shortfall	458,420,782.00
Actual User Fee Charges	152,076,841.90
Revenue Target	610,497,623.90
New Rate Calculation	
Current Rate	7.40
Revenue Target	610,497,623.90
Revenues from User Charges	155,004,321.00
New Rate from Formula	$36.39
Rate Increase (as a percentage)	392%

It is important to note that this 392 percent rate increase is extremely sensitive to debt service interest rates. Any modification to this interest rate could substantially change the rate increase requirements.

The following table gives a historical perspective on the rate increases the JCESD has imposed since 1997.

Table 15. Jefferson County Sewer Use Rates and Average Monthly Bills

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Sewer Use Rate (ccf)	$1.78	$1.88	$2.20	$2.48	$3.01	$3.53	$4.90	$5.39	$5.93	$6.35	$6.87	$7.40
Average Bill*	$15.13	$15.98	$18.70	$21.08	$25.59	$30.01	$41.65	$45.82	$50.41	$53.98	$58.40	$62.90
% Increase		5.6%	17.0%	12.7%	21.4%	17.3%	38.8%	10.0%	10.0%	7.1%	8.2%	7.7%
Average Annual Increase												14.2%

*Based on residential service for typical usage of 7,500 gallons per month
Note: In 1999, sewer use rates were increased twice. The second increase was made in March 1999 to $2.20 from $1.88.
Note: In 2001, sewer use rates were increased twice. The second increase was made on April 1, 2001 to $3.01 from $2.74.

The JCESD must significantly increase rates and revenue for FY2009, if it is to service existing debt and cover necessary operating costs. The magnitude of these increases could have adverse impacts on wastewater customers and the economic viability of the JCESD service area. Therefore, it is incumbent upon the JCESD to pursue all available means to mitigate these revenue requirements and the rate impacts that are associated with them, while maintaining access to the capital and operating revenues necessary to maintain service. These must include identification of revenue enhancement measures, improvement in operating efficiencies, and actions to mitigate the JCESD's existing financial structure and debt burden.

Reasonable Rates

There is no precise or commonly accepted definition of "reasonableness." As previously discussed, rates set at levels to recover all legitimate costs of service may, in general, be considered reasonable, because such rates will make possible the continued provision of a service essential to the public welfare. However, in the context of setting any particular rate, the application of informed judgment is required, and other considerations and circumstances specific to the situation should also be considered. Among these are the impacts fully cost-based rates may have on customers and the service area. In this regard, rates that may be considered reasonable because they cover all legitimate costs may still not be acceptable because of adverse impacts on the public health and welfare.

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Recognizing that concepts of reasonableness are elusive, analysts have utilized a number of approaches in defining customer impact issues related to setting rates for the JCESD wastewater services. These include the concept of so called "affordability," comparisons to the rates of other service providers and certain EPA analyses. Each of these approaches has serious shortcomings in the context of determining reasonable rates. Although they will be discussed briefly below, it is important to note that the JCESD's financial condition is so dire and the rate increases necessary to service its bonded indebtedness for 2009 alone so large that these concepts are even less helpful than they might be otherwise.

Affordability and Comparability: In 2008, the JCESD requested Raftelis to examine the reasonableness of the JCESD's current sewer rates. The Raftelis report analyzed reasonableness from the perspective of the customer and the utility. With regard to the customer perspective, the Raftelis report utilized two ways to assess reasonableness—the comparative approach and the affordability approach—understanding that there are weaknesses with both approaches. With regard to comparability, Raftelis recognized that it is hard to reach a precise "apples-to-apples" comparison and, other than comparing the JCESD's rates to certain other service providers based on size and regional proximity, the report did not attempt to do so. With regard to affordability, the report acknowledged that, despite attempts by industry leaders to reach consensus on some type of affordability measures, there is still significant disagreement as to which metrics are most appropriate for evaluating affordability.

The weaknesses of these methods for determining the reasonableness of rates are significant. They have as much potential for resulting in misleading conclusions about reasonableness that are contrary to sound public policy as they have for shedding meaningful light on the issue. For example, the rates of service provider "A" may be higher, even significantly higher, than the rates of a group of other service providers to which "A" is compared. This may be because "A" appropriately replaces aging infrastructure to preserve service reliability and makes timely improvements to comply with state and federal environmental and water quality requirements, while other providers may not be acting as responsibly. Making determinations as to the reasonableness of rates or limiting rate increases based solely on rate comparisons can lead to pernicious results that are contrary to the public interest by punishing responsible service providers. It may also deter responsible management from making necessary investment in infrastructure, if rates for a system would increase beyond those of systems to which it might be compared. This could lead to charges that a system's rates are unreasonable based on such comparisons.

Such comparisons also fail to take into consideration a host of variables that can account for significant differences in rates. These include, among other things, service levels and quality of service; differing regulatory and environmental requirements; labor, pension, and other cost structures; different topographic and geologic characteristics; and the existence and level of tax or other subsidies. Without a thorough examination of the many reasons for rate differences, conclusions as to the reasonableness of one rate versus another are likely to be inaccurate and misleading.

Likewise, basing rates on some vague standard of affordability can be even more pernicious. To whom is the service affordable or unaffordable, at what time and in relation to what? Does it make any difference if the service is essential to the public welfare? Does income level or age or what non-essential goods or services the customer may be purchasing matter? Such a standard is also rife with the potential for political manipulation and will, if used as a primary basis for setting rates, impair the ability of the service provider to attract necessary capital at all, let alone at reasonable rates. It is highly unlikely that lenders will provide debt financing or other capital to entities where political bodies routinely set rates based on an arbitrary perception of what constituents can afford.

Given the very real economic burdens affecting many ratepayers and their families, especially in view of the current financial situation, it is likely that most ratepayers would consider any rate increase to be unaffordable. While certainly understandable, this view does nothing to address the practical issue of setting rates that will be adequate for the JCESD to continue providing essential wastewater services. Moreover, although it would be helpful if there were consensus among analysts as to objective standards that could be utilized to ascertain affordability, even the Raftelis report acknowledges that such consensus does not exist.

EPA Affordability Standards: While affordability remains to be defined in the general ratemaking context, the EPA has addressed the issue of affordability standards in two narrow contexts. First, with regard to sewer rates, the EPA developed a metric of two percent of median household income (MHI) to assess the affordability of CSO consent decrees designed to settle litigation brought against a wastewater provider for violations of the CWA. Second, the EPA established a standard of 2.5 percent of MHI with regard to development of new drinking water quality standards under the Safe Drinking Water Act (SDWA). It is important to note that the 2.5 percent affordability standard concerns the costs associated with compliance with each new regulation, not the cost of all regulations taken together. Moreover, this standard was designed for purposes of determining access of service providers to certain narrowly defined variances or exemptions from immediate compliance with a regulation, not to the propriety of the regulation itself.

In neither of the above cases did the EPA develop the standard for the purpose of determining the reasonableness or affordability of total rates to provide water or wastewater service. Although some have attempted to apply these standards as a more general measure of affordability with regard to the totality of a customer's bill, such an interpretation would clearly go far beyond the intent of the EPA in devising the standards. Therefore, these standards have limited usefulness in assessing the reasonableness or affordability of the

JCESD's wastewater rates. In connection with analyzing affordability with regard to consent decrees, the EPA also developed a financial capability analysis of the service provider. This concept will be discussed below.

Customer Impact: Although comparability and affordability are questionable concepts in terms of analyzing the reasonableness of rates, the impact of proposed rates on customers is clearly a relevant consideration. The Raftelis report contains somewhat dated empirical information that may be useful in analyzing the potential impact of rates necessary to bring the JCESD into compliance with its bonded indebtedness.

Median Household Income: The Raftelis report extrapolated the county's MHI for 2008 from the 2000 US Census MHI using an escalator factor derived from the Bureau's 2000 Census and 2006 American Community Survey. The MHIs for the County for 2000 and 2006 were calculated and the compounded yearly escalation rate was established. Using this approach, Raftelis calculated the County's MHI to be $43,435. However, in recognition of its contention that a material portion of the County's population is not on the sewer system, including what it considered more affluent residents of the County, Raftelis also calculated an MHI which it considered more specific to the JCESD's actual service area. The resulting MHI for the service area was $40,608. The Raftelis report also calculated the percentage of each MHI the current volumetric rates would produce at 8ccf and 10ccf of consumption, as well as what the volumetric rates per ccf would be at two percent of the MHI level. These are summarized in the two tables immediately below.

Table 16. Percentage of MHI Annual Charges

	MHI	
Monthly Usage (Annual Bill)	$40,608	$43,435
8ccf ($604)	1.49%	1.39%
10ccf ($755)	1.86%	1.74%

Table 17. Rates at Which Annual Bill is Two Percent of MHI

Monthly Usage	MHI	
	$40,608	$43,435
8ccf	$9.95	$10.65
10ccf	$7.96	$8.52

Obviously, to reach a level equivalent to two percent of the MHI consent decree standard or 2.5 percent of MHI for each new regulation under the SDWA, the monthly usage rates would be higher than they are now. However, for the reasons stated above, we do not agree that either of these EPA standards are appropriate to use as a standard for affordability or reasonableness of total annual or monthly wastewater charges, nor were they de-

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signed to do so. Therefore, they should not be used to limit necessary rate increases. However, this analysis does indicate that the JCESD's sewer rates could increase even based on the narrow purposes for which the EPA developed these standards.

Financial Capability Analysis

The Raftelis report also performed what it refers to as a "Financial Capability Analysis." The Report recognizes that the EPA developed this type of analysis to examine the impact of future costs associated with prospective consent decrees. This type of analysis suffers from the same weaknesses as the two percent affordability standard the EPA developed for the same purpose. These analyses were not developed to assess the affordability of costs an entity has already incurred.

As with the MHI analysis, the Raftelis report does contain information useful in determining customer impacts. The financial capability analysis is a two-step analysis that includes both a residential indicator and county financial capability indicators. These are used to evaluate certain JCESD financial and economic indicators. Using these metrics, an average score is calculated for a utility, which is then applied to an EPA-developed matrix to determine if the impact of future costs of a consent decree would have a high, mid-range, or low impact on the JCESD. According to the Raftelis report, this analysis indicates that, under current rates, the JCESD and its residents are on the border between mid-range and high.

The residential indicator is an attempt to estimate the cost per household for the utility. These costs were determined on the basis of the then current, not 2009 projected, debt service, as well as operations and maintenance (O&M) projections for 2008. Thus, the results of this analysis do not take into consideration projected 2009 debt service or O&M requirements.

The Raftelis report then compares the cost per household under three scenarios to the MHI of $43,435, as discussed above. Based on FY2007 revenues, the report estimated that residential customers were responsible for approximately 60 percent of total costs. The residential share of these costs was then divided by the number of residential accounts. Scenario 1 was based on total annual projected operating and capital costs of $183.9 million. Scenario 2 uses projected system revenues for FY2008 of $186.6 million. Scenario 3 is based only on projected volumetric rates of $153.4 million.

Based on these assumptions, Raftelis compares the cost per household to the MHI to arrive at the residential indicator. A residential indicator below one percent of MHI is considered low impact. A residential indicator ranging from one percent to two percent is considered to be a mid-range financial impact, while a residential indicator above two percent is considered high impact. The results of this analysis are summarized in the table at the top of the next page.

Table 18. Comparison of Cost Per Household Under Three Scenarios From Raftelis Report

Scenario	Residential Indicator
Scenario 1	2.109%
Scenario 2	2.002%
Scenario 3	1.645%

Based on this analysis, the residential indicator element of the financial capability analysis indicates that the JCESD's current rates place residential customers on the border between the mid-range and high impact zones.

The second element of the financial capability analysis reviews six JCESD financial indicators. Again, assuming for purposes of this report the accuracy of the Raftelis calculations and consistency with the EPA financial capability analysis methodology, these results are summarized in the following table.

Table 19. Financial Capability Analysis of JCESD Financial Indicators

Financial Indicator	JCESD Status	Ranking (per EPA method)
Bond Rating	D by S&P (April 1, 2008) (basically "junk" bond status)	Weak
Net System Debt as a percent of Full Market Value	11.85%	Weak (values above 5 percent considered weak)
Unemployment Rates	3.90 percent (Feb 1, 2008 Bureau of Labor Statistics; National average 4.10%)	Mid-range (difference of +/- one percentage point considered mid-range)
System MHI vs. National Average	$43,435 ($50,216 based on 2006 National MHI escalated to 2008 at 2.07%; difference equals 13.5%)	Mid-range (difference of +/- 25 percent of national average equals mid-range)
Property Tax as a percent of full market value (FMV)	6.47%	Weak (indicators above 4 percent considered weak)
Tax Collections Rate	98.4%	Strong (collection rates above 98 percent considered strong)

For three of these six financial indicators, the JCESD ranking is already weak under existing rates. Likewise, with regard to the residential indicator, customers are already at the high impact threshold under current rates. Thus, while there may be room for rate increases, any significant increase will likely result in high impacts to customers and a further weakening of the six financial indicators. These customer impacts have been considered in arriving at the rate recommendations contained in this report.

Conclusions Regarding Rates

Rates and Revenue Levels: As calculated by the JCESD's attorneys, current residential volumetric rates would have to increase by approximately 392 percent to meet the JCESD's anticipated debt service obligations in 2009. Assuming no adjustment in debt service interest rates, fully meeting this requirement means that average annual volumetric residential charges would need to increase from approximately $780 per year to $3,700 per year. These amounts are only for volumetric charges needed to service ~~increases~~ in debt service costs and do not include current monthly fixed charges of $2 or any projected O&M increases for 2009. While such rates can be considered reasonable from the perspective that they are necessary to cover legitimate costs, we cannot find them acceptable considering the negative impact these rates would have on customers and potentially the service region as a whole. Although concepts of affordability and comparative rates are not useful in terms of analyzing the rates of a particular service provider, customer and service region impacts are indeed relevant.

Perhaps the most salient consideration is the percentage of the MHI impacted by rate increases of this magnitude. Increases in volumetric rates alone to $3,700 a year would constitute about nine percent of the extrapolated 2008 County MHI of $43,435. It should also be noted that these median household incomes do not necessarily reflect disposable income as they do not reflect payment of income or other taxes. It is reasonable to conclude, therefore, that rates set to fully recover increased debt service and O&M costs for 2009 could significantly exceed ten percent of disposable income for at least half the JCESD's residents. Rates that would take in excess of ten percent of the disposable income of many JCESD residents for one service alone, as essential as it may be, are unacceptable for a number of reasons:

- They will likely significantly cut into the ability of many residents to secure other essential services, such as food, shelter and medical care.
- They are likely to produce elasticity effects and to increase non-payment and uncollectable costs and not produce the anticipated revenues, thus exacerbating the problem further.
- They have a significant potential to harm economic development, job creation and retention in the service region and the County as a whole.

Thus, although cost-justified, such rates are likely to have significantly adverse effects on the public welfare as a whole.

Recommended Revenue Increases

Basing rates on full cost of service remains a fundamental and preferred principle, because that alone, absent some type of subsidization, will assure the continuation of reliable service to the public and compliance with state and federal requirements. However, the JCESD faces a highly unique situation in which strict adherence to this principle could take in excess of ten percent of the disposable income of at least half the JCESD's residents, for one service alone, with potentially serious adverse consequences on public health, welfare and the economic condition of the county as a whole. Since the process of rate setting is a matter of informed judgment, such serious impacts on the JCESD's customer must be considered.

The impact on the MHI of doubling current rates was analyzed. Such a large increase would still not recover revenues sufficient to fully service the JCESD debt as it is currently structured. Increases of 100 percent would result in monthly residential volumetric rates increasing from the current $7.40/ccf to approximately $15/ccf. Under this approach, average monthly volumetric charges would increase from approximately $62.90 to approximately $126, while annual charges would increase from approximately $755 to $1,512.

Under this scenario, annual volumetric charges would constitute approximately 3.5 percent of the County MHI and 3.8 percent of the specific JCESD service region MHI calculated by the Raftelis report. While undoubtedly significant, this burden is substantially less than it would be if rates were set to recover the full current cost of debt service, which would be in excess of ten percent of the MHI. We believe that increases of this magnitude could be viewed as an outer limit to reasonableness in the context of the highly unique circumstances the JCESD and its customers face. However, significant uncertainties still exist that make specific customer rate increase recommendations impractical at this time. Perhaps most significantly, negotiations are on-going between the JCESD and its debt holders to reduce the overall financial burden of the JCESD. Therefore, the increases in revenues needed to service the final debt are not yet known. However, whatever revenue requirements emerge from these negotiations, there are only three revenue options available to satisfy the requirements:

- Customer rate increases
- Revenue enhancements
- Tax or other government subsidies

Obviously, the first revenue source would affect customers of the JCESD and the other two options could affect both customers of the JCESD and other County residents. The results of ongoing attempts to restructure current debt and secure other funding sources will obviously be critical in determining customer impact and the future viability of the JCESD.

Although the precise level of contribution necessary to meet the revenue requirements from each of these sources is uncertain, it is our recommendation that any increases in customer charges should not initially exceed 25 percent. We provide more detailed discussion for the reasons for this recommendation in the following paragraphs.

As previously mentioned, one of the most significant concerns is the potentially substantial, but unknown, elasticity effects associated with large rate increases. It should be expected that, faced with increases of the magnitude discussed, customers will take measures to control their bills such as reducing water consumption, which is currently the basis for the wastewater volumetric charges. It should also be anticipated that non-payment and uncollectable costs will rise. Although it is difficult to estimate the effect of these impacts at various levels of increase, it is reasonable to assume that the larger the increase, the greater the impact these factors will have on the JCESD's ability to realize the necessary revenue increases. The adverse impacts on the stability of the JCESD's revenues could be significant and, if so, the JCESD's financial situation may deteriorate further. In this regard, it should be noted that water usage, the basis for the wastewater charges, is already trending downward by about two percent per year.

There is also considerable uncertainty over how long the current economic and financial situation, and the interest rates resulting from it, will continue, as well as the effectiveness of revenue enhancement and cost control measures the JCESD may adopt. Another cause for caution is the fact that the cost of service study in the Red Oak report does not include the effects of significantly increased debt service. It is possible that these substantially increased costs could change the relative inter-class cost of service responsibility.

In addition, from the residential indicator and financial capability analyses discussed earlier, it appears that any significant rate increase will result in high impacts on customers and further weakening of the JCESD's already weak financial capability. While this should not preclude any increase, it supports a cautious approach, as recommended in this report.

Finally, the JCESD's customers have already experienced significant rate increases each year over the last ten years. As discussed earlier, utility rates have increased at an annual average in excess of 14 percent over this period and the BWWB has recently implemented a 13 percent rate increase.

For these reasons, regardless of the final determination as to revenue requirements, it is our recommendation that wastewater rates for the JCESD's customer increase no more than 25 percent initially.

Cost of Service Study and Rate Design

The Red Oak report contained certain recommendations for revenue enhancement mechanisms the JCESD could utilize. In general, the study was performed by competent and experienced consultants and utilized generally accepted methodologies for determining interclass cost responsibility. The following observations about the study, however, should be noted.

- Data used in arriving at recommendations is at least two years old
- Some of the data is not specific to the JCESD
- Impacts on revenue requirements for debt service that have occurred as a result of the emergent national financial and economic situation are not included and could affect inter-class revenue requirement responsibility

A cost of service study utilizing data that is at least two years old would not necessarily be inappropriate. Likewise, given lack of availability of specific JCESD data or budgetary constraints, the use of surrogate data may be appropriate. However, in this situation, there have been substantial changes in cost of service requirements since the study was conducted and all the JCESD's residents and businesses face unprecedented rate increases. Therefore, we do not believe that this study forms a reliable basis for deviating from the existing rate structure, except as we suggest in our report. The Red Oak study does, however, provide sufficient support to implement the revenue enhancements programs recommended above.

We recommend that this cost of service study be updated to address the following:

- The data which is derived from sources other than the JCESD, and which form the basis for much of the inter-class cost responsibility in the Red Oak report, should be verified as to their relevance and applicability to the JCESD in determining cost of service
- If more current data is reasonably available, it should be incorporated
- To the extent possible, the updated study should reflect the new debt service requirements that result from the ongoing negotiations between the JCESD and its lenders

The following are our recommendations regarding rate design and customer assistance programs to achieve the increased revenue requirements discussed above.

- Fixed monthly charges should be increased from the current $2 to an amount sufficient to recover 50 percent of the total volumetric usage fee revenue requirement associated with the volumetric revenue increase recommended above. The volumetric charges recommended above may then need to be reduced to recover the remainder of the volumetric revenue requirement, while keeping the overall customer bill at a level consistent with the recommended revenue and rate increases — not more than 25 percent initially. This change in rate design would mean that a significant part of the revenue requirement would be recovered through fixed charges. Recovering more of the revenue requirement from fixed monthly charges will greatly enhance revenue stability for the JCESD and help mitigate potential elasticity impacts of significant rate increases. Therefore, it will be more likely that the rate increases will actually yield the necessary revenue.
- Given the magnitude of potential rate increases, the JCESD should investigate and implement, as soon as possible, targeted customer assistance programs which can mitigate, to some extent, the burden of these increases on the service area's most vulnerable customers. These programs should be based on the JCESD's unique demographic and economic circumstances to maximize their impact on the most vulnerable population and minimize the potential for increased uncollectible and administrative expense. Such programs could include life-line rates, monetary grants to low-income consumers, matching assistance programs, extended payment plans and other programs best designed to meet the needs of the JCESD's residents. American Water has

successfully implemented a number of customer assistance programs throughout its systems. It should be noted, however, that given the magnitude of the revenue increases discussed herein, as well as the current burden on customers, the cost of any effective customer assistance program would be substantial. Based on the structure of the program, these costs could amount to several million dollars. The projected operating costs of the JCESD should take these costs into account.

- Pending the update of the Red Oak cost of service study, no further changes in rate design are recommended at this time other than the above.

VI. OPERATING CASH RESERVE

Findings

The JCESD's monthly operating expenses are paid directly from the Jefferson County general fund. At the end of each month, the JCESD reimburses the general fund with cash received from BWWB, BCW., its own direct billing and other services. Up until now, the Jefferson County general fund provided liquidity to manage the short-term differences between the JCESD's receipts and disbursements, but this flexibility will end given the financial challenges confronting the County.

JCESD's total cash reserves were $323.2 million at June 30, 2008, the date of its most recent financial statement. The reserves consisted of $93.4 million of current assets and $229.8 million of non-current, restricted cash assets. Current cash reserves were comprised of two components:

- $6.1 million of operating reserves
- $87.3 million of dual use reserves

Non-current reserves were comprised primarily of bond proceeds earmarked for capital improvements and a depreciation fund designed to satisfy scheduled principal payments and to fund capital replacement projects.

Three months later, total cash reserves had declined by about $58 million, to an estimated $265.6 million, largely attributable to interest and accelerated principal payments. Of this amount, about $41.7 million was current cash reserves including $12.3 million in operating reserves. In addition, JCESD had recorded an estimated $53 million in accrued but unpaid debt service on both principal and interest.

By December 5, 2008, total cash reserves had declined an additional $9 million, to $257 million. Accrued but unpaid debt service had now increased by $71.5 million, to $124.5 million. In addition, over the previous three-month period, the County had advanced the JCESD $3.1 million to fund capital improvements. The JCESD had requisitioned the Bond Trustee to reimburse these funds from JCESD's non-current reserves. The following table provides a summary of total cash reserves.

Table 20. Summary of Total Cash Reserves

Current Reserves	June 30, 2008	September 30, 2008	As of December 5, 2008
Operating Cash	$6.1 million	$12.3 million	$9.6 million
Dual Use Cash	$87.3 million	$29.4 million	$29.5 million
Sub-Total	**$93.4 million**	**$41.7 million**	**$39.1 million**
Non-Current	$229.8 million	$223.9 million	$217.9 million
Total Reserves	**$323.2 million**	**$265.6 million**	**$257 million**

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Total reserves shown in the table do not reflect offsets for accrued but unpaid debt service, a total of $124.5 million, and the County's advance of $3.1 million.

Considerations

A cash reserve is needed to ensure operating expenses are paid on a timely basis to avoid any disruption in labor, the maintenance of quality services and continued deliveries by suppliers. The reserve must consider normal variability in both cash inflows and outflows, seasonal variability and be sufficient to manage emergencies such as weather events, equipment or infrastructure failures, and other exigencies.

Municipal water and wastewater systems customarily maintain a variety of cash reserve funds. Bond indentures may specify funds for purposes including capital improvements, debt service, contingencies and rate stabilization. In certain instances, indentures may also specify operating cash reserve funds to cover a proscribed amount of budgeted O&M expenditures to ensure the stability of the system. Regardless of indenture provisions, it is considered prudent financial management to maintain adequate levels of liquidity for O&M requirements. Larger systems may find it is cost effective to assure liquidity largely through a combination of cash and committed bank credit facilities. Smaller systems, such as the JCESD, do not have access to bank credit facilities. In these cases, liquidity takes the form of current reserves held either as pure cash or in cash-like instruments.

Adequate liquidity is critical when one recognizes that customer rates are designed to generate operating revenues sufficient only to cover budgeted O&M expenses and scheduled debt service payments. Systems must anticipate that revenues received will be less than expected and/or expenses will be greater than expected. Liquidity bridges these gaps. Systems must also be prepared to address unplanned expenses such as intra-year energy commodity price increases and emergency maintenance which, if material, could also be covered by other funds.

Systems with variable rate debt require liquidity to handle unanticipated increases in interest rates. Substantially all of JCESD's debt is variable rate. Derivative contracts — interest rate swaps — were implemented to minimize exposures to interest rate increases. However, the contracts have not performed as intended and the JCESD's all-in interest cost now dramatically exceeds budgeted levels. <u>Therefore, this analysis does not consider debt service in the cash reserve analysis.</u>

From an operational point of view, the JCESD's liquidity requirements are magnified, relative to its peers, due to the billing and collection of 85 percent of its end-use customers through third parties—70 percent from BWWB and 15 percent from BCW. The JCESD and its peers normally experience a lag of approximately one month between rendering service and receiving payment. Due to inefficiencies inherent in its third-party arrangements, JCESD experiences additional lags between identifying specific customer delinquencies and implementing corrective action, such as property liens. The JCESD's greater than normal payment lag is evidenced by the relationship between its accounts receivable (A/R) balances and its annual revenues. A/R balances consistently run in the $20-25 million range, close to two months of revenue. While delays in turning A/R into cash could be mitigated by extending accounts payable, the JCESD has limited options to do so given the characteristics of its expenses—payroll, electric utility bills—and its financial situation. Given its current financial status, any delays in payments to vendors could result in non-delivery or a future requirement of advance payment. Additionally, it is anticipated that days to collect a receivable will increase and/or the total collectability level will decrease due to sewer rate increases and the general condition of the economy. Increasing and fluctuating A/R will increase cash reserve requirements due to the resulting variability in revenue.

As discussed earlier, liquidity can be derived from a number of sources other than reserve funds:

- Debt issuance – with cash in reserve
- Bank credit facilities
- Municipal general fund advances
- Excess operating cash flows

The JCESD, however, possesses little or no access to these sources of liquidity. New debt issuance is precluded for the foreseeable future due to the JCESD's junk bond status resulting from payment arrears on outstanding debt. It is rare for municipal wastewater systems to maintain bank credit facilities and it would be impossible for JCESD to obtain such at this time with its credit rating and in the current credit market environment. The JCESD did establish about $800 million in bank standby facilities for its variable rate demand warrants. The entire amount has been drawn and is due and payable over the next four years.

Continuing support from the County is problematic due to the County's payment arrears on its own outstanding debt. Since JCESD is expected to "stand on its own," County advances are intended to be modest and temporary, only covering operating cash flow imbalances on an intra-month basis. As mentioned above, the County has recently advanced $3 million of expenditures for capital improvement projects.

Finally, operating cash flow is not a source of liquidity as the JCESD sets rates sufficient only to cover budgeted O&M expenses and interest payments. Therefore, liquidity is limited to current cash and short-term investment balances. Furthermore, since the dual use portion of these balances can only be utilized for debt service and capital improvements, it should not be considered a source of liquidity for operations. The remaining current reserve amount, operating cash reserve, has been running about $11 million, or about 2.5 months of average O&M expenses.

Cash Reserve Benchmarking

The major credit rating agencies, Standard & Poor's (S&P), Fitch Ratings (Fitch) and Moody's Investor Service (Moody's), view liquidity among the key criteria for assessing creditworthiness of municipal water and wastewater systems. S&P, for example, "looks to whether a utility has some reasonable level of unrestricted cash or equivalents for working capital." Liquidity is required for "fluctuations in cash flows due to seasonal demands, the amount of precipitation, or other economic or customer base trends."

S&P measures liquidity as cash and equivalents on hand divided by annual expenses, expressed in number of days or months. Based on S&P's December 2006 industry report, median actual days' cash on hand for BBB-rated systems, the lowest category shown, was about eight months' cash. S&P indicates that cash on hand correlates with its rating categories—the higher the rating, the greater the observed cash on hand. More recent S&P reports for geographically comparable systems provide actual or projected cash on hand as follows:

- Knoxville, 10/08 — 3-5 months
- Louisville, 5/08 — 5 months (down from 7-8 months)
- Charlotte, 8/08 — 21 months
- Huntsville, 2/08 — 3-4 months
- Tallahassee, 10/07 — 12-13 months

S&P indicates in its September 2008 industry report that, <u>other things being equal</u>, its liquidity benchmarks are as follows:

- <1 month — Low
- 1-2 months — Adequate
- 2-4 months — Good
- >4 months — Strong

Fitch measures liquidity the same as S&P and considers it an important indicator of financial flexibility. Fitch believes "utilities operating in areas especially prone to rainfall volatility should...establish financial cushions to deal with potential weather events." Also, Fitch considers the Southeast region as "facing the greatest fixed costs and capital pressures" and notes "they have also accumulated more in financial reserves, thereby enhancing liquidity and financial flexibility." Based on Fitch's January 2008 industry report, median actual days' cash on hand for A-rated systems, the lowest category shown was about nine months' cash, up from about eight months' cash in 2007.

The liquidity ratio sought by Moody's is consistent with the other rating agencies. It views liquidity as "an important measurement of the amount of time a utility has to respond to sudden increases in expenditures, such as those associated with commodity price or interest rate increases that are not otherwise hedged. The median day's cash on hand...is close to the average amount of time it takes for a rate increase to be reflected in the customer's bill." Recent reports produced by Moody's for geographically comparable systems provide actual or projected cash on hand as follows:

- Winter Park, 11/08 4-5 months
- Austin, 12/08 5-6 months
- Miami-Dade, 11/08 2 months (required minimum)

Table 21 provides an analysis of actual days' cash on hand for JCESD measured both with and without dual use fund reserves.

Table 21. Analysis of Actual Day's Cash on Hand

	June 30, 2008	September 30, 2008	As of December 5, 2008
Operating & Dual Use Cash	$93.4 million	$41.7 million	$39.1 million
Cash on Hand % O&M Expenses	20.2 months	9 months	8.5 months
Operating Cash Only	$6.1 million	$12.3 million	$9.6 million
Cash on Hand % O&M Expenses	1.3 months	2.7 months	2.1 months

A recommended policy statement from the Government Finance Officers Association of the United States and Canada, the primary professional organization for government finance officials, regarding appropriate levels of cash reserves states "at a minimum, that governments maintain a reserve of not less than 5 to15 percent of regular general fund operating revenues or not less than one to two months of regular general fund operating expenditures." Although this policy recommendation addresses the general fund, the same principles should be applied to all funds in order to maintain public services. Jefferson County has informally adopted a policy of two months of operating expenses as its minimum targeted level of reserve for all funds.

JCESD Cash Flow Analysis

As shown in Table 22, JCESD had monthly revenues from operations between $11 million and $17.6 million during the 12-month period ended September 30, 2008. During the same period cash operating expenses varied between $3.1 million and $6 million.

Table 22. Monthly Operating Cash Flow Calculation for Fiscal Year Ended 9/30/08

	Actual (unaudited)											
In millions of US$	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08
Revenue	13.60	13.18	11.04	16.15	11.77	13.68	12.28	11.64	16.31	17.65	15.90	13.52
Operating Expenses *	(4.61)	(4.25)	(3.07)	(4.35)	(4.21)	(3.69)	(4.09)	(5.98)	(4.87)	(4.19)	(3.59)	(3.72)
Operating Cash Flow	8.99	8.93	7.97	11.80	7.56	10.00	8.19	5.66	11.44	13.46	12.31	9.80

* Includes salaries and wages, benefits, materials and supplies, utilities, office expenses and outside services

Conclusion

Based on the previously presented benchmarking, a prudent, but aggressive, cash reserve is between 30 and 60 days of maximum monthly cash outflows. A minimum of 30 days' cash reserve will ensure all normal recurring bills can be paid when due, assuming no change in A/R collections. However, an additional 30 days' cash reserve will provide a level of assurance that most emergencies can be managed without disruption and general economic impacts can be addressed. Therefore, based on the JCESD cash flow analysis, the estimated cash reserves should be between $6 million and $12 million, or one to two months of cash outflows. These funds will need to be held as actual cash reserves since access to other funds or credit lines are not available to JCESD for O&M expenses.

Our recommendations for the cash reserve are based on the following assumptions:

- Future operating cash flows will be consistent with historical operating cash flows
- No non-operating expenses (interest, swap cost, etc.) will be paid from the reserve
- Capital expenditures will be promptly paid from other cash sources
- Capital expenditures required to maintain efficient operations will be made on a timely basis
- Historical operating cash flow data provided by JCESD is true and accurate
- A/R levels remain constant

Given that monthly operating expenses exceeded $4.9 million only once in fiscal year 2008, a 45-day reserve could be established between $7 million and $9 million, if monthly expenses are maintained below $5 million. We note that this reserve could be further reduced as operating efficiencies are implemented and monthly operating expenses are reduced.

Although the recommended operating reserve level of $7 million to $9 million can be considered prudent, we can provide no assurances that such amount will be sufficient under all conditions. These levels may be considered low given the financial situation in Jefferson County. Unexpected events or changes to operations are likely and this operating reserve level will need to be reassessed if such events or changes occur. The validity of this analysis is also dependent upon the accuracy of the information provided.

Eliminating all operating cash reserves could have a detrimental impact on JCESD's financial and operational condition. Pre-payment and/or deposits for vendor services may be required due to lack of liquidity, eliminating cash management opportunities. Liquidity issues could also impact the attraction and retention of qualified personnel. Additionally, the lack of emergency funds for system maintenance could jeopardize service and compliance with the recent EPA consent order.

Also, it should be noted that the impact of establishing the recommended operating cash reserve level on JCESD's ability to service its debt is a one-time event; there is no further consequence in subsequent months ~~after the recommended operating cash flow~~ is established.

VII. CONCLUSION/RECOMMENDATIONS

FY 2009 Budget and Operations Review

The following recommendations address identified vulnerabilities in the FY2009 budget and methods to mitigate potential budget shortfalls and enhance operating practices. Several of these actions are currently being considered or implemented by the JCESD:

- Increased revenues are required to cover the full-year revenue shortfall of approximately $20 million, resulting from budgeted sewer rate increases not being implemented, unrealized interest, decreasing water consumption and reduced impact fees. JCESD should confirm that the two percent cost of living adjustment and merit increase adjustments are fully budgeted.
- Consider legislative and/or legal challenges to correct the unanticipated collections and receivable impact of new legislation stipulating that a tenant is to be solely responsible for sewer charges in a rental property, and the inability of JCESD to lien real property.
- Continue current practices of managing vacant positions to current levels and critically review the need to replace any positions that become vacant in the future. Positions should only be filled to meet required performance levels essential to the protection of the public and environment.
- Implement rigorous controls on overtime, limiting it to essential needs only.
- Work with the Personnel Board to modify the state certification requirements for the Operator job classification. Cross-training and cross utilization of employees should be promoted; however legislative changes may be required.
- Combine the IPP group and grease program employees into a Sewer Use Control group. Sewer inspectors from all departments should be cross utilized.
- Develop a cost-based calculation method for determining the cost to treat individual wastewater constituents, such as TSS, CBOD5, TKN and TP, on a per pound loading basis. Base the IPP surcharge rates on the costs based calculations.
- Continue and promote the FOG program to reduce stipulated penalties
- Engage a firm to provide energy audits and make cost-effective improvements that are paid from the generated operating savings.
- Limit chemical feed rates to the minimum required to comply with proposed TMDL requirements for nutrient removal are completed.
- Utilize, or partially utilize, the most cost effective dewatering technology available at each WWTP. The use and the use of bio-tubes as a low-cost dewatering process should be evaluated.
- Conduct process assessments to determine if all available treatment capacity is required at all times to biologically treat wet weather events.
- Continue efforts to clean, inspect, unblock and repair the collection system, to improve raw wastewater strength by reducing inflow and infiltration, and reducing SSO events.

The standard operating procedures for the pump stations should be reviewed and revised to proactively ensure no overflows from these facilities.

- ~~Maximize the use of zoom camera technology to reduce the need for~~ flushing before inspection and to more quickly assess the collection system.
- Continue to adhere to the CMOM program and strive to achieve zero SSOs through continuous improvement practices.
- Implement a CMMS for horizontal and vertical assets.
- Increase the routine maintenance spending for WWTP assets, setting key performance indicators such as the ratio of preventive to corrective maintenance, and the number of work orders opened in a period versus the number remaining uncompleted. The goal should be to move towards a condition-based maintenance program.
- Fully investigate the implementation of a new stand-alone billing system for sewer accounts. Prior to implementation, JCESD will need to work out arrangements with its partner water utilities for continued, at cost, meter reading services, consumption data sharing, best management practices for residential/commercial meter change outs, and large meter priority management program.
- Require water utilities, by contract or by legislation, to shut off water service where sewer charges are delinquent to enhance revenue collection.
- Routinely verify active customer accounts, sewer charges and payments received. It is recommended that initially accounts be reviewed by street or meter reading books. When verifying customer accounts, JCESD should perform a match of active accounts to block and lot tax records. This may also require employees to verify information in the field.
- Consider the selection and utilization of replacement vehicles and rolling stock very carefully. Further, even though the County provides fleet management as an in-kind service, JCESD should have an equal say in how the fleet is managed.
- Review and ensure the SCADA system provides optimal levels of automation and remote control capabilities.
- Consolidate most, but not all, analytical work at the Barton Laboratory. Those tests performed at WWTPs should be limited to critical process control tests. Examine the cost of each test, including analytical equipment maintenance, especially for low frequency parameters and consider outsourcing those analyses to a contract laboratory. Additionally, the laboratory should implement the LIMS which should be used in conjunction with operational software such as WaterTrax or OPS WiN.
- Review and ensure the SCADA system provides optimal levels of automation and remote control capabilities.

Potential Capital Opportunities

JCESD's proposed CIP budget appears to be reasonable and prudent. As a result, only the following opportunities for reductions in the CIP budget were identified:

- Reduce the portion of the CIP budget that is reserved for funding expansion-type projects over the next ten years.
- Establish ~~policies regarding how to capitalize internal labor expenses, and make them~~ consistent with other Jefferson County departments.
- Increase the capitalization rate of current and prior year operating budget expenditures by capitalizing internal labor and expenses associated with capital improvements.

Revenue Enhancement Recommendations

The following revenue enhancement actions are recommended:

- Increase Impact Fee charge to $300 from $225 per plumbing fixture.

  Estimated Annual Incremental Revenue Impact: $1- to$ 2 million per year, based on average of 14 fixtures per residential unit
- Implement a monthly reserve capacity charge of $30 for JCESD residents who are septic system owners and can access the sewer system.

  Estimated Annual Incremental Revenue Impact: $1.8 million
- Increase the industrial surcharge rate gradually to a level indicated as the highest defensible charges under the Red Oak study (600 percent increase), taking into consideration its economic development impact.

  Estimated Annual Incremental Revenue Impact: $1 to $4 million
- Implement a monthly private water meter administrative fee of $2 per meter.

  Estimated Annual Incremental Revenue Impact: $0.4 million
- Continue to identify customers not being billed, in cooperation with the water authority.

  Estimated Annual Incremental Revenue Impact: $0.2- to $1 million over five years
- Bill all commercial accounts at 100 percent of water usage.

  Estimated Annual Incremental Revenue Impact: $0.5- to $1 million

The potential impact of revenue enhancements that can actually result in incremental revenues are summarized below.

Revenue Enhancement	Estimated Annual Revenue
Impact Fee	$1- to $2 million
Reserve Capacity Charge	$1.8 million
Industrial Surcharge	$1- to 4 million
Private Water Meter Administration	$0.4 million
Unbilled Accounts	$0.2- to 1 million
Commercial Accounts @ 100%	$0.5- to 1 million
TOTAL	$4.9- to $10.2 million

Other Revenue Enhancement Recommendations

- Seek short term additional financial support in meeting 2009 revenue requirements from tax revenues or other government subsidies.
- A monthly $20 clean water charge per septic system should be imposed on septic system owners that do not currently have access to the JCEDS sewer system. If legally and politically feasible, this could result in approximately $23 million of additional revenue.
- Undertake a study to determine if 15 percent is the appropriate level of residential credit.
- Develop cost data for grease trap inspections and impose a fee accordingly.
- Utilize legal proceedings to require those customers with unauthorized connections to disconnect

Rate and Rate Design Recommendations

- While the principle of cost-based rates is preferred, increasing user rates at this time to recover the full current cost of service, including current debt service, is unacceptable due to the adverse impact it will have on customers in the service region.
- Four options should be pursued to help meet the JCESD's cost of service: customer rate increases, revenue enhancements, renegotiation of debt and debt service obligations with lenders and tax or other government subsidies.
- Customer rates to support debt service should not increase more than 25 percent in any one year.
- The monthly $2 minimum charge should be eliminated and 50 percent of the revenue requirement necessary to support debt should be recovered through a fixed monthly charge.
- The Red Oak cost of service study should be updated to confirm that the non-JCESD-specific data on which it relies is appropriate for determining cost of service for the JCESD.
- The Red Oak cost of service study should be updated for the new debt service requirements resulting from the ongoing negotiations between the JCESD and its lenders.
- The JCESD should investigate and implement, as soon as possible, customer assistance programs to mitigate the adverse impacts of necessary rate increases on the JCESD's most economically vulnerable customers. The JCESD's operating budget should include provisions for customer assistance programs, which could amount to several million dollars.
- The elasticity impacts of these recommendations on realization of the necessary revenue requirement, and other customer impacts, should be monitored. Any future rate increases or changes in rate design should be made in light of the results of studies and updates recommended above, consideration of elasticity and customer impacts and the development of additional information as to the uncertainties discussed above. This in-

cludes the results of negotiations with lenders and the ability to secure additional support through taxes or other governmental subsidies.

Operating Cash Reserve Recommendations

- A 45-day operating cash reserve should be established. For the JCESD, this results in a cash reserve between $7 million and $9 million if monthly expenditures are maintained near $5 million. These reserves can be further reduced as operating efficiencies are implemented and monthly operating expenses are reduced.
- Eliminating all operating cash reserve could have a detrimental impact on JCESD's financial and operating conditions..

IN THE CIRCUIT COURT OF JEFFERSON COUNTY, ALABAMA

THE BANK OF NEW YORK MELLON,	)	
Plaintiff,	)	
v.	)	CV: 2009-2318
JEFFERSON COUNTY, ALABAMA, *et al.*,	)	
Defendants.	)	

FILED IN OFFICE
JUN 14 2011
ANNE-MARIE ADAMS
Clerk

**RECEIVER'S FIRST INTERIM REPORT
ON FINANCES, OPERATIONS, AND RATES OF
THE JEFFERSON COUNTY SEWER SYSTEM**

JOHN S. YOUNG, JR., LLC
Receiver

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APPENDIX

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System Map with Basins

A-2.

PARCA Report, "A History of the Jefferson County Sewer System" (2001)

A-3.

Ala. Act No. 714 (1901)

A-4.

Ala. Act No. 716 (1901)

A-5.

Ala. Const. amend 73

A-6.

1996 Consent Decree

A-7.

2003 BE&K Report

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Validation Order in *Jefferson County, Alabama v. The Taxpayers* (2001)

A-9.

The Birmingham News, "How Jefferson County's Debt Ballooned" (July 10, 2010)

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The Birmingham News, "Jefferson County Sewer Scandal
Barry White Sentenced to 10 Years in Prison for Bribes"
(July 30, 2010 updated August 10, 2010)

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Table Summarizing County Response to Rate Recommendations from 1901-Present

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Summary of ESD O&M Plan

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American Water Report on Operations

I. Introduction.

On September 22, 2010, this Court entered its Order (the "Receiver Order") appointing John S. Young Jr., LLC (the "Receiver"), to serve as Receiver for the Jefferson County Sewer System (the "System," as defined in the Receiver Order). The Receiver was appointed amidst and as a result of the County's default on its obligations under the Trust Indenture and Supplemental Indentures entered into between 1997 and 2003 (the "Indenture"). This Court found that the County had "failed to operate the Sewer System in an economical, efficient and proper manner, and the public interest and the ends of justice will be best served by the appointment of a receiver."[1]

The Receiver's duty is to "effectively administer, operate, and protect the System."[2] As such, the Receiver is not the representative or advocate of the County or its various creditor groups, but is instead an independent entity charged with the obligation to serve the interests of the System, the public, and this Court. Towards this end, this Court has bestowed upon the Receiver the full right and authority to perform any act the Receiver, in its independent business judgment, reasonably believes ought to be done or performed for the efficient administration, operation, and protection of the System.[3]

Among the specific powers granted the Receiver by the Court is the sole "power to fix and charge rates and to collect revenues sufficient to provide for the payment" of all System obligations and the expenses of operating and maintaining the System.[4] The Court's goal in appointing the Receiver was to "stabilize the System finances and . . . implement significant operational improvements and efficiencies that will generate more System Revenues and more Net Revenues Available for Debt Service than [the County has] previously produced."[5] The Court has granted the Receiver full power and authority to administer and operate the System, in a manner consistent with state and federal law.[6]

Prior to appointment of the Receiver, John S. Young, Jr. (the sole member and chief executive officer of the Receiver), served as one of two special masters appointed in connection with federal court litigation[7] arising out of the County's default under the Indenture. The February 10, 2009 Report of the Special Masters (the "Special Masters Report"), filed with the federal court, provided an evaluation of the legal, economic, business, infrastructure, and capital improvement issues facing the System. Since being appointed, the Receiver has devoted significant time to expanding and revising the analysis and research contained in the Special Masters Report in order to formulate both interim and long term operational and financial strategies for the System.

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[1] Receiver Order at 6, ¶ 17.
[2] *Id.* at 8, ¶ 1.
[3] *Id.* at 8, ¶ 3.
[4] *Id.*
[5] *Id.* at 6, ¶ 18.
[6] *Id.* at 8, ¶ 2.
[7] *Bank of New York Mellon, et al. v. Jefferson County, Alabama*, United States District Court for the Northern District of Alabama, Civil Action No. CV-08-P-1703-RDP (herein, the "Federal Action").

All of the Receiver's actions are guided by a single overriding goal: the establishment of a viable, sustainable, efficient utility serving the needs of the public. The Receiver has developed short, medium and long-range business plans for the System designed to accomplish this goal. A foundational requirement for any solid business plan is the need to generate sufficient revenues to pay the costs of operations, maintenance, and capital investment and to meet the financial obligations of the business. Towards that end, the Receiver has analyzed the revenues currently generated by the System.

However, before considering the need for any additional revenue increases, the Receiver undertook a comprehensive review of the internal operations of the Jefferson County Environmental Services Department (the "ESD"),[3] both to determine where additional efficiencies could be achieved, and to identify areas where additional actions may be needed for proper financial, administrative, and operational performance consistent with industry best practices. Following this comprehensive operational review, the Receiver created and implemented plans to achieve the desired efficiencies and best practices.

The Receiver also directed and oversaw the preparation of long term operations and maintenance and capital investment plans and budgets to assess the level of future revenues that will be required to meet the System's obligations. The Receiver has also devoted significant time to working with the County and its various creditors groups in analyzing potential solutions to the System's debt crisis.

This interim report is intended to provide a working background of the System and the events that led to the debt crisis and the Receiver's appointment, update the Court and the public on the Receiver's activities since appointment, and outline the Receiver's interim and long term future plans for the System. This report is organized as follows:

- **Section II** provides important context for the information within this report by summarizing the history of the System, the factual and legal background leading up to the County's default, the System's current debt crisis, and the Receiver's appointment.
- **Section III** provides an overview of the Receiver's activities since appointment.
- **Section IV** contains the Receiver's interim findings as to the System's current and future revenues and expenses.
- **Section V** describes the Receiver's planned interim rate increase.
- **Section VI** contains a description of the new rate structure introduced as part of the interim rate increase.
- **Section VII** contains a description of the low-income assistance plan the Receiver intends to implement.

[3] The ESD is the County department charged with operation and maintenance of the System. However, the ESD is not a separate legal entity apart from the County.

- Section VIII contains the Receiver's long term recommendations and a discussion of suggestions and options for a permanent solution to the current debt crisis and problems now facing the System.

II. Background.

A. Description of the Jefferson County Sewer System.

When the Jefferson County Sewer System was first established in 1901, it originally served only a small area in the core of the City of Birmingham. Since that time, the System has expanded to serve most of the metropolitan Birmingham area and several surrounding suburbs. The County's wastewater collection and treatment system is currently comprised of approximately 3,137 miles of sanitary sewer lines, 174 pump stations, an estimated 80,196 manholes, and nine wastewater treatment plants. The System serves approximately 478,000 people (through approximately 144,000 active accounts) in twenty-three different municipalities located in Jefferson County, unincorporated Jefferson County, and small areas of Shelby and St. Clair Counties. The approximate System service area is shown on the map below:

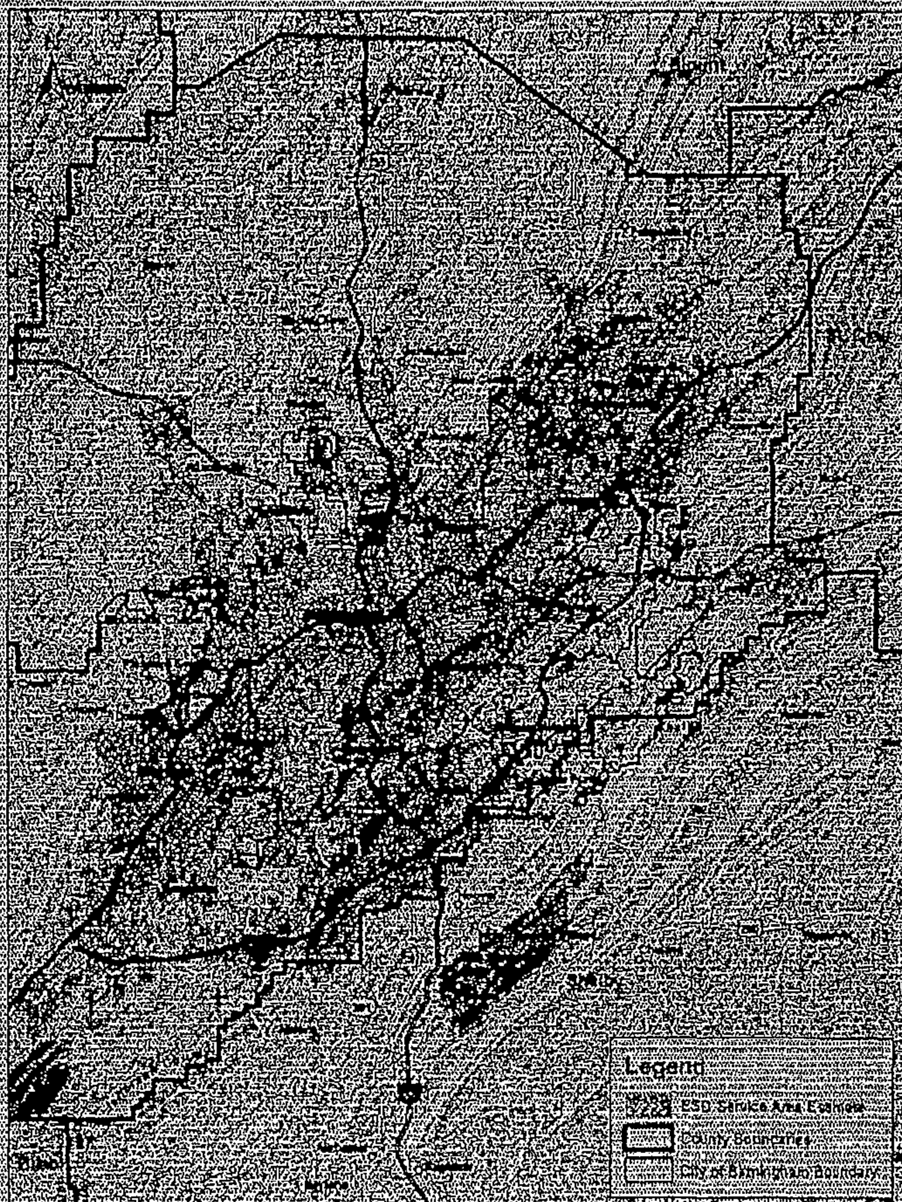

Figure 1 - Map of System Service Area

The System is divided into nine separate sewer basins: Cahaba, Leeds, Village Creek, Five Mile Creek, Prudes Creek, Trussville, Valley Creek, Warrior, and Turkey Creek. A full map detailing the sewer basins is included in the Appendix to this report at A-1.

B. History of the System.

Over the past several years, much of what has been written about the System has focused on the criminal activity surrounding the financing and construction of the System improvements mandated by the 1996 Consent Decree. However, the difficulties currently facing the System are not solely the result of the construction and financing of those improvements, or any fraud surrounding that financing or construction, or even the 1996 Consent Decree itself. The beginnings of many of the core problems facing the System today can be traced back much further than 1996.

The System has a long history of financial and environmental problems that date back to its creation in the early 1900s. Many of these problems result from the longstanding and consistent failure of state and local elected officials to sufficiently fund the needs of the System. This pattern of consistent underfunding stems in part from legal, political, and structural barriers facing the System, many of which still exist today. Therefore, understanding the difficulties and challenges currently facing the System requires a clear understanding of its history.

In November 2001, the Public Affairs Research Council of Alabama published a report entitled "The History of the Jefferson County Sanitary Sewer System," (the "PARCA Report") that details, in a comprehensive and helpful manner, the history and development of the System from its creation in 1901. A copy of the PARCA Report is included in the Appendix to this report at A-2. The following sections of this report contain a brief summary of the history, highlighting those areas that provide important context to understanding the difficulties facing the System today.

1. Early Beginnings 1901-1910: Divided Responsibilities and Inadequate Hookup Enforcement Hinder the Effectiveness of the New Sewer System.

As early as the 1870s, Jefferson County began to experience health and environmental problems caused by a lack of adequate sanitation. A cholera epidemic in 1873 decimated the population of the newly-incorporated city of Birmingham, and repeated typhoid outbreaks earned Birmingham the reputation as one of the typhoid capitals of the world.[9] Widespread recognition of the need for a county-wide sewer system in Jefferson County to address these health and environmental problems began as early as the late 1800s, when rapid industrial development in the Birmingham area led to the incorporation of dozens of municipalities, each with their own separate sewer collection system that simply deposited the raw sewage into the most convenient watercourse.[10] Because the 1875 state constitution placed strict limitations on local taxing and

[9] PARCA Report at 41.
[10] *Id.* at 9.

funding authority, an act of the state legislature was required to authorize and fund construction of a county-wide sewer system in Jefferson County.[11]

The necessary state legislation was passed in 1901. Act 714 designated all of Jefferson County as a sanitary sewer district and created a Sanitary Commission composed of eleven citizens appointed to oversee operation of the District.[12] A copy of Act 714 is included in the Appendix at A-3. The Sanitary Commission was given the duty "to protect from pollution any and all streams and water courses from which any municipality or community draws or uses in whole or in part its supply of water."[13]

Although the new Sanitary Commission was given the duty of protecting all water supplies throughout the county, Act 714 did not give it the necessary authority to carry out that duty. Under Act 714, the Sanitary Commission had no powers over lateral branch sewer lines (i.e., the smaller diameter lines serving residents) located within the various municipalities in the County, and the Act did not authorize the Sanitary Commission to require residents to connect their residences to the sewer system. Instead, responsibility for the sewer system under Act 714 was divided: municipalities were responsible for construction of local branch lines, and importantly, for requiring residents to connect to those local lines, and the Sanitary Commission was responsible for construction of trunk lines (i.e., the larger diameter pipes that collect wastewater from the smaller local branch lines) and for construction and operation of the treatment plants.[14] Under this divided responsibility structure, which continued until the 1996 Consent Decree, the County ran the treatment plants and trunk lines, but had no control over who tapped into those lines. Because municipalities were not responsible for treatment, they had little incentive to view wastewater sanitation as a major issue, which resulted in poor operation and maintenance of local collection systems and spotty enforcement of residential hookup requirements.[15]

Local and state officials quickly realized this divided responsibility between the County and the municipalities placed significant barriers to the establishment of an effective county-wide wastewater system. As early as 1907, state legislative records indicate widespread recognition that the System could never effectively address the County sanitation problems unless the County was given the authority to directly require residents to connect to the System.[16] A 1912 report on the System blamed the divided responsibility between the County and municipalities as the cause of two then-pressing problems: (1) a lack of municipal enforcement of hookup requirements; and (2) municipalities' failure to maintain and operate local collection systems in a manner sufficient to prevent infiltration of storm water into the sanitary sewer system.[17]

[11] *Id.* at 5-10.
[12] *Id.* at 11.
[13] Ala. Act. No. 714 at § 14 (Feb. 28, 1901).
[14] PARCA Report at 11.
[15] *Id.* at 5. As late as 1906, the City of Birmingham still had not enacted a mandatory hookup requirement, even though Act 714 required the municipalities to enforce hookups and prohibit illegal discharges. *Id.* at 19. The problem of municipal failures to enforce hookup requirements was exacerbated in 1930, when the Alabama Supreme Court ruled in *City of Birmingham v. Greer*, 126 So. 859 (Ala. 1930), that the mandatory hookup requirement in Act 714 applied only to sanitary sewers, not to storm sewers. *See also* PARCA Report at 26.
[16] PARCA Report at 19.
[17] *Id.* at 23. Infiltration of storm water remains a problem with the System today, as discussed in more detail in Sections II.C.1 and III.B *infra*.

Throughout the history of the System, these two problems were repeatedly identified as fundamental and pressing problems preventing effective operation of the System.[18]

Despite this early and repeated recognition of the problem, the divided responsibility between the County and municipalities remained until the 1996 Consent Decree, which ordered the County to assume responsibility for municipal lines that had never been properly operated and maintained. During the Consent Decree litigation, the County estimated that 60% of the System's environmental problems arose from inadequate municipal sewer lines.[19]

By 1996, however, thousands of homes and business had been built in Jefferson County that were not connected to the sewer system. Moreover, although the 1996 Consent Decree gave the County full responsibility for the entire collection and treatment System, the Consent Decree did not give the County the necessary authority to enforce mandatory hookups to the System. As discussed in detail in Section VIII *infra*, to this day the County *still* lacks the clear authority to enforce mandatory hookups to the System, even though this authority is routine for sewer systems throughout the country, and in Alabama has been continually recognized for almost a century as absolutely vital to the effective operation and maintenance of the county-wide sewer system.[20]

At the same time the legislature passed Act 714 in 1901 establishing the Sanitary Commission and dividing responsibility for the new System between the County and the municipalities, the legislature also passed Act 716 to provide funds for the construction and operation of the newly-created sewer system.[21] A copy of Act 716 is included in the Appendix at A-4. Act 716 authorized the issuance of up to $500,000 in bonds, and required the assessment and collection of a County-wide ad valorem tax[22] to pay interest on the bonds, maintain the System, and protect County water supplies.[23]

The County-wide tax, Act 714 and the bonds issued under Act 716 were all subsequently validated by the courts.[24] In validating the County-wide tax, the Alabama Supreme Court

[18] For example, a 1946 report of the Jefferson County Legislative Advisory Committee known as Memorandum No. 10 concluded that the System was in a state of disrepair and grossly inadequate to serve the sanitation needs of the County. The report concluded that the divided responsibility between the County and the municipalities was partly to blame for the extremely poor condition of the System. PARCA Report at 32. A 1947 citizens' committee report on the system reached the same conclusion, and also pointed to the divided responsibility as the reason for System's problems. *Id.* at 38. Nothing significant was done to address this problem until fifty years later when the County was forced, through adoption of the 1996 Consent Decree, to address this problem. During the Consent Decree litigation in 1996, the County estimated that 60% of the System's environmental problems arose from inadequate municipal sewer lines. *Id.* at 72.

[19] *Id.* at 72.

[20] The Alabama Supreme Court recognized the importance of the power to enforce a mandatory hookup requirement in operating an efficient sewer system in *Allman v. City of Mobile*, 50 So. 238, 240 (Ala. 1909), where the court noted that "surely no sewerage system could be regarded as efficient without the incident power in the municipal corporation to compel connections of property by its owners with the system." The need for enforcement of mandatory hookup requirement for residents within Jefferson County is discussed in more detail in Section VIII *infra*.

[21] PARCA Report at 11-12.

[22] An ad valorem tax refers to tax levied on the value of real or personal property.

[23] *Id.* at 11.

[24] *See Keene v. Jefferson County*, 33 So. 435 (Ala. 1903) (upholding validity of Act 714); *Birmingham Trust &*

rejected the claim that the sewer system would only benefit those connected to it, and ruled that the sewer system provided a public health benefit to *all of the citizens of Jefferson County*.[25] Construction of the System, which at that time consisted of two trunk lines and two treatment plants in the central Birmingham area, began in late 1902, and was largely complete by 1906.[26]

The Sanitary Commission was dissolved by the state legislature in 1909, just eight years after its creation, even though the initial terms of its officers were not yet complete. Control and operation of the System was transferred to the Jefferson County Board of Revenue, then the governing legislative body of the County.[27]

In what turned out to be a prescient statement of the local and state politics that would later interfere with and prevent adequate planning and funding of the System's needs, a consulting engineer opined in a 1912 report on the System that this premature dissolution of the Sanitary Commission was "unfortunate." This same engineer also noted that transferring responsibility for the new System to the County's legislative body passed the System into the hands of:

> a body not constituted nor chosen as to have special knowledge or interest in such subjects [as the creation of an adequate sanitary system for the County].[28]

The system was administered by the Board of Revenue until that body was replaced by the County Commission in 1931.[29]

2. *The First Years of Operation 1901-1947: State Approved Project-Based Bond Issuances Provide Inadequate Funding to Keep Pace with Growth.*

Following the $500,000 bond issuance authorized in 1901 by Act 716 to fund initial construction of the core wastewater system around Birmingham, the only funding available for System operating and maintenance expenses was the annual sewer ad valorem tax. There was no mechanism at that time to generate the additional funds needed for routine maintenance, improvements or extensions to the System. Instead, before authorizing any capital improvement project, the County would seek authority from the state legislature to issue bonds to fund the project. This "one project at a time" funding approach was time-consuming, cumbersome, and vulnerable to political influence. Despite these problems, the project-based funding approach

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Savings Co. v. Jefferson County, 34 So. 398 (Ala. 1903) (upholding validity of bonds issued pursuant to Act 716).

[25] *Keene*, 33 So. at 438. The Alabama Supreme Court confirmed this principle in *Shell v. Jefferson County*, 454 So. 2d 1331, 1336 (Ala. 1984) ("[t]he entire County benefits from the sewer system.").

[26] PARCA Report at 16.

[27] *Id.* at 19-20.

[28] *Id.* at 20. The need for a professional board dedicated solely to the operation and maintenance of the System continues today, and is one of the reasons the Receiver supports the need for legislation establishing an independent public corporation ("IPC") to operate and maintain the System going forward. The need for an IPC is discussed in more detail in Section VIII *infra*.

[29] *Id.* at 26.

would remain the only funding for the System other than the ad valorem tax for almost 50 years, until the County began collecting sewer service charges in 1951.[30]

A few years after construction of the initial sewer system was complete, it became evident that project-based bond funding prevented the regular, systematic capital investment needed to both maintain the System and to improve and extend the System to keep pace with rapid growth within Jefferson County. As early as 1910, industrial development and rapid population growth in the Birmingham area created capacity problems with the System, even though it was only a few years old.[31]

In 1931, one of the first acts of the newly-created County Commission was to declare the System badly overloaded and obsolete, and adopt a resolution stating "an urgent and imperative necessity for immediate construction of an addition to the Jefferson County Sanitary Sewer System in the interest of public health."[32] The County estimated the necessary improvements would cost $1.5 million. However, the County did not issue any new bonds and had to fund the new improvements entirely from funds on hand. The County ultimately appropriated only $450,000, less than one-third of the full amount needed, and the full balance in the sanitary fund generated from refinancing the initial $500,000 sewer construction bonds issued in 1901.[33] Failure to perform the necessary improvements had a negative impact on the System's ability to serve the growing needs of the County. This appropriation of less than half the estimated cost of necessary improvements would become the County's standard pattern of behavior in responding to recommendations for additional funding for the System.

Despite the increasing need for extension and improvement of the System, from 1921 to 1939, the County did not levy the full 0.5 mills sewer ad valorem tax authorized by Act 716, and, with the exception of a single $50,000 bond issuance in 1941, the County did not issue any additional bonds to support and improve the System from 1901 until 1949.[34] The lack of adequate funding continually delayed and prevented necessary improvements to the System.[35]

Inadequate funding continued to cause deterioration of the System throughout the 1940's. The sole funding source for the System was the sewer ad valorem tax, which only generated around $170,000 per year, barely enough to keep the System running, much less initiate improvements.[36] Reports issued in 1946 and 1947 concluded that the two System trunk lines put in service in 1906 had deteriorated markedly due to a lack of investment in their upkeep and maintenance, and the 1905 brick sewers had become obsolete by 1934. The entire System was in disrepair and, despite some additions, remained grossly inadequate to serve the sanitary needs of the County.[37] Heavy rains caused sewers to overflow into homes and businesses and sewage

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[30] *Id.* at 24-25, 38, 44 and Appendix D to the PARCA Report. The County gained ratemaking authority with Amendment 73, which is discussed in more detail in Section II.B.3 *infra*.
[31] *Id.* at 22-24.
[32] *Id.* at 29 (quoting County Resolution).
[33] *Id.*
[34] *Id.* at 25, 34.
[35] *Id.* at 24-25.
[36] *Id.* at 38.
[37] *Id.* at 32.

flowed into City streets and ditches, and at times even covered the fairways of the Birmingham Country Club.[38]

The structure of obtaining legislative approval for bond issuances on a project-by-project basis was of limited value when the ability to generate revenue to repay the bonds and operate the system was limited to the revenue generated by the ad valorem tax. The County needed authority to finance regular maintenance and improvements to the System on its own, without the involvement of the state legislature. The state legislature agreed and passed legislation in 1947 at the County's request to amend the state constitution to grant that authority to the County.

3. *The Local Era 1950-1965: The County Gains Financing Autonomy from the State but Fails to Use its New Bond and Ratemaking Power to Adequately Fund the System.*

The "Jefferson County Sewer Amendment," Amendment 73 to the Alabama Constitution, was ratified by the State's voters in the 1948 general election.[39] A copy of Amendment 73 is included in the Appendix at A-5. This amendment allowed the County to issue general obligation bonds in an amount "not exceeding 3 percent of the assessed valuation of the taxable property" in the County "to pay the expenses of constructing, improving, extending, and repairing sewers and sewerage treatment and disposal plants."[40]

Despite this new financing authority, the pattern of consistent underfunding of the System continued. A year prior to ratification of Amendment 73, the County had commissioned a prominent Chicago engineering firm, Alvord, Burdick & Housen, to perform a detailed study of the System and make recommendations for needed maintenance, repairs, and improvements.[41] The County Commission received the final report in April 1948. The report urged immediate repairs and additions at an estimated total cost of $22.5 million, with annual costs thereafter estimated at $1.1 million.[42] The Commission referred the report to a Citizens Advisory Committee, which recommended a $10 million bond issuance, less than half the cost of the necessary improvements, which the committee found was sufficient to fund only the most urgently needed items.[43] At a bond issue election in May 1949, County voters approved the $10 million bond issue.[44] Even though the pressing need for repairs and improvements to the System was identified in engineering reports as early as 1946, it was 1951 before construction contracts were let and 1953 before most construction was at or near completion.[45]

The Chicago engineering report also recommended the County implement sewer rental or service charges as an additional source of revenue, a practice already common in other urban areas.[46] Although the County gained the authority to impose rates in November 1948 following ratification of Amendment 73, due to procedural and logistical hurdles, collection of charges

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[38] *Id.* at 39.
[39] *Id.* at 41.
[40] ALA. CONST. amend. 73.
[41] PARCA Report at 38.
[42] *Id.* at 40.
[43] *Id.* at 41.
[44] *Id.* at 42.
[45] *Id.* at 38.
[46] *Id.* at 40-41.

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would not begin for almost three more years, and then only for a small percentage of System customers.[47] The Birmingham Water Works and Sewer Board ("BWWB") refused to collect charges through residents' water bills, so the County had to create a new eighteen-employee billing department charged with the massive task of generating a customer list and inspecting and verifying connections. Because of the lack of mandatory hookup enforcement, thousands of homes and businesses throughout the County were not connected to the System. During the first two years of County billing, the billing department had to review and resolve more than 10,000 applications from residents seeking to be removed from the billing list. These difficulties continued until 1961, when the legislature passed an act requiring water utilities to collect municipal sewer charges.[48] These logistical hurdles prevented the County from taking full advantage of its new ratemaking authority to address continued underfunding of the System.[49]

By the mid-1950s, citizens began to feel the impacts of the County's failure to fully fund necessary System improvements. In 1953, the County Board of Health issued a warning to all residents of the County not to swim or fish in any open stream in Jefferson County because "all watersheds in this area carry pollution from sewage."[50] A 1953 citizens advisory committee report recognized the lack of adequate funding for the System and recommended that the Commission forego any plans for secondary treatment (i.e., chemical and other purification), focusing instead on expanding the collection system and maintaining the facilities for primary treatment only (removal of floatable and settable solids).[51] This decision would later prove shortsighted when the federal Clean Water Act ("CWA") was enacted in 1972 requiring secondary treatment and imposing strict standards.[52]

By 1957, sewer overflows were still common and the County health officer called for immediate action to prevent outbreaks of polio, typhoid, and hepatitis. County engineers estimated that it would cost approximately $10 million just to address the System's most pressing problems, and another $20 million to properly address its problems.[53] At that time, the sewer charges and ad valorem taxes were producing System revenues of around $1.5 million per year.[54] Despite these pressing needs, the County would not undertake another major bond issuance until 1968, and resisted raising sewer rates until 1972.

With Amendment 73 in 1948, the County finally had the power to raise funds for the System on its own through bond issuances and sewer rates. Unfortunately, whether for political reasons or otherwise, the County failed to use its newly granted authority, and the pattern of inadequate funding of the System continued. With each passing year, population and industry continued to grow, yet the County fell further and further behind in necessary System improvements and maintenance. Ultimately, it would take intervention from the state and the federal government, and litigation to force the County's hand.

[47] PARCA Report at 44.
[48] *Id.* at 44-45 (discussing Ala. Act No. 886 (Sept. 8, 1961)).
[49] Billing remains a challenging issue for the System today, as discussed in Sections III.A.2 and III.A.3 *infra*.
[50] *Id.* at 43.
[51] *Id.*
[52] *Id.* at 58. The Clean Water Act is discussed in more detail in Section II.B.4 *infra*.
[53] *Id.* at 45.
[54] *Id.* at 54.

4. *The Federal Era 1965-1995: Despite Moratoriums, Litigation and Increased Pressure from State and Federal Regulators, the County's Failure to Provide Adequate Funding to the System Continues.*

The County Commission finally made an official response to the growing sewer crisis in January 1967, when it announced a ten-year $43 million sewer improvement program. Although federal funds were expected to cover about $13 million of the costs, the Commission did not implement a plan to fund its $30 million share of the program, ultimately losing the federal funds.[55] Later that year, pressure from government regulators began when the Alabama Water Improvement Commission ("AWIC") gave the County six months to come up with a plan to upgrade five treatment plants that were illegally discharging raw sewage into area streams. The County's 1967 plan included upgrades to address this issue, but it would be two more years before the County began efforts to secure funding for the plan.[56]

In March 1971, AWIC issued the first of what would be several federal, state, and local level moratoriums prohibiting new sewer connections throughout the County.[57] These moratoriums were issued periodically throughout the 1970s and remained in place until the mid-1980s.[58] The moratoriums slowed economic development throughout the County, and also resulted in the proliferation of private on-site wastewater systems as developers tried to work around the connection bans. These small on-site developer systems tended to be relatively untested, poorly regulated, not sustainable and drastically more expensive to operate.[59]

The moratoriums worsened one of the longstanding problems with the System. The lack of mandatory hookup enforcement throughout the System's history had already resulted in the construction of thousands of homes and businesses in the County that were not connected to the System, and the moratoriums resulted in still more unconnected development. The continued construction of new homes and businesses that were not connected to the System reduced the size of the customer base available to share in the increasing costs of operating and maintaining the System and protecting the area water supplies. Because the System's costs were spread over a smaller customer base, the potential impact of necessary revenue increases on each customer's rates was much higher than it would have been had the customer base continued to grow with the community, making the needed rate increases even less politically palatable to the County Commission.

In April 1971, the County finally began steps to fund its $43 million 1967 sewer improvement plan by lobbying the state legislature to increase sewer rates, which had remained

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[55] *Id.* at 46-47.
[56] *Id.* at 47.
[57] *Id.* at 47.
[58] In addition to the 1971 county-wide moratorium, AWIC also issued a moratorium in September 1975 for the Shades Valley area. *Id.* at 62. When the AWIC Shades Valley moratorium was lifted, the County instituted its own ban on sewer connections in Shades Valley, which remained in place until 1984. *Id.* at 63. In 1976, the County, under instructions from the EPA, also ordered a moratorium on new connections to lines serving the Cahaba River and Patton Creek plants which remained in place until 1985 and 1987, respectively. *Id.* In June 1977, the County restricted development in Brewster Valley, and in March 1978 issued a moratorium for the Turkey Creek system, which remained in place until 1982. *Id.* at 63-66.
[59] *Id.* at 66.

the same since first imposed in 1951. Despite the fact sewer rates had not been raised in twenty years, and were less than one-third the typical rates paid in other southeastern cities, the state legislature spent months in hotly-contested hearings haggling over potential caps on the County's ability to impose rate increases.[60] The negotiations ended abruptly when the Alabama Supreme Court issued an advisory opinion holding that Amendment 73 gave the County the exclusive authority to fix sewer rates.[61] With this ruling, the County finally had clear legal authority to raise rates to fund the desperately-needed improvements to the System.

Amidst strong public opposition, in early 1972 the County unanimously passed the first sewer rate increase *ever*. Rates set at a level the County estimated was sufficient to finance the $30 million in bonds needed to pay for the improvements identified in the 1967 ten-year plan.[62] The bond issuance, however, was postponed indefinitely due to litigation challenging the legality of both the proposed bonds and the rate increases necessary to repay the bonds. In the meantime, public opposition to the rate increase continued. In August and November, the County Commission bowed to public pressure and passed rate reductions that eventually nearly wiped out the rate increase entirely.[63] Thus, despite finally obtaining the clear legal authority over the System's financing, the County again failed to use its authority to adequately fund the System.

At the same time the County was failing to make the improvements and investment necessary to bring the outdated and overloaded System into compliance with existing minimum treatment requirements, legislators and regulators were actively developing much more stringent minimum treatment standards. In 1972, Congress enacted the CWA,[64] administered by the EPA, ushering in an era of much greater federal scrutiny of wastewater treatment programs.[65] The CWA required all wastewater to receive treatment prior to discharge into navigable waterways (i.e., no more discharges of untreated sewage), set standards for both primary and secondary treatment of wastewater, and authorized penalties for violations of the new requirements.[66] Because improvements to the System had been both insufficient and infrequent, the County was forced to quickly develop a multiyear capital improvement plan to cure the inadequacies of the System and comply with CWA.[67] To finance the costs, the capital improvement plan called for a series of regular rate increases and bond issuances to replace the sporadic, project-based funding and half-measures that had remained the norm since the System was first created in 1901.[68]

Almost immediately after announcing its plan in 1975, the County Commission fell back into its well-established pattern of failing to follow through with its announcements and meet even the most minimum funding requirements of the System. The County did not issue the first $10 million in bonds until 1976, almost a year later, and only had a conditional plan for future bond issuances.[69] None of the planned bond issuances for 1979 through 1981 were

[60] *Id.* at 47-48.
[61] *Id.* at 48; *Opinion of the Justices*, 251 So. 2d at 759.
[62] PARCA Report at 49.
[63] *Id.* at 50.
[64] 33 U.S.C. §§ 1251 *et seq.*, as amended.
[65] As the PARCA Report notes, prior to enactment of the Clean Water Act, discharge of raw sewage into watercourses was "widespread, and was perfectly legal." PARCA Report at 58.
[66] *Id.*
[67] *Id.* at 61.
[68] *Id.* at 65.
[69] *Id.*

implemented.[70] Although the County tried to make up for the failure to issue bonds as planned by raising rates above planned levels in 1980, it continued to fall behind in funding the System, and moratoriums preventing additional sewer connections remained in place.[71]

In 1981, the County Commission created a blue-ribbon committee to prioritize sewer improvement projects and recommend ways to fund the necessary improvements. After two years of work, this committee developed a priority list of forty-eight projects with a total estimated cost of $157 million.[72] The committee emphasized that its recommendations were not a final solution, but instead represented the bare minimum necessary to meet mandatory wastewater standards. The committee observed that "[f]uture public servants must address the problem of continued expansion and technical progress" of the System.[73] Despite these warnings, the County Commission ultimately only issued about 60% of the bonds the committee recommended. Though the committee assured the County that the rate increases would leave rates very low when compared to other similar communities, the County only raised rates to half the level recommended by the committee.[74]

The County began to address the deficit in System funding in the early 1990's when the Commission began enacting multi-year sewer rate increases for the first time. It was 1995 before these multi-year rate increases reached the levels recommended in the 1983 blue-ribbon commission report.[75]

Unfortunately, just as the County was beginning to make some headway towards eliminating the serious deficit in the funding required for the System to meet minimum standards, state regulatory requirements became much more stringent, particularly in regard to secondary treatment requirements and bans on bypassing treatment during periods of high wastewater flow volumes.[76] In 1993, the System's long-existing environmental problems began to reach a crescendo. The successor to AWIC, the Alabama Department of Environmental Management ("ADEM"), ordered the County to implement a $416 million improvement plan and issued a moratorium on new connections to the Leeds treatment plant because of excessive pollutants discharged from that facility into the Little Cahaba River.[77] Later that same year, the EPA required the County to account for all unpermitted discharges of pollutants from its wastewater treatment plants since 1988.[78]

In November 1993, a lawsuit was filed[79] alleging that the County was discharging pollutants into the Cahaba and Black Warrior Rivers without the required permits and that the County's wastewater treatment plants were violating the terms of their permits.[80] The Cahaba

[70] *Id.*
[71] *Id.*
[72] *Id.* at 66.
[73] *Id.* (quoting committee report).
[74] *Id.* at 66-67.
[75] *Id.* at 68.
[76] *Id.*
[77] *Id.* at 69-71.
[78] *Id.*
[79] *Kipp, et al. v. Jefferson County, Alabama, et al.*, United States District Court for the Northern District of Alabama, Civil Action No. 93-G-2492-S.
[80] PARCA Report at 71.

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River Society intervened in that lawsuit, which was consolidated with a similar lawsuit filed by the EPA[31] in 1994. In January 1995, the judge ruled for the plaintiffs, finding that the County had made illegal discharges exceeding permit levels on a number of occasions.[32] The judge ordered the parties to present a plan to remedy the sewage overflow problem. The County agreed to entry of a consent decree (the "Consent Decree") in December 1996 requiring it to take a broad range of remedial measures. Included within the Consent Decree was a provision giving the County authority to assume responsibility for municipal sewer lines that feed into the County's system, thus ending the divided responsibility identified as a crucial barrier to the System's success almost a century earlier. A copy of the Consent Decree is included in the Appendix at A-6.

C. The Consent Decree.

Pursuant to the Consent Decree, the County assumed control of and responsibility for twenty-one separate municipal sewer systems previously owned and maintained by various municipalities throughout Jefferson County. At that time, the County was unaware of the exact condition and extent of these municipal systems; however, the County did not receive any compensation from any of these municipalities for any of the remediation efforts required under the Consent Decree.[33] The County assumed ownership of and responsibility for approximately 11,500,000 feet (2,178 miles) of sewers, an amount twice the size of the County system, with no significant due diligence or compensation.[34] In fact, the municipalities had largely never invested in any sort of comprehensive maintenance program for their sewers, and the County had little, if any, knowledge of the condition of the former municipal sewers. However, in the Consent Decree, the County committed itself to make whatever improvements were necessary to meet a set of near-impossible goals that even the best systems in the country cannot continuously achieve. These commitments included, among other things, the promise to improve and expand the System in order to:

- Completely eliminate further bypasses and unpermitted discharges of untreated wastewater containing raw sewage to the Black Warrior and Cahaba River Basins;
- Completely eliminate sewer system overflows;
- Achieve full compliance with the County's National Pollutant Discharge Elimination System ("NPDES") permits; and
- Achieve full compliance with the CWA by minimizing the discharge of pollutants into navigable waters, maintaining a high level of water quality, and preserving marine and other wildlife.[35]

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[31] *United States v. Jefferson County, Alabama, et al.*, United States District Court for the Northern District of Alabama, Civil Action No. 94-G-2947-S.
[32] PARCA Report at 71.
[33] Federal Action, Parties' Joint Submission Pursuant to October 7, 2008 Order, Doc. #32 at 3, ¶ 20 (Nov. 11, 2008) (herein, the "Federal Joint Submission").
[34] BE&K Report at 7-2. The BE&K Report is discussed in more detail in Section II.C.1 *infra*.
[35] Consent Decree at 12, 19-101.

The County also agreed to pay the United States $750,000 for its prior violations of the CWA, spend $30 million on supplemental environmental projects, and pay numerous stipulated penalties in the event it failed to comply with the Consent Decree in the future.[86] As of this date, five of the County's nine sewer basins are still subject to the Consent Decree.

The Consent Decree was approved and executed by both the County and the State of Alabama (represented by the Attorney General). The State was a party to the Consent Decree litigation, and under federal law may be held liable for violations of the Consent Decree if state law prevents the County "from raising revenues needed to comply with such judgment."[87]

1. *Construction to Comply with the Consent Decree.*

In order to comply with the Consent Decree, the County began rehabilitation and improvement of the System pursuant to the Jefferson County Sewer Improvement Program. It rehabilitated approximately 657 miles of sewer mains and completely replaced another eighty miles of sewer lines from 1996-2008.[88] The equivalent of more than 20,000 manholes were rehabilitated or replaced during that timeframe.[89] Although the lack of budgeting, planning, and recordkeeping makes it difficult to determine precisely where all the money went, the best estimates of the total expenditures aimed at complying with the Consent Decree, CWA, and NPDES permits, and related to system expansion, range from approximately $2.3 billion to $2.5 billion. In addition, the System has approximately $240 million in funds, representing proceeds fro warrants, available primarily for construction purposes, in various reserve accounts.[90]

While the EPA set the compliance objectives the County was required to meet, the County was responsible for creating a plan to meet those compliance objectives.[91] The capital improvement program the County created to comply with the Consent Decree suffered from significant design flaws and was poorly implemented, leading to both substantial and wasteful cost overruns and a failure to eliminate all problems related to sewer system overflows.[92] These flaws are examined in detail in a 2003 report the County commissioned from BE&K Engineering Company (the "BE&K Report").[93] A copy of the BE&K Report is included in the Appendix at A-7. Among the problems identified by BE&K:

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[86] *Id.* at 102-114. The County has paid approximately $577,000 in stipulated penalties to date.
[87] Consent Decree at 6.
[88] Special Masters Report at 22.
[89] *Id.*
[90] By the County's own estimation the cost to complete the repairs and rehabilitation necessary to comply with the Consent Decree had grown from an initial estimate of between $250 million and $1.2 billion in 1996 to $3.05 billion in 2003. BE&K Report at 2-2.
[91] *Id.* at 7-4.
[92] A sanitary sewer system overflow, or SSO, occurs when the flow of wastewater exceeds the capacity of the sewer system and untreated sewage bypassing the treatment process is released directly into local waterways.
[93] BE&K was assisted in the preparation of its report by CH2M Hill, Porter, White & Company, and PARCA.

- ESD's approach to evaluating and controlling Sanitary Sewer Overflows (SSOs) was too heavily influenced by ESD practices and local engineers, and was grounded in field data collection and analysis instead of newer, more effective approaches being successfully applied in the wastewater industry;[94]

- ESD did not incorporate the available technical and business organizational tools and methods necessary to manage a project of the magnitude imposed by the Consent Decree;[95]

- ESD did not properly take into account how dealing with the twenty-one municipal systems it was absorbing would impact the conveyance system flows;[96]

- There was no overall design standard created to guide facility designs;[97]

- The County never established an asset management process that would allow management to properly prioritize and budget for needed repairs;[98]

- Some of the wastewater treatment plants were designed to treat peak flows without storage, even though peak flow storage facilities were also added at these plants, which both wasted capital and presented additional operation problems;[99]

- Many of the plants were designed to use disinfection systems that were more expensive than other, less expensive systems that offered operational advantages;[100]

- Most projects in the compliance program were not budgeted and ESD did not issue cost reports, eliminating any ability to forecast budget overruns or any sense of budget discipline – ESD management indicated to BE&K that they did not operate on a budget;[101]

- There was no attempt to schedule projects to ensure that they were executed as originally planned – as a consequence, most projects were delayed;[102]

- ESD did not utilize any sort of value engineering process to identify cost savings in the structure of its compliance program;[103]

- ESD focused on complying with the mandates of the Consent Decree without adequate strategic planning or action; and[104]

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[94] *Id.* at 7-5
[95] *Id.*
[96] *Id.* at 7-6
[97] *Id.*
[98] *Id.* at 7-7.
[99] *Id.* at 7-8 through 7-10.
[100] *Id.* at 7-9
[101] *Id.* at 3-2, 3-5
[102] *Id.* at 3-3.
[103] *Id.* at Chapter 4.

- ESD made spending decisions without any meaningful budgets or controls.[105]

In 2003, BE&K estimated $365 million in additional financing was needed to complete the projects necessary to comply with the Consent Decree, and an additional $246 million would be needed to repair known defects in the System following termination of the Consent Decree.[106]

In addition, BE&K noted the County's capital improvement plan addressed the sewer system overflow problems by essentially over-building the System's treatment capacity, while at the same time neglecting to examine or address the collection system causes of the overflows. Infiltration and inflow are two potential causes of sewer system overflows. Infiltration is groundwater that enters the sewer system through cracks or leaks in the collection pipes; inflow is storm water that enters the collection system at direct points of connection, such as through illegal connections of sump pumps or drains to the sanitary sewer system. Infiltration and inflow cause hydraulic overloading of the sewer collection system which is designed only to handle lower routine volumes of wastewater flows, and place an extreme burden on wastewater treatment facilities and processes.[107]

Because inflow and infiltration enter the system differently, they must be addressed differently. Inflow is easier to locate and costs less to remove, and because inflow typically involves higher volumes, it typically contributes more to overflows than infiltration. The County did no sophisticated hydraulic modeling to determine how infiltration and inflow volumes would impact the System, and the County's improvement plan to comply with the Consent Decree lumped both infiltration and inflow together, preventing the County from receiving the reduced costs and higher benefits that would have resulted from examining the cost-effectiveness of multiple inflow and infiltration reduction alternatives.[108] The System continues to have significant problems with infiltration and inflow, resulting in continued challenges to System operations.

2. *System Financing to Comply with the Consent Decree.*

In 1997, the County began borrowing vast sums of money in order to finance the improvements needed to comply with the Consent Decree.[109] The debt issued by the System increased by more than 1000 percent in the eight years between 1995 and 2003.[110] As BE&K pointed out, this increased debt radically changed the capital requirements of the System and meant that, "sewer rates, assuming no additional debt restructuring and refundings, must increase at rates well above inflation."[111] "The County's sewer financing structure reflects a desire to

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[104] *Id.* at Chapter 5.
[105] *Id.* at 12-2.
[106] *Id.* at 2-13. The Receiver has since determined that due to additional problems discovered in the operation of the System since appointment, these 2003 estimates are too low. *See* discussion at Section III.B *infra.*
[107] Infiltration of the municipal sewer collection lines within Jefferson County was identified as a problem as early as 1912. *See* discussion at Section II.B.1 *supra.*
[108] BE&K Report at 7-6 and 7-7.
[109] As BE&K pointed out, the "capital investment has not expanded the customer base materially; therefore, existing customers bear the cost of these expenditures." *Id.* at 12-1.
[110] *Id.*
[111] *Id.*

finance a very large capital program while delaying rate increases as long as possible."[112] The County borrowed these monies with:

> no realistic long-range financial plan, no determination of how much capital expenditure the County could afford to finance, how much burden the ratepayers could afford to assume, and no attempt to contain the amount of the capital expenditures or debt within the limits of what the County and the users can afford.[113]

All of the County's financing structures were extremely back-loaded; in exchange for lower debt service payments in the early years, the structures called for extremely large debt service requirements in later years. This was due in part to the fact the County financed the first several years of interest payments in order to postpone the inevitable rate increases as long as possible. As those interest payments came due, the County's total debt costs, and the rate increases that would be necessary to meet those costs, would began to increase significantly in escalating amounts each year. The County had no plan on how it would meet these rising future costs.

The monies for the capital improvement program were borrowed through warrants issued by the County and secured by the revenues of the System (the "System Revenues"). The warrants were issued in various series pursuant to a Trust Indenture dated February 1, 1997 (the "Indenture") that was amended through numerous "Supplemental Indentures" as new series of warrants were issued. The Indenture also established a Trustee (the "Indenture Trustee") charged with representing the interests of warrant holders and ensuring the County complied with the terms of the Indenture. The original Indenture Trustee was AmSouth Bank; the current Indenture Trustee is the Bank of New York Mellon.

The Indenture was judicially validated in an order entered by the Jefferson County Circuit Court on August 27, 2001 (the "Validation Order"), in *Jefferson County, Alabama v. The Taxpayers and Citizens of Jefferson County, Alabama*. A copy of the Validation Order is included in the Appendix at A-8. In the Validation Order, the Court held that the warrants were "the valid, binding revenue obligations of the County, its successors and assigns, as provided in the Indenture."

The complete series of warrants issued pursuant to the Indenture are as follows:

[112] *Id.* at 12-9.
[113] *Id.* at 12-2.

Table 1 – Summary of Warrants Issued Pursuant to the Indenture

Instrument	Date	Series	Original Principal Amount
Indenture	February 1, 1997	1997-A Sewer Revenue Refunding Warrants	$211,040,000
		1997-B Taxable Sewer Revenue Refunding Warrants	$48,020,000
		1997-C Taxable Sewer Revenue Refunding Warrants	$52,880,000
First Supplemental Indenture	March 1, 1997	1997-D Sewer Revenue Warrants	$296,395,000
Second Supplemental Indenture	March 1, 1999	1999-A Sewer Revenue Capital Improvement Warrants	$952,695,000
Third Supplemental Indenture	March 1, 2001	2001-A Sewer Revenue Capital Improvement Warrants	$275,000,000
Fourth Supplemental Indenture	February 1, 2002	2002-A Sewer Revenue Capital Improvement Warrants	$110,000,000
Fifth Supplemental Indenture	September 1, 2002	2002-B Sewer Revenue Capital Improvement Warrants	$540,000,000
Sixth Supplemental Indenture	October 1, 2002	2002-C Sewer Revenue Refunding Warrants	$839,500,000
Seventh Supplemental Indenture	November 1, 2002	2002-D Sewer Revenue Capital Improvement Warrants	$475,000,000
Eighth Supplemental Indenture	January 1, 2003	2003-A Sewer Revenue Refunding Warrants	$41,820,000
Ninth Supplemental Indenture	April 1, 2003	2003-B Sewer Revenue Refunding Warrants	$1,155,765,000
Tenth Supplemental Indenture[114]	August 1, 2003	2003-C Sewer Revenue Refunding Warrants	$1,052,025,000

The financing transactions were summarized by *The Birmingham News* in a July 10, 2010 table entitled "How Jefferson County's Debt Ballooned" (herein, "News Debt Table"), included in the Appendix to this report at A-9. The various series of warrants (or "parity securities" under the terms of the Indenture) were not identical to one another, either in their intent or structure. Several of the series of warrants were "refunding" warrants issued to refinance previously issued series of warrants to lower the County's interest costs and avoid significant rate increases.[115] In

[114] There is an Eleventh Supplemental Indenture; this instrument did not involve the issuance of additional warrants, but instead altered the terms of the Indenture consistent with certain interest rate swap transactions entered into at that time. The Eleventh Supplemental Indenture also produced additional funds for capital improvements.

[115] The refunding warrants included the Series 2002-C Refunding Warrants, the Series 2003-A Refunding Warrants,

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what the federal court later called a "risky attempt"[116] to minimize the required interest payments and further postpone the inevitable rate increases, beginning with the Series 2002-A Sewer Revenue Capital Improvement Warrants, the County began to issue substantial amounts of variable rate demand warrants and auction rate warrants rather than more traditional fixed rate warrants.[117]

The variable rate demand warrants bear interest at fluctuating rates generally determined by market interest rates, and interest payments are due at various times throughout the year. The variable rate demand warrants are subject to optional or mandatory tender by the warrant holders from time to time; when that occurs, a "remarketing agent" selected by the County and acting as its agent attempts to "remarket" the variable rate demand warrants.[118] The County agreed in the Indenture to maintain a liquidity bank or banks as a buyer of last resort in case the remarketing agent was unable to successfully remarket the variable rate demand warrants; the liquidity banks agreed, through Standby Warrant Purchase Agreements secured by the net revenues of the System, to purchase the variable rate demand warrants from the remarketing agent.[119] Once a liquidity bank purchases the variable rate demand warrants, they become "Bank Warrants," subject to higher interest rates than variable rate demand warrants that are not Bank Warrants.[120]

The auction rate warrants bore interest at fluctuating rates set by periodic auctions.[121] The interest rate was set by the lowest interest rate at which all of the warrants were offered for sale by current holders of the warrants. If the auctions failed, the interest rate would be set at the Maximum Auction Rate as defined in the Indenture, as amended.

As of March 2008, the County had approximately \$3.223 billion in outstanding sewer warrants. These warrants fell into the following classes:

the Series 2003-B Refunding Warrants and the Series 2003-C Refunding Warrants.

116 Federal Action, Memorandum Opinion, Doc. # 100 at 4 (June 12, 2009) (herein, the "Federal Opinion"). The Federal Opinion is discussed in more detail in Section II.G *infra*.

117 Federal Opinion at 4-5.

118 Federal Joint Submission at ¶ 67; *see also* Fourth Supplemental Indenture at §2.6(a).

119 Federal Joint Submission at ¶ 69; *see also* Fourth Supplemental Indenture at § 2.6(c).

120 Federal Joint Submission at ¶¶ 72, 74.

121 *Id.* at ¶ 74.

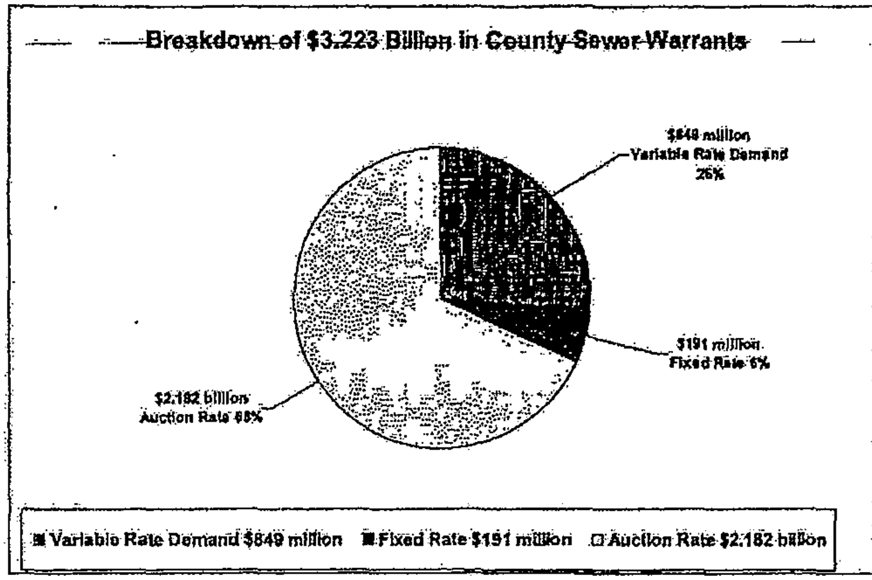

Figure 2 - Breakdown of $3.223 Billion in County Sewer Warrants

When issuing the warrants, the County also purchased municipal bond insurance policies to make its warrants more marketable and to minimize its interest rate costs.[122] These policies provided that if the County was unable to make payments of principal and interest required by the Indenture, the bond insurers, Syncora Guarantee (formerly known as XL Capital Assurance, Inc.), Assured Guarantee Municipal Corporation (formerly known as Financial Security Assurance Holdings ("FSA")), and Financial Guaranty Insurance Company ("FGIC"), would make these payments.[123] The Indenture provides generally that, upon payments to warrant holders under their respective policies, the bond insurers would become owners of the warrants (and the right to interest from the warrants) and subrogated to the rights of the warrant holder. As of March 2008, FGIC insured 54% of the outstanding warrants, Syncora insured 35%, and FSA insured 11%.

To achieve a synthetic fixed rate structure, the County also entered into several interest rate swaps from 2001-2004 with several investment banks as a hedge against market interest-rate exposure and to offset its debt service payments. An interest rate "swap," at its most basic definition, is an agreement by which one party (the "Issuer") agrees to exchange interest payments from a fixed interest rate (the "Fixed Position") with another party (the "Swap Counterparty") for the interest payments from a variable interest rate (the "Floating Position"), with the amount of interest paid by both parties being calculated off of a notional, or imaginary,

[122] Federal Opinion at 6.
[123] Federal Joint Submission at ¶¶ 51-60.

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principal amount.[124] When interest rates fall below the Fixed Position, the Issuer ends up with a net-payment obligation to the Swap Counterparty, which is obligated to pay the lower Floating Position. Conversely, when interest rates rise above the Fixed Position, the Issuer is entitled to a net payment from the Swap Counterparty, which is now obligated to pay the higher Floating Position. In the County's case, it primarily took the "Fixed Position" in the example above, and the total combined notional value of its swaps was approximately $5.5 billion.[125] Its goal in doing so was that, by receiving the variable rate payments from the swap issuer, it was hedging against the potential of increasing interest payments due under the variable rate warrants. As noted below, this plan backfired when market interest rates generally dropped to historically low levels in 2008. All swap agreements have since been terminated.

D. Criminal Activity.

As is widely known, criminal activity plagued both the financing and construction activities initiated as part of the County's efforts to comply with Consent Decree. That criminal activity has been widely reported, is a matter of public record, and need not be recounted in detail here. Four County Commissioners, six former County employees (including the former head of the ESD), several contractors and firms that did business with ESD, and two local investment bankers associated with the financing of the sewer debt and swap transactions, have been convicted of federal bribery and conspiracy crimes for their actions.[126] The criminal convictions were summarized by *The Birmingham News* in a July 30, 2010 table that is included in the Appendix at A-10.

It is not the Receiver's role to adjudge the guilt or innocence of any of the alleged wrongdoers, or to quantify the cost of any criminal conduct which occurred. Those determinations will ultimately be made in the various lawsuits in which the County and certain creditors are seeking damages for the alleged wrongdoing. Criminal conduct likely increased the cost of the financing activities the County initiated to comply with the Consent Decree. An additional factor which also substantially increased the County's construction costs is the corruption and incompetence present at the County and ESD level. These actions also diminished the effectiveness of the County's efforts to comply with the Consent Decree. The effects of this criminal activity, corruption and incompetence were clearly evident in many of the problems outlined in the BE&K Report (e.g., ESD's irregular bidding procedures, little to no

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[124] For a short, helpful explanation of interest rate swaps, *see* Douglas Skarr, California Debt and Investment Advisory Commission, *The Fundamentals of Interest Rate Swaps* (October 2004), http://www.treasurer.ca.gov/cdiac/reports/rateswap04-12.pdf (last accessed June 5, 2011).

[125] Validation Order at 9; BE&K Report at 12-12.

[126] Federal Opinion at 5-6. In addition, the Securities and Exchange Commission ("SEC") charged J.P. Morgan Securities, Inc. ("JPMorgan"), and two of its former managing-directors, Charles LeCroy and Douglas MacFaddin, for their roles in an unlawful payment scheme to win business involving municipal bond offerings and swap agreement transactions with the County. *See* SEC Release No. 2009-232 (Nov. 4, 2009), *available at* http://www.sec.gov/news/press/2009/2009-232.htm. JPMorgan settled the SEC's claims against it by making a payment to the County of $50 million "for the purpose of assisting displaced County employees, residents, and sewer ratepayers," paying a fine of $25 million (which was later distributed to the County), and by cancelling $647 million in claimed swap termination fees. *See* SEC Order *In the Matter of J.P. Morgan Securities Inc.*, SEC Administrative Proceeding File No. 3-13673 (Nov. 4, 2009). The SEC's suit against LeCroy and MacFaddin remains pending in the United States District Court for the Northern District of Alabama.

project supervision or budgeting, the use of only a small group of contractors and engineers, etc.).

E. System Rate History Since 1997.

The Indenture contains a covenant (the "Rate Covenant")[127] in which the County agreed to, among other things, maintain rates sufficient to pay the indebtedness on the warrants and provide for the payment of the System's operating expenses. The Rate Covenant contains a formula and procedure by which the County agreed to automatic annual increases of sewer rates in order to comply with the Rate Covenant.[128] The County Commission adopted a resolution on February 12, 1997, implementing the Rate Covenant and providing for automatic increases in sewer rates as necessary to comply with the terms of the Indenture. This resolution was in place until it was suspended by the Commission in December 2008.[129]

However, on at least two occasions, the Commission passed resolutions announcing the Commission's decision to implement a rate increase *less* than the rate increase required under the Rate Covenant automatic formula the Commission adopted in 1997. On December 2, 2003, the Commission passed a resolution stating the Rate Covenant formula required a rate increase "in excess of 14%" be implemented effective January 1, 2004, but the Commission had determined instead to implement a 10% rate increase.[130] On December 7, 2004, the Commission passed a similar resolution stating the Rate Covenant formula required a rate increase "in excess of 13%" beginning January 1, 2005, but the Commission had decided to instead implement a 10% rate increase.[131]

From 1997 through the present, the Commission implemented the following annual volumetric rate increases:[132]

127 *See* Indenture at § 12.5.
128 *Id.*
129 Carns Dep. 17:4-18:23, July 20, 2010; Hulsey Dep., Exh. 40, Feb. 9, 2009.
130 Resolution dated December 2, 2003, Minute Book 143, pp. 322-23.
131 Resolution date December 7, 2004; Minute Book 146, pp. 504-05.
132 Special Masters Report at 38.

Table 2 - Summary of Rate Increases From 1997 to Present

Year	Sewer Use Rate (Ccf)	% Increase
1997	$1.78	N/A
1998	$1.88	5.6
1999	$2.20	17.0
2000	$2.48	12.7
2001	$3.01	21.4
2002	$3.53	17.3
2003	$4.90	38.8
2004	$5.39	10.0
2005	$5.93	10.0
2006	$6.35	7.1
2007	$6.87	8.2
2008	$7.40	7.7
2009	$7.40	0
2010	$7.40	0
2011	$7.40	0

Volumetric sewer rates have not been increased since January 2008, and all other sewer charges have also remained substantially the same since that time. As noted below, this failure to raise rates at all in the last three-plus years – much less in any sort of meaningful manner – has only exacerbated the System's debt problem and made any sort of global solution that much more difficult.[133]

In fact, the County Commission has repeatedly ignored or refused to implement the advice of several experts and consultants – including all of those retained by the County – recommending rate increases for the long term financial stability of the System. These recommended rate increases since 2002, and the County's responses, are summarized in the following table:

[133] *See* discussion beginning at Section IV.A *infra*.

Table 3 - Recommended Rate Increases and County Responses from 2002 to Present

Date/Report	Recommendations	County Response
2002 Krebs Report – The Nov. 2, 2002 report of County consultant Paul B. Krebs & Associates ("Krebs") projected that System funding would be adequate *if rates were increased as recommended.*	• 2003: 43% increase to $5.03[134] • 2004: 24% increase to $6.26 • 2005: 14.6% increase to $7.18 • 2006: 9% increase to $7.83 • Total increases for the period: $4.30 or 122%	• 2003: 38.8% increase to $4.90 • 2004: 10% increase to $5.39 • 2005: 10% increase to $5.93 • 2006: 7.1% increase to $6.35 • Total increases for the period: $2.82 or 80%
2003 Krebs Report – The March 31, 2003 Krebs report notified the Commission that, *even with no additional borrowing*, System funding needs would rise approximately 89% from 2002-2008, and the System was in dire need of additional funds.	While the report did not recommend specific additional rate increases, it did acknowledge that rate revenue would have to be the principal source of funding. The report recommended the County implement several rate structure changes as a way to increase rate revenues, such as eliminating the 15% residential discount, and updating the impact fee structure.	The County did not implement any of the rate structure changes recommended in the report.
2003 BE&K Report[135] – In late 2002, BE&K estimated it would cost an additional $611 million (over and above existing debt) to complete the improvement program.	BE&K recommended that the County increase rates by 12.5% yearly from 2004 to 2011.	The County funded less than half of what was recommended. Rates were increased by 10% in 2004 and 2005, 7.1% in 2006, 8.2% in 2007 and 7.7% in 2008. In late 2008, the Commission suspended further rate increases, and rates have not been increased since that time.
2007 Red Oak Consulting Report – Red Oak, retained by the County, recommended that it choose one of five different scenarios for annual rate increases from 2008 to 2010.	The scenario that called for the lowest level of increase required an increase in 2008 of 8%, then 6.3% in 2009, and 5.5% in 2010. The scenario that called for the highest level of rate increases required increases from 2008 through 2010 of 50.4%, 16.4%, and 6.7%, respectively.	No increase. The County suspended all rate increases in 2008.
2008 Draft Raftelis Report – In June 2008, Raftelis Consulting was hired by the County to examine the reasonableness of the County's then-existing rates.	Although Raftelis was not asked to make rate increase recommendations, the draft report stated that it would be imprudent for the County not to consider rate increases in the near term. The firm sent a letter to the County Commission recommending the County at least increase sewer rates at the level equal to the Consumer Price Index, (2.22%), to reflect a cost of living adjustment.	No increase. The County did not increase rates at all after 2008.

[134] These percentage and dollar increases in this chart refer to the base volumetric charge per Ccf for residential customers with the standard 5/8 inch meter.
[135] The BE&K Report is discussed in detail *supra* at Section II.C.1.

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Raftelis 2010 Report – In 2009, the County hired Raftelis Consulting to perform a cost of service study and make recommendations for future rate increases to meet System funding needs.	Raftelis recommended the County implement an immediate 6.76% volumetric rate increase, and increase the minimum charge from $2 to $13.	**No increase.** The County did not increase rates at all after 2008.

The County's hostility to rate increases has a long and consistent history. Included in the Appendix at A-11 is a table summarizing the County's responses to rate recommendations from 1901 to the present. As the table above demonstrates, since 2002 the County has received advice from a host of experts and consultants, and that advice was consistent – the County had to raise its sewer rates to preserve the long term financial viability of the System. The County's response to that advice was also consistent – it either refused to raise rates at all, or failed to raise rates to the full extent recommended.

The 2003 Krebs Report spelled out exactly the issues facing the System and the need for immediate rate increases to meet the drastic future increases in debt costs that would occur due to the back-loaded structure of the County's financing. The consequences of the County's buy-now, pay-later strategy were beginning to kick in. Krebs predicted that by 2006, the System's capital needs would increase by 70 percent, and that the County's system-related debt could total almost $3.2 billion. Krebs warned the County – a full five years before its default – that:

> Regardless of the source from which the needed revenues must ultimately arise, **they will have to be generated**, and the plan for generating them cannot be popular with any of those who will be affected by an increase in taxes or user fees. **Nevertheless, when the alternative of obtaining revenues though a plan over which the Commission has some control is compared with the action of a receiver should the system go into default, there can be little question as to which course of action would be preferable. There can also be no debate about the urgency for action**; this is not a matter on which action can be long deferred without serious consequences.[136]

Yet the County ignored Krebs's advice (and, in fact, as U.S. District Judge David Proctor found, suppressed dissemination of the 2003 Krebs Report)[137] – as it generally ignored the advice of every professional that recommended increases in sewer rates. The County took this path despite the fact that it had already borrowed billions of dollars secured only by the System – and then proceeded to borrow more. Stated another way, the County borrowed billions of dollars, based on the promise that it would increase rates to required levels, and then refused to take the legal and logical actions required to repay those monies. As Judge Proctor noted after the County suspended operation of the Rate Covenant, "[i]n the face of consistent input from rate experts that net sewer revenues were inadequate to operate and pay its debt obligations, the County went in the *opposite* direction [of increasing System revenues]."[138]

[136] Consulting Letter Preceding the 2003 Krebs Report at 4 (emphasis added).
[137] Federal Opinion at 5, 15-16.
[138] *Id.* at 18 (emphasis in original).

In 2004, there were significant changes to the makeup of the County Commission and ESD management. As a result of these changes, capital expenditures were greatly reduced as the County resisted any further borrowing.

F. The Crash of the System's Finances and the County's Response.

The County's debt structure began to unravel quickly in 2008 after some of its bond insurers' credit ratings were downgraded. This caused the County's interest costs to soar as the market for the warrants disappeared and auctions on its auction rate warrants failed.[139] At the same time, the County's hedge – the billions in swap agreements – backfired when the interest rates the Swap Counterparties were required to pay dropped precipitously, sending the County's swap obligations soaring.[140] On February 27, 2008, the County's credit rating was downgraded five levels to the lowest investment grade, triggering a requirement that the County post $184 million in collateral to its Swap Counterparties, money the County had no ability to post. The next day, the County issued a notice that it could "provide no assurance that net revenues from the sewer system will be sufficient to permit the county to meet the interest rate and amortization requirements of the liquidity facilities." On February 29, 2008, the rating of the sewer warrants was cut to junk status.[141]

In April 2008, the County was unable to make certain required principal payments due under certain of the warrants. The County, some of the bond insurers, the Liquidity Banks, and the Swap Counterparties then entered a series of forbearance agreements throughout 2008 under which these creditors agreed to forbear from exercising remedies against the County while it sought a solution to its financial problems. During this time, the County made partial payments to the Liquidity Banks. As late as July 31, 2008, the County approved a resolution declaring that its "synthetic fixed rate structure" had served the County "reasonably well."[142]

G. Resulting Litigation and Appointment of Receiver.

Following the County's defaults and expiration of the forbearance agreements, and the County's refusal to deposit the System revenues with the Indenture Trustee, the Trustee, Syncora, and FGIC filed suit against the County and the County Commissioners on September 16, 2008, in the United States District Court for the Northern District of Alabama (the "Federal Action"). The Indenture Trustee sought remedies for the County's breaches of the Indenture, including appointment of a receiver.

On November 25, 2008, the District Court appointed John S. Young, Jr. (at the suggestion of the County)[143] and John Ames (at the suggestion of the Trustee, Syncora, and

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[139] Martin Z. Braud, *Ala. County's Debt Cut to Junk on Credit-Squeeze*, BLOOMBERG, Feb. 29, 2008.

[140] Interest rates dropped precipitously in 2008 as the markets began to adjust to the financial crisis enveloping the country. For example, the 1-month LIBOR Rate dropped from 5.02% in December 2007 to 2.51% in May 2008. *See* http://www.wsjprimerate.us/libor/libor_rates_history.htm.

[141] *See* Braud, *supra* note 139. The downgrade of the warrants also significantly increased the County's interest obligations on the County's auction rate warrants. *See* Ninth Supplemental Indenture at §§ 1.1 (pp. 3-4, 12), 3.3. The Ninth Supplemental Indenture, which authorized the issuance of $1.155 billion in refunding warrants, was entered after the County received the 2003 Krebs Report.

[142] Resolution dated July 31, 2008, Minute Book 156, pp. 309-10.

[143] Federal Opinion at 18 n.14.

FGIC) as special masters (the "Special Masters") and directed them to provide an evaluation of the legal, economic, business, infrastructure, and capital improvement issues facing the System.[144] The Special Masters filed their report on February 10, 2009 making detailed findings about and recommendations for improving the System. A copy of the Special Masters Report is included in the Appendix at A-12.

On June 12, 2009, the District Court issued an opinion finding that it was required to abstain from the central issue in the case – appointment of a receiver over the System with authority to set sewer rates.[145] A copy of the court's opinion (the "Federal Opinion") is included in the Appendix at A-13. While abstaining from appointing a receiver, Judge Proctor made detailed findings of fact concluding that grounds existed for appointment of a receiver. Among other things, he found that:

- The County defaulted under the terms of the Indenture by, among other things, failing to maintain rates sufficient to pay its debt, failing to provide required notices, and failing to make payments into various funds as required by the Indenture.[146]

- The County refused to listen to or heed anyone, including its own consultants, who suggested raising sewer rates and the County Commissioner at the time in charge of the System was "largely disengaged [from] any efforts to raise revenue."[147]

- ESD was providing services to customers that were not billed and did not pay (in some cases for up to five or six years) – when it discovered this, the County only sought to collect payment for one year of unbilled service;[148]

- The then-County Commissioners "at best, paid lip service" to the recommendations of the Special Masters and were generally disengaged from the sewer debt crisis.[149]

- The County suppressed dissemination of the 2003 Krebs Report, which had concluded that the County required additional revenue to meet its then-existing debt obligations – and then borrowed more money.[150]

- The County was aware at least as early as 2003 (if not before) that its net sewer revenues were insufficient to service its existing debt, yet did not reveal this information to potential investors.[151]

In light of the Court's abstention from appointing a receiver, on July 6, 2009, the District Court granted the plaintiffs leave to seek relief in Alabama state court.[152]

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[144] Order Appointing Special Masters, Federal Action, Doc. # 41 (Nov. 25, 2008).
[145] Federal Opinion at 55.
[146] *Id.* at 13.
[147] *Id.* at 17-19.
[148] *Id.* at 22.
[149] *Id.* at 18-19.
[150] *Id.* at 4-5, 15-16.
[151] *Id.* at 15-16.
[152] Order, Federal Action, Doc. # 102 (July 6, 2009).

On August 3, 2009, the Indenture Trustee filed suit against the County, again seeking appointment of a receiver, in the Circuit Court of Jefferson County. Shortly before the case was due to go to trial, the Court granted the Indenture Trustee's Motion for Partial Summary Judgment and appointed the Receiver on September 22, 2010 through entry of the Receiver Order.

III. Overview of Actions Taken by Receiver Since Appointment.

Upon appointment, the Receiver's first step was to formulate a business plan to meet the long term goal of having a viable, sustainable, efficient utility serving the needs of the public. According to ESD staff, the 2011 business plan produced under the Receiver's leadership and direction is the first comprehensive business plan ever prepared for the System. Before examining the need for any rate increases, the Receiver's goal was to get the System's internal house in order by identifying where greater efficiencies could be achieved or where improved practices were necessary and to implement plans to achieve those efficiencies and put those practices in place.

The Receiver also began to exercise managerial control over the System. After more than two years of litigation over the appointment of a receiver, criminal prosecutions of County Commissioners, ESD officials, and others, and constant public scrutiny, one of the Receiver's first actions was to meet with employees of the ESD and to assure them that his first priority was to work with them to provide the experience, resources and tools necessary to operate the System as a successful wastewater utility. From an operational standpoint, the Receiver has attempted to instill a new sense of pride within ESD with the goal of operating as a professional utility dedicated to providing high quality, reliable customer service and protection of the environment.

While the Receiver reviewed a significant amount of information in the preparation of the Special Masters Report, his role as one of the Special Masters was limited to investigation and making recommendations to Magistrate Judge John Ott with respect to disputes among the parties in the federal action concerning the operation of the System. As acknowledged in the Special Masters Report, "[t]he specific recommendations were developed based on limited due diligence of [ESD's] operations, input from the County finance department, review of selected consultant's reports issued over the past seven years, and input from the parties involved in the current litigation."[153]

The Receiver's responsibilities far exceed the limited Special Master role. In effect, ESD is similar to a distressed corporation that has retained a new CEO to take over, evaluate all components of the company's operations, and implement changes to chart a new, efficient, and successful course for the business. In doing so, the Receiver met with ESD employees and County officials to obtain a full understanding of the current state of affairs of the operation of the System, including actions taken since the Special Masters Report. Prior to the Receiver's appointment, ESD management had made progress towards implementing some of the recommendations of the Special Masters Report that were within ESD's control, and that progress has continued under the Receiver's direction.

[153] Special Masters Report at 1.

Shortly after appointment, the Receiver began the process of conducting a comprehensive review of System operations to identify areas where additional actions were needed for proper financial, administrative, and operational performance as well as where additional efficiencies could be achieved, and to formulate plans to implement changes and other best practices. This review and planning process was generally divided into two main areas: (1) operations and maintenance; and (2) capital investment. The following is a summary of the significant review and planning activities within those two areas.

A. Operations and Maintenance Budgeting and Review Process.

The Receiver implemented a review of System operations and maintenance ("O&M") activities to identify areas where operations were not being performed in accordance with regulations or industry best practices and to assess opportunities for savings to be implemented through improved operating and management efficiencies. The Receiver also directed and oversaw the preparation of a budget for future O&M costs over the next five years. O&M costs include all costs necessary to meet the System's service obligations. Major O&M cost items include salaries and benefits; materials cost; utilities expense; and contractual service costs. A summary of the O&M plan created as a result of this review process is included in the Appendix at A-14.

Due in part to the range of operational efficiencies implemented since the February 2009 Special Masters Report, total System O&M costs have been reduced and are projected to decrease further in the near term, from approximately $62.9 million in 2011, to approximately $58.4 million by 2013.[154] From 2013 forward, total O&M costs are projected to increase each year with inflation, nearly returning to the 2011 level of $62.9 million by 2016.[155] As a distressed utility, a number of necessary O&M best practices have not historically been performed within the System. These necessary practices are identified in the System's O&M plans with associated costs. These added costs have and will continue to offset some of the savings which are being achieved through management and operating efficiencies.

The following sections describe various components of the O&M review and planning process.

1. Personnel Plan.

In November 2010 the Receiver initiated a four-month review of System operations at the organization, division, and individual position levels to assess the System's core functions and determine the personnel needed to achieve those functions. This review primarily focused on treatment operations, the largest division from a staffing perspective. As part of this process, American Water was engaged to assess operations in the System's wastewater treatment plants and plant maintenance divisions, with particular focus on the Village Creek and Valley Creek wastewater treatment plants. American Water is the largest investor-owned water/wastewater utility in North America serving approximately 15 million people. American Water owns and operates approximately $11 billion in assets and operates over 1100 treatment plants. A copy of

[154] B&V Cost Allocation Study at 8, Table 3-1. The B&V Cost Allocation Study is discussed in more detail in Section VI *infra*.
[155] *Id.*

American Water's report is included in the Appendix at A-15. American Water was asked to make recommendations for plant operations staffing, implementation of best practices, training and development, and maximizing use of the Supervisory Control and Data Acquisition System ("SCADA"), the plants' existing automated system for monitoring and control over treatment plant operations.

Under the Receiver's direction, ESD used the results of the internal and American Water reviews to create a five-year personnel plan. Since the Special Masters Report, ESD had reduced staff by 50 employees, and the Personnel Plan identified an additional 86 employee positions that could be eliminated (from a total of 456 employees to 370 employees) by the end of the five-year period of the Personnel Plan, for a total reduction in System staff of 136 employees. Savings in personnel expenses associated with eliminating 86 positions will amount to $3.9 million per year by the end of the five-year period. The following is a summary of some of the Personnel Plan actions being implemented.

- Greater efficiencies will be achieved through a combination of internal reorganizations, increased use of contract services, and a greater reliance on technology.

- In the past, treatment plant operating philosophy has been very reliant on direct human observation and interaction, with limited reliance on SCADA. In order to achieve significant reductions in operating expenses, a large-scale plan is currently underway to increase reliance on SCADA and automated treatment plant processes.

- Projected staffing reductions at the treatment plants are the result of a change in philosophy for plant operations to ensure that plant staff are focused only on the core missions of monitoring and responding to daily operations. Non-routine and non-core functions such as grounds and building maintenance, painting, and non-routine heavy equipment maintenance (such as digester cleaning) will be outsourced via contracted services.

- Pump station personnel will be reduced by restructuring inspection routes, reductions in crew sizes, capital improvements to improve redundancy and reliability and increased reliance on remote electronic monitoring of pump stations.

- Equipment reliability will be improved through a combination of capital projects and more efficient internal maintenance to eliminate the time staff is currently required to spend monitoring unreliable or poorly designed systems.

Some identified challenges within the Personnel Plan include:

- County Personnel Board Rules: Over 90% of ESD personnel are merit system classified employees subject to the rules, regulations and jurisdiction of the Jefferson County Personnel Board, which regulates actions and rules for appointments, dismissals, suspensions, reductions-in-force, sick leave, leave of absence, resignation, promotion, demotions, transfer, salary adjustments, and other terms of employment.

- Classification and Compensation Levels: As a result of the Personnel Board Rules, ESD is severely limited in its ability to independently establish employee classification and compensation levels, to reward exceptional job performance, rapidly adjust to changing market conditions, and effectively attract qualified employees.

- Job Description, Discipline and Termination: Personnel Board job descriptions limit the ability of employees to perform a greater variety of tasks, and the employee disciplinary and termination process is highly structured and subject to multiple levels of employee appeals, which limits ESD's ability to promptly correct or remove under-performing employees, and may cause delays and or significant legal expenses to be incurred.

- Reductions in Force: Any reductions in force are strictly seniority-based, so staffing reductions contemplated by the Personnel Plan must be executed with little, if any, regard for employee performance, experience, or expertise.

- Outsourcing: Personnel Board rules also require approval of out-sourcing of current functions through contracting, which may prevent ESD from achieving the efficiencies contemplated in the Personnel Plan. The bid responses will determine whether the planned outsourcing is economically justified.

- Overtime: Planned reductions in staffing may increase the System's overtime expense.

- Capital Improvements: Staffing reductions that are dependent on capital improvements in instrumentation, automation, and processes may be delayed if the improvements are not funded and completed as planned.

2. *Review and Validation of the Accuracy of Billing and Collection Practices.*

One of the most fundamental requirements for an efficient, financially sustainable wastewater utility is the need for an accurate and reliable system for billing and collecting wastewater service fees. As noted in the Special Masters Report, ESD depends heavily upon BWWB, Bessemer Utilities ("Bessemer") and several other water utilities for various aspects of its billing and collections program. Upon assuming control of the System, the Receiver learned that ESD had never performed an audit or any other investigation to verify that the amounts billed and collected by BWWB, Bessemer and the other billing water providers were correct. One of the first things the Receiver did was to start the process of verifying these billed and collected amounts.

SAIC Energy, Environment & Infrastructure, LLC ("SAIC"), formerly R.W. Beck, was asked to perform a desk audit of ESD's sewer revenue reports, records, and data available from previous work. SAIC is an engineering company focused on providing design, construction, and operational advice to public and private infrastructure organizations, including utility providers.

Following receipt of the desk audit report, SAIC was requested to prepare a proposal to conduct a more detailed analysis of the integrity of the billing and collection procedures that generate the majority of the System revenues. On April 21, 2011, SAIC was authorized to proceed with its proposed detailed analysis. In addition to collecting various data, an initial series of interviews were planned. However, the interviews were delayed as a result of the tornado damage that occurred in the County and throughout Alabama.

Interviews were conducted during the week of May 16, 2011 with ESD personnel and representatives from BWWB and Bessemer. The interviews covered a number of issues with particular focus on the policies and practices each water utility follows to ensure all customers receiving wastewater services from the County are being properly billed for those services. The importance of this item, which was identified in the Special Masters Report, is exemplified by the fact that between May 2009 and November 2010, ESD personnel discovered 317 instances where wastewater service was being received, but bills were not generated to cover the service. The annual revenue associated with those accounts, which are now being billed, is approximately $3.15 million.

Other elements of the SAIC project involve the following:

- analysis of audit reports issued to BWWB and Bessemer with follow-up to identify any weaknesses in policies or practices that could impact ESD revenues;
- examination of internal controls within ESD;
- examination of a statistical sample of customer accounts to determine whether bills are being issued and calculated correctly; and
- review of water meter maintenance and testing policies and practices by each water utility to assess the accuracy of water usage data used to calculate wastewater service bills.

A report on the findings from the SAIC project is expected to be received during summer 2011. The findings from the project will be used to develop new or improved policies and procedures to improve the accuracy of the billing process and ensure that proper revenue is being received from our contract billing providers. In addition, a more efficient method for identifying customers who are receiving sewer service without being billed will be developed and implemented.

3. *Improving Customer Billing and Collection Practices.*

During interviews with BWWB and Bessemer, in conjunction with the SAIC review of billing and collection practices, it was learned that both utilities are planning to implement new billing systems within the next two to three years. BWWB has expressed a desire to discontinue billing for the County's wastewater service on its water bills.

The existing ESD billing system was developed internally using Common Business Oriented (COBOL) programming language and is administered on the County's mainframe system. The billing system is limited in its ability to accommodate additional customers, but is capable of being expanded to accommodate the number of customers now being billed by Bessemer. It is not capable of being expanded to accommodate all of the customers currently being billed by BWWB. Moreover, the County plans to replace its mainframe-based system in the next two years, which will require a new billing system. Therefore, a new billing system ~~must be procured and implemented as soon as~~ possible. While necessary, establishing a new billing system will involve an increase in System operating costs (that are not currently in the System's budget) as additional capital will be required to purchase and set-up the new system. Bringing the billing services in-house may, however, generate savings in reduced billing costs over the long term.

When ESD achieves the capability to issue bills to all of its own customers it will still need to maintain close working relationships with the water utilities that provide water service to ESD's customers. Water usage is the industry standard for calculating wastewater user fees, and will continue to be a significant basis for calculating ESD's bills for wastewater service, and all of the utilities will need to work together to assure customers receiving service are properly recorded as customers so that bills can be issued. Accordingly, agreements are now being developed to formalize provisions of service between water utilities and the ESD. The agreements will include improved provisions for terminating water service by the water utility upon notification from ESD that a customer is delinquent in paying its wastewater bill.

In the past, ESD's practice in responding to delinquent sewer accounts was to place a lien on the property, which must be paid in full before the property can be sold. Because the lien does not impact the owner's water or sewer service, this practice has done little to alleviate the costs to the System from delinquent accounts.[156] This is evident in the total costs to the System each year from delinquent and uncollectible accounts, which in recent years has averaged 3.5% of total System revenues.[157] These costs to the System are two and a half times larger than the industry standard for delinquent accounts. Current plans to contract with a professional collection agency may aid in reducing the current delinquent and uncollectible costs.

Recent legislative changes, however, may result in increased delinquent and uncollectible account costs. In 2008, the legislature passed and the public approved Amendment 818 to the State Constitution, which prevents the System from placing a lien on rental property occupied by a tenant. Amendment 818 states that in Jefferson County, "any bill for sewer service received in the name of the tenant or tenants shall be the sole responsibility of the tenant or tenants and shall not constitute a lien on the property where the sewer service was received." ALA. CONST. amend. 818. The impact of this legislation further hinders the System's collection of delinquent accounts, and makes the contract shut-off provisions with the billing water provider even more crucial.

4. Fleet Management Procurement

ESD currently relies on Jefferson County for the procurement, maintenance and replacement of its vehicles and rolling stock as well as for provision of gasoline and diesel fuel. The total cost of obtaining fleet management services from the County is difficult to identify due to the fragmented areas of responsibility and the County's historically poor cost allocation practices. However, there are better practices within the utility industry, which can lower the overall cost while improving efficiencies within ESD.

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156 Special Masters Report at 3.

157 B&V Cost Allocation Report at 9. This cost estimate is based upon an analysis of sewer billings versus collections in fiscal years 2009 and 2010. A detailed discussion of these costs is contained in Section VI *infra*.

The Receiver has initiated a process to solicit proposals for procurement of necessary vehicles and rolling stock as well as to implement best practices for fuel purchasing and distribution, vehicle maintenance and record-keeping. In addition, the program being bid will include controls to ensure the program is being used as intended.

The bid document is expected to be issued, and bids received, in summer 2011.

5. *Legal Expenses.*

Legal expenses for the System have been reduced in the near-term, but this remains a potential category for increased System costs in the future. Additional or protracted litigation in the future concerning the Receiver's planned rate increases or other activities could result in a significant increase in System legal expenses above budgeted levels. These potential increases, however, are not expected to rise to the historically high levels of legal expenses incurred by the System in past years.

6. *Review of Utility Expenses.*

The Receiver and ESD have implemented operational changes intended to improve energy efficiency in several of the System treatment processes. These changes have resulted in reduced projections for the System's total electricity cost, which is the largest category of System utility expenses. In addition, ESD has recently completed a waste gas energy recovery and process optimization study at the Village Creek treatment plant that identifies additional cost saving strategies for that facility. ESD has a contract in place for a similar project at the Valley Creek treatment plant. Preliminary estimates project the energy operating cost savings from these projects to increase to $1.6 million by the end of the five year period. Although additional efficiencies may be achieved through a more detailed analysis of operations in the future, additional savings may be offset by changes in utility prices.

7. *Maintenance Management Practices.*

The Receiver engaged American Water to conduct a review of ESD's maintenance management practices in the mechanical, electrical, and instrumentation (SCADA) disciplines associated primarily with the System's wastewater treatment plant maintenance division. The review identified certain maintenance activities that were either not being performed, or not being performed in accordance with best industry practices, and recommended a plan for improved maintenance and management of the wastewater assets.

The plan's goal is to establish effective maintenance management, which employs an organized, proactive, and reliability-focused strategy of condition monitoring and preventative and reactive maintenance in a combination that yields optimum asset and process performance, including safety and environmental protection, at maximum economic benefit. This proactive approach will reduce the total life cycle cost of equipment by saving money on equipment repairs and replacement, and will also improve reliability by reducing unplanned outages. American Water also provided a maintenance management training module to train System employees to establish foundational strategies for the maintenance management program.

American Water's assessment involved a tour of System facilities and a survey of System employees in order to assess System performance in several key maintenance activities and practices. The survey results indicated most System employees surveyed believed all activities and practices could be improved, with the lack of a formal training program listed as one of the highest priority issues (the County essentially cut all funding for training in 2008). As a result of the survey, a number of prioritized and targeted training and development objectives were created as a starting point for implementing a formal training program.

The survey also revealed a mostly reactive (break and fix) approach to maintenance activity, rather than the preferred reliability-focused approach. A number of asset condition monitoring and assessment programs were recommended to address this concern. Recommendations are now being implemented. Some of the more significant maintenance programs will require service agreements for standby generator preventative maintenance, switchgear inspection, protective relay testing programs, and transformer inspections and insulating oil analysis.

8. *Capitalized Labor.*

ESD has not capitalized internal labor expenses in the past, but instead expensed one hundred percent of internal labor as an operating cost. Under the terms of the Indenture, and according to Generally Accepted Accounting Principles ("GAAP"), costs related to the addition or replacement of property, plant, or equipment or improvement costs that result in the extension of an asset's useful life should be capitalized, whereas normal maintenance activities should be expensed to operations. Since appointment of the Receiver, ESD has created a formal capitalization policy and begun implementation. Systems have been developed to allow various divisions to capture and track individual work hours and expenditures related to capital improvement. This labor and expense data will be gathered through 2011, and will be used to develop the 2012 business plan when full implementation of the policy and financial adjustments will begin. Proper accounting of capitalized labor is consistent with utility industry best practices and will allow more expenses to be recovered from the System capital recovery account. Proper accounting of capitalized labor will, however, reduce the amount of capital funds.

9. *Allocated Costs from the County.*

As a division of the County, ESD has traditionally received in-kind services from the County. Allocation of these costs to ESD occurred periodically in the past. The in-kind services traditionally provided by the County to ESD are building space, finance and accounting services, risk management, human resources, legal services from the County attorney's offices, information technology (IT) services, and fleet management. As noted in other parts of this report, it is possible ESD could realize significant expense savings and operational advantages if many of these services are contracted out or performed internally by ESD.[158]

[158] Moreover, if the County transfers the assets of and responsibility for its wastewater system to an independent public corporation as part of a refinancing, that corporation will assume operational and financial responsibility for all in-kind services currently provided by the County. The potential benefits of an independent public corporation are discussed in more detail in Section VIII *infra*.

In an attempt to update the basis for its allocation of expenses among all County departments, the County recently commissioned and received a "Full Cost Allocation Plan" for FY2008 by MGT of America (the "MGT Allocation").

However, the MGT Allocation has some flaws. With little explanation, it assesses ESD approximately $8,000,000 for in-kind expenses provided in 2008. The County has asked the Receiver to accept this 2008 amount as the cost allocation for FY 2010. The County has provided no basis for the assumption that FY 2010 costs were equivalent to those incurred in FY 2008. Among other reasons, because of the 2008 meltdown of the County's finances, 2008 expenses are in no way indicative of actual 2010 ESD expenses. Moreover, the MGT Allocation improperly assesses costs to ESD for the County Commission department, even though ESD does not have a County Commissioner overseeing its functions; all ESD functions are directed by the Receiver. The Receiver has other concerns about the MGT Allocation and has declined to agree to the County's request or accept its proposed allocation. The Receiver will continue to work with the County towards a reasonable allocation for FY 2010 costs, as well as those incurred in FY 2011 and thereafter. For planning purposes, the Receiver has included the current $8 million allocation in the business plan, so resolution of this issue with County provides an opportunity for additional cost savings to the System.

B. Capital Improvement Plan.

The Receiver also directed the preparation of a System Capital Improvement Plan ("CIP"). A copy of the CIP is included in the Appendix at A-16. The purpose of the CIP is to provide a multi-year forecast of the capital investment required to provide an adequate level of systematic major repairs, replacements, and improvements necessary to maintain compliance with Consent Decree and NPDES requirements, to sustain the efficient and reliable operation of the System, and to provide meaningful data to be incorporated into ESD's financial and business planning process.[159] Prior to the County's 2008 default under the Indenture, ESD's projected total capital investment from 2009 to 2011 was approximately $70 million, or approximately $24 million per year. However, actual investment in the System since 2008 has totaled only $25 million (approximately $8 million per year), a historical low for the System in recent history.

There are generally two types of capital expenditures: maintenance capital expenditures ("Maintenance Capex") and project-based capital expenditures ("Project Capex"). Maintenance Capex refers to routine investment necessary to renew and replace existing assets and maintain the reliability and efficiency of the existing system; Project Capex refers to investment necessary to expand or improve the System to keep pace with growth or regulatory requirements. The CIP proposes to reverse the historic pattern of inadequate investment in the System. The level of Maintenance Capex is based on an average asset life for buried infrastructure of 100 years, reflecting an annual renewal rate for those assets of 1% per year.[160] Bringing the Maintenance Capex level to this annual renewal rate is appropriate given the condition of the System. However, that level of Maintenance Capex may not be sufficient to control sanitary sewer

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[159] In 2003, the County's consultant BE&K estimated that an additional $246 million (in 2003 dollars) would be needed to repair known defects in the System following termination of the Consent Decree. BE&K Report at 2-13. The BE&K Report is discussed in more detail in Section II.C.1 *supra*.

[160] American Water Works Association ("AWWA"), *Benchmarking Performance Indicators for Water and Wastewater Utilities: 2007 Annual Survey Data and Analyses Report.*

overflows ("SSOs") at a level to avoid all future regulatory enforcement actions and the need for additional capital investment. The Receiver will continue to monitor and adjust System plans as necessary to maximize regulatory compliance.

The CIP also includes an average of about $15 million per year in Project Capex, for a total annual capital investment of approximately $35 million per year for the next five years. Although the CIP is based on the best information currently available, future hydraulic modeling may identify the need for additional investment to address capacity issues. Due to the current financial demands on the System, the CIP is designed with the assumption that capital projects will be financed through the approximately $240 million in existing capital reserve funds. After exhaustion of those revenues, capital projects will be funded through System revenues, provided the current debt is refinanced.

The CIP consists of a near-term five-year plan and long-term ten-year plan. The five-year plan includes specific projects identified as necessary, with corresponding budget estimates, planned start and completion dates, and descriptions of work. The fifteen-year plan is divided into fifteen categories of work, with corresponding estimated annual costs for each category based on the known needs of the System together with EPA and state regulatory requirements, industry best practices, and industry benchmarks. The categories can be grouped into five classifications: Asset Management, Asset Renewal, Capacity Improvement, Expansion, and Regulatory Compliance.

The Regulatory Compliance category includes improvements and modifications necessary to meet the Alabama Department of Environmental Management ("ADEM") revised treatment standards for phosphorus levels in the Cahaba River watershed. ADEM has determined that phosphorus levels in discharges to the Cahaba should be reduced and has proposed that phosphorus discharge levels be decreased in three stages. The System will be able to achieve the phase one and two treatment levels through modifications to treatment processes and facilities that may cost the System up to $20 million. However, achieving the phase three treatment level of .043 parts per million will require approximately $150 million of improvements beginning around 2021. The CIP incorporates estimated costs for these improvements, but the Receiver is currently negotiating with ADEM to defer these improvements or narrow the scope of what will be required. If these negotiations are successful, additional cost savings in the current CIP may be achieved.

As previously discussed, despite the improvement plan to comply with the Consent Decree, the System continues to experience approximately 280 overflows per year, each potentially carrying a $1000 penalty.[161] The overflows are mostly maintenance-related and caused by blockages related to the accumulation of grease and sewer pipe collapses. In its work for the Receiver, Black and Veatch ("B&V")[162] estimated total System inflow and infiltration ("I&I") by comparing the total amount of adjusted metered water consumption for all System

[161] The overflow problems are also discussed in Section II.C.1 *supra*.

[162] B&V is a leading global engineering, consulting, and construction company with extensive experience in water, energy, and other utility infrastructure construction and consulting projects. B&V also has significant experience advising utilities and financial services companies on the financing and operational aspects of utilities and has advised numerous wastewater utilities and water providers on the establishment of rates. The Receiver engaged B&V to perform certain financial and rate analyses. Those analyses are discussed in Section VI, *infra*.

customers versus the total volume of water treated by the System's treatment plants. This comparison resulted in a finding that approximately 64% of the water treated by the System on an annual basis was due to I&I. Stated another way, 64% of the water treated by the System came from sources other than customer use (e.g., from ground water seeping into pipes, storm water leaking into manholes, illegal connections to sewer lines, etc.). By comparison, typical wastewater systems should only experience I&I of between 30-35%. The I&I experienced in the System greatly adds to the costs needed to treat the wastewater flowing through the System. The CIP is designed to address this significant I&I problem.

Other major elements in the five-year plan within the CIP center on the following categories and needs:

- cleaning and television inspection projects to determine existing conditions and reduce blockages;
- flow monitoring, modeling and engineering to identify existing and future condition and performance deficiencies;
- correction of known problems and failures (sanitary sewer overflow abatement, sewer replacement, facility repair, and pump station upgrade projects);
- optimization and automation projects and other improvements to improve reliability and reduce operating costs;
- regulatory compliance improvements;
- regular system reinvestment (capital equipment and rehabilitation, repair, replacement, and renewal projects); and
- expansions of the System when business case evaluations justify the investment.

The System currently has approximately $240 million in reserve funds available for capital expenditures. It is worth noting that, if a solution to the debt crisis is not found which provides for replenishment of the System's existing accounts, the System will run out of funds for capital expenditures, probably in 2016. Under the Indenture, System Revenues may not be used to fund capital expenditures until all debt service costs are paid. Therefore, rates would have to be increased to a level sufficient to cure all defaults and cover the significantly-increasing debt service costs. This is almost certainly not feasible.

The System would essentially have to discontinue its capital program or rely on funds from the County or State. If capital expenditures were eliminated or severely cut back, the System's assets would begin to deteriorate, which would likely result in public health and environmental problems. Moreover, the financial responsibility for complying with the Consent Decree and CWA would fall on the County and, possibly, the State.

C. The Receiver's Efforts to Work Towards a Negotiated Solution to the Sewer System Crisis.

The Receiver has held numerous meetings with various stakeholders, including business and community leaders, local elected officials and state legislators, various creditor groups, EPA officials, and others interested in finding a solution to the debt dilemma the System faces. One point is clear, and has been for some time – the best path to an ultimate solution is a negotiated settlement between the all the various creditors groups and the County.

The Receiver has also attempted to facilitate communications between the County and its various creditors groups and among the different creditor groups in an attempt to develop a mutually-agreeable strategy for a negotiated solution to the sewer debt default. There are four major creditors groups: (1) JPMorgan; (2) the bond insurers; (3) the Liquidity Banks; and (4) the pension funds, hedge funds, individuals, and other investors that hold the warrants, who are represented by the Trustee. All of the various members within these creditors groups have different levels of involvement in the County's past financing structures. Some of the individual creditors have been accused of wrongdoing, while others have not. Some of the individual creditors, including various bond insurers and Liquidity Banks, have agreed temporarily not to exercise the remedies they are entitled to under the County's agreements, and are currently in forbearance, while other creditors have yet to make such agreements. Each of the members of the various creditors groups has a different perspective and different priorities with regard to a potential negotiated solution.

The task of facilitating negotiations among and between the County and the various creditors groups has been and remains challenging, largely due to the long-standing adversarial relationship that exists between all parties as a result of the litigation associated with the County's default and the numerous on-going civil lawsuits between several of the parties.[163] In an attempt to enhance these relationships and open communication, members of the County Commission (David Carrington and Jimmie Stephens) and the Receiver traveled to New York during late January 2011 to meet with several of the major creditor groups – JPMorgan, the bond insurers and several of the Liquidity Banks. These meetings helped the parties understand the expectations of the County and each of the major creditor groups, although it is fair to say that they did not materially enhance prospects of a settlement.

Additionally, to help direct the financial negotiations towards a feasible solution, the Receiver worked with Citigroup Global Markets, Inc. ("Citi"), a leading municipal bond expert, to prepare financial analyses to assist the Receiver in determining the net sewer revenues required to satisfy a wide range of sewer debt levels.[164] In the analyses, Citi provided interest

[163] There are at least three significant and active pieces of litigation related to the System and its financing: (1) *Jefferson County, Alabama v. J.P. Morgan Securities, Inc., et al.*, Circuit Court of Jefferson County, Alabama, Case No. CV-2009-903641; (2) *Wilson, et al. v. J.P. Morgan Chase & Co., et al.*, Circuit Court of Jefferson County, Alabama, Case No. CV-2008-901907; and (3) *Syncora Guarantee, Inc. v. Jefferson County, Alabama, et al.*, Supreme Court of New York County, New York No. 601100/10.

[164] Citi performed the calculations set forth in this report upon the request of, and based on assumptions provided by, the Receiver. Citi received no fee or non-monetary compensation for such calculations and has not been engaged by the Receiver or the County in any capacity. Citi has not assumed a fiduciary responsibility with respect to the matters set forth in this report, and nothing in this report or in any prior relationship between Citi and either the Receiver or the County will be deemed to create an advisory, fiduciary or agency relationship between Citi and the

rate assumptions associated with funding the various levels of debt and all other assumptions and data were provided by others. The Receiver noticed that the two parties had reached an impasse: the County's primary concern was the level of revenue increases that would be required, while the creditors as a whole were focused on the amount of concessions they would need to make. In order to get the parties talking, more information was needed to present concrete solution alternatives. The updated O&M and capital improvement plans provided some of the concrete numbers needed as inputs for the possible solutions, but one missing piece was projected System revenues. Because the majority of System revenues are generated from volumetric rates, a usage and demand study was required to forecast the number of System customers and the expected usage in order to project future System revenues.[165] The Receiver engaged American Water to prepare this usage and demand study.

The O&M and capital improvement plans, together with projected System revenues from the demand and usage study, provided the inputs Citi needed to develop revenue requirements for various debt scenarios. The Receiver asked Citi to calculate total debt service costs (principal and interest payments, and debt coverage requirements), revenue requirements, and required revenue increase assuming a range of total debt levels were refinanced at estimated future market conditions. The range was intended to represent the range of possible debt levels the County would need to refinance following various potential levels of concessions by the creditor groups. The various debt levels the Receiver asked Citi to use ranged from the total current outstanding debt of approximately $3.158 billion, down to approximately $1.4 billion, the amount that would result in no significant rate increases, decreasing in approximately $200 million increments. Citi prepared a summary of its results, which is included in the Appendix at A-17.

The table below provides a simpler summary of the results of the various scenarios run by Citi:

Receiver or the County in respect of such matters.

[165] The usage and demand study is discussed in more detail in Section IV.B.1 *infra*.

Table 4 - Summary of Results of Citi Scenarios

Scenario	Revenue Increase[166]			Par Value of New Debt[167]	Available Net Proceeds[168]	Redemption Cost[169]	Funding Gap[170]
	2012	2013	2014				
1	3.0%	3.0%	3.0%	1,578,420	1,370,160	3,158,299	(1,788,138)
2	20.0%	3.0%	3.0%	1,600,144	1,406,132	3,158,299	(1,752,166)
3	20.0%	3.0%	3.0%	1,800,301	1,575,536	3,158,299	(1,582,763)
4	20.0%	3.6%	3.6%	2,001,856	1,747,501	3,158,299	(1,410,797)
5	20.0%	10.0%	10.0%	2,200,441	1,940,201	3,158,299	(1,218,098)
6	20.0%	18.7%	18.7%	2,401,043	2,137,513	3,158,299	(1,020,785)
7	23.7%	23.7%	23.7%	2,602,891	2,328,859	3,158,299	(829,440)
8	28.0%	28.0%	28.0%	2,801,430	2,514,686	3,158,299	(643,613)
9	32.2%	32.3%	32.3%	3,001,714	2,700,240	3,158,299	(458,058)
10	36.0%	36.3%	36.3%	3,201,036	2,884,126	3,158,299	(274,172)
11	42.1%	42.1%	42.1%	3,499,031	3,158,326	3,158,299	28

The results of the Citi scenarios showed that, due in part to market debt coverage requirements[171], almost any scenario would require a significant (20% or more) increase the first year, and the majority of the refinancing solutions would also require multiple year double-digit revenue increases in the following years.[172] The Citi scenarios also showed that refinancing the entire approximately $3.158 billion in outstanding debt would require multiple significant (more than 40%) annual revenue increases.

[166] All scenarios assume 3.0% rate increases annually from 2015 onwards for the full term of any newly-issued bonds.
[167] All dollar figures in 1,000s. The Par Value of New Debt represents the amount of new debt that will yield the Available Net Proceeds.
[168] The difference between the Par Value of New Debt and the Available Net Proceeds represent total issuance costs for each scenario.
[169] Redemption Cost is the total amount of debt currently outstanding.
[170] The Funding Gap is the difference between the amount of debt currently outstanding and the Available Net Proceeds resulting from the refinancing under each scenario. The Funding Gap represents the total amount of creditor concessions for each scenario, assuming that the County pays the issuance costs.
[171] Debt coverage requirement refers to the amount of cash the System will be required to maintain as security for repayment of the bonds.
[172] As discussed in more detail in Sections IV and V *infra*, because the Receiver cannot increase non-rate revenues, revenue increases must come from rates. Rate increases must be slightly larger than the stated revenue increase to achieve the desired result. For example, a 20% overall revenue increase is the equivalent of a 21.3% rate increase.

Although the Citi models had the intended effect of sparking negotiations, the negotiations ultimately did not make substantial progress towards a solution, due in part to additional factors which complicate the analysis. Some of those factors include:

- resolution of on-going litigation;
- market risk based on interest rate fluctuations and the marketability of high yield bonds;
- development and passage of legislation necessary to create an entity (independent public corporation) to refinance or restructure the negotiated debt level and possibly enhance sewer revenue; and
- the parties' inability to agree on a suitable structure for a settlement (the County has to date insisted on a restructuring of the debt while the various creditors are united in their insistence that the debt be refinanced).

The Receiver also worked to facilitate and support various pieces of legislation that would probably be necessary to refinance the sewer debt and remove barriers to the future efficient operation of the System.[173] The critical legislation involves creation of an Independent Public Corporation ("IPC") that would ultimately hold the System's assets, operate the System, and be obligated to pay the refinanced debt. The County has developed draft legislation for the IPC but it has not been presented to the legislature. The IPC would have independent board and governance documents to ensure its proper operation and funding. Discussions with legislators, politicians and community leaders have also focused on methods to mitigate future rate increases through mandating connection to the sewer system for homes in a reasonable proximity and the implementation of a clean water fee for residents across Jefferson County.

Unfortunately, it appears at this point that the County and its creditors agree that any negotiated solution, much less implementation of that solution, is still unlikely in the near future. The Receiver encourages the County, its various creditors groups, and all stakeholders to continue these negotiations and remains available to assist the parties in these negotiations in any manner they deem helpful.

In the final analysis, it is clear that although many things have changed since the Receiver's involvement as Special Master, many operational efficiencies have been implemented, and many more are planned, the most fundamental problem identified in the Special Masters Report remains – the System has insufficient sources and levels of revenue to meet its revenue requirements. This funding deficit cannot be corrected through cost cutting alone; System revenues must also increase. Currently, the only sources of additional revenue available to the Receiver are fees and rate increases. The amount and timing of inevitable future rate increases is dependent, in large part, on whether the parties can reach a negotiated solution to the current sewer debt crisis, and if so, what the terms of that negotiated solution will be.

As discussed in more detail in the following sections of this Report, the Receiver does not have the luxury of waiting until the parties reach a negotiated solution to take further action.

[173] A more detailed discussion of these barriers and potential legislative solutions is contained in Section VIII *infra*.

Despite the uncertainty surrounding many financial aspects of the System, the Receiver's reviews and analyses conducted since appointment confirm the need to immediately begin implementing a series of future rate increases to bring System revenues up to required levels. The following sections of this report explain the Receiver's analysis of the System's existing and projected future revenues and expenses, and outline the Receiver's plans going forward.

IV. The Receiver's Interim Findings.

In providing adequate wastewater service to its customers, a utility must receive sufficient total revenue to ensure proper operation and maintenance (O&M), development and perpetuation of the system, and preservation of the utility's financial integrity. The basic components in determining the overall revenue requirements of a utility include (1) O&M expenses, (2) debt-service payments and specified reserves, and (3) the cost of capital expenditures for routine replacement of existing facilities, normal annual extensions and improvements and major capital replacement and improvements. The Receiver has completed an exhaustive review of these components with regard to the System, and formulated a plan for actions necessary to meet the objective of establishing the System as a stable and efficient utility operation.

A. Past Rate Increases Were Insufficient to Adequately Fund the System.

Any business must generate sufficient revenues to meet its operational, capital, and debt service obligations. It is obvious the System does not currently generate sufficient revenues to meet its operational, maintenance, and appropriate debt service costs (nor has it for almost all of its 110 years of existence). Almost all of the current System revenues are generated from user rates and charges. The non-rate revenue sources, which include the annual sewer ad valorem tax, interest earnings, and miscellaneous permit fees, comprise only a small percentage of overall System revenues. Sewer user charges, the principal source of System revenues, have not been increased since 2008. There is no question that 2008 rate levels are insufficient to fund the System's costs for 2011 and beyond.

Prior to 2008, however, the County had already fallen behind and failed to implement sufficient rate increases to fully fund the financial needs of the System. As noted *supra* at Section II.B, the County's own financial consultants repeatedly made recommendations as to the minimum levels of rate increases necessary to meet the System's obligations. The County completely ignored or failed to fully implement those rate increases. Those decisions (and the financing decisions that preceded them) may have brought continued, short-term political popularity for the officials who made them (many of whom were convicted of crimes and went to jail), but they came at a huge price for the County, its ratepayers and, in fact, all its residents. Moreover, the supposed goal of those decisions – shielding residents from rate increases – was not accomplished. At best, rate increases were deferred. At worst, rate increases will now be larger than otherwise would have been necessary due to years of inattention to the System's maintenance, the County's sewer debt, years of contentious litigation, the appointment of a receiver, and the disintegration of the relationship between the County and its various creditors groups and the capital markets.

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B. The System's Revenues Are Declining.

Most of the System revenues are generated from the user charges customers pay. The System's sewer charges are primarily volumetric: customers pay a set amount based on the volume of water the customer uses.[174] Therefore, the total amount of revenue generated from user charges varies greatly depending on the amount of water usage.

In order to estimate the System revenues that will be generated under the existing rates, it was necessary to project anticipated customer numbers and usage, which is generally referred to as a demand or usage study. The Receiver engaged American Water to complete a customer and demand study for the System (the "Demand Study"). A copy of the American Water Demand Study report is included in the Appendix at A-18.

1. The Demand Study Results: Both Customer Numbers and Average Usage are Declining, Resulting in Declining Rate Revenues.

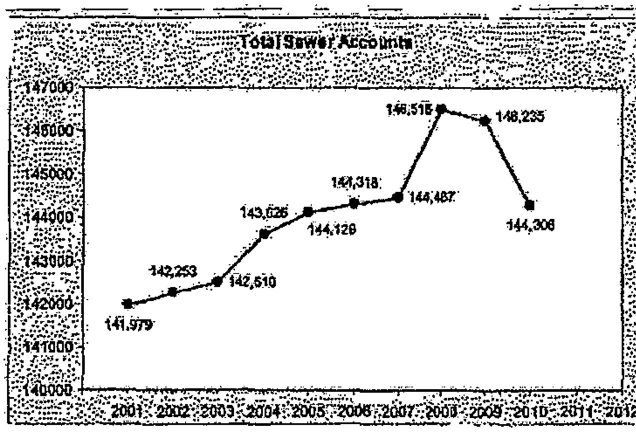
The purpose of the Demand Study was to forecast the number of customers to be served by the System, and their water use, over a 30-year planning period; in other words, the Demand Study is used to forecast future needs and revenues of the System. The reason for forecasting water use is that sewer customers are billed on the basis of their water usage, so water use by sewer customers rather than sewer demand is forecast.

National trends in per-account consumption and Jefferson County historic trends in water consumption were used as the basis for predicting future water consumption per System customer. Final projections of the number of customer accounts were based on the Regional Planning Commission of Greater Birmingham report on "Population, Housing & Employment Projections 2005 – 2035."

As shown in the graph below, from 2001 to 2010, the number of System sewer accounts increased from 141,979 in fiscal year 2001 to a peak of 146,235 accounts in fiscal year 2009, followed by a decline to 144,306 accounts for fiscal year 2010.[175]

[174] The volume of water usage is measured in units of 100 cubic feet, or Ccf. "C" stands for *centum*, or hundred. For water, one Ccf is the equivalent of approximately 748 gallons. Sewer bills for residential customers are calculated on 85% of total metered water usage; non-residential customers are billed using 100% of metered water usage.
[175] Demand Study Report, Table 1.

Figure 3 - Total Sewer Accounts 2001-2010



The recent drop in sewer accounts is primarily due to declining residential accounts, which is consistent with population and employment trends reported by the Regional Planning Commission of Greater Birmingham that indicate population in the core of the System's service area is decreasing due primarily to migration to areas outside the service area.[176]

As shown in the chart below, during the same 2001 to 2010 time period, usage within the System also declined. Total System demand dropped from 58.52 million gallons per day (mgd) in 2001 to 48.87 mgd in 2010, a decrease of 16.4%. This decrease was the result of the decline in both residential and non-residential usage per account.[177]

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[176] *Id.* at 2.
[177] *Id.*

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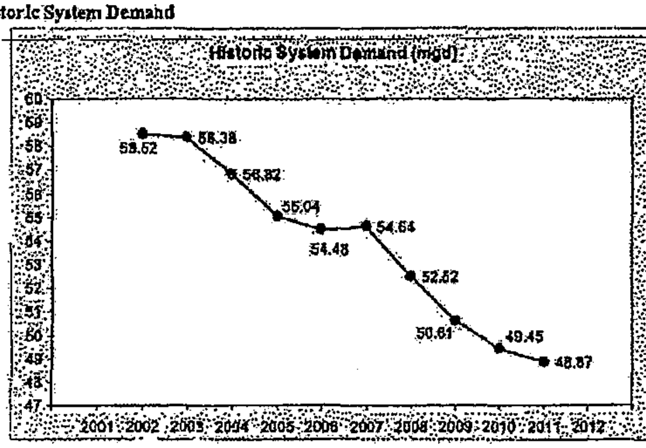
Figure 4 - Historic System Demand

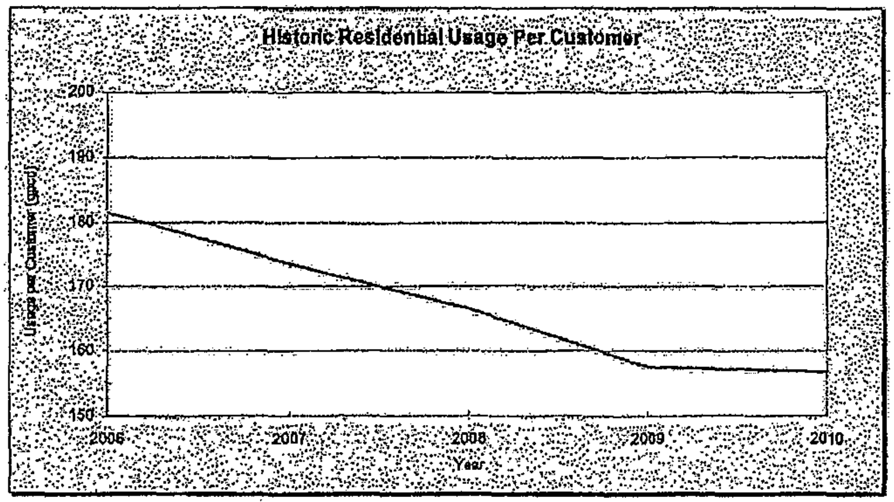


This decline in usage per customer is consistent with national trends. Residential customer demand fell more rapidly than the number of customers, indicating a decline in the usage per customer. From 2006 to 2010, usage per customer fell from 181 gallons per account per day (gpad) to 157 gpad, a total drop of 13.6% or an annual average drop of 3.4%. Factors that can influence water use per customer include population per housing unit, installation of water conserving devices, plumbing codes requiring water saving devices, size of lots, outdoor water use practices, water rates and water rate structures. The historical rate of decline experienced in the System is more rapid than that typically experienced for other systems in other parts of the country.

As shown on the chart below, from 2006 to 2010, average residential usage also declined from 181 gallons per day in 2006 to 156 gallons per day in 2010, a decline of 3.4%.[178]

[178] *Id.* at 15-16.

Figure 5 - Usage Per Account 2006-2010



To forecast future System demand, projections were developed for three scenarios of population growth and water usage. The scenarios are identified as "Low," "Base" and "High," and reflect the likely potential ranges of growth based on historic trends and planning forecast data.

The base growth scenario forecasts that the number of System residential customers will decrease by 1,036 accounts to 126,890 by 2020 and by 3,359 accounts to 124,567 by 2040. This decline in sewer accounts is demonstrated in the graph below:[179]

[179] Demand Study at 19.

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