

Wastewater System Rate Study

for

City of Columbia, Tennessee

March 2009

Project No. 49477



DRAFT



Wastewater System Rate Study

Prepared for

City of Columbia, Tennessee

March 2009

Project No. 49477

Prepared by

**Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri**

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March 3, 2009

Mr. Michael G. Anderson
Director, Wastewater Department
City of Columbia
1244 Treatment plant Road
Columbia, TN 38401

Re: Final Report on the Wastewater System Rate Study
City of Columbia, Tennessee - Project 49477

Dear Mr. Anderson:

Burns & McDonnell is pleased to submit our Final Report on the Wastewater System Rate Study prepared for the City of Columbia, Tennessee (City).

The results of our study are outlined in the following sections:

- Executive Summary - Provides an overview of the Financial Plan Analysis and Rate Design Analysis results.
- Introduction - Describes the need for the study and background information on the City's wastewater system.
- Financial Plan Analysis - Develops a ten-year financial plan based on revenue and expenditure projections to assess the adequacy of the existing schedule of water rates.
- Rate Design Analysis - Proposes a schedule of recommended water rates for implementation that will achieve the necessary revenues.

We appreciate the assistance provided by the management and staff of the City of Columbia, Tennessee in the completion of our project. We are pleased to be of service to the City in this study. If you have any comments or questions regarding the final report, please contact us.

Sincerely,

BURNS & MCDONNELL

Ted J. Kelly
Principal, Business & Technology Services

Enclosure

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

NEED FOR THE STUDY

The City of Columbia, Tennessee (City) has not had a wastewater rate increase since 1997. Since the last rate increase, operating costs have gone up due to inflation, system growth and expansion. In addition, the age of the system, along with normal wear and tear, has produced the need for routine improvements. During this same time period the Consumer Price Index has increased approximately forty percent. Personnel from the City Wastewater Department (Department) have identified capital improvements totaling approximately \$39.4 million over the projected horizon. These improvements will be required to maintain the wastewater system in good working order. The City and Department plan to fund the major system improvements by using a combination of revenues generated by rates and debt issuances. Major capital projects and added debt service will necessitate wastewater rate increases beginning in Fiscal Year (FY) 2009.

WASTEWATER SERVICE

The City currently provides wastewater service to the following customer classes:

- Residential
- Commercial
- Industrial
- Special Agreement
- Saturn

The current wastewater rate schedule is based on a customer charge/volume-charge rate structure. A minimum monthly charge applies to all customers. Customers are then charged per thousand gallons of water used during the month. Outside city customers are currently charged an increased customer charge; the volume charge is the same as for inside city customers.

PROJECT OBJECTIVES

The City retained the services of Burns & McDonnell to assist with an evaluation of the costs of providing wastewater service and development of a schedule of wastewater rates designed to meet the following overall objectives:

1. Generate adequate revenues to meet projected operating and capital costs, while maintaining sound financial performance.
2. Reflect the costs of providing wastewater service to customers of the City of Columbia.

3. Meet the wastewater system service policies and objectives of the City.

PROJECT APPROACH

To meet the project objectives identified by the City, Burns & McDonnell developed the study in a two-step approach. The steps are designed to address the following issues:

	<u>Project Approach</u>	<u>Issue</u>
1.	Financial Plan Analysis	Revenue Adequacy
2.	Rate Design Analysis	Revenue Recovery

FINANCIAL PLAN ANALYSIS OVERVIEW

The primary issue addressed in the Financial Plan Analysis is revenue adequacy. The results of the Financial Plan Analysis answer the questions:

- "Are the existing rates adequate?"
- "If not, what level of overall revenue increase is needed?"

To determine if the existing schedule of wastewater rates with the currently approved increases will generate adequate revenues to meet the Department's operating and capital costs, Burns & McDonnell prepared a ten-year financial plan projection of revenues and expenditures. A comparison of projected revenues and the projected utility expenditures identified the adequacy of overall revenue levels.

The Financial Plan Analysis steps included the following:

1. Project revenues under existing rates.
2. Project utility expenditures.
3. Develop ten-year financial plan.

The Financial Plan Analysis is detailed in Part II of this report.

TEN-YEAR FINANCIAL PLAN

The projection of revenues under existing rates and system expenditures are summarized in a cash flow analysis to assess the adequacy of revenues under existing rates to meet all operating and capital requirements. As necessary, the cash flow analysis identifies the overall increase in revenues needed, on an annual basis, to meet the Department's overall financial objectives.

Table ES-1 presents the proposed Ten-Year Financial Plan developed for the Department. This table shows how the Department plans to achieve the financial objectives described above. Tables ES-2 and ES-3 present alternate options for implementing revenue increases.

Table ES-1

PROJECTED CASH FLOW
Columbia, Tennessee Wastewater Department

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Line No. System Operations	Budget FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
1 Revenue from Wastewater Charges - Existing Rates	6,812,700	6,874,100	6,907,700	6,941,400	6,975,600	7,009,800	7,044,100	7,078,700	7,113,400	7,148,300
Proposed Revenue Increases:										
	<u>Year</u>	<u>Month</u>	<u>Month</u>	<u>Increase</u>						
2 FY 2009	1	July		9.00%						
3 FY 2010	1	July		9.00%						
4 FY 2011	1	July		3.00%						
5 FY 2012	1	July		3.00%						
6 FY 2013	1	July		3.00%						
7 FY 2014	1	July		3.00%						
8 FY 2015	1	July		2.00%						
9 FY 2016	1	July		2.00%						
10 FY 2017	1	July		2.00%						
11 Total Proposed Additional Revenues	0	618,700	1,299,300	1,553,000	1,816,800	2,090,900	2,375,500	2,576,400	2,782,900	2,995,500
12 Total Wastewater Charge Revenues	6,812,700	7,492,800	8,207,000	8,494,400	8,792,400	9,100,700	9,419,600	9,655,100	9,896,300	10,143,800
13 Other Operating Revenues	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
14 Total Revenues	6,912,700	7,592,800	8,307,000	8,594,400	8,892,400	9,200,700	9,519,600	9,755,100	9,996,300	10,243,800
15 Operation and Maintenance Expenses	3,861,900	3,987,400	4,117,000	4,250,800	4,389,000	4,531,600	4,678,900	4,830,900	4,987,900	5,150,100
16 Administration & General Expenses	330,200	340,900	352,000	363,500	375,300	387,500	400,100	413,100	426,500	440,300
17 Outstanding Debt Service	1,429,700	2,843,600	3,361,200	2,871,600	2,893,300	2,897,900	1,924,200	1,919,800	1,933,000	1,931,500
Proposed Debt Service:										
	<u>Year</u>	<u>Month</u>	<u>Amount</u>	<u>Interest</u>	<u>Term</u>					
18 FY 2011	1		\$6,000,000	5.40%	20					
19 FY 2014	1		\$2,000,000	5.40%	20					
20 Total Proposed Debt Service	0	0	0	497,900	497,900	497,900	497,900	497,900	497,900	497,900
21 Interest Earnings - Debt Service Reserve	0	0	0	(14,200)	(14,200)	(14,200)	(18,900)	(18,900)	(18,900)	(18,900)
22 Net Proposed Debt Service	0	0	0	483,700	483,700	483,700	645,000	645,000	645,000	645,000
23 Total Net Debt Service	1,429,700	2,843,600	3,361,200	3,355,300	3,377,000	3,381,600	2,569,200	2,564,800	2,578,000	2,576,500
24 Recurring Capital Improvements	223,500	257,500	333,500	297,500	302,500	315,500	325,000	334,800	344,800	355,100
25 Total Operating Expenses	5,845,300	7,429,400	8,163,700	8,267,100	8,443,800	8,616,200	7,973,200	8,143,600	8,337,200	8,522,000
26 Annual Operating Balance	1,067,400	163,400	143,300	327,300	448,600	584,500	1,546,400	1,611,500	1,659,100	1,721,800
27 Beginning Balance - Operating Fund	8,564,100	476,100	491,600	507,600	524,100	541,100	558,700	576,900	595,600	614,900
28 Funds from Annual Operating Balance	1,067,400	163,400	143,300	327,300	448,600	584,500	1,546,400	1,611,500	1,659,100	1,721,800
29 Transfer to Major Capital Improvement Financing	(9,155,400)	(147,900)	(127,300)	(310,800)	(431,600)	(566,900)	(1,528,200)	(1,592,800)	(1,639,800)	(1,701,800)
30 Ending Balance - Operating Funds	476,100	491,600	507,600	524,100	541,100	558,700	576,900	595,600	614,900	634,900
31 Minimum Operating Fund Balance	476,100	491,600	507,600	524,100	541,100	558,700	576,900	595,600	614,900	634,900
Capital Improvement Financing										
32 Beginning Balance - Capital Funds	12,000,000	17,730,400	2,992,300	221,200	4,211,100	2,453,200	799,100	2,066,500	1,449,800	890,700
33 Bond or Note Issue	0	0	0	6,000,000	0	0	2,000,000	0	0	0
34 Issuance Costs	0	0	0	(90,000)	0	0	(30,000)	0	0	0
35 Transfer of Operating Funds	9,155,400	147,900	127,300	310,800	431,600	566,900	1,528,200	1,592,800	1,639,800	1,701,800
36 Interest Earnings - Capital Funds	0	444,000	241,600	269,100	310,500	279,000	269,200	290,500	301,100	323,000
37 Total Available Capital Funds	21,155,400	18,322,300	3,361,200	6,711,100	4,953,200	3,299,100	4,566,500	3,949,800	3,390,700	2,915,500
38 Capital Improvements	3,425,000	15,330,000	3,140,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
39 Ending Balance - Capital Funds	17,730,400	2,992,300	221,200	4,211,100	2,453,200	799,100	2,066,500	1,449,800	890,700	415,500
Debt Service Coverage										
40 Net Operating Revenues Available for Debt Service	3,050,800	3,605,400	4,190,000	4,343,600	4,503,400	4,669,100	4,840,700	4,924,200	5,008,400	5,093,700
41 Annual Debt Service	1,429,700	2,843,600	3,361,200	3,369,500	3,391,200	3,395,800	2,588,100	2,583,700	2,596,900	2,595,400
42 Debt Service Coverage Based on Net Op Revenues	2.13	1.27	1.25	1.29	1.33	1.37	1.87	1.91	1.93	1.96

Table ES-2
Alternate Option 1
PROJECTED CASH FLOW
 Columbia, Tennessee Wastewater Department

Line No.		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Budget										
	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	
1	Revenue from Wastewater Charges - Existing Rates	6,812,700	6,874,100	6,907,700	6,941,400	6,975,600	7,009,800	7,044,100	7,078,700	7,113,400	7,148,300
	Proposed Revenue Increases:										
	<u>Year</u> <u>Month</u> <u>Month</u> <u>Increase</u>										
2	FY 2009 1 July 14.00%	962,400	967,100	971,800	976,600	981,400	986,200	991,000	995,900	1,000,800	
3	FY 2010 1 July 14.00%			1,102,500	1,107,800	1,113,300	1,124,200	1,129,800	1,135,300	1,140,900	
4	Total Proposed Additional Revenues	0	962,400	2,069,600	2,079,600	2,089,900	2,100,200	2,110,400	2,120,800	2,131,200	2,141,700
5	Total Wastewater Charge Revenues	6,812,700	7,836,500	8,977,300	9,021,000	9,065,500	9,110,000	9,154,500	9,199,500	9,244,600	9,290,000
6	Other Operating Revenues	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
7	Total Revenues	6,912,700	7,936,500	9,077,300	9,121,000	9,165,500	9,210,000	9,254,500	9,299,500	9,344,600	9,390,000
8	Operation and Maintenance Expenses	3,861,900	3,987,400	4,117,000	4,250,800	4,389,000	4,531,600	4,678,900	4,830,900	4,987,900	5,150,100
9	Administration & General Expenses	330,200	340,900	352,000	363,500	375,300	387,500	400,100	413,100	426,500	440,300
10	Outstanding Debt Service	1,429,700	2,843,600	3,361,200	2,871,600	2,893,300	2,897,900	1,924,200	1,919,800	1,933,000	1,931,500
	Proposed Debt Service:										
	<u>Year</u> <u>Month</u> <u>Amount</u> <u>Interest</u> <u>Term</u>										
11	FY 2011 1 \$6,000,000 5.40% 20				497,900	497,900	497,900	497,900	497,900	497,900	497,900
12	FY 2014 1 \$2,000,000 5.40% 20							166,000	166,000	166,000	166,000
13	Total Proposed Debt Service	0	0	0	497,900	497,900	497,900	663,900	663,900	663,900	663,900
14	Interest Earnings - Debt Service Reserve	0	0	0	(14,200)	(14,200)	(14,200)	(18,900)	(18,900)	(18,900)	(18,900)
15	Net Proposed Debt Service	0	0	0	483,700	483,700	483,700	645,000	645,000	645,000	645,000
16	Total Net Debt Service	1,429,700	2,843,600	3,361,200	3,355,300	3,377,000	3,381,600	2,569,200	2,564,800	2,578,000	2,576,500
17	Recurring Capital Improvements	223,500	257,500	333,500	297,500	302,500	315,500	325,000	334,800	344,800	355,100
18	Total Operating Expenses	5,845,300	7,429,400	8,163,700	8,267,100	8,443,800	8,616,200	7,973,200	8,143,600	8,337,200	8,522,000
19	Annual Operating Balance	1,067,400	507,100	913,600	853,900	721,700	593,800	1,281,300	1,155,900	1,007,400	868,000
20	Beginning Balance - Operating Fund	8,564,100	476,100	491,600	507,600	524,100	541,100	558,700	576,900	595,600	614,900
21	Funds from Annual Operating Balance	1,067,400	507,100	913,600	853,900	721,700	593,800	1,281,300	1,155,900	1,007,400	868,000
22	Transfer to Major Capital Improvement Financing	(9,155,400)	(491,600)	(897,600)	(837,400)	(704,700)	(576,200)	(1,263,100)	(1,137,200)	(988,100)	(848,000)
23	Ending Balance - Operating Funds	476,100	491,600	507,600	524,100	541,100	558,700	576,900	595,600	614,900	634,900
24	Minimum Operating Fund Balance	476,100	491,600	507,600	524,100	541,100	558,700	576,900	595,600	614,900	634,900
	<u>Capital Improvement Financing</u>										
25	Beginning Balance - Capital Funds	12,000,000	17,730,400	3,340,500	1,359,000	5,912,500	4,476,500	2,885,900	3,941,000	2,913,800	1,722,800
26	Bond or Note Issue	0	0	0	6,000,000	0	0	2,000,000	0	0	0
27	Issuance Costs	0	0	0	(90,000)	0	0	(30,000)	0	0	0
28	Transfer of Operating Funds	9,155,400	491,600	897,600	837,400	704,700	576,200	1,263,100	1,137,200	988,100	848,000
29	Interest Earnings - Capital Funds	0	448,500	260,900	306,100	359,300	333,200	322,000	335,600	320,900	323,000
30	Total Available Capital Funds	21,155,400	18,670,500	4,499,000	8,412,500	6,976,500	5,385,900	6,441,000	5,413,800	4,222,800	2,893,800
31	Capital Improvements	3,425,000	15,330,000	3,140,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
32	Ending Balance - Capital Funds	17,730,400	3,340,500	1,359,000	5,912,500	4,476,500	2,885,900	3,941,000	2,913,800	1,722,800	393,800
	<u>Debt Service Coverage</u>										
33	Net Operating Revenues Available for Debt Service	3,050,800	3,949,100	4,960,300	4,870,200	4,776,500	4,678,400	4,575,600	4,468,600	4,356,700	4,239,900
34	Annual Debt Service	1,429,700	2,843,600	3,361,200	3,369,500	3,391,200	3,395,800	2,588,100	2,583,700	2,596,900	2,595,400
35	Debt Service Coverage Based on Net Op Revenues	2.13	1.39	1.48	1.45	1.41	1.38	1.77	1.73	1.68	1.63

Table ES-3
Alternate Option 2
PROJECTED CASH FLOW
 Columbia, Tennessee Wastewater Department

Line	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
No. System Operations	Budget FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
1 Revenue from Wastewater Charges - Existing Rates	6,812,700	6,874,100	6,907,700	6,941,400	6,975,600	7,009,800	7,044,100	7,078,700	7,113,400	7,148,300
Proposed Revenue Increases:										
	<u>Year</u>	<u>Month</u>	<u>Month</u>	<u>Increase</u>						
2 FY 2009	1	July	10.00%							
3 FY 2010	1	July	10.00%							
4 FY 2011	1	July	10.00%							
5 Total Proposed Additional Revenues	0	687,400	1,450,700	2,297,600	2,309,000	2,320,300	2,331,600	2,343,100	2,354,500	2,366,000
6 Total Wastewater Charge Revenues	6,812,700	7,561,500	8,358,400	9,239,000	9,284,600	9,330,100	9,375,700	9,421,800	9,467,900	9,514,300
7 Other Operating Revenues	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
8 Total Revenues	6,912,700	7,661,500	8,458,400	9,339,000	9,384,600	9,430,100	9,475,700	9,521,800	9,567,900	9,614,300
9 Operation and Maintenance Expenses	3,861,900	3,987,400	4,117,000	4,250,800	4,389,000	4,531,600	4,678,900	4,830,900	4,987,900	5,150,100
10 Administration & General Expenses	330,200	340,900	352,000	363,500	375,300	387,500	400,100	413,100	426,500	440,300
11 Outstanding Debt Service	1,429,700	2,843,600	3,361,200	2,871,600	2,893,300	2,897,900	1,924,200	1,919,800	1,933,000	1,931,500
Proposed Debt Service:										
	<u>Year</u>	<u>Month</u>	<u>Amount</u>	<u>Interest</u>	<u>Term</u>					
12 FY 2011	1		\$6,000,000	5.40%	20					
13 FY 2014	1		\$2,000,000	5.40%	20					
14 Total Proposed Debt Service	0	0	0	497,900	497,900	497,900	497,900	497,900	497,900	497,900
15 Interest Earnings - Debt Service Reserve	0	0	0	(14,200)	(14,200)	(14,200)	(18,900)	(18,900)	(18,900)	(18,900)
16 Net Proposed Debt Service	0	0	0	483,700	483,700	483,700	645,000	645,000	645,000	645,000
17 Total Net Debt Service	1,429,700	2,843,600	3,361,200	3,355,300	3,377,000	3,381,600	2,569,200	2,564,800	2,578,000	2,576,500
18 Recurring Capital Improvements	223,500	257,500	333,500	297,500	302,500	315,500	325,000	334,800	344,800	355,100
19 Total Operating Expenses	5,845,300	7,429,400	8,163,700	8,267,100	8,443,800	8,616,200	7,973,200	8,143,600	8,337,200	8,522,000
20 Annual Operating Balance	1,067,400	232,100	294,700	1,071,900	940,800	813,900	1,502,500	1,378,200	1,230,700	1,092,300
21 Beginning Balance - Operating Fund	8,564,100	476,100	491,600	507,600	524,100	541,100	558,700	576,900	595,600	614,900
22 Funds from Annual Operating Balance	1,067,400	232,100	294,700	1,071,900	940,800	813,900	1,502,500	1,378,200	1,230,700	1,092,300
23 Transfer to Major Capital Improvement Financing	(9,155,400)	(216,600)	(278,700)	(1,055,400)	(923,800)	(796,300)	(1,484,300)	(1,359,500)	(1,211,400)	(1,072,300)
24 Ending Balance - Operating Funds	476,100	491,600	507,600	524,100	541,100	558,700	576,900	595,600	614,900	634,900
25 Minimum Operating Fund Balance	476,100	491,600	507,600	524,100	541,100	558,700	576,900	595,600	614,900	634,900
<u>Capital Improvement Financing</u>										
26 Beginning Balance - Capital Funds	12,000,000	17,730,400	3,061,900	446,000	5,196,200	3,963,000	2,581,400	3,852,000	3,047,000	2,085,100
27 Bond or Note Issue	0	0	0	6,000,000	0	0	2,000,000	0	0	0
28 Issuance Costs	0	0	0	(90,000)	0	0	(30,000)	0	0	0
29 Transfer of Operating Funds	9,155,400	216,600	278,700	1,055,400	923,800	796,300	1,484,300	1,359,500	1,211,400	1,072,300
30 Interest Earnings - Capital Funds	0	444,900	245,400	284,800	343,000	322,100	316,300	335,500	326,700	323,000
31 Total Available Capital Funds	21,155,400	18,391,900	3,586,000	7,696,200	6,463,000	5,081,400	6,352,000	5,547,000	4,585,100	3,480,400
32 Capital Improvements	3,425,000	15,330,000	3,140,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
33 Ending Balance - Capital Funds	17,730,400	3,061,900	446,000	5,196,200	3,963,000	2,581,400	3,852,000	3,047,000	2,085,100	980,400
<u>Debt Service Coverage</u>										
34 Net Operating Revenues Available for Debt Service	3,050,800	3,674,100	4,341,400	5,088,200	4,995,600	4,898,500	4,796,800	4,690,900	4,580,000	4,464,200
35 Annual Debt Service	1,429,700	2,843,600	3,361,200	3,369,500	3,391,200	3,395,800	2,588,100	2,583,700	2,596,900	2,595,400
36 Debt Service Coverage Based on Net Op Revenues	2.13	1.29	1.29	1.51	1.47	1.44	1.85	1.82	1.76	1.72

SYSTEM OPERATIONS FINANCING

Lines 2 through 11 of Table ES-1 present the proposed revenue increases required for financing the Department's operating and capital costs for the planning period. As noted in Table ES-1, a nine percent annual increase to rate levels is identified for the years FY 2009 and FY 2010 to enhance overall revenues. For the years FY 2011 through FY 2014, a three percent annual increase has been identified. For the remaining years of the planning period, FY 2015 through FY 2017, a two percent annual increase to rate levels has been identified. Burns & McDonnell recommends that the Department review its rates again within five years to evaluate conditions at that time.

Lines 2 through 4 of Table ES-2 present the proposed Alternate Option 1 revenue increases. Under

Alternate Option 1 for the years FY 2009 and FY 2010, a fourteen percent annual increase to rate levels is identified to enhance overall revenues. No additional adjustments are necessary for the planning period.

Lines 2 through 5 of Table ES-3 present the proposed Alternate Option 2 revenue increases. Under Alternate Option 2 for the years FY 2009 through FY 2011, a ten percent annual increase to rate levels is identified to enhance overall revenues. No additional adjustments are necessary for the planning period.

The overall revenue increases identified are necessary to meet the annual operating and capital costs without relying on existing available funds to cover annual operating deficits. With the revenue increases identified, the City can meet the following financial plan objectives.

- 1. Provide adequate funding for the capital improvement program:** The revenue bond issues, totaling \$6.0 million in FY 2011 and \$2.0 million in FY 2014, combined with current reserve funds, and a portion of revenues generated by rates will be adequate to fund the Department's schedule of capital improvements throughout the forecast period.
- 2. Meet all operating and capital requirements:** This criteria of meeting all annual operating and capital requirements was the driving force behind the need for the revenue increases proposed. Line 26 of Table ES-1 presents the annual operating balance, which is total revenues less all expenditures. As presented in Table ES-1, the annual operating balance is projected to remain positive throughout the forecast period. (Line 19 of Table ES-2 or Line 20 of Table ES-3.)
- 3. Meet all applicable debt service coverage requirements:** The debt service coverage calculations for the proposed revenue bond issues are shown in Lines 40 to 42 of Table ES-1. Based on revenues including proposed increases to maintain annual operations, the resulting debt service coverage ratios are more than adequate, ranging from a high of 2.13 times debt service to a low of 1.25 in the period of 2008 through 2017. (Lines 33 to 35 of Table ES-2 or Lines 34 to 36 of Table ES-3.)

RATE DESIGN ANALYSIS OVERVIEW

The Rate Design Analysis examines revenue recovery. Once the overall level of revenue increase is identified in the Financial Plan Analysis, the objective is to design a set of wastewater rates to achieve the following:

- Generate adequate revenues to meet the projected operating and capital costs, while maintaining sound financial performance.
- Reflect the costs of providing wastewater service.
- Meet the wastewater system service policies and objectives of the City and the Department.

The Rate Design Analysis is detailed in Part III of the report.

RATE DESIGN ANALYSIS RECOMMENDATIONS

The goal of the Rate Design Analysis was to design a set of wastewater rates to achieve the objectives described earlier in this section. The proposed rate schedule presented in Table ES-4 is scheduled for implementation effective July 1, 2009. Tables ES-5 and ES-6 present the proposed rate schedule under Alternate Option 1 and Alternate Option 2, respectively.

The recommendations included in the development of the proposed rate schedules are expected to generate adequate revenues for the ten-year plan, consistent with the Financial Plan Analysis results. Implementation of the proposed rates will provide the revenues determined to be necessary for the continued operation and maintenance of the wastewater system.

Table ES-4

PROPOSED WASTEWATER RATE SCHEDULE Columbia, Tennessee Wastewater Department

	<u>Minimum Bill/ Customer Charge</u> (\$)	<u>Volume Charge</u> (\$/1000 gallons)
Inside City	\$4.36	\$4.74
Outside City	\$7.63	\$4.74

Table ES-5

Alternate Option 1

PROPOSED WASTEWATER RATE SCHEDULE Columbia, Tennessee Wastewater Department

	<u>Minimum Bill/ Customer Charge</u> (\$)	<u>Volume Charge</u> (\$/1000 gallons)
Inside City	\$4.56	\$4.96
Outside City	\$7.98	\$4.96

Table ES-6
Alternate Option 2
PROPOSED WASTEWATER RATE SCHEDULE
 Columbia, Tennessee Wastewater Department

	<u>Minimum Bill/ Customer Charge</u> (\$)	<u>Volume Charge</u> (\$/1000 gallons)
Inside City	\$4.40	\$4.79
Outside City	\$7.70	\$4.79

In the preparation of this report, Burns & McDonnell used the information provided by the Department to make certain assumptions with respect to conditions that may exist in the future. While we believe the assumptions made are reasonable for the purposes of this report, we make no representation that the conditions assumed will occur. We have also relied on the information provided to us without independent verification and cannot guarantee its accuracy or completeness. Therefore, to the extent that actual future conditions differ from those assumed in this study or from the information provided to us, the actual results may vary from those projected.

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PART I - INTRODUCTION

PART I

INTRODUCTION

NEED FOR THE STUDY

The City of Columbia, Tennessee (City) has not had a wastewater rate increase since 1997. Since the last increase, operating costs have gone up due to inflation, system growth and expansion. In addition, the age of the system, along with normal wear and tear, has produced the need for routine improvements. During this same time period the Consumer Price Index has increased approximately forty percent. Personnel from the City Wastewater Department (Department) have identified capital improvements totaling approximately \$39.4 million over the projected horizon that will be required to maintain the wastewater system in good working order. The City and the Department plan to fund the major system improvements by using a combination of revenues generated by rates and debt issuances. Major capital projects and added debt service will necessitate wastewater rate increases beginning in Fiscal Year (FY) 2009.

WASTEWATER SERVICE

The City currently provides wastewater service to the following customer classes:

- Residential
- Commercial
- Industrial
- Special Agreement
- Saturn

The current wastewater rate schedule is based on a customer charge/volume-charge rate structure. A minimum monthly charge applies to all customers. Customers are then charged per thousand gallons of water used during the month. Outside city customers are currently charged an increased customer charge; the volume charge is the same as for inside city customers. The existing schedule of wastewater rates is presented in Table I-1.

Table I-1

EXISTING WASTEWATER RATE SCHEDULE
Columbia, Tennessee Wastewater Department

	<u>Minimum Bill/ Customer Charge</u> (\$)	<u>Volume Charge</u> (\$/1000 gallons)
Inside City	\$4.00	\$4.35
Outside City	\$7.00	\$4.35

PROJECT OBJECTIVES

The City retained the services of Burns & McDonnell to assist with an evaluation of the costs of providing wastewater service and development of a schedule of wastewater rates designed to meet the following overall objectives:

1. Generate adequate revenues to meet projected operating and capital costs, while maintaining sound financial performance.
2. Reflect the costs of providing wastewater service to customers of the City of Columbia.
3. Meet the wastewater system service policies and objectives of the City.

PROJECT APPROACH

To meet the project objectives identified by the City, Burns & McDonnell developed the study in a two-step approach. The steps are designed to address the following issues:

	<u>Project Approach</u>	<u>Issue</u>
1.	Financial Plan Analysis	Revenue Adequacy
2.	Rate Design Analysis	Revenue Recovery

As part of the Financial Plan Analysis, the primary issue is revenue adequacy. The results of the Financial Plan Analysis answer the questions:

- "Are the existing rates adequate?"
- "If not, what level of overall revenue increase is needed?"

The Financial Plan Analysis is detailed in Part II of this report.

The Rate Design Analysis examines revenue recovery. Once the overall level of revenue increase is identified, the objective is to design a set of wastewater rates reflecting these results. The Rate Design Analysis is detailed in Part III of this report.

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PART II - FINANCIAL PLAN ANALYSIS

PART II

FINANCIAL PLAN ANALYSIS

OVERVIEW

The primary issue addressed in the Financial Plan Analysis is revenue adequacy. The results of the Financial Plan Analysis answer the questions:

- "Are the existing rates adequate?"
- "If not, what level of overall revenue increase is needed?"

To determine if the existing schedule of wastewater rates with the currently approved increases will generate adequate revenues to meet the Department's operating and capital costs, Burns & McDonnell prepared a ten-year financial plan projection of revenues and expenditures. A comparison of projected revenues and the projected utility expenditures identified the adequacy of overall revenue levels.

The Financial Plan Analysis steps included the following:

4. Project revenues under existing rates.
5. Project utility expenditures.
6. Develop ten-year financial plan.

PLANNING PERIOD

A ten-year planning period covering the current FY 2008 Budget to FY 2017 was selected for the Financial Plan Analysis. The Department utilizes a twelve-month fiscal year beginning July 1 and ending June 30. The Financial Plan Analysis recognizes and references the same fiscal year in the ten-year planning period.

PROJECTED REVENUES UNDER EXISTING RATES

The first step in the Financial Plan Analysis was to project revenues under the existing schedule of rates. To complete this effort required an analysis of customers, volumes, and other revenues.

HISTORICAL AND PROJECTED CUSTOMERS

Table II-1 presents the historical wastewater customers served by the City from 2003 through 2007 and the projection of wastewater customers for the 2008 to 2017 planning period. For the historical period 2003 to 2007, the City added an average of 240 new wastewater customers per year. The projection of

wastewater customers assumes no growth in residential, commercial, and industrial customers, and holds the Saturn and special agreement customer classes constant from 2008 to 2017.

Table II-1

HISTORICAL AND PROJECTED WASTEWATER CUSTOMERS
Columbia, Tennessee Wastewater Department

(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>Fiscal Year</u>	<u>Residential</u>	<u>Commercial</u>	<u>Industrial</u>	<u>Special</u>	<u>Saturn</u>	<u>Total</u>
	<u>Historical</u>					
2003	10,716	1,554	12	2,987	1	15,270
2004	10,850	1,592	13	2,924	1	15,380
2005	11,063	1,771	13	2,898	1	15,746
2006	11,190	1,759	14	2,966	1	15,930
2007	11,402	1,774	12	3,057	1	16,246
	<u>Projected [1]</u>					
2008	11,573	1,801	12	3,057	1	16,444
2009	11,631	1,810	12	3,057	1	16,511
2010	11,631	1,810	12	3,057	1	16,511
2011	11,631	1,810	12	3,057	1	16,511
2012	11,631	1,810	12	3,057	1	16,511
2013	11,631	1,810	12	3,057	1	16,511
2014	11,631	1,810	12	3,057	1	16,511
2015	11,631	1,810	12	3,057	1	16,511
2016	11,631	1,810	12	3,057	1	16,511
2017	11,631	1,810	12	3,057	1	16,511

[1] Residential, Commercial, Industrial, Special, and Saturn customers' growth projected to remain constant throughout the forecast period.

HISTORICAL AND PROJECTED VOLUMES

Table II-2 presents the City's historical metered water volumes from 2003 through 2007 and the projection of metered water volumes for the 2008 to 2017 planning period. For the historical period 2003 to 2007, City annual metered water volumes decreased from 1,369,615 gallons to 1,335,048 gallons. This decrease mainly comes from the sharp decrease in the Saturn customer class over the years 2004 through 2007. The residential, commercial, and industrial classes all posted volume increase over the same historical period.

Table II-2

HISTORICAL AND PROJECTED WASTEWATER VOLUMES

Columbia, Tennessee Wastewater Department

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fiscal Year	<u>Residential</u> (gallons)	<u>Commercial</u> (gallons)	<u>Industrial</u> (gallons)	<u>Special</u> (gallons)	<u>Saturn</u> (gallons)	<u>Total</u> (gallons)
<u>Historical</u>						
2003	602,055	489,512	4,998	0	273,050	1,369,615
2004	602,674	495,492	4,649	0	282,645	1,385,460
2005	617,217	493,087	5,629	0	279,417	1,395,351
2006	612,458	478,734	6,513	0	276,879	1,374,583
2007	620,673	493,519	7,794	0	213,062	1,335,048
<u>Projected [1]</u>						
2008	634,900	498,000	6,800	0	246,200	1,385,900
2009	641,200	503,000	6,900	0	247,400	1,398,500
2010	644,400	505,500	6,900	0	248,700	1,405,500
2011	647,700	508,000	7,000	0	249,900	1,412,600
2012	650,900	510,500	7,000	0	251,200	1,419,600
2013	654,100	513,100	7,000	0	252,400	1,426,600
2014	657,400	515,700	7,100	0	253,700	1,433,900
2015	660,700	518,200	7,100	0	254,900	1,440,900
2016	664,000	520,800	7,100	0	256,200	1,448,100
2017	667,300	523,400	7,200	0	257,500	1,455,400

[1] Wastewater volume projected to increase by approximately 0.5 percent throughout the forecast period.

EXISTING SCHEDULE OF RATES

The current wastewater rate schedule, as shown in Table I-1, is based on a customer charge/volume-charge rate structure. A minimum monthly charge applies to all customers. Customers are then charged per thousand gallons of water used during the month. Outside city customers are currently charged an increased customer charge; the volume charge is the same as for inside city customers.

HISTORICAL AND PROJECTED REVENUES FROM WASTEWATER VOLUMES UNDER EXISTING RATES

Table II-3 presents the City's historical wastewater volume revenues under the existing schedule of rates from 2003 through 2007 and the projection of wastewater volume revenues under existing rates for the 2008 to 2017 planning period. The projection of wastewater volume revenues was estimated based on the previous projection of wastewater customers and volumes factored by the existing schedule of wastewater

rates. For the historical period 2003 to 2007, City wastewater volume revenues decreased slightly from \$6,674,644 in 2003 to \$6,574,273 in 2007. This overall decrease in revenues is once again attributed to the sharp decrease in volume over the past several years at the Saturn plant. Almost every other customer class has shown a modest increase in revenues. Overall, wastewater volume revenues under existing rates are projected to rise by about three-and-a-half percent in 2008, by approximately one percent for 2009, and by approximately half a percent from 2010 to 2017.

Table II-3

HISTORICAL AND PROJECTED REVENUES FROM WASTEWATER CHARGES UNDER EXISTING WASTEWATER RATES						
Columbia, Tennessee Wastewater Department						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
<u>Fiscal Year</u>	<u>Residential</u>	<u>Commercial</u>	<u>Industrial</u>	<u>Special</u>	<u>Saturn</u>	<u>Total</u>
<u>Historical</u>						
2003	3,106,533	2,169,750	22,334	137,434	1,238,593	6,674,644
2004	3,122,421	2,217,441	20,823	133,496	1,249,947	6,744,128
2005	3,195,997	2,196,459	25,111	133,283	1,219,072	6,769,922
2006	3,181,651	2,148,799	28,931	134,935	1,218,361	6,712,676
2007	3,222,800	2,208,900	33,700	137,100	971,773	6,574,273
<u>Projected [1]</u>						
2008	3,296,500	2,228,800	29,500	135,000	1,122,900	6,812,700
2009	3,329,600	2,251,200	29,800	135,000	1,128,500	6,874,100
2010	3,346,200	2,262,400	29,900	135,000	1,134,200	6,907,700
2011	3,362,900	2,273,700	30,000	135,000	1,139,800	6,941,400
2012	3,379,800	2,285,100	30,200	135,000	1,145,500	6,975,600
2013	3,396,700	2,296,500	30,400	135,000	1,151,200	7,009,800
2014	3,413,600	2,308,000	30,500	135,000	1,157,000	7,044,100
2015	3,430,700	2,319,500	30,700	135,000	1,162,800	7,078,700
2016	3,447,900	2,331,100	30,800	135,000	1,168,600	7,113,400
2017	3,465,100	2,342,800	31,000	135,000	1,174,400	7,148,300

[1] Projected revenue is based on projected customer and volume growth.

HISTORICAL AND PROJECTED OTHER REVENUES

Table II-4 presents the historical other revenues for the City during 2003 through 2007 and the projection of other revenues for the 2008 to 2017 planning period. Historically, these other revenues have ranged from \$78,274 to \$113,391 for a twelve-month period. The forecast of total other revenues is projected to remain constant at a level near the historical average throughout the forecast period.

Table II-4

HISTORICAL AND PROJECTED OTHER REVENUES

Columbia, Tennessee Wastewater Department

(1)	(2)
<u>Fiscal Year</u>	<u>Other Revenues</u>
<u>Historical</u>	
2005	78,274
2006	99,660
2007	113,391
<u>Projected</u>	
2008	100,000
2009	100,000
2010	100,000
2011	100,000
2012	100,000
2013	100,000
2014	100,000
2015	100,000
2016	100,000
2017	100,000

PROJECTED UTILITY EXPENDITURES

The City's expenditures that must be met from wastewater rates include the following operating and capital costs:

1. Operation and Maintenance (O&M) Expenses
2. Capital Improvement Program (CIP) Expenditures
3. Debt Service Principal and Interest Payments

HISTORICAL AND PROJECTED OPERATIONS & MAINTENANCE EXPENSES

Table II-5 presents the historical wastewater operations and maintenance expenses from 2005 through 2007 and the projection of wastewater system operations and maintenance expenses for the 2008 to 2017 planning period. Historical operations and maintenance expenses have ranged from \$4,058,103 in 2006 to \$5,692,002 in 2005. As presented in Table II-5, the City's operations and maintenance expenses are projected to increase approximately 3.25 percent annually throughout of the planning period.

Table II-5

HISTORICAL AND PROJECTED O&M EXPENSES

Columbia, Tennessee Wastewater Department

(1)	(2)	(3)	(4)
<u>Fiscal Year</u>	<u>Direct Costs & Expenses</u>	<u>Administration & General</u>	<u>Total</u>
<u>Historical</u>			
2005	5,364,152	327,850	5,692,002
2006	3,753,015	305,088	4,058,103
2007	3,740,303	319,778	4,060,081
<u>Projected [1]</u>			
2008	3,861,900	330,200	4,192,100
2009	3,987,400	340,900	4,328,300
2010	4,117,000	352,000	4,469,000
2011	4,250,800	363,500	4,614,300
2012	4,389,000	375,300	4,764,300
2013	4,531,600	387,500	4,919,100
2014	4,678,900	400,100	5,079,000
2015	4,830,900	413,100	5,244,000
2016	4,987,900	426,500	5,414,400
2017	5,150,100	440,300	5,590,400

[1] O&M Expenses are projected to increase at 3.25 percent throughout the forecast period.

PROJECTED CIP EXPENDITURES

Table II-6 presents the projected CIP expenditures identified for the wastewater system for the 2008 to 2017 planning period. Department personnel identified major capital improvements totaling approximately \$39.4 million over the planning period to maintain the wastewater system and serve growing areas. The previously approved level of rate increases will limit the projects that can be completed. These improvements are expected to be financed, in part, through system revenues generated by rates over the forecast period, and, in part, by issuing revenue bonds totaling \$6.0 million in FY 2011 and \$2.0 million in FY 2014.

Table II-6
PROJECTED MAJOR CAPITAL IMPROVEMENTS
 Columbia, Tennessee Wastewater Department

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Major Capital Improvements	Budget 2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
West Bigby Interceptor	970,000	0	0	0	0	0	0	0	0	0	970,000
East Hill Line Rehab-Phase IV	0	700,000	0	0	0	0	0	0	0	0	700,000
Pump Station Initiative	0	900,000	0	0	0	0	0	0	0	0	900,000
Alternative Power Supply Initiative	0	0	900,000	0	0	0	0	0	0	0	900,000
East Bigby Interceptor	0	500,000	0	0	0	0	0	0	0	0	500,000
Garden Street Utility Relocations	180,000	0	0	0	0	0	0	0	0	0	180,000
Hampshire Pike Utility Relocations	0	100,000	0	0	0	0	0	0	0	0	100,000
Stephens Bottom Station Replacement	0	0	240,000	0	0	0	0	0	0	0	240,000
Infrastructure/System Expansion	475,000	300,000	2,000,000	2,500,000	2,500,000	2,500,000	0	0	0	0	10,275,000
Greenlick Basin Improvements	250,000	6,000,000	0	0	0	0	0	0	0	0	6,250,000
Rutherford Basin Improvements	300,000	6,000,000	0	0	0	0	0	0	0	0	6,300,000
Pumpkin Creek Station Upgrade	630,000	0	0	0	0	0	0	0	0	0	630,000
Telemetry upgrades	100,000	150,000	0	0	0	0	0	0	0	0	250,000
Trotwood Bridge Replacement	20,000	180,000	0	0	0	0	0	0	0	0	200,000
Ridley Park Line Extension	0	0	0	0	0	0	0	0	0	0	0
Sulfide Corrosion Control/Repair	500,000	500,000	0	0	0	0	0	0	0	0	1,000,000
Other Capital Requirements	0	0	0	0	0	0	2,500,000	2,500,000	2,500,000	2,500,000	10,000,000
Total Major Capital Improvements [1]	3,425,000	15,330,000	3,140,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	39,395,000

[1] Total Major Capital Improvements projected to remain at \$2,500,000 from 2014 through 2017.

PROJECTED DEBT SERVICE REQUIREMENTS

Table II-7 presents the projected debt service requirements on the City's outstanding and proposed revenue bonds. The projections of proposed debt service payments for 2008 to 2017 are based on the City's plans to issue revenue bonds throughout the forecast period to partially fund the capital improvements identified in Table II-6. The annual debt service payments for the proposed bonds are based on the following parameters.

		<u>FY 2011</u>	<u>FY 2014</u>
• Total Bond Issue Amount	-	\$6,000,000	\$2,000,000
• Interest Rate	-	5.4 percent	5.4 percent
• Term	-	20 years	20 years
• Issuance Costs	-	1.5 percent	1.5 percent

Table II-7

OUTSTANDING & PROJECTED DEBT SERVICE Columbia, Tennessee Wastewater Department

(1)	(2)	(3)	(4)
<u>Fiscal Year</u>	<u>Outstanding Debt Service</u>	<u>Projected Debt Service</u>	<u>Total Debt Service</u>
2008	1,429,700	0	1,429,700
2009	2,843,600	0	2,843,600
2010	3,361,200	0	3,361,200
2011	2,871,600	497,900	3,369,500
2012	2,893,300	497,900	3,391,200
2013	2,897,900	497,900	3,395,800
2014	1,924,200	663,900	2,588,100
2015	1,919,800	663,900	2,583,700
2016	1,933,000	663,900	2,596,900
2017	1,931,500	663,900	2,595,400

TEN-YEAR FINANCIAL PLAN

The projection of revenues under existing rates and system expenditures are summarized in a cash flow analysis to assess the adequacy of revenues under existing rates to meet all operating and capital requirements. As necessary, the cash flow analysis identifies the overall increase in revenues needed, on an annual basis, to meet the City's overall financial objectives.

Table II-8 presents the proposed Ten-Year Financial Plan developed for the City. This table shows how the Department plans to achieve the financial objectives described earlier in the report. Tables II-9 (Alternate Option 1) and II-10 (Alternate Option 2) present options for implementing revenue increases.

As noted previously, the financial plan is based on the issuance of revenue bonds for capital improvement expenditures in FY 2011 and again in FY 2014. The revenue bond issues, net of issuance costs, combined with a portion of revenues generated by rates will be adequate to finance capital improvements during the planning period. The resulting annual debt service payments are estimated based on the parameters identified previously and are reflected in Table II-8 as expenditure to be met.

SYSTEM OPERATIONS FINANCING

Lines 2 through 11 of Table II-8 present the proposed revenue increases required for financing the Department's operating and capital costs for the planning period. As noted in Table II-8, a nine percent annual increase to rate levels to enhance revenues is identified for the years FY 2009 and FY 2010. For the years FY 2011 through FY 2014, a three percent annual increase to rate levels is identified. For the remaining years of the planning period, FY 2015 through FY 2017 a two percent annual increase to rate levels is identified. Burns & McDonnell recommends that the Department review rates again within five years to evaluate conditions at that time.

Lines 2 through 4 of Table II-9 present the proposed Alternate Option 1 revenue increases. Under Alternate Option 1 for the years FY 2009 and FY 2010, a fourteen percent annual increase to rate levels is identified to enhance overall revenues. No additional adjustments are necessary for the planning period.

Lines 2 through 5 of Table II-10 present the proposed Alternate Option 2 revenue increases. Under Alternate Option 2 for the years FY 2009 through FY 2011, a ten percent annual increase to rate levels is identified to enhance overall revenues. No additional adjustments are necessary for the planning period.

These overall revenue increases are necessary to meet the annual operating and capital costs without relying on existing available funds to cover annual operating deficits. With the revenue increases identified, the Department can meet the following financial plan objectives.

- 1. Provide adequate funding for the capital improvement program:** The revenue bond issues, totaling \$6,000,000 in FY 2011 and \$2,000,000 in FY 2014, combined with current reserve funds, and a portion of revenues generated by rates will be adequate to fund the Department's schedule of capital improvements throughout the forecast period.
- 2. Meet all operating and capital requirements:** This criterion of meeting all annual operating and capital requirements was the driving force behind the need for the revenue increases proposed. Line 26 of Table II-8 presents the annual operating balance, which is total revenues less all

expenditures. As presented in Table II-8, the annual operating balance is projected to remain positive throughout the forecast period. (Line 19 of Table II-9 or Line 20 of Table II-10.)

3. **Meet all applicable debt service coverage requirements:** The debt service coverage calculations for the proposed revenue bond issues are shown in Lines 40 to 42 of Table II-8. Based on revenues including proposed increases to maintain annual operations, the resulting debt service coverage ratios are more than adequate, ranging from a high of 2.13 times debt service to a low of 1.25 in the period of 2008 through 2017. (Lines 33 to 35 of Table II-9 or Lines 34 to 36 of Table II-10.)

Table II-8
PROJECTED CASH FLOW
Columbia, Tennessee Wastewater Department

Line No.		(1) Budget FY 2008	(2) FY 2009	(3) FY 2010	(4) FY 2011	(5) FY 2012	(6) FY 2013	(7) FY 2014	(8) FY 2015	(9) FY 2016	(10) FY 2017
1	Revenue from Wastewater Charges - Existing Rates	6,812,700	6,874,100	6,907,700	6,941,400	6,975,600	7,009,800	7,044,100	7,078,700	7,113,400	7,148,300
	Proposed Revenue Increases:										
	Year Month Month Increase										
2	FY 2009 1 July 9.00%		618,700	621,700	624,700	627,800	630,900	634,000	637,100	640,200	643,300
3	FY 2010 1 July 9.00%			677,600	680,900	684,300	687,700	691,000	694,400	697,800	701,200
4	FY 2011 1 July 3.00%				247,400	248,600	249,900	251,100	252,300	253,500	254,800
5	FY 2012 1 July 3.00%					256,100	257,300	258,600	259,900	261,100	262,400
6	FY 2013 1 July 3.00%						265,100	266,400	267,700	269,000	270,300
7	FY 2014 1 July 3.00%							274,400	275,700	277,100	278,400
8	FY 2015 1 July 2.00%								189,300	190,200	191,200
9	FY 2016 1 July 2.00%									194,000	195,000
10	FY 2017 1 July 2.00%										198,900
11	Total Proposed Additional Revenues	0	618,700	1,299,300	1,553,000	1,816,800	2,090,900	2,375,500	2,576,400	2,782,900	2,995,500
12	Total Wastewater Charge Revenues	6,812,700	7,492,800	8,207,000	8,494,400	8,792,400	9,100,700	9,419,600	9,655,100	9,896,300	10,143,800
13	Other Operating Revenues	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
14	Total Revenues	6,912,700	7,592,800	8,307,000	8,594,400	8,892,400	9,200,700	9,519,600	9,755,100	9,996,300	10,243,800
15	Operation and Maintenance Expenses	3,861,900	3,987,400	4,117,000	4,250,800	4,389,000	4,531,600	4,678,900	4,830,900	4,987,900	5,150,100
16	Administration & General Expenses	330,200	340,900	352,000	363,500	375,300	387,500	400,100	413,100	426,500	440,300
17	Outstanding Debt Service	1,429,700	2,843,600	3,361,200	2,871,600	2,893,300	2,897,900	1,924,200	1,919,800	1,933,000	1,931,500
	Proposed Debt Service:										
	Year Month Amount Interest Term										
18	FY 2011 1 \$6,000,000 5.40% 20				497,900	497,900	497,900	497,900	497,900	497,900	497,900
19	FY 2014 1 \$2,000,000 5.40% 20						166,000	166,000	166,000	166,000	166,000
20	Total Proposed Debt Service	0	0	0	497,900	497,900	497,900	663,900	663,900	663,900	663,900
21	Interest Earnings - Debt Service Reserve	0	0	0	(14,200)	(14,200)	(14,200)	(18,900)	(18,900)	(18,900)	(18,900)
22	Net Proposed Debt Service	0	0	0	483,700	483,700	483,700	645,000	645,000	645,000	645,000
23	Total Net Debt Service	1,429,700	2,843,600	3,361,200	3,355,300	3,377,000	3,381,600	2,569,200	2,564,800	2,578,000	2,576,500
24	Recurring Capital Improvements	223,500	257,500	333,500	297,500	302,500	315,500	325,000	334,800	344,800	355,100
25	Total Operating Expenses	5,845,300	7,429,400	8,163,700	8,267,100	8,443,800	8,616,200	7,973,200	8,143,600	8,337,200	8,522,000
26	Annual Operating Balance	1,067,400	163,400	143,300	327,300	448,600	584,500	1,546,400	1,611,500	1,659,100	1,721,800
27	Beginning Balance - Operating Fund	8,564,100	476,100	491,600	507,600	524,100	541,100	558,700	576,900	595,600	614,900
28	Funds from Annual Operating Balance	1,067,400	163,400	143,300	327,300	448,600	584,500	1,546,400	1,611,500	1,659,100	1,721,800
29	Transfer to Major Capital Improvement Financing	(9,155,400)	(147,900)	(127,300)	(310,800)	(431,600)	(566,900)	(1,528,200)	(1,592,800)	(1,639,800)	(1,701,800)
30	Ending Balance - Operating Funds	476,100	491,600	507,600	524,100	541,100	558,700	576,900	595,600	614,900	634,900
31	Minimum Operating Fund Balance	476,100	491,600	507,600	524,100	541,100	558,700	576,900	595,600	614,900	634,900
	Capital Improvement Financing										
32	Beginning Balance - Capital Funds	12,000,000	17,730,400	2,992,300	221,200	4,211,100	2,453,200	799,100	2,066,500	1,449,800	890,700
33	Bond or Note Issue	0	0	0	6,000,000	0	0	2,000,000	0	0	0
34	Issuance Costs	0	0	0	(90,000)	0	0	(30,000)	0	0	0
35	Transfer of Operating Funds	9,155,400	147,900	127,300	310,800	431,600	566,900	1,528,200	1,592,800	1,639,800	1,701,800
36	Interest Earnings - Capital Funds	0	444,000	241,600	269,100	310,500	279,000	269,200	290,500	301,100	323,000
37	Total Available Capital Funds	21,155,400	18,322,300	3,361,200	6,711,100	4,953,200	3,299,100	4,566,500	3,949,800	3,390,700	2,915,500
38	Capital Improvements	3,425,000	15,330,000	3,140,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
39	Ending Balance - Capital Funds	17,730,400	2,992,300	221,200	4,211,100	2,453,200	799,100	2,066,500	1,449,800	890,700	415,500
	Debt Service Coverage										
40	Net Operating Revenues Available for Debt Service	3,050,800	3,605,400	4,190,000	4,343,600	4,503,400	4,669,100	4,840,700	4,924,200	5,008,400	5,093,700
41	Annual Debt Service	1,429,700	2,843,600	3,361,200	3,369,500	3,391,200	3,395,800	2,588,100	2,583,700	2,596,900	2,595,400
42	Debt Service Coverage Based on Net Op Revenues	2.13	1.27	1.25	1.29	1.33	1.37	1.87	1.91	1.93	1.96

Table II-9
Alternate Option 1
PROJECTED CASH FLOW
 Columbia, Tennessee Wastewater Department

Line		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
No.	System Operations	Budget FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
1	Revenue from Wastewater Charges - Existing Rates	6,812,700	6,874,100	6,907,700	6,941,400	6,975,600	7,009,800	7,044,100	7,078,700	7,113,400	7,148,300
	Proposed Revenue Increases:										
	<u>Year</u> <u>Month</u> <u>Month</u> <u>Increase</u>										
2	FY 2009 1 July 14.00%		962,400	967,100	971,800	976,600	981,400	986,200	991,000	995,900	1,000,800
3	FY 2010 1 July 14.00%			1,102,500	1,107,800	1,113,300	1,118,800	1,124,200	1,129,800	1,135,300	1,140,900
4	Total Proposed Additional Revenues	0	962,400	2,069,600	2,079,600	2,089,900	2,100,200	2,110,400	2,120,800	2,131,200	2,141,700
5	Total Wastewater Charge Revenues	6,812,700	7,836,500	8,977,300	9,021,000	9,065,500	9,110,000	9,154,500	9,199,500	9,244,600	9,290,000
6	Other Operating Revenues	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
7	Total Revenues	6,912,700	7,936,500	9,077,300	9,121,000	9,165,500	9,210,000	9,254,500	9,299,500	9,344,600	9,390,000
8	Operation and Maintenance Expenses	3,861,900	3,987,400	4,117,000	4,250,800	4,389,000	4,531,600	4,678,900	4,830,900	4,987,900	5,150,100
9	Administration & General Expenses	330,200	340,900	352,000	363,500	375,300	387,500	400,100	413,100	426,500	440,300
10	Outstanding Debt Service	1,429,700	2,843,600	3,361,200	2,871,600	2,893,300	2,897,900	1,924,200	1,919,800	1,933,000	1,931,500
	Proposed Debt Service:										
	<u>Year</u> <u>Month</u> <u>Amount</u> <u>Interest</u> <u>Term</u>										
11	FY 2011 1 \$6,000,000 5.40% 20				497,900	497,900	497,900	497,900	497,900	497,900	497,900
12	FY 2014 1 \$2,000,000 5.40% 20							166,000	166,000	166,000	166,000
13	Total Proposed Debt Service	0	0	0	497,900	497,900	497,900	663,900	663,900	663,900	663,900
14	Interest Earnings - Debt Service Reserve	0	0	0	(14,200)	(14,200)	(14,200)	(18,900)	(18,900)	(18,900)	(18,900)
15	Net Proposed Debt Service	0	0	0	483,700	483,700	483,700	645,000	645,000	645,000	645,000
16	Total Net Debt Service	1,429,700	2,843,600	3,361,200	3,355,300	3,377,000	3,381,600	2,569,200	2,564,800	2,578,000	2,576,500
17	Recurring Capital Improvements	223,500	257,500	333,500	297,500	302,500	315,500	325,000	334,800	344,800	355,100
18	Total Operating Expenses	5,845,300	7,429,400	8,163,700	8,267,100	8,443,800	8,616,200	7,973,200	8,143,600	8,337,200	8,522,000
19	Annual Operating Balance	1,067,400	507,100	913,600	853,900	721,700	593,800	1,281,300	1,155,900	1,007,400	868,000
20	Beginning Balance - Operating Fund	8,564,100	476,100	491,600	507,600	524,100	541,100	558,700	576,900	595,600	614,900
21	Funds from Annual Operating Balance	1,067,400	507,100	913,600	853,900	721,700	593,800	1,281,300	1,155,900	1,007,400	868,000
22	Transfer to Major Capital Improvement Financing	(9,155,400)	(491,600)	(897,600)	(837,400)	(704,700)	(576,200)	(1,263,100)	(1,137,200)	(988,100)	(848,000)
23	Ending Balance - Operating Funds	476,100	491,600	507,600	524,100	541,100	558,700	576,900	595,600	614,900	634,900
24	Minimum Operating Fund Balance	476,100	491,600	507,600	524,100	541,100	558,700	576,900	595,600	614,900	634,900
	<u>Capital Improvement Financing</u>										
25	Beginning Balance - Capital Funds	12,000,000	17,730,400	3,340,500	1,359,000	5,912,500	4,476,500	2,885,900	3,941,000	2,913,800	1,722,800
26	Bond or Note Issue	0	0	0	6,000,000	0	0	2,000,000	0	0	0
27	Issuance Costs	0	0	0	(90,000)	0	0	(30,000)	0	0	0
28	Transfer of Operating Funds	9,155,400	491,600	897,600	837,400	704,700	576,200	1,263,100	1,137,200	988,100	848,000
29	Interest Earnings - Capital Funds	0	448,500	260,900	306,100	359,300	333,200	322,000	335,600	320,900	323,000
30	Total Available Capital Funds	21,155,400	18,670,500	4,499,000	8,412,500	6,976,500	5,385,900	6,441,000	5,413,800	4,222,800	2,893,800
31	Capital Improvements	3,425,000	15,330,000	3,140,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
32	Ending Balance - Capital Funds	17,730,400	3,340,500	1,359,000	5,912,500	4,476,500	2,885,900	3,941,000	2,913,800	1,722,800	393,800
	<u>Debt Service Coverage</u>										
33	Net Operating Revenues Available for Debt Service	3,050,800	3,949,100	4,960,300	4,870,200	4,776,500	4,678,400	4,575,600	4,468,600	4,356,700	4,239,900
34	Annual Debt Service	1,429,700	2,843,600	3,361,200	3,369,500	3,391,200	3,395,800	2,588,100	2,583,700	2,596,900	2,595,400
35	Debt Service Coverage Based on Net Op Revenues	2.13	1.39	1.48	1.45	1.41	1.38	1.77	1.73	1.68	1.63

Table II-10
Alternate Option 2
PROJECTED CASH FLOW
 Columbia, Tennessee Wastewater Department

Line No.		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Budget										
	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	
1	Revenue from Wastewater Charges - Existing Rates	6,812,700	6,874,100	6,907,700	6,941,400	6,975,600	7,009,800	7,044,100	7,078,700	7,113,400	7,148,300
	Proposed Revenue Increases:										
	Year Month Month Increase										
2	FY 2009 1 July 10.00%		687,400	690,800	694,100	697,600	701,000	704,400	707,900	711,300	714,800
3	FY 2010 1 July 10.00%			759,900	763,600	767,300	771,100	774,900	778,700	782,500	786,300
4	FY 2011 1 July 10.00%				839,900	844,100	848,200	852,300	856,500	860,700	864,900
5	Total Proposed Additional Revenues	0	687,400	1,450,700	2,297,600	2,309,000	2,320,300	2,331,600	2,343,100	2,354,500	2,366,000
6	Total Wastewater Charge Revenues	6,812,700	7,561,500	8,358,400	9,239,000	9,284,600	9,330,100	9,375,700	9,421,800	9,467,900	9,514,300
7	Other Operating Revenues	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
8	Total Revenues	6,912,700	7,661,500	8,458,400	9,339,000	9,384,600	9,430,100	9,475,700	9,521,800	9,567,900	9,614,300
9	Operation and Maintenance Expenses	3,861,900	3,987,400	4,117,000	4,250,800	4,389,000	4,531,600	4,678,900	4,830,900	4,987,900	5,150,100
10	Administration & General Expenses	330,200	340,900	352,000	363,500	375,300	387,500	400,100	413,100	426,500	440,300
11	Outstanding Debt Service	1,429,700	2,843,600	3,361,200	2,871,600	2,893,300	2,897,900	1,924,200	1,919,800	1,933,000	1,931,500
	Proposed Debt Service:										
	Year Month Amount Interest Term										
12	FY 2011 1 \$6,000,000 5.40% 20				497,900	497,900	497,900	497,900	497,900	497,900	497,900
13	FY 2014 1 \$2,000,000 5.40% 20						166,000	166,000	166,000	166,000	166,000
14	Total Proposed Debt Service	0	0	0	497,900	497,900	497,900	663,900	663,900	663,900	663,900
15	Interest Earnings - Debt Service Reserve	0	0	0	(14,200)	(14,200)	(14,200)	(18,900)	(18,900)	(18,900)	(18,900)
16	Net Proposed Debt Service	0	0	0	483,700	483,700	483,700	645,000	645,000	645,000	645,000
17	Total Net Debt Service	1,429,700	2,843,600	3,361,200	3,355,300	3,377,000	3,381,600	2,569,200	2,564,800	2,578,000	2,576,500
18	Recurring Capital Improvements	223,500	257,500	333,500	297,500	302,500	315,500	325,000	334,800	344,800	355,100
19	Total Operating Expenses	5,845,300	7,429,400	8,163,700	8,267,100	8,443,800	8,616,200	7,973,200	8,143,600	8,337,200	8,522,000
20	Annual Operating Balance	1,067,400	232,100	294,700	1,071,900	940,800	813,900	1,502,500	1,378,200	1,230,700	1,092,300
21	Beginning Balance - Operating Fund	8,564,100	476,100	491,600	507,600	524,100	541,100	558,700	576,900	595,600	614,900
22	Funds from Annual Operating Balance	1,067,400	232,100	294,700	1,071,900	940,800	813,900	1,502,500	1,378,200	1,230,700	1,092,300
23	Transfer to Major Capital Improvement Financing	(9,155,400)	(216,600)	(278,700)	(1,055,400)	(923,800)	(796,300)	(1,484,300)	(1,359,500)	(1,211,400)	(1,072,300)
24	Ending Balance - Operating Funds	476,100	491,600	507,600	524,100	541,100	558,700	576,900	595,600	614,900	634,900
25	Minimum Operating Fund Balance	476,100	491,600	507,600	524,100	541,100	558,700	576,900	595,600	614,900	634,900
	Capital Improvement Financing										
26	Beginning Balance - Capital Funds	12,000,000	17,730,400	3,061,900	446,000	5,196,200	3,963,000	2,581,400	3,852,000	3,047,000	2,085,100
27	Bond or Note Issue	0	0	0	6,000,000	0	0	2,000,000	0	0	0
28	Issuance Costs	0	0	0	(90,000)	0	0	(30,000)	0	0	0
29	Transfer of Operating Funds	9,155,400	216,600	278,700	1,055,400	923,800	796,300	1,484,300	1,359,500	1,211,400	1,072,300
30	Interest Earnings - Capital Funds	0	444,900	245,400	284,800	343,000	322,100	316,300	335,500	326,700	323,000
31	Total Available Capital Funds	21,155,400	18,391,900	3,586,000	7,696,200	6,463,000	5,081,400	6,352,000	5,547,000	4,585,100	3,480,400
32	Capital Improvements	3,425,000	15,330,000	3,140,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
33	Ending Balance - Capital Funds	17,730,400	3,061,900	446,000	5,196,200	3,963,000	2,581,400	3,852,000	3,047,000	2,085,100	980,400
	Debt Service Coverage										
34	Net Operating Revenues Available for Debt Service	3,050,800	3,674,100	4,341,400	5,088,200	4,995,600	4,898,500	4,796,800	4,690,900	4,580,000	4,464,200
35	Annual Debt Service	1,429,700	2,843,600	3,361,200	3,369,500	3,391,200	3,395,800	2,588,100	2,583,700	2,596,900	2,595,400
36	Debt Service Coverage Based on Net Op Revenues	2.13	1.29	1.29	1.51	1.47	1.44	1.85	1.82	1.76	1.72

FINANCIAL PLAN ANALYSIS RESULTS

The overall revenue increases that will be implemented are necessary to meet the annual operating and capital costs. With the annual revenue increases proposed and additional revenue bond issues, the City and the Department can meet the financial plan objectives identified through 2017.

NET REVENUE REQUIREMENTS

Table II-11 summarizes the development of the net revenue requirements to be recovered from wastewater rates in the 2009 test year. The net revenue requirements represent the level of costs that must be recovered from volume usage under the established wastewater rate schedule and are equal to total operating and capital cost expenditures less all sources of other revenue. As presented in Table II-11, the

net operating costs allocated to wastewater are equal to \$4,228,300 and the net capital costs are equal to \$3,264,500. These costs equal a total net revenue requirement of \$7,492,800. This is nine percent higher than revenues under existing rates, which is consistent with the revenue increased identified in the Financial Plan Analysis for FY 2009. If Alternate Option 1 or Alternate Option 2 is preferred by the City, a revised net revenue requirements table can be prepared.

Table II-11

**DEVELOPMENT OF TEST PERIOD WASTEWATER UTILITY
NET REVENUE REQUIREMENTS**
Columbia, Tennessee Wastewater Department

Line No.	<u>Operating Costs</u>	<u>Cash Basis</u>
1	Operation and Maintenance Expenses	4,328,300
2	Less: Other Operating Revenues	(100,000)
3	Net Operating Costs	<u>4,228,300</u>
	<u>Capital Costs</u>	
4	Net Debt Service	2,843,600
5	Recurring Capital Improvements	257,500
6	Source (Use) of Available Funds [1]	<u>163,400</u>
7	Net Capital Costs	3,264,500
8	Net Revenue Requirements to be Recovered from Wastewater Rates	7,492,800
9	Revenue from Wastewater Charges - Existing Rates	6,874,100
10	Percentage Increase Required	9.00%

[1] Equal to annual balance from operations less transfer to major capital improvement funding.

DRAFT

PART III - RATE DESIGN ANALYSIS

PART III

RATE DESIGN ANALYSIS

OVERVIEW

The Rate Design Analysis examines revenue recovery. Once the overall level of revenue increase is identified in the Financial Plan Analysis, the objective is to design a set of wastewater rates to achieve the following:

- Generate adequate revenues to meet the projected operating and capital costs, while maintaining sound financial performance.
- Reflect the costs of providing wastewater service.
- Meet the wastewater system service policies and objectives of the City.

EXISTING WASTEWATER RATE SCHEDULE

The current wastewater rate schedule is based on a customer charge/volume-charge rate structure. A minimum monthly charge applies to all customers. Customers are then charged per thousand gallons of water used during the month. Outside city customers are currently charged an increased customer charge; the volume charge is the same as for inside city customers.

PROPOSED RATE SCHEDULE

Table III-1 presents the scheduled wastewater rate schedule with changes beginning July 1, 2009. The proposed rates maintain the same rate schedule structure. Burns & McDonnell recommends an increase of nine percent, across the board, to both the customer charge and the volume charge.

Table III-1

PROPOSED WASTEWATER RATE SCHEDULE

Columbia, Tennessee Wastewater Department

	<u>Minimum Bill/ Customer Charge</u> (\$)	<u>Volume Charge</u> (\$/1000 gallons)
Inside City	\$4.36	\$4.74
Outside City	\$7.63	\$4.74

Table III-2
Alternate Option 1
PROPOSED WASTEWATER RATE SCHEDULE
 Columbia, Tennessee Wastewater Department

	<u>Minimum Bill/ Customer Charge</u> (\$)	<u>Volume Charge</u> (\$/1000 gallons)
Inside City	\$4.56	\$4.96
Outside City	\$7.98	\$4.96

Table III-3
Alternate Option 2
PROPOSED WASTEWATER RATE SCHEDULE
 Columbia, Tennessee Wastewater Department

	<u>Minimum Bill/ Customer Charge</u> (\$)	<u>Volume Charge</u> (\$/1000 gallons)
Inside City	\$4.40	\$4.79
Outside City	\$7.70	\$4.79

RATE DESIGN ANALYSIS RECOMMENDATIONS

The goal of the Rate Design Analysis was to design a set of wastewater rates to achieve the objectives described earlier in this section. The proposed rate schedule presented in Table III-1 is scheduled for implementation effective July 1, 2009. Tables III-2 and III-3 present proposed rate schedules for Alternate Option 1 and Alternate Option 2, respectively.

The recommendations included in the development of the proposed rate schedules are expected to generate adequate revenues for the ten-year plan, consistent with the Financial Plan Analysis results. Implementation of the proposed rates will provide the revenues determined to be necessary for the continued operation and maintenance of the wastewater system.