

City of Oak Ridge, Tennessee



Lamar Dunn & Associates, Inc.
3305 Maloney Road
Knoxville, TN 37920
Phone: (865) 573-7672/Fax: (865) 573-1352
www.ldassoc.com

City Council Meeting
January 9, 2012

City Owned Water and Wastewater Infrastructure

- Y-12 Water Treatment Plant
- K-25 Water Treatment Plant
- Turtle Park Wastewater Treatment Plant
- Rarity Ridge Wastewater Treatment Plant
- Water Distribution System East of Horizon Center
- Wastewater Collection System East of Horizon Center
- Water Distribution System Horizon Center Westward
- Wastewater Collection System Horizon Center Westward

EPA Order

- Completed to Date:
 - Submitted to EPA a list of all overflows during previous two years of order
 - Submitted a Capacity Assessment Plan
 - Submitted a Sewer System Evaluation Work Plan
 - Submitted a Sanitary Sewer Overflow Response Plan
 - Submitted Management, Operation, And Maintenance (MOM) Program
 - Purchased the software for an Information Management System
 - Submitted Pump Station Operation Programs
 - Submitted Pump Station Preventative Maintenance Programs
 - Submitted four Quarterly Reports
 - Close-circuit television inspections of sewer collection system under the order
 - Smoke tested the sewers in the collection system under the order
 - Inspection all manholes in the collection system under the order
 - Developed a Geographical Information System of the sewers under the order
 - Retained the services of a Program Manager to assist the City Staff
 - Selected five design firms to design needed sewer system upgrades
 - Awarded two construction contracts for upgrading sewers in the Emory Valley Sewer Shed
 - Completed design of two pumping stations and a sewer replacement

Department of Energy as a Customer

- City sells raw (untreated) water for flow augmentation of Poplar Creek
- City sells treated water to Y-12 and ORNL under contract pricing
- City transports and treats wastewater from the Y-12 Complex
- City provides water and wastewater services to ETPP
- Projected water sales to Y-12 and ORNL

Year	Y-12 Potable Water	ORNL Potable Water	Raw Water
FY 2011	963,419,000	890,477,000	999,465,000
FY 2012	961,000,000	1,003,757,000	800,000,000
FY 2013	942,000,000	1,003,757,000	700,000,000

- Y-12/ORNL contract expires June 30, 2012
- K-25 (Westend) contract expires in 2013
- Wastewater flows from Y-12 contribute to overflows in the City Sewer System

	2005	2006	2007	2008	2009	2010	2011
January	22,652,000	20,937,000	20,793,000	20,859,000	22,769,000	21,373,000	14,641,000
February	20,307,000	17,382,000	17,514,000	20,751,000	18,232,000	22,892,000	14,263,000
March	19,086,000	18,570,000	17,511,000	22,662,000	23,739,000	21,825,000	19,932,000
April	19,926,000	20,900,000	17,558,000	20,988,000	18,200,000	17,960,000	17,510,000
May	18,373,000	17,828,000	15,141,000	17,853,000	18,591,000	18,412,000	12,416,000
June	15,945,000	15,389,000	11,268,000	16,821,000	17,081,000	21,781,000	14,680,000
July	20,319,000	16,250,000	16,276,000	20,082,000	15,725,000	24,164,000	13,122,000
August	15,766,000	18,172,000	16,800,000	18,104,000	15,838,000	18,651,000	11,622,000
September	14,332,000	17,669,000	16,466,000	18,821,000	14,095,000	17,159,000	15,888,000
October	13,951,360	18,107,000	17,469,000	18,484,000	17,269,000	12,594,000	11,826,000
November	17,869,000	18,722,000	18,656,000	17,592,000	15,945,000	16,232,000	
December	19,863,000	16,428,000	19,768,000	25,092,000	21,773,000	15,974,000	
TOTAL:	218,389,360	216,354,000	205,220,000	238,109,000	219,257,000	229,017,000	

Projected Water System Capital Needs

FISCAL YEAR	FY'12	FY'13	FY'14	FY'15
Treatment				
Plant Electrical	500,000	1,500,000	1,500,000	500,000
Raw Water Booster		2,000,000	1,000,000	
Plant Architecture	350,000	250,000	250,000	
Chemical Feed Bldg	400,000	250,000		
Capital Maintenance	500,000	500,000	500,000	500,000
Intake Y-12		250,000	500,000	1,000,000
Sub-Total Treatment	1,750,000	4,750,000	3,750,000	2,000,000
Distribution				
Tank Painting	80,000	80,000	80,000	80,000
Fire Hydrants	160,000	160,000	160,000	170,000
Meters	75,000	75,000	75,000	75,000
Capital Maintenance	100,000	100,000	100,000	100,000
Main Rehabilitation		255,000	1,100,000	260,000
K-25 Water Treatment Plant	250,000	250,000	250,000	250,000
Booster Station Upgrades	100,000	100,000	100,000	100,000
Sub-Total Distribution	765,000	1,020,000	1,865,000	1,035,000
Equipment				
Backhoe	10,000			
Hydraulic Excavator	300,000			
Sub-Total Equipment	310,000			
Total Expected Capital Needs	2,825,000	5,770,000	5,615,000	3,035,000

Projected Wastewater Capital Needs

FISCAL YEAR	FY'12	FY'13	FY'14	FY'15
Equipment (Pumping Stations)				
Stand By Pumps	100,000			
By-Pass Piping	175,000			
Portable Generators	100,000			
Control Panels	325,000	325,000		
SCADA Equipment		156,000		
Sub-Total Equipment Pumping Stations	700,000	481,000		
IMS	275,000			
Equipment (Sewer Crews)	381,000			
Professional & Technical Services				
Program Management	90,000	180,000	180,000	180,000
GIS		90,000	90,000	90,000
Bidding Services	60,000	120,000	120,000	120,000
Construction Related RPR & CA	270,000	400,000	500,000	500,000
Sewer Cleaning and CCTV	1,000,000			
Sub-Total Professional & Technical Services	1,420,000	790,000	890,000	890,000
Construction (Sewer Shed)				
Emory Valley	2,300,000			
East Plant	500,000	2,000,000	2,000,000	500,000
Central City		500,000	1,000,000	1,000,000
Y-12		500,000	1,000,000	1,000,000
Turtle Park			500,000	2,000,000
Sub-Total Construction (Sewer Shed)	2,800,000	3,000,000	4,500,000	4,500,000
Construction Pumping Stations	100,000	1,000,000	500,000	500,000
Total Projected Capital Needs	5,676,000	5,271,000	5,890,000	5,890,000

Rate Structure Philosophy

In selecting a type of structure, several factors should be considered which would include, but not necessarily be limited to, the following:

- a. Level of current and future cost
- b. Projected consumption patterns
- c. Legal and regulatory issues
- d. Simplicity
- e. Avoiding discrimination
- f. Discouraging wasteful use
- g. Predictable revenue

General Used Types:

- Flat rate
- Declining block rate (current Oak Ridge rate structure)
- Increasing block rate
- Seasonal rates

Concept of Availability of Service

- The City is expected to provide instantaneous adequate flow rates as desired by customers
- Adequately sized infrastructure is required by the City whether the flow is actually used regularly
- Customers have meters which are sized on the expected flow demand
- Following table shows the relationship between a normal residential meter (5/8") and larger meters used by commercial and industrial customers

Meter Size (in)	Area (in. sq.)	Equivalent Size
5/8	0.306640625	1
3/4	0.4415625	1.44
1	0.785	2.56
1 1/2	1.76625	5.76
2	3.14	10.24
3	7.065	23.04
4	12.56	40.96

Projected Operating and Capital Needs

- Water

Fiscal Year	Operating Cost	Capital Needs	Total
2012	\$8,695,341	\$2,825,000	\$11,520,341
2013	\$8,895,079	\$5,770,000	\$14,665,079
2014	\$9,080,722	\$5,615,000	\$14,695,722
2015	\$9,277,311	\$3,035,000	\$12,312,311

- Wastewater

Fiscal Year	Operating Cost	Capital Needs	Total
2012	\$8,396,402	\$5,676,000	\$14,072,402
2013	\$8,530,620	\$5,271,000	\$13,801,620
2014	\$8,650,110	\$5,890,000	\$14,540,110
2015	\$8,713,691	\$5,890,000	\$14,603,691

Conclusions and Recommendations

Conclusions

- The water and wastewater systems have major capital needs
- DOE (Y-12 and ORNL) are a significant customers
- DOE contract for Y-12/ORNL expires mid-2012
- DOE contract for Westend expires mid-2013
- These two contracts have major impact on revenue
- Current rate structure will not sustain required operations

Recommendations

- Adopt a modified flat rate structure
- Consider a water connection fee for a new residential customer of \$1,000.00
- Consider a wastewater connection fee for a new residential customers of \$1,200.00
- Connection fees to escalate in accordance with meter size
- Consider a “turn-off/turn-on” fee due to the large turnover due to rental property

Comparison of New Proposed Rates to Neighbors

Water:

Utility	2,000 Gallons	5,000 Gallons
Alcoa	\$11.40	\$21.60
Harriman	\$18.44	\$38.06
Kingston	\$14.48	\$32.24
Knoxville	\$11.15	\$21.75
Lenoir City	\$12.58	\$27.70
Maynardville	\$18.18	\$37.95
Oak Ridge (proposed)	\$12.00	\$34.05
Hallsdale-Powell Utility District	\$23.89	\$46.18
Tellico Area Services System	\$15.42	\$26.73
Watts Bar Utility District	\$20.75	\$42.80
Cumberland Utility District	\$17.04	\$44.64
Anderson County Water Authority	\$19.76	\$37.86

Wastewater:

Utility	2,000 gallons	5,000 gallons
Harriman	\$27.78	\$59.37
Knoxville	\$23.43	\$55.91
Lenoir City	\$21.24	\$46.80
Rockwood	\$22.74	\$44.27
Oak Ridge (proposed)	\$18.50	\$41.75
Hallsdale-Powell Utility District	\$27.11	\$48.89
Tellico Area Service System	\$20.00	\$37.79
West Knox Utility District	\$23.61	\$35.13