



CONSULTING GROUP

A Defined Benefit  
Actuarial Valuation

For:

**Knox County Employee Benefit System  
Knox County Board of Education  
Retirement Plan**

As of:

**January 1, 2013**

Prepared by:  
The USI Consulting Group



CONSULTING GROUP

April 3, 2013

CONFIDENTIAL

Ms. Kim Bennett  
Executive Director  
Knox County Retirement and Pension Board  
City-County Bldg, Room 371  
400 Main Street  
Knoxville, TN 37902-2409

**RE: KNOX COUNTY BOARD OF EDUCATION RETIREMENT PLAN**

Dear Kim:

We are pleased to present our Actuarial Valuation Report for the Plan Year beginning January 1, 2013. A summary of the principal results of the report is provided for your convenience on pages one through three. Details supporting the cost calculations are also included, as well as other information designed to assist you and your accountants in preparing your reports.

The suggested employer contribution for the fiscal year is \$1,726,537 calculated as payable on July 1, 2013.

We would be happy to answer any questions you may have regarding this report.

Sincerely,

USI CONSULTING GROUP

Bob Cross, ASA, MAAA, FCA  
President, Southeast and Midwest

**TABLE OF CONTENTS**

**Section I**  
**Valuation Summaries**

PRINCIPAL RESULTS OF THE VALUATION	1
EXECUTIVE SUMMARY	2
FINANCIAL STATEMENT AS OF 1/1/2013	4
DETERMINATION OF VALUATION ASSETS AS OF 1/1/2013	5
VALUATION RESULTS AS OF 1/1/2013	6
CONTRIBUTION REQUIREMENTS AS OF 12/31/2013	7
PARTICIPANT DATA AND RECONCILIATION OF PARTICIPANT STATUS	8
SUMMARY OF PLAN PROVISIONS	9
SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS	12

**Section II**  
**Accounting Information**

ACCUMULATED PLAN BENEFITS – FASB ASC 960	14
GOVERNMENT ACCOUNTING STANDARDS BOARD STATEMENT No. 25	15
GOVERNMENT ACCOUNTING STANDARDS BOARD STATEMENT No. 27	16

**Section III**  
**Employee Detail**

Exhibit I EMPLOYEE CENSUS AS OF 1/1/2013	
Exhibit II TERMINATED VESTED EMPLOYEE BENEFITS AS OF 1/1/2013	
Exhibit III RETIRED EMPLOYEE BENEFITS AS OF 1/1/2013	
Exhibit IV AGE AND SERVICE DISTRIBUTION AS OF 1/1/2013	

**KNOX COUNTY EMPLOYEE BENEFIT SYSTEM  
KNOX COUNTY BOARD OF EDUCATION RETIREMENT PLAN**

**VALUATION AS OF 1/1/2013**

**PRINCIPAL RESULTS OF THE VALUATION**

Below is a summary of the principal results of this year's valuation compared with the previous valuation. Amounts for each valuation period reflect the actuarial cost method, assumptions and plan benefits in effect at that time.

	<u>As of January 1, 2012</u>	<u>As of January 1, 2013</u>
<u>CONTRIBUTION LIMITATIONS</u>		
Recommended Contribution	\$ 1,183,029	\$ 1,726,537
Expected Employee Contribution	\$ 15,269	\$ 5,227
<u>SUPPORTING INFORMATION</u>		
Market Value of Assets	\$ 61,329,117	\$ 64,852,718
Actuarial Value of Assets	\$ 65,150,937	\$ 60,384,664
Present Value of Accumulated Benefits	\$ 77,519,703	\$ 79,011,455
Funding Ratio – Actuarial Value of Assets as a Percentage of Present Value of Accumulated Benefits	84.0%	76.4%
Funding Ratio – Market Value of Assets as a Percentage of Present Value of Accumulated Benefits	79.1%	82.1%
Funding Ratio Discount Rate	7.5%	7.0%
Number of Lives Included in the Valuation	475	466
Present Value of All Future Benefits	\$ 77,637,278	\$ 79,044,062

**KNOX COUNTY EMPLOYEE BENEFIT SYSTEM  
KNOX COUNTY BOARD OF EDUCATION RETIREMENT PLAN**

**VALUATION AS OF 1/1/2013**

**EXECUTIVE SUMMARY**

Purpose and Scope

The principal purposes of this actuarial valuation report are:

1. To present our calculation of the Plan contributions under the Knox County Employee Benefit System funding policy,
2. To review plan experience during the year ended December 31, 2012, and the funded status of the plan as of January 1, 2013, and
3. To determine the funded status of accumulated plan benefits, accumulated vested benefits, and plan funding progress in accordance with Governmental Accounting Standards Board Statements No. 25, 27 and other Financial Accounting Standards.

The valuation is based upon employee data and financial information provided by Knox County. This data was not audited or otherwise verified by us other than for tests of reasonable consistency with prior year data.

Actuarial Methods and Assumptions

For the January 1, 2013 valuation, the discount rate was reduced from 7.50% to 7.0% and the Unfunded Accrued Liability amortization period decreased from 20 years to 19.5 years. All methods and assumptions remained the same as those used in the January 1, 2012 valuation.

Plan Experience

During 2012, the market value of plan assets increased from \$61,329,117 to \$64,852,718 with an investment return of approximately 16.2%. This investment performance is above the 7.5% assumption, creating a market value gain of about \$5,050,000. The actuarial value of plan assets decreased from \$65,150,937 to \$60,384,664 with an investment return of approximately 1.9%. This resulted in an asset loss of about \$3,500,000. The plan also experienced a liability gain of approximately \$900,000 and the change in discount rate resulted in a loss of \$3,200,000. The net actuarial loss to the plan was about \$5,800,000.

Recall that the asset smoothing method recognizes each year's investment gains and losses over a five year period. See page 5 for more details of the method. In this way, the actuarial value of assets methodology smoothes out much of the volatility of annual changes in the market value of assets. Note that this year, the actuarial value of assets is less than the market value of assets.

Contribution Requirements

The suggested employer contribution for the 2013 fiscal year is \$1,726,537. Please see page 7 for more details.

**KNOX COUNTY EMPLOYEE BENEFIT SYSTEM  
KNOX COUNTY BOARD OF EDUCATION RETIREMENT PLAN**

**VALUATION AS OF 1/1/2013**

**EXECUTIVE SUMMARY  
(Continued)**


Funding Status


The plan's funding ratio, on an actuarial value of assets basis, as shown on page 1 decreased from 84.0% in 2012 to 76.4% in 2013. Note that the funding ratio on a market value basis increased, despite the discount rate change, from 79.1% in 2012 to 82.1% in 2013.

This report has been prepared in accordance with generally accepted actuarial standards and procedures, and conforms to the Guidelines for Professional Conduct of the American Academy of Actuaries. It is based upon the employee and financial data submitted to USI Consulting Group by the plan sponsor and the retirement plan provisions as outlined herein.

I, Dennis E. Jacobs, FSA, EA, MAAA, am a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

USI CONSULTING GROUP

  
Dennis E. Jacobs, FSA, EA, MAAA  
Vice President and Actuary

  
Jaime Packer, ASA, EA, MAAA  
Team Leader and Actuary

**KNOX COUNTY EMPLOYEE BENEFIT SYSTEM  
KNOX COUNTY BOARD OF EDUCATION RETIREMENT PLAN**

**FINANCIAL STATEMENT AS OF 1/1/2013**

<b>ASSETS</b>	<u>1/1/2012</u>	<u>1/1/2013</u>
Cash (and money market funds)	0	0
Accrued Income	0	0
Receivables	0	0
Investments		
Bond Funds	0	0
Corporate (debt and equity instruments)	61,421,035	64,911,857
Real Estate Equity Fund	0	0
Other - Cash Equivalents	<u>0</u>	<u>0</u>
Total Investments	61,421,035	64,911,857
Buildings & Other Property used in Plan Operation	0	0
Insurance Contracts	0	0
Other Assets	<u>0</u>	<u>0</u>
<b>Total Assets</b>	<b>61,421,035</b>	<b>64,911,857</b>
 <b>LIABILITIES AND NET ASSETS</b>		
Payables	91,918	59,139
Acquisition Indebtedness	0	0
Other Liabilities	<u>0</u>	<u>0</u>
<b>Total Liabilities</b>	<b>91,918</b>	<b>59,139</b>
 <b>NET ASSETS</b>	 <b>61,329,117</b>	 <b>64,852,718</b>
 <b>STATEMENT OF RECEIPTS AND DISBURSEMENTS</b>		
Net Assets at Beginning of Year		61,329,117
Contributions Received or Receivable		
Employer	1,183,029	
Employees	32,549	
Others	0	
<b>Total Contributions</b>	<b>0</b>	<b>1,215,578</b>
Dividends and Income		441,287
Other Income		0
Net Realized Gain (Loss)		2,246,354
Net Unrealized Gain (Loss)		<u>6,763,846</u>
<b>Total Income</b>		<b>10,667,065</b>
Distribution of Benefits		
Directly to Participants or Beneficiaries	6,463,183	
Other	0	6,463,183
Fees and Commissions		680,281
Other Expenses		<u>0</u>
<b>Total Expenses</b>		<b>7,143,464</b>
<b>Net Income (loss)</b>		<b>3,523,601</b>
 <b>NET ASSETS AT END OF YEAR</b>		 <b>64,852,718</b>

**KNOX COUNTY EMPLOYEE BENEFIT SYSTEM  
KNOX COUNTY BOARD OF EDUCATION RETIREMENT PLAN**

**DETERMINATION OF VALUATION ASSETS AS OF 1/1/2013**

**1. ASSET GAIN/(LOSS) AS OF 1/1/2013**

(1) Expected market value of assets as of 1/1/2013:	
(a) Market value of assets as of 1/1/2012	\$ 61,329,117
(b) Expected return on assets at 7.5%	\$ 4,599,684
(c) Contributions	\$ 1,215,578
(d) Benefit Payments and Expenses	\$ (7,143,464)
(e) Net interest on (c) - (d), weighted for timing	<u>(222,296)</u>
(f) Total: (a) + (b) + (c) + (d) + (e)	\$ 59,778,620
(2) Actual Market value of assets as of 1/1/2013:	\$ 64,852,718
(3) Asset gain/(loss) as of 1/1/2013: (2) - (1)(f)	\$ 5,074,098

**2. DETERMINATION OF VALUATION ASSETS AS OF 1/1/2013**

(1) Market value of assets as of 1/1/2013:	\$ 64,852,718																																										
(2) Recognition of asset gain/(loss) over a five year period:																																											
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Year Ending</u> <u>December 31</u></th> <th style="text-align: left;"><u>Asset</u> <u>Gain/(Loss)</u></th> <th style="text-align: center;"><u>X</u></th> <th style="text-align: left;"><u>Portion Not</u> <u>Yet Recognized</u></th> <th style="text-align: center;"><u>=</u></th> <th style="text-align: left;"><u>Amount</u> <u>Deferred</u></th> </tr> </thead> <tbody> <tr> <td>2012</td> <td style="text-align: right;">\$ 5,074,098</td> <td></td> <td style="text-align: center;">4/5</td> <td></td> <td style="text-align: right;">\$ 4,059,279</td> </tr> <tr> <td>2011</td> <td style="text-align: right;">\$ (4,578,691)</td> <td></td> <td style="text-align: center;">3/5</td> <td></td> <td style="text-align: right;">\$ (2,747,214)</td> </tr> <tr> <td>2010</td> <td style="text-align: right;">\$ 4,103,355</td> <td></td> <td style="text-align: center;">2/5</td> <td></td> <td style="text-align: right;">\$ 1,641,342</td> </tr> <tr> <td>2009</td> <td style="text-align: right;">\$ 7,573,242</td> <td></td> <td style="text-align: center;">1/5</td> <td></td> <td style="text-align: right;">\$ 1,514,648</td> </tr> <tr> <td> </td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total:</td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: right;">\$ 4,468,055</td> </tr> </tbody> </table>	<u>Year Ending</u> <u>December 31</u>	<u>Asset</u> <u>Gain/(Loss)</u>	<u>X</u>	<u>Portion Not</u> <u>Yet Recognized</u>	<u>=</u>	<u>Amount</u> <u>Deferred</u>	2012	\$ 5,074,098		4/5		\$ 4,059,279	2011	\$ (4,578,691)		3/5		\$ (2,747,214)	2010	\$ 4,103,355		2/5		\$ 1,641,342	2009	\$ 7,573,242		1/5		\$ 1,514,648	 						Total:					\$ 4,468,055	
<u>Year Ending</u> <u>December 31</u>	<u>Asset</u> <u>Gain/(Loss)</u>	<u>X</u>	<u>Portion Not</u> <u>Yet Recognized</u>	<u>=</u>	<u>Amount</u> <u>Deferred</u>																																						
2012	\$ 5,074,098		4/5		\$ 4,059,279																																						
2011	\$ (4,578,691)		3/5		\$ (2,747,214)																																						
2010	\$ 4,103,355		2/5		\$ 1,641,342																																						
2009	\$ 7,573,242		1/5		\$ 1,514,648																																						
Total:					\$ 4,468,055																																						
(3) Accrued contributions as of 1/1/2013:	\$ -																																										
(4) Valuation assets as of 1/1/2013: (1) - (2) + (3)	\$ 60,384,664																																										

**3. VALUATION ASSETS AS OF 1/1/2013**

(1) Valuation assets as of 1/1/2012: (1) + (2) + (3) + (4) + (5)	\$ 65,150,937
(2) Contributions, including receivables:	\$ 1,215,578
(3) Benefit payments:	\$ (6,463,183)
(4) Plan expenses:	\$ (680,281)
(5) Return on assets:	<u>\$ 1,161,612</u>
(6) Valuation assets as of 1/1/2013: (1) + (2) + (3) + (4) + (5)	\$ 60,384,664
(7) 90% of Market Value	\$ 58,367,447
(8) Final Actuarial Value of Assets, no less than (7)	\$ 60,384,664



**KNOX COUNTY EMPLOYEE BENEFIT SYSTEM  
KNOX COUNTY BOARD OF EDUCATION RETIREMENT PLAN**

**VALUATION RESULTS AS OF JANUARY 1, 2013**

**1. PRESENT VALUE OF FUTURE BENEFITS**

The value of all projected retirement, death, disability, and vested termination benefits expected to be paid to all current plan participants, discounted to the valuation date with interest, mortality, withdrawal, and disability decrements.

	<u>Lives</u>	<u>Retirement</u>	<u>Death</u>	<u>Withdrawal</u>	<u>Disability</u>	<u>Total</u>
Active	7	2,563,493	876	0	15,606	2,579,975
Terminated	8	576,798	5,238	0	0	582,036
Retired	<u>451</u>	<u>75,882,051</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>75,882,051</u>
Totals	466	79,022,342	6,114	0	15,606	79,044,062

**2. ENTRY AGE ACCRUED LIABILITY**

The portion of the present value of future benefit attributable to prior normal costs.

Active	2,573,433
Terminated	582,036
Retired	<u>75,882,051</u>
Total	<u>79,037,520</u>

**3. ACTUARIAL VALUE OF ASSETS** 60,384,664

**4. UNFUNDED ACCRUED LIABILITY (2 - 3)** 18,652,856

**5. DEVELOPMENT OF CREDIT BALANCE**

(1) Minimum Contribution as of 7/1/2012 - prior year	1,183,029
(2) Actual Employer Contribution - 7/1/2011 - 6/30/2012	1,183,029
(3) Interest on Employer Contribution	0
(4) Credit Balance (2 + 3 - 1)	0

**6. ENTRY AGE NORMAL COST**

The amount required to fund the present value of benefits as a level percent of pay from entry age to retirement age.

A. Total Normal Cost	7,898
B. Expected Employee Contributions	<u>5,227</u>
C. Employer Normal Cost	2,671

**KNOX COUNTY EMPLOYEE BENEFIT SYSTEM  
KNOX COUNTY BOARD OF EDUCATION RETIREMENT PLAN**

**CONTRIBUTION REQUIREMENTS FOR PLAN YEAR ENDING DECEMBER 31, 2013**

With recent experience, the Plan now shows an Unfunded Accrued Liability using the Individual Entry Age Normal cost method. The Recommended Employer contribution will be the Plan's Normal Cost reduced by Expected Employee Contributions (see pg. 6) plus a 19.5 year amortization of the Past Service Base in effect on January 1, 2013 (see below) reduced by the Plan's Credit Balance (also on page 6).

**RECOMMENDED PLAN CONTRIBUTION**

**CHARGES:**

(1) Employer Normal Cost		2,671
(2) Outstanding Charge Base	18,652,856	
(3) Amortization of Outstanding Charge Base		1,665,481
(4) Credit Balance		<u>0</u>
(5) Total Charges = (1) + (3) - (4), not less than zero		1,668,152
(6) Interest Charge on (1) and (3) and (4)		58,385

**Annual Contributions**

	<u>2012</u>	<u>2013</u>
Total Recommended Employer Contribution as of Beginning of the Plan Year	1,140,269	1,668,152
Total Recommended Employer Contribution as of Beginning of fiscal year starting July 1	1,183,029	1,726,537
Expected Employee Contributions for the Plan Year	15,269	5,227

**AMORTIZATION SCHEDULE**

Description	Year	Initial	Outstanding	Amortization	Years
	Est.	Amount	Balance	Payment	Remaining
Past Service Base	2013	18,652,856	<u>18,652,856</u>	<u>1,665,481</u>	19.5
			18,652,856	1,665,481	

**KNOX COUNTY EMPLOYEE BENEFIT SYSTEM  
KNOX COUNTY BOARD OF EDUCATION RETIREMENT PLAN**

**CONTRIBUTION REQUIREMENTS FOR PLAN YEAR ENDING DECEMBER 31, 2013**

With recent experience, the Plan now shows an Unfunded Accrued Liability using the Individual Entry Age Normal cost method. The Recommended Employer contribution will be the Plan's Normal Cost reduced by Expected Employee Contributions (see pg. 6) plus a 19.5 year amortization of the Past Service Base in effect on January 1, 2013 (see below) reduced by the Plan's Credit Balance (also on page 6).

**RECOMMENDED PLAN CONTRIBUTION**

**CHARGES:**

(1) Employer Normal Cost		2,671
(2) Outstanding Charge Base	18,652,856	
(3) Amortization of Outstanding Charge Base		1,665,481
(4) Credit Balance		<u>0</u>
(5) Total Charges = (1) + (3) - (4), not less than zero		1,668,152
(6) Interest Charge on (1) and (3) and (4)		58,385

	<b>Annual Contributions</b>	
	<u>2012</u>	<u>2013</u>
Total Recommended Employer Contribution as of Beginning of the Plan Year	1,140,269	1,668,152
Total Recommended Employer Contribution as of Beginning of fiscal year starting July 1	1,183,029	1,726,537
Expected Employee Contributions for the Plan Year	15,269	5,227

**AMORTIZATION SCHEDULE**

Description	Year	Initial	Outstanding	Amortization	Years
	Est.	Amount	Balance	Payment	Remaining
Past Service Base	2013	18,652,856	<u>18,652,856</u>	<u>1,665,481</u>	19.5
			18,652,856	1,665,481	

**KNOX COUNTY EMPLOYEE BENEFIT SYSTEM  
KNOX COUNTY BOARD OF EDUCATION RETIREMENT PLAN**

**PARTICIPANT DATA AS OF 1/1/2013**

<b>Active employees under assumed retirement age</b>		
Number .....		2
Expected total annual compensation .....		117,974
Average accrued benefit .....		1,774.05
Average projected benefit .....		2,062.34
Average attained age .....		59.11
Average prior service .....		37.33
<b>Other active and inactive employees</b>		
Number .....		5
Average accrued benefit .....		2,237.65
Average attained age .....		60.66
<b>Terminated deferred vested, deceased and disabled employees</b>		
Number .....		8
Average accrued benefit .....		476.67
Average attained age .....		60.21
<b>Retired employees, beneficiaries and contingent annuitants</b>		
Number .....		451
Average monthly benefit .....		1,222.06
Average attained age .....		70.09

**RECONCILIATION OF PARTICIPANT STATUS**

	<u>Active</u>	<u>Inactive</u>	<u>Deferred Vested</u>	<u>Pay Status</u>	<u>Total</u>
Prior Valuation	12	0	9	454	475
Terminated - vested	0	0	0	0	0
Cashed Out	0	0	0	0	0
Death	0	0	0	(8)	(8)
Entered as Beneficiary	0	0	0	0	0
Retired	(5)	0	(1)	6	0
Rehired	0	0	0	0	0
Beneficiary Payments Cease	0	0	0	(1)	(1)
Data Corrections	0	0	0	0	0
Current Valuation	7	0	8	451	466

**KNOX COUNTY EMPLOYEE BENEFIT SYSTEM  
KNOX COUNTY BOARD OF EDUCATION RETIREMENT PLAN**

**SUMMARY OF PLAN PROVISIONS**

<b>Effective Date</b>	Shall mean for credited service July 1, 1987 and for all other purposes June 26, 1990.															
<b>Eligibility Participation</b>	Any person who is a "teacher" as defined by the Court of Appeals in its opinion of December 30, 1987 in the case of <u>Knox County v. The City of Knoxville, et al</u> , and who is entitled to maintain membership in a local pension system as a result of their membership in any applicable plan of the City of Knoxville Pension System on June 30, 1987, and who thereafter is employed as a result of the City of Knoxville ceasing to operate a separate school system and is so regularly employed by the Knox County Board of Education.															
<b>Normal Retirement Eligibility</b>	Each member shall be eligible to retire at age 62 or on the first day of any of the thirty-five months next following age 62.															
<b>Benefit</b>	<p>A monthly benefit payable for life, computed as of normal retirement date as one-twelfth of credited service multiplied by the sum of (A) and (B):</p> <p>(A) Benefit Rate A times average base earnings</p> <p>(B) Benefit Rate B times average excess earnings</p> <p>Benefit Rate A and Benefit Rate B shall vary according to the member's last birthday at time benefit payments are to commence, as follows:</p> <table border="0" style="margin-left: 40px;"> <thead> <tr> <th style="text-align: left;"><u>Age</u></th> <th style="text-align: center;"><u>Benefit Rate A</u></th> <th style="text-align: center;"><u>Benefit Rate B</u></th> </tr> </thead> <tbody> <tr> <td>62 or earlier</td> <td style="text-align: center;">.75%</td> <td style="text-align: center;">1.50%</td> </tr> <tr> <td>63</td> <td style="text-align: center;">.78%</td> <td style="text-align: center;">1.58%</td> </tr> <tr> <td>64</td> <td style="text-align: center;">.84%</td> <td style="text-align: center;">1.66%</td> </tr> <tr> <td>65 or later</td> <td style="text-align: center;">.88%</td> <td style="text-align: center;">1.76%</td> </tr> </tbody> </table> <p>This amount is then reduced by the benefit accrued under the applicable City of Knoxville retirement plan as of June 30, 1987.</p>	<u>Age</u>	<u>Benefit Rate A</u>	<u>Benefit Rate B</u>	62 or earlier	.75%	1.50%	63	.78%	1.58%	64	.84%	1.66%	65 or later	.88%	1.76%
<u>Age</u>	<u>Benefit Rate A</u>	<u>Benefit Rate B</u>														
62 or earlier	.75%	1.50%														
63	.78%	1.58%														
64	.84%	1.66%														
65 or later	.88%	1.76%														

**KNOX COUNTY EMPLOYEE BENEFIT SYSTEM  
KNOX COUNTY BOARD OF EDUCATION RETIREMENT PLAN**

**SUMMARY OF PLAN PROVISIONS  
(Continued)**

<b>Minimum Benefit</b>	The monthly benefit, including 50% of the primary Social Security benefit, shall not be less than \$10 per year of credited service, with a maximum of \$250.
<b>Earnings</b>	Total compensation
<b>Base Earnings</b>	That part of earnings in any calendar year which does not exceed \$4,800.00 per annum.
<b>Excess Earnings</b>	That part of earnings in any calendar year which are in excess of base earnings.
<b>Credited Service</b>	Years and completed calendar months of service as an employee of either the City of Knoxville or Knox County.
<b>Average Earnings</b>	A 3-year arithmetic average determined for the number of full calendar years of credited service during which the earnings were the highest, or number of full calendar years actually completed if less than 3.
<b>Accrued Benefit</b>	Normal retirement benefit based on service and compensation up to the determination date less that benefit accrued under the applicable City of Knoxville retirement plan as of June 30, 1987.
<b>Early Retirement Eligibility</b>	Completion of 25 years of credited service.
<b>Benefit</b>	Upon early retirement, a member may elect to receive either (a) a deferred monthly benefit equal to his accrued benefit commencing at normal retirement date, or (b) a reduced benefit equal to the actuarially equivalent benefit described in (a) above, commencing immediately.
<b>Disability Not In Line of Duty Eligibility</b>	Completion of 15 years of credited service.
<b>Benefit</b>	Accrued benefit, based on credited service at time of disablement, payable immediately, plus a lump sum equal to six times the accrued monthly benefit.

**KNOX COUNTY EMPLOYEE BENEFIT SYSTEM  
KNOX COUNTY BOARD OF EDUCATION RETIREMENT PLAN**

**SUMMARY OF PLAN PROVISIONS  
(Continued)**

<b>Disability in Line of Duty Eligibility</b>	Disablement in the course of performance of duty as an employee.
<b>Benefit</b>	Accrued benefit, based on credited service projected to age 62, payable immediately and reduced by any workers' compensation benefits paid.
<b>Death Benefit Eligibility</b>	Completion of 15 years of credited service.
<b>Benefit</b>	50% of the monthly benefit that the participant would have been entitled to if he/she had elected the 50% joint and survivor form of payment, payable at the earliest time benefits could have commenced to the participant.
<b>Deferred Vested Eligibility</b>	Completion of 10 years of credited service.
<b>Benefit</b>	A deferred monthly benefit equal to the accrued benefit commencing at normal retirement date, determined as of the date of termination, provided the member leaves his contributions in the fund.
<b>Return of Employee Contribution</b>	A minimum of employee contributions with interest is paid on death, termination, or retirement.
<b>Normal Form of Annuity</b>	Life Annuity
<b>Optional Forms of Annuity</b>	Certain and Life, Joint and Survivor, Cash Refund. Such options will be actuarially equivalent to a life annuity.
<b>Employee Contributions</b>	Each employee who is a member shall contribute to the fund an amount equal to (a) plus (b) where:  (a) The contribution rate shall be 3 percent of base earnings, and  (b) The contribution rate shall be 5 percent of excess earnings.

**KNOX COUNTY EMPLOYEE BENEFIT SYSTEM  
KNOX COUNTY BOARD OF EDUCATION RETIREMENT PLAN**

**SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS**

**ACTUARIAL COST METHOD**

Individual Entry Age Normal Cost.

Under this method, the annual cost is equal to the normal cost, plus amortization of unfunded accrued liabilities over a fixed period of years selected within the minimum (10 years) and maximum (5 to 30 years) periods permitted by law.

The normal cost is the sum of individual normal costs, determined as a level percentage of compensation which would have been necessary to fund the employee's projected retirement, death and withdrawal benefits, from entry age (the age at which the employee would have entered the plan had it been in effect on his employment date), to his retirement age. Thus, the dollar normal cost is expected to increase with the salary projection assumption.

The actuarial accrued liability is the accumulation, based on the actuarial assumptions, of all assumed prior normal costs. Thus, it represents the amount of reserves, which would be held by the plan, had it always been in effect for the present group of participants and had plan experience followed that predicted by the actuarial assumptions. The unfunded accrued liability is the excess, if any, of the accrued liability over the plan assets.

Actuarial gains and losses arising from differences between plan experience and that predicted by the actuarial assumptions, as measured by the difference between actual and expected unfunded accrued liabilities, are amortized over 5 years.

**ACTUARIAL ASSUMPTIONS**

Post-Retirement

Mortality - 1983 Group Annuity Mortality Table for Males and Females

Investment Return - 7.0% per annum.

Assumed benefit increases - 3.00% per annum on the participant's original benefit

Pre-Retirement

Mortality - 1983 Group Annuity Mortality Table for Males and Females

Investment Return - 7.0% per annum.

Salary projection - 3.0% per annum.



**KNOX COUNTY EMPLOYEE BENEFIT SYSTEM  
KNOX COUNTY BOARD OF EDUCATION RETIREMENT PLAN  
SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS  
(Continued)**

ACTUARIAL ASSUMPTIONS (Continued)

Expense loading - None

Retirement age – 60 or immediately if older (for those with 25 years of service)  
62 or immediately if older (for those with less than 25 years of service)

Disability rates – Rates set forth below

Withdrawal rates – Rates set forth below

Age	Pre-retirement Decrement Rates					
	Mortality		Withdrawal		Disability	
	Male	Female	Male	Female	Male	Female
20	0.038%	0.019%	0.000%	0.000%	0.000%	0.000%
25	0.046%	0.025%	6.100%	5.925%	0.000%	0.000%
30	0.061%	0.034%	5.850%	5.460%	0.400%	0.400%
35	0.086%	0.048%	5.097%	4.861%	0.400%	0.400%
40	0.124%	0.067%	2.701%	3.891%	0.400%	0.400%
45	0.218%	0.101%	2.060%	3.444%	0.420%	0.420%
50	0.391%	0.165%	2.997%	2.889%	0.730%	0.730%
55	0.613%	0.254%	3.271%	3.015%	1.400%	1.400%
60	0.916%	0.424%	6.537%	3.372%	2.480%	2.480%

ASSET VALUATION

Each plan year's investment gain or loss is recognized over five years.

**KNOX COUNTY EMPLOYEE BENEFIT SYSTEM  
KNOX COUNTY BOARD OF EDUCATION RETIREMENT PLAN**

**ACCUMULATED PLAN BENEFITS UNDER FASB ASC 960**

Actuarial Present Values of Accumulated Plan Benefits (Accumulated Benefit Obligation):	<u>1/1/2012</u>	<u>1/1/2013</u>
Vested Benefits		
Participants currently receiving payments	72,297,417	75,882,051
Other Participants		
Active Employees	4,646,173	2,547,368
Deceased and Disabled Employees	0	0
Deferred Vested Terminated Employees	<u>576,113</u>	<u>582,036</u>
Total - Other Participants	<u>5,222,286</u>	<u>3,129,404</u>
Total Vested Benefits	77,519,703	79,011,455
Nonvested Benefits	<u>0</u>	<u>0</u>
Total Actuarial Present Values of Accumulated Plan Benefits	77,519,703	79,011,455
Discount Rate	7.50%	7.00%

**KNOX COUNTY EMPLOYEE BENEFIT SYSTEM  
KNOX COUNTY BOARD OF EDUCATION RETIREMENT PLAN**

**SCHEDULE OF FUNDING PROGRESS**

Actuarial Valuation	Actuarial Value of Assets	Actuarial Liability (AAL) Entry Age Normal (Aggregate prior to 1/1/05)	Unfunded AAL (UAAL)	Funded Ratio	Covered Payroll	UAAL as a Percentage of Covered Payroll
Date	(a)	(b)	(b - a)	(a / b)	(c)	((b - a) / c)
1/1/1997	31,532,498	31,532,498	0	100.00%	16,518,534	0.00%
1/1/1998	55,425,760	55,425,760	0	100.00%	16,280,062	0.00%
1/1/1999	62,622,721	62,622,721	0	100.00%	15,714,131	0.00%
1/1/2000	70,243,735	70,243,735	0	100.00%	14,392,249	0.00%
1/1/2001	69,634,862	69,634,862	0	100.00%	14,009,264	0.00%
1/1/2002	72,917,044	72,917,044	0	100.00%	13,254,219	0.00%
1/1/2003	71,458,839	71,458,839	0	100.00%	12,286,006	0.00%
1/1/2004	73,472,465	73,472,465	0	100.00%	11,014,729	0.00%
1/1/2005	74,889,828	82,120,286	7,230,458	91.20%	7,595,733	95.19%
1/1/2006	75,174,360	83,066,476	7,892,116	90.50%	6,274,664	125.78%
1/1/2007	84,154,462	84,362,290	207,828	99.75%	5,236,764	3.97%
1/1/2008	83,327,598	84,657,462	1,329,864	98.43%	4,102,017	32.42%
1/1/2009	61,496,011	83,991,358	22,495,347	73.22%	2,018,191	1114.63%
1/1/2010	69,493,440	79,131,091	9,637,651	87.82%	1,050,650	917.30%
1/1/2011	70,428,532	78,267,707	7,839,175	89.98%	823,283	952.18%
1/1/2012	65,150,937	77,615,350	12,464,413	83.94%	328,419	N/A
1/1/2013	60,384,664	79,037,520	18,652,856	76.40%	117,974	N/A

**SCHEDULE OF EMPLOYER CONTRIBUTIONS**

Year Ended June 30	Annual Required Contribution	Actual Contribution	Percentage Contributed
1997	2,797,910	697,248	24.92%
1998	2,522,434	17,366,919	688.50%
1999	773,683	778,642	100.64%
2000	357,275	343,534	96.15%
2001	0	400,000	N/A
2002	344,411	600,000	174.21%
2003	412,445	600,000	145.47%
2004	784,838	784,838	100.00%
2005	881,447	881,447	100.00%
2006	739,370	739,370	100.00%
2007	771,772	771,772	100.00%
2008	135,786	135,786	100.00%
2009	198,608	250,000	125.88%
2010	1,898,484	1,898,864	100.02%
2011	1,217,506	1,217,506	100.00%
2012	1,046,949	1,046,949	100.00%
2013	1,183,029	1,183,029	100.00%

**KNOX COUNTY EMPLOYEE BENEFIT SYSTEM  
KNOX COUNTY BOARD OF EDUCATION RETIREMENT PLAN**

**GOVERNMENT ACCOUNTING STANDARDS BOARD STATEMENT No. 27**

	<u>6/30/2003</u>	<u>6/30/2004</u>	<u>6/30/2005</u>	<u>6/30/2006</u>	<u>6/30/2007</u>	<u>6/30/2008</u>	<u>6/30/2009</u>	<u>6/30/2010</u>	<u>6/30/2011</u>	<u>6/30/2012</u>	<u>6/30/2013</u>
1. NPO: Net Pension Obligation/(Asset) at beginning of period	3,649,183	3,437,034	3,413,870	3,385,016	3,356,407	3,328,039	3,299,911	3,220,629	3,193,029	3,166,042	3,139,284
2. Annual Pension Cost:											
a. Annual Required Contribution (ARC)	412,445	784,838	881,447	739,370	771,772	135,786	198,608	1,898,484	1,217,506	1,046,949	1,183,029
b. Interest on NPO	291,935	274,963	256,040	253,876	251,731	249,603	247,493	241,547	239,477	237,453	219,750
c. Adjustments to ARC *	(316,529)	(298,127)	(284,894)	(282,486)	(280,098)	(277,731)	(275,383)	(268,767)	(266,464)	(264,212)	(251,760)
d. Total = (a)+(b)+(c)	387,851	761,674	852,594	710,761	743,404	107,658	170,718	1,871,264	1,190,519	1,020,190	1,151,018
3. Contributions made	600,000	784,838	881,447	739,370	771,772	135,786	250,000	1,898,864	1,217,506	1,046,949	1,183,029
4. Increase in NPO = (2)(d)-(3)	(212,149)	(23,164)	(28,853)	(28,609)	(28,368)	(28,128)	(79,282)	(27,600)	(26,987)	(26,759)	(32,011)
5. NPO at end of period = (1)+(4)	3,437,034	3,413,870	3,385,016	3,356,407	3,328,039	3,299,911	3,220,629	3,193,029	3,166,042	3,139,284	3,107,273
Amortization Period:	25	25	25	25	25	25	25	25	25	25	25
Interest Rate:	8.00%	8.00%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.00%

\* The adjustment is a level dollar amortization of the NPO at beginning of period.