

**ACTUARIAL VALUATION  
FOR  
THE CITY OF HENDERSON  
POLICE AND FIRE PENSION FUND  
AS OF JULY 1, 2016**



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October 18, 2016  
Via E-mail

Mr. Robert Gunter, Finance Director  
The City of Henderson  
Henderson Municipal Center  
222 1<sup>st</sup> Street, First Floor  
Henderson, KY 42420-3181

**RE: The City of Henderson Police and Fire Pension Fund**

Dear Robert:

We is the July 1, 2016 actuarial valuation report for The City of Henderson Police and Fire Pension Fund (Fund). Please note that all references in our report for values prior to July 1, 2006 were prepared by the prior service provider, Mercer in Louisville, KY.

This report contains a detailed description and the results of a valuation of The City of Henderson Police and Fire Pension Fund as of July 1, 2016. The contents of this report recognize the Employee Retirement Income Security Act of 1974 (ERISA), Internal Revenue Service requirements. GASB #67 and #68 are in a separate report.

The following is a brief description of the exhibits and shows how the information is organized.

#### Plan Assets

Plan assets are funds that have accumulated and will be used to meet future benefit obligations.

#### Plan Liabilities

The Normal Cost and Unfunded Past Service Liability in Exhibit A compares plan liabilities and plan assets to show how future benefit obligations will be funded.

#### Plan Contribution Levels

Each year the contribution to the plan consists of two parts, i.e., payment of the Normal Cost and payment toward funding the Unfunded Past Service Liability. A range of contributions is allowed, as shown in Exhibit A, depending on how rapidly the Unfunded Past Service Liability is funded.

#### Cost of Living Adjustments

The significant increase in plan liabilities assuming a three percent and five percent future cost-of-living adjustment is shown in Exhibit B.

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Mr. Robert Gunter, Finance Director  
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Please refer to the Exhibit A regarding the range of contributions assuming no future cost-of-living adjustments. The anticipated annual benefit payment for the current year is \$339,170 and this is greater than the amortization of the unfunded past service liability for 20 years. It is recommended that tax revenues should be substantially greater than the anticipated annual benefit payment to reduce the unfunded past service liability.

The information and valuation results shown in this report are, to the best of our knowledge, complete and accurate and are based upon:

1. Employee census data as of July 1, 2016 submitted by The City of Henderson. This data was not audited by us, but appears to be sufficient and reliable for purposes of the report.
2. Financial data as of June 30, 2016 submitted by The City of Henderson. This data was not audited by us, but appears to be sufficient and reliable for purposes of the report.
3. Actuarial assumptions which, individually and in the aggregate, are reasonably related to the experience of the plan and to reasonable expectations and which represent our best estimate of anticipated experience under the plan.
4. Actuarial methods as stated in the report and our interpretation of plan provisions as summarized in the report.

It is our opinion that this Actuarial Report is, to the best of our knowledge, complete and accurate. The actuarial methods and assumptions are applied on an objective basis, are reasonable individually and in the aggregate, and represent the Actuary's best estimate of future experience as required by the Employee Retirement Income Security Act of 1974. Therefore, the information contained in this Actuarial Report fully and fairly discloses the actuarial position of The City of Henderson Police and Fire Pension Fund.

The undersigned actuary has met the Qualification Standards of the American Academy of Actuaries as required to render the actuarial opinion contained herein.

Please let us know if you have any questions regarding this report.

Cordially,

Bob J. Bolin, FSA, MAAA, EA, FCA  
Actuary / Principal

Enclosures

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**City of Henderson Police and Fire Pension Fund**

**Exhibit A**

**Valuation Highlights for 2015 vs. 2016 Plan year**

	<u>Current Year July 1, 2015</u>	<u>Current Year July 1, 2016</u>
<b>1. Basic data included in Valuation</b>		
a. Active employees	0	0
b. Individuals receiving benefits	18	18
c. Terminated with vested benefits	0	0
d. Total Participants	18	18
<b>2. Covered Payroll of Active Participants</b>	\$0	\$0
<b>3. Monthly Retirement Income for Costs</b>		
a. Active employees	0	0
b. Terminated with vested benefits	0	0
c. Individuals receiving benefits	\$28,264	\$28,264
d. Total retirement income	<u>28,264</u>	<u>28,264</u>
<b>4. Funding Valuation using Salary Increases</b>		
a. Normal Cost as of Valuation Date	0	0
b. Past Service Liability	3,941,007	3,742,590
c. Value of Plan Assets	(9,279)	(9,570)
d. Unfunded Past Service Liability	3,950,286	3,752,160
<b>5. Contribution Range</b>		
a. Normal Cost plus 10 year amortization of Unfunded Past Service Liability	487,035	462,607
b. Normal Cost plus 15 year amortization of Unfunded Past Service Liability*	355,293	337,473
c. Normal Cost plus 20 year amortization of Unfunded Past Service Liability	290,669	276,091

\*The plan sponsor has adopted a funding policy of amortizing the unfunded past service liability over 15 years. This includes any changes in assumptions or experience gains or losses.

**City of Henderson Police and Fire Pension Fund**

**Exhibit B**

**Impact of Annual Cost-of-Living Adjustments on July 1, 2016 Valuation Results**

	<b>No COLA</b>	<b>3% COLA</b>	<b>5% COLA</b>
<b>Past Service Liability</b>	3,742,590	4,911,223	5,780,480
<b>Value of Plan Assets</b>	(\$9,570)	(\$9,570)	(\$9,570)
<b>Unfunded Past Service Liability</b>	\$3,752,160	\$4,920,793	\$5,790,050
<b>Amortization of Unfunded Past Service Liability for the period indicated</b>			
<b>10 years</b>	\$462,607	\$606,689	\$713,861
<b>15 Years</b>	\$337,473	\$442,582	\$520,763
<b>20 Years</b>	\$276,091	\$362,081	\$426,042

**City of Henderson Police and Fire Pension Fund**

**Exhibit C**

**Statement of Net Assets FYE June 30, 2016**

Item

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**ASSETS**

Cash	\$732.67
Investments	0.00
Receivables	
Due from General Fund	0.00
Accrued Interest	<u>0.00</u>
Total Assets	\$732.67

**LIABILITIES**

Accounts Payable	(\$10,302.66)
Due to Other Funds	<u>0.00</u>
Total Liabilities	(10,302.66)

**NET ASSETS** (\$9,569.99)

**City of Henderson Police and Fire Pension Fund**

**Exhibit D**

**Statement of Income July 1, 2015 through June 30, 2016**

Item

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**INCOME**

Contributions

Employer \$0.00

Employee 0.00

Tax Revenue 187.53

Transfer from General Fund 386,000.00

Transfer from General Fund - Employee 0.00

Investment Income 2.47

Total Income \$386,190.00

**EXPENSES**

All Benefits Paid (382,822.85)

Professional Services (3,658.00)

Trust Fees 0.00

Total Expenses (\$386,480.85)

NET INCOME (\$290.85)

Adjustment for prior year receivables 0.00

Beginning Assets July 1, 2015 (9,279.14)

Ending Assets June 30, 2016 (\$9,569.99)



THE CITY OF HENDERSON  
POLICE AND FIRE PENSION FUND

EXHIBIT E

PLAN SPECIFICATIONS

Effective Date:	June 30, 1946
Governing Provisions:	Kentucky Revised Statutes 95.621 to 95.629
Eligibility:	Police and firefighters hired on or prior to August 1, 1988 remain covered by this plan unless the employee elected to transfer pension coverage to the County Employees Retirement System (CERS). All police and firefighters hired after August 1, 1988 are covered under CERS.
Retirement Date:	Anytime after completion of at least twenty (20) years of service.
Retirement Benefit:	50% of final monthly salary plus 2% of final monthly salary per year of service between 20 and 25, plus 3% of final monthly salary per year of service between 25 and 30.
Vesting:	Rights in a service retirement monthly benefit vest upon completion of twenty (20) years of service. A participant withdrawing from service prior to twenty (20) years of service will receive a refund of his contributions, without interest.
Death Benefits:	<p>The surviving spouse is entitled to immediate income equal to 50% of the participant's last rate of pay regardless of the length of the participant's service if death is due to occupational causes; otherwise one year of service is required. This death benefit ceases at the spouse's death or remarriage. In addition, \$ 24 per month is payable to the spouse for each minor child until each child attains age eighteen (18).</p> <p>If no spouse survives or if the spouse remarries, each minor child is entitled to \$ 24 until the child reaches age eighteen (18).</p>

THE CITY OF HENDERSON  
POLICE AND FIRE PENSION FUND

EXHIBIT E

PLAN SPECIFICATIONS, CONTINUED

- Death Benefits (cont.): If neither a spouse nor minor children survive the participant, then dependent parents are entitled to 25% of the participant's salary.
- These benefits are also payable upon the death of a retired participant.
- Disability Benefits: Benefit equal to 50% of the participant's final monthly salary. Upon his death, his survivors receive benefits under the death benefit provisions.
- Employee Contributions: Each active participant contributes at the same rate as required by the Social Security Administration (currently 7.65%).

THE CITY OF HENDERSON  
POLICE AND FIRE PENSION FUND

EXHIBIT E

ACTUARIAL ASSUMPTIONS

Investment Return:	4% compounded annually. Prior to the July 1, 2004 actuarial valuation, 8% compounded annually.
Salary Increases:	N/A
Retirement Age:	Completion of 20 years of service.
Turnover:	None
Mortality:	Pre- and post-retirement is the UP 1994 Mortality Table projected to 2002 with separate tables for males and females.  Disabled lives based upon the mortality table in Revenue Ruling 96-7.
Disability:	None.
Pre-retirement Death Benefit:	100% marriage assumption with husbands three years older than their wives.
Asset Valuation Method:	Market value.
Actuarial Cost Method:	Entry Age Normal Method.



October 18, 2016

VIA E-mail

Mr. Robert Gunter, Finance Director  
The City of Henderson  
Henderson Municipal Center  
222 1<sup>st</sup> Street, First Floor  
Henderson, KY 42420-3181

RE: GASB 67 for City of Henderson Police & Fire Pension Fund at June 30, 2016

Attached are information and exhibits for preparing the notes to the Financial Statements for the City of Henderson.

**Value of Investments:** Investments are reported at fair market value.

**Plan Description:** This is a single employer defined benefit plan that provides pensions for police and firefighters that were hired prior to August 1, 1988.

Plan membership at June 30, 2016 is as follows:

Inactive members or beneficiaries receiving benefits:	18
Inactive members entitled to future benefits:	0
Active members:	<u>0</u>
Total	18

**Benefits Provided:** The Plan provides retirement, disability and death benefits. Plan members receive a benefit of 50% of final monthly salary for completion of 20 years of service with increases for service greater than 20. Retirement is upon the completion of 20 years of service. Early and late retirement benefits are actuarially adjusted.

**Contributions:** The City contributes the cost calculated by an independent Actuary. Such actuarially determined cost is the estimated amount necessary to **finance any unfunded accrued liability over 15 years. For the year ending June 30, 2016**, the City contributed \$386,000.

**Investment Categories:**

<u>Asset Class</u>	<u>Allocation</u>
Cash	100.0%

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**Rates of Return:** For the year ended June 30, 2016, the annual money-weighted rate of return on pension plan investments, net of expense, was 0.00%.

**Allocated Insurance Contracts:** There are none.

**Deferred Retirement Option Programs:** None.

**Net Pension Liability as of June 30, 2016:**

Total Pension Liability	\$4,528,508
Plan Fiduciary Net Position	(9,570)
City's Net Pension Liability	4,538,078
Plan Fiduciary Net Position as a percentage of the total pension liability	-0.21%

**Primary Actuarial Assumptions:** The total pension liability was determined by an actuarial valuation as of June 30, 2016 using the following primary assumptions:

Inflation:	None
C.O.L.A.:	2%
Mortality:	RP-2015

**Discount Rate:** The discount rate used to measure the total pension liability was 4.0%. The projection of cash flows used to determine the discount rate assumed that City contributions will be made at rates equal to the actuarially determined contribution rates. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Sensitivity of the net pension liability to changes in the discount rate. The following presents the net pension liability of the City, calculated using the discount rate of 4.0%, as well as what the City's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (3.0%) or 1-percentage-point higher (5.0%) than the current rate:

	1% Decrease 3.0%	Current Discount 4.0%	1% Increase 5.0%
City Net Pension Liability	\$5,010,526	\$4,528,508	\$4,098,760

Mr. Robert Gunter, Finance Director  
The City of Henderson  
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October 18, 2016

GASB 67 requires that the Actuary use realistic assumptions, therefore, the mortality experience uses the 2016 table, and a 2% COLA was assumed on future benefit payments.

If you or your Board members have any questions, please contact me.

Sincerely,



Bob J. Bolin, FSA, MAAA, EA, FCA  
Actuary / Principal

BJB/mht

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**City of Henderson Police and Fire Pension Fund**

**FOR FISCAL YEAR ENDING June 30, 2016**

**Schedule of Changes in the Net Pension Liability and Related Ratios**

	<b>2016</b>	<b>2015*</b>
<b>Total Pension Liability</b>		
Service cost	(\$3,658)	(\$3,720)
Interest	183,171	187,904
Changes of benefit terms	0	0
Differences between expected and actual experience	(38,869)	85,141
Changes of assumptions*	0	0
Benefit Payments	(382,823)	(392,484)
<b>Net change in total pension liability</b>	<u>(242,179)</u>	<u>(123,159)</u>
Total pension liability--beginning	4,770,687	4,893,846
Total pension liability--ending (a)	4,528,508	4,770,687
<b>Plan Fiduciary Net Position</b>		
Contributions---Employer	386,000	399,000
Contributions---Employee	0	0
Net investment income(c)	188	370
Benefit Payments	(382,823)	(392,484)
Administration expenses	(3,658)	(3,720)
Other	2	(5,454)
<b>Net change in plan fiduciary net position</b>	<b>(291)</b>	<b>(2,288)</b>
Plan fiduciary net position--beginning	(9,279)	(6,991)
Plan fiduciary net position--ending (b)	(9,570)	(9,279)
<b>Net Pension Liability (a) - (b)</b>	<b>4,538,078</b>	<b>4,779,966</b>
Plan fiduciary net position as a percentage of the total pension liability	<b>-0.21%</b>	<b>-0.19%</b>
Covered employee payroll	0	0
<b>Net Pension Liability as a percentage of covered employee payroll</b>	<b>N/A</b>	<b>N/A</b>

\* Mortality assumption updated in 2015 and a 2% COLA was assumed

**City of Henderson Police and Fire Pension Fund**

**FOR FISCAL YEAR ENDING June 30, 2016**

	<b>GASB67 Measurement</b>	<b>06/30/2016</b>	<b>06/30/2015</b>
<b>Input</b>			
<b>Interest Rate for liability</b>		4%	4%
<b>Contributions by employer</b>		386,000	399,000
<b>Employee contributions</b>		0	0
<b>Benefits paid</b>		382,823	392,484
<b>Plan expenses</b>		(3,658)	-3,720
<b>Plan Assets at Fair Value EOY</b>		(9,570)	(9,279)
<b>Assets BOY</b>		(9,279)	(6,991)
<b>Interest cost</b>		183,171	187,904
<b>Service Cost (Normal Cost)</b>		0	0
<b>Total Pension Liability BOY</b>		4,770,687	4,893,846
<b>Total Pension Liability EOY</b>		4,528,508	4,770,687
<b>Change in assumptions</b>		0	0
<b>Plan amendment</b>		0	0
		183171.02	187904.16
			4,571,035



**City of Henderson Police and Fire Pension Fund  
Computation of Pension Expense -- June 30, 2016**

**Components of Total Pension Expense**

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<b>Service cost</b>	<b>0</b>
<b>Interest on Total Pension Liability</b>	
(a) Total Pension Liability	\$4,770,687
(b) Expected distributions, weighted for timing	191,412
(c) Average expected Liability (a) - (b)	4,579,276
(d) Discount Rate	4%
(e) Interest Cost (d) x (c)	183,171
<b>Differences between expected and actual experience</b>	<b>50,877</b>
<b>Changes of assumptions</b>	<b>0</b>
<b>Projected earnings on pension plan investments</b>	<b>0</b>
<b>Differences between projected and actual earnings on plan investments</b>	<b>0</b>
<b>Pension plan administrative expense</b>	<b>3,658</b>
<b>Other changes in fiduciary net position</b>	
<b>Total pension expense</b>	<b>237,706</b>
<b>Interest Rate</b>	<b>4%</b>

City of Henderson Police and Fire Pension Fund  
 Amortization Schedules—June 30, 2015  
 06/30/2015

Year Originated	Description	Amount	Remaining Life	Amortization	Remaining 06/30/2014	Remaining 06/30/2015	Remaining 06/30/2016	Amort. Payment
<b>Deferred Inflows:</b>								
06/30/2014	Difference in Expected and Actual Experience:	-731,214.00	15.300	(47,792)	-683,422.00	-635,630.00	-587,838.00	-47,792.00
06/30/2014	Difference in Actual Investment Earnings and Estimate:	N/A	-	-	0.00	0.00	0.00	
<b>Deferred Outflows:</b>								
06/30/2014	Changes in Actuarial Assumptions:	N/A	-	-	0.00	0.00	0.00	
06/30/2015	Changes in Actuarial Assumptions:	0.00			0.00	0.00		
06/30/2015	Difference in Expected and Actual Experience:	-85,140.84	15.000	(5,676)		-79,464.84	-73,788.84	-5,676.00
06/30/2015	Difference in Actual Investment Earnings and Estimate:	N/A	5.000	-		0.00	0.00	
06/30/2016	Difference in Expected and Actual Experience:	38,869.02	15.000	2,591			2,591.00	-50,877.00
06/30/2016	Difference in Actual Investment Earnings and Estimate:						36,278.02	

	06/30/2015	06/30/2016
Deferred Inflows:	-635,630.00	-587,838.00
Deferred Outflows:	0.00	0.00
Difference in Expected and Actual Experience:	-53,468.00	-50,877.00
Difference in Actual Investment Earnings and Estimate:	0.00	0.00
Changes in Actuarial Assumptions:	0.00	0.00
Change in Deferred Inflows:		
Change in Deferred Outflows:	0.00	0.00

Pension Expense:

**City of Henderson Police and Fire Pension Fund**  
**Schedule of Contributions**  
**Last 10 Years**

	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Actuarially Determined Contribution	\$ 355,293	\$ 362,840	\$ 396,671	\$ 401,983	\$ 384,553	\$ 405,070	\$ 385,099	\$ 370,618	\$ 375,317	\$ 363,343
Contribution in relation to lthe actuarially determined contribution	\$ 386,000	\$ 399,000	\$ 412,000	\$ 418,000	\$ 418,000	\$ 424,775	\$ 16,083	\$ 291,013	\$ 424,749	\$ 392,639
Contribution deficiency (excess)	<u>\$ (30,707)</u>	<u>\$ (36,160)</u>	<u>\$ (15,329)</u>	<u>\$ (16,017)</u>	<u>\$ (33,447)</u>	<u>\$ (19,705)</u>	<u>\$ 369,016</u>	<u>\$ 79,605</u>	<u>\$ (49,432)</u>	<u>\$ (29,296)</u>
Covered Payroll	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Contribution as a percentage of covered employee payroll	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Notes:**

**Methods and Assumptions:**

Actuarial Cost Method	Entry Age
Asset Valuation Method	Market Value
Withdrawal	none
Salary Increases	N/A
Investment Rate of Return	4%
Retirement Age	20 years
Mortality	In the 2015 actuarial valuation, the assumed life expectancies are according to the RP-2015 Mortality Table.
COLA	2%