



Cavanaugh Macdonald
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**Report on the Actuarial Valuation of the
General Retirement System for
Employees of Jefferson County**

Prepared as of October 1, 2020





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

January 28, 2021

Pension Board
The General Retirement System
for Employees of Jefferson County
716 Richard Arrington Jr., Boulevard, N., Suite 430
Birmingham, AL 35203

Ladies and Gentlemen:

Section 2.4(c) of Act No. 2013-415 governing the operation of the General Retirement System for Employees of Jefferson County provides that the actuary shall make valuations of the assets and liabilities of the Retirement System. We submit herewith the report giving the results of the valuation of the System prepared as of October 1, 2020. The report indicates that County contributions at the rate of 6.00% of compensation are sufficient to support the benefits of the System as in effect as of the valuation. In preparing the valuation, the actuary relied on data provided by the System. While not verifying data at the source, the actuary performed tests for consistency and reasonableness.

The System is funded on an actuarial reserve basis. The actuarial assumptions recommended by the actuary and adopted by the Board are both individually, and in the aggregate reasonably related to the experience under the System and to reasonable expectations of anticipated experience under the System. The funding objective of the plan is that contribution rates over time will remain level as a percent of payroll. The valuation method used in the most recent valuation is the entry age normal cost method. The normal contribution rate to cover current cost has been determined as a level percent of payroll. Gains and losses are reflected in the unfunded accrued liability which is being amortized by regular contributions as a level percent of payroll.

Since the previous valuation, the interest rate was lowered from 7.00% to 6.75%. This interest rate was adopted by the board on December 10, 2020. In addition, a one-time benefit increase was granted in December 2019, to members retired as of October 1, 2019.

The Plan is required to comply with the financial reporting requirements under GASB statement No. 67. In addition, the employer is required to comply with the financial reporting requirements under GASB statement No. 68. The necessary disclosure information has been provided in separate supplemental reports.

In our opinion the System is operating on an actuarially sound basis and the sufficiency of the retirement funds to provide the benefit called for by the System may be safely anticipated. The normal cost rate of the System continues to be in excess of the current total rate of contributions which will require a sufficient surplus (assets greater than liabilities) in order to ensure ongoing actuarial soundness.

This is to certify that the independent consulting actuary is a member of the American Academy of Actuaries and has experience in performing valuations for public retirement systems, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement system and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the System.



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Future actuarial results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

We note that as we are preparing this report, the world is in the midst of a pandemic. We have considered available information, but do not believe that there is yet sufficient data to warrant the modification of any of our assumptions prior to the upcoming experience study.

In order to prepare the results in this report, we have utilized appropriate actuarial models that were developed for this purpose. These models use assumptions about future contingent events along with recognized actuarial approaches to develop the needed results.

Sincerely yours,

A handwritten signature in blue ink that reads 'John J. Garrett'.

John J. Garrett, ASA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in blue ink that reads 'Cathy Turcot'.

Cathy Turcot
Principal and Managing Director



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**REPORT ON THE ACTUARIAL VALUATION OF
THE GENERAL RETIREMENT SYSTEM
FOR EMPLOYEES OF JEFFERSON COUNTY
PREPARED AS OF OCTOBER 1, 2020**

SECTION I – SUMMARY OF PRINCIPAL RESULTS

1. For convenience of reference, the principal results of the valuation and a comparison with the results of the previous valuation are summarized below:

VALUATION DATE	10/01/2020	10/01/2019
Number of active members	2,556	2,608
Annual compensation	\$ 150,285,517	\$ 148,941,376
Number of retired members and beneficiaries	2,467	2,432
Annual benefits	\$ 70,287,112	\$ 66,975,971
Number of former members entitled to deferred vested benefits	118*	112**
Annual deferred vested benefits	\$ 2,401,735	\$ 2,198,305
Assets:		
Actuarial value	\$ 1,244,959,689	\$ 1,204,591,468
Market value	1,242,596,894	1,213,737,159
Unfunded accrued liability	\$ (129,410,461)	\$ (138,617,005)
Amortization period	21 years	32 years
Funded Percent	111.6%	113.0%
CONTRIBUTION RATES		
Annual required contribution (ARC) of County:		
Normal***	11.69%	10.93%
Unfunded accrued liability	<u>(5.69)</u>	<u>(4.93)</u>
Total	6.00%	6.00%
Total contribution rates:		
Normal	17.69%	16.93%
Unfunded accrued liability	<u>(5.69)</u>	<u>(4.93)</u>
Total	12.00%	12.00%

* In addition, there are 68 former members who had terminated as of the valuation date and who had not received a refund of their contributions (totaling \$1,245,152).

** In addition, there are 42 former members who had terminated as of the valuation date and who had not received a refund of their contributions (totaling \$1,008,733).

*** Includes 1.00% for administrative expenses.



2. Comments on the valuation results as of October 1, 2020 are given in Section V and further discussion of the contribution levels is set out in Section VI.
3. Schedule C shows the development of the actuarial value of assets. Schedule E of this report outlines the full set of actuarial assumptions and methods employed. Since the previous valuation, the interest rate was lowered from 7.00% to 6.75%.
4. Schedule F of this report outlines the main System provisions employed. The valuation reflects the one-time benefit increase that was granted in December 2019, to members retired as of October 1, 2019.

SECTION II – MEMBERSHIP

1. The following table shows the number of active members and their annual compensation as of October 1, 2020 on the basis of which the valuation was prepared.

THE NUMBER AND ANNUAL COMPENSATION OF ACTIVE MEMBERS AS OF OCTOBER 1, 2020

NUMBER	ANNUAL COMPENSATION
2,556	\$150,285,517

2. The following table shows the number and annual retirement allowances payable to retired members and beneficiaries as of the valuation date.



**THE NUMBER AND ANNUAL RETIREMENT BENEFITS OF
RETIRED MEMBERS AND BENEFICIARIES
AS OF OCTOBER 1, 2020**

GROUP	NUMBER	ANNUAL RETIREMENT BENEFITS
Service Retirements	2,139	\$ 64,959,956
Beneficiaries of Deceased Members	257	4,213,135
Disability Retirements	<u>71</u>	<u>1,114,021</u>
Total	2,467	\$ 70,287,112

In addition, there are 118 former members entitled to deferred vested retirement benefits totaling \$2,401,735 and 68 former members who had terminated as of the valuation date but who had not received a refund of their contributions.

3. Table 1 of Schedule G gives a distribution by age and service groups of the number and average pay of active members included in the valuation. Tables 2, 3, 4 and 5 give the number and annual benefits of retired members and beneficiaries included in the valuation, distributed by age.

SECTION III – ACTUARIAL COST METHOD

1. The valuation is prepared on the projected benefit basis, under which the present value, at the interest rate assumed to be earned in the future (currently 6.75%), of each member's expected benefit payable at retirement or death is determined, based on his age, service, sex and compensation. The calculations take into account the probability of a member's death or termination of employment prior to becoming eligible for a benefit, as well as the probability of his terminating with a service, disability or survivor's benefit. Future salary increases are also anticipated. The present value of the expected benefits payable on account of the active members is added to the present value of the expected future payments to retired members and beneficiaries to obtain the present value of all expected benefits payable from the System on account of the present group of members and beneficiaries.



2. The contributions required to support the benefits of the System are determined following a level funding approach, and consist of a normal contribution and an accrued liability contribution.
3. The normal contribution is determined using the “entry age normal” method. Using this method, a calculation is made to determine the uniform and constant percentage rate of County contribution which, if applied to the compensation of each member during the entire period of his anticipated covered service, would be required in addition to the contributions of the member to meet the cost of all benefits payable on his behalf.
4. The present value of future unfunded accrued liability contributions is determined by subtracting the present value of prospective County normal contributions and member contributions (currently 6.00%), together with the current assets held, from the present value of expected benefits to be paid from the System.

SECTION IV – ASSETS

1. The amount of assets taken into account in this valuation was based on information provided by the auditors. As of October 1, 2020, the market value of assets amounted to \$1,242,596,894. Schedule B shows a reconciliation of market value of assets for the two years prior to the valuation date. As of October 1, 2020, the market related actuarial value of assets used for valuation purposes was \$1,244,959,689, as developed in Schedule C.

SECTION V – COMMENTS ON VALUATION

1. Schedule D of this report contains the valuation balance sheet which shows the present and prospective assets and liabilities of the System as of October 1, 2020.
2. The valuation balance sheet shows that the System has total prospective liabilities of \$1,343,629,087. Of this amount, \$720,274,184 is for the prospective benefits payable on account of present retired members, beneficiaries of deceased members and former members entitled to deferred vested benefits or a refund of contributions, and \$623,354,903 is for the prospective benefits payable on account of present active members. Against these liabilities, the System has total present assets of \$1,244,959,689 as of October 1, 2020. The difference of \$98,669,398



between the total liabilities and the total present assets represents the present value of future contributions.

3. The contributions to the System consist of normal contributions and accrued liability contributions. The valuation indicates that normal contributions at the rate of 16.69% of payroll are sufficient to pay the normal costs of the System. An additional 1.00% is required for administrative expenses, making the total normal rate 17.69%. Of this amount, 6.00% is paid by the members and the remaining 11.69% is required by the County.
4. Prospective normal contributions at the rate of 16.69% have a present value of \$228,079,859. When this amount is subtracted from \$98,669,398, which is the present value of total future contributions, there remains \$(129,410,461) as the amount of unfunded accrued liability (UAL) contributions. The surplus UAL is expected to be fully amortized within 21 years at a rate of (5.69)% of payroll. The development of the unfunded accrued liability is shown in Schedule A. The funded ratio of the System is the ratio of assets to the actuarial accrued liability. This ratio as of October 1, 2020, based on actuarial value of assets which recognizes gains and losses over a five year period, is 111.6%.
5. It is important to note that since the normal cost contribution rate of 17.69% for the annual benefits earned and administrative expenses, is greater than the total rate of contributions of 12.00% to the System, an objective of the System should be to maintain a surplus UAL that would be expected to never be fully amortized (infinite amortization period). Maintaining this objective would ensure the actuarial soundness of the System's funding for both current and future retirees.
6. The UAL based on the current market value of assets, assuming the immediate recognition of all deferred asset gains and losses, is \$(127,047,666). On this basis, the funded ratio is 111.4%.



SECTION VI – CONTRIBUTIONS PAYABLE BY COUNTY

It is recommended on the basis of the present valuation that the County make contributions to the System according to the rates shown in the following table:

CONTRIBUTION	PERCENTAGE OF MEMBERS' COMPENSATION
Normal (Includes 1.00% for Expenses)	11.69%
Unfunded accrued liability	<u>(5.69)</u>
Total	6.00%



SECTION VII – ACCOUNTING INFORMATION

The information required under the Governmental Accounting Standards Board (GASB) Statements No. 67 and 68 for the Plan and the County will be issued in separate reports. The following is provided for informational purposes only.

- The following is a distribution of the number of employees by type of membership.

**NUMBER OF ACTIVE AND RETIRED MEMBERS
AS OF OCTOBER 1, 2020**

GROUP	NUMBER
Retirees and beneficiaries currently receiving benefits	2,467
Terminated members entitled to benefits but not yet receiving them	186
Active members	<u>2,556</u>
Total	5,209

- The schedule of funding progress is shown below.

**SCHEDULE OF FUNDING PROGRESS
Dollar Amounts in Thousands**

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b - a) / c)
10/01/2015	\$1,038,953,354	\$970,675,625	\$(68,277,729)	107.0%	\$113,089,076	(60.4)%
10/01/2016	1,084,886,713	1,007,174,968	(77,711,745)	107.7	124,769,019	(62.3)
10/01/2017	1,125,217,227	1,024,939,296	(100,277,931)	109.8	131,976,909	(76.0)
10/01/2018	1,172,618,765	1,045,751,504	(126,867,261)	112.1	143,426,027	(88.5)
10/01/2019	1,204,591,468	1,065,974,464	(138,617,004)	113.0	148,941,376	(93.1)
10/01/2020	1,244,959,689	1,115,549,228	(129,410,461)	111.6	150,285,517	(86.1)



3. The information presented above was determined as part of the actuarial valuation at October 1, 2020. Additional information as of the latest actuarial valuation follows.

Valuation date	10/01/2020
Actuarial cost method	Entry age
Amortization method	Level percent open
Remaining amortization period	21 years
Asset valuation method	5-year market related value
Actuarial assumptions:	
Investment rate of return*	6.75%
Projected salary increases*	4.25 – 6.75%
Cost-of-living adjustments	None
*Includes inflation at	2.75%



SECTION VIII – EXPERIENCE

1. The last experience investigation was prepared for the five-year period ending September 30, 2018, and based on the results of the investigation, various assumptions and methods were adopted by the Board on October 24, 2019. Valuation investment return assumption was adopted by the Board December 10, 2020.
2. The following table shows the estimated gain or loss from various factors that resulted in a increase of \$9,206,544 in the unfunded accrued liability from \$(138,617,005) to \$(129,410,461) during the fiscal year ending September 30, 2020.

ANALYSIS OF THE INCREASE IN UNFUNDED ACCRUED LIABILITY (in thousands of dollars)

ITEM	AMOUNT OF INCREASE/ (DECREASE)
Interest (7.00%) added to previous unfunded accrued liability	\$ (9,703.2)
Accrued liability contribution	7,421.6
Experience:	
Valuation asset growth	(14,250.8)
Pensioners' mortality	(4,588.7)
Turnover and retirements	1,416.5
New Entrants	114.3
Salary increases	(100.3)
Method changes	0.0
Amendments (COLAs)	2,756.4
Assumption changes	26,958.5
Miscellaneous changes	<u>(817.7)</u>
Total	9,206.5



SECTION IX – RISK ASSESSMENT

The primary objective of this section is to provide an assessment of risk, as required under Actuarial Standard of Practice Number 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions. There are other risks that the System faces, including issues such as cyber security, a catastrophe to the physical location, and many others. These are outside the scope of our analysis, which focuses only on those risks relating to the variance in the measurement of the benefit obligations as well as the contribution rates. There is no specific action by the Board either required or expected in response to this assessment, although it is possible that a deeper understanding of the risks faced by the System may prompt some additional discussion.

ASOP 51 provides that the assessment of risk does not necessarily have to be quantitative, but may be qualitative. This section will provide the overall assessment of risk for the System from a qualitative perspective.

Measuring pension obligations and actuarially determined contributions requires the use of assumptions regarding future economic and demographic experience. Whenever assumptions are made about future events, there is risk that actual experience will differ from that which is expected.

The primary areas of risk in this actuarial valuation are:

1. Investment Risk - the potential that investment returns will be different than expected.

The greatest single source for future contribution volatility is expected to be attributable to the actual investment rate of returns. Although the System is well-funded, the significant degree of market volatility that can be expected by diversely invested pension plans today can result in severe changes to actuarial condition. The System has historically maintained an assumption for rates of investment returns below the median of large public plans. This provides a margin in the plans measures of liabilities for adverse experience and reduces the investment risk inherent to a funded plan.

The impact of potential market return volatility is also lessened through the asset smoothing method utilized in determining the funding requirements. The delayed recognition of the asset losses would allow for the System to experience gains due to a market recovery before the full impact of losses are reflected in the System's funded status and determined contributions.

2. Longevity and Other Demographic Risks – the potential that mortality or other demographic experience will be different than expected.

Generally, these demographic risks emerge slowly over time. The impact of variances in actual and expected demographic experience are measured in each annual valuation by the source of the System's actuarial liability gains and losses. Over several valuations, the emerging trends in demographic experience can be identified and initiate consideration of changes to certain assumptions. A process of annual actuarial valuations and periodic experience studies are practical ways to monitor and reassess risk.

3. Contribution Risk – The potential that the actuarially determined contributions of the System will exceed the current fixed contribution rates.

Although the System currently has a surplus of assets over liabilities, future negative experience could reduce the surplus position. The cost of benefit accruals for the active members annually exceeds the total contributions received and requires the maintenance of a sufficient surplus position for the System to continue in actuarial balance. Currently, the System is expected to remain in a sufficient surplus position for 21 years. We expect that if an event were to occur that would dramatically impact the surplus position, the Board would have a number of years to consider and implement potential solutions to maintain the System's actuarial balance.



Risk is not necessarily a negative concept. As humans, we regularly take risks such as driving in an automobile because we believe that the gain to be received outweighs the possible negative consequences. We do, however, take steps to mitigate the risk by looking both ways at an intersection before proceeding, wearing seatbelts, etc. We do these things, because we have some understanding of the sources of risk. The goal of this report is to help the Board understand the major risks facing the System's actuarial condition.



SCHEDULE A

**DEVELOPMENT OF THE UNFUNDED ACTUARIAL ACCRUED LIABILITY
AS OF OCTOBER 1, 2020**

(1)	Present Value of Future Benefits:	
	(a) Present Active Members	\$ 623,354,903
	(b) Present Retired Members, Beneficiaries and Former Members Entitled to Deferred Vested Benefits or Refunds of Contributions	<u>720,274,184</u>
	(c) Total	\$ 1,343,629,087
(2)	Present Value of Future County and Member Normal Contributions	<u>228,079,859</u>
(3)	Actuarial Accrued Liability [1(c) – (2)]	\$ 1,115,549,228
(4)	Actuarial Value of Assets	<u>1,244,959,689</u>
(5)	Unfunded Actuarial Accrued Liability (UAAL) [(3) – (4)]	\$ (129,410,461)
(6)	Amortization of UAAL	\$ (8,551,246)
(7)	Contribution Rate as a % of Payroll	
	(a) Normal Cost (Includes 1.00% for Expenses)	17.69%
	(b) UAAL	<u>(5.69)</u>
	(c) Total	12.00%



SCHEDULE B

RECONCILIATION OF MARKET VALUE OF ASSETS

	October 1, 2020	October 1, 2019
Market Value of Assets as of October 1 of Previous Year	\$ 1,213,737,159	\$ 1,232,532,846
Expenditures		
- Benefit Payments	\$ (71,905,484)	\$ (65,397,271)
- Refunds of Employee Contributions	(1,392,047)	(1,447,637)
- Administrative Expenses	<u>(1,726,065)</u>	<u>(1,647,947)</u>
- Total	\$ (75,023,596)	\$ (68,492,855)
Contributions		
- Employer	\$ 9,179,897	\$ 8,709,656
- Employee	9,176,957	8,676,606
- Other	<u>712,049</u>	<u>670,527</u>
- Total	\$ 19,068,903	\$ 18,056,789
Investment Income	\$ 85,095,428	\$ 31,931,806
Transfer to 415 Account	\$ (281,000)	\$ (291,427)
Market Value of Assets as of October 1 of Current Year	\$ 1,242,596,894	\$ 1,213,737,159
Investment Rate of Return	7.15%	2.62%



SCHEDULE C

**DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS
AS OF OCTOBER 1, 2020**

(1)	Actuarial Value Beginning of Year	\$ 1,204,591,468
(2)	Market Value End of Year	\$ 1,242,596,894
(3)	Market Value Beginning of Year	\$ 1,213,737,159
(4)	Cash Flow	
	a. Contributions	\$ 19,068,903
	b. Benefit Payments and Administrative Expense	(75,023,596)
	c. Transfer to 415 Account	(281,000)
	d. Investment Expenses	<u>(4,888,086)</u>
	e. Net	\$ (61,123,779)
(5)	Investment Income	
	a. Market total [(2) – (3) – (4)e]	\$ 89,983,514
	b. Assumed Rate For the Plan Year	7.00%
	c. Amount for Immediate Recognition [(3) x (5)b] + [(4)a + (4)b + (4)c) * (5)b * 0.5] – (4)d	\$ 87,881,438
	d. Amount for Phased-In Recognition [(5)a – (5)c]	\$ 2,102,076
(6)	Phased-In Recognition of Investment Income	
	a. Current Year [0.20 * (5)d]	\$ 420,415
	b. First Prior Year	(10,514,006)
	c. Second Prior Year	9,157,131
	d. Third Prior Year	9,183,292
	e. Fourth Prior Year	<u>5,363,730</u>
	f. Total Recognized Investment Gain	\$ 13,610,562
(7)	Actuarial Value End of Year [(1) + (4)e + (5)c + (6)f]	\$ 1,244,959,689
(8)	Difference Between Market & Actuarial Values [(2) – (7)]	\$ (2,362,795)



SCHEDULE D

**VALUATION BALANCE SHEET
SHOWING THE PRESENT AND PROSPECTIVE ASSETS AND LIABILITIES OF
THE GENERAL RETIREMENT SYSTEM FOR EMPLOYEES OF JEFFERSON COUNTY
PREPARED AS OF OCTOBER 1, 2020**

ASSETS	
Present Assets of the System	\$1,244,959,689
Present Value of Prospective Contributions:	
County and Members Normal Contributions	\$ 228,079,859
Unfunded Accrued Liability Contributions	<u>(129,410,461)</u>
Total Prospective Contributions	<u>98,669,398</u>
Total Assets	<u>\$1,343,629,087</u>
LIABILITIES	
Present Value of Benefits Payable on Account of Retired Members, Beneficiaries and Former Members Entitled to Deferred Vested Benefits or Refunds of Contributions	\$ 720,274,184
Present Value of Prospective Benefits payable on Account of Present Active Members	<u>623,354,903</u>
Total Liabilities	<u>\$1,343,629,087</u>



SCHEDULE E

OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS

The assumptions and methods used in the valuation are effective beginning October 1, 2019 and were selected based on the experience investigation for the five-year period ending September 30, 2018 adopted by the Board on October 24, 2019. The valuation investment return assumption was adopted by the Board December 10, 2020.

INVESTMENT RATE OF RETURN: 6.75% per annum, compounded annually.

SALARY INCREASES: Representative values of the assumed annual rates of future salary increases are as follows and include inflation at 2.75% per annum:

Annual Rate of Salary Increase	
<u>Years of Service</u>	<u>Rate</u>
0	6.75%
2	6.50
4	6.25
6	6.25
8	6.00
10+	4.25

SEPARATIONS FROM ACTIVE SERVICE: Mortality rates are according to the Pub-2010 Headcount-Weighted Below Median Mortality Table adjusted by 105% for males and 110% for females projected generationally with scale MP-2018. Representative values of the assumed annual base rates of death, disability, withdrawal and service retirement are as follows:

<u>Age</u>	<u>Annual Base Rate of Mortality</u>		<u>Annual Rate of</u>
	<u>Male</u>	<u>Female</u>	<u>Disability*</u>
20	0.04%	0.02%	0.04%
25	0.04	0.01	0.04
30	0.05	0.02	0.04
35	0.06	0.03	0.08
40	0.09	0.05	0.08
45	0.12	0.07	0.12
50	0.19	0.11	0.20
55	0.27	0.16	0.24
60	0.39	0.23	0.28
65	0.57	0.36	
69	0.79	0.53	

*10% of disabilities are assumed to be due to service related causes and 90% to non-service related causes.



Annual Rate of Service Withdrawal	
<u>Years of Service</u>	<u>Rate</u>
0	9.75%
2	8.25
4	6.00
6	4.50
8	2.63
10+	2.25

Annual Rate of Service Retirement			
<u>Age</u>	<u><30 Years of Service</u>	<u>30 Years of Service</u>	<u>>=31 Years of Service</u>
50	5.0%	60.0%	50.0%
55	15.0	60.0	50.0
60	20.0	60.0	50.0
62	30.0	80.0	50.0
65	40.0	80.0	50.0
70	50.0	80.0	50.0

DEATHS AFTER RETIREMENT: According to the Pub-2010 Headcount-Weighted Below Median Mortality Table adjusted by 105% for males and 110% for females projected generationally with scale MP-2018. Representative values of the assumed annual base rates of death after retirement are as follows:

<u>Age</u>	<u>Service Retirement</u>		<u>Disability Retirement</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
45	0.12%	0.07%	1.15%	1.08%
50	0.97	0.67	1.79	1.63
55	1.07	0.61	2.34	1.92
60	1.19	0.62	2.86	2.24
65	1.40	0.79	3.56	2.70
70	2.22	1.33	4.55	3.47
75	3.69	2.30	6.01	4.79
80	6.26	4.05	8.47	7.07
85	10.63	7.37	12.36	10.90
90	17.41	13.76	17.80	15.94
95	25.74	22.14	25.74	22.41



LOADING: The average monthly compensation was increased 4.50% to allow for the practice of including a portion of unused vacation pay in the benefit calculations.

PERCENT MARRIED: 95% of active members are assumed to be married, with husbands three years older than their wives.

ACTUARIAL COST METHOD: Entry age normal. Gains and losses are reflected in the unfunded accrued liability.

ASSET VALUATION METHOD: Actuarial value as developed in Schedule C. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected value of assets, based on the assumed valuation rate of return. The amount recognized each year is 20% of the difference between market value and expected actuarial value.



SCHEDULE F

**SUMMARY OF MAIN PROVISIONS OF THE SYSTEM
AS INTERPRETED FOR VALUATION PURPOSES**

The following summary gives the main membership, benefit and contribution provisions of the System as interpreted in preparing the actuarial valuation. "Average monthly compensation" means the average earnable compensation of a member during the highest thirty-six consecutive months of service. "Paid membership service" is service during which the member made contributions to either this System or the previous systems.

MEMBERSHIP

All regular employees and officers of Jefferson County who were members of the previous retirement systems became members of this System as of September 1, 1965. All other employees and officers of the County as of September 1, 1965 could elect to join the System. Any person becoming an employee after September 1, 1965 whose employment is subject to the Civil Service System is required to join. Employees whose employment is not subject to the Civil Service System or those who are officers may elect to join.

BENEFITS

Superannuation Retirement

Condition for Retirement	Age 60 and completion of 10 years of paid membership service, or 30 years of paid membership service, or age 55 with 30 years of service of which 20 years must be paid membership service.
Amount of Benefit	(a) The monthly pension is equal to 2-1/2% of the member's average monthly compensation multiplied by the number of years of his paid membership service, not in excess of 30 years; plus



- (b) 5/8% of average monthly compensation, multiplied by the number of years of his unpaid service.

No member shall receive a benefit in excess of 75% of average monthly compensation.

Early Retirement

Regular Early Retirement Benefit

Any member who has completed 30 years of service, including 10 years of paid membership service, may elect to receive a Regular Early Retirement Benefit.

The Regular Early Retirement Benefit is determined by multiplying the pension based on service and average monthly salary at the date of early retirement, by the percentage shown in the following table, according to the member's age on the birthday preceding retirement.

<u>Age</u>	<u>Percentage</u>
59	93%
58	87%
57	82%
56	77%
55	72%
54	68%
53	64%
52	60%
51	57%
50	54%
49	51%
48	48%

25-Year Early Retirement Benefit

Any member who has completed at least 25 years of paid membership service may elect to receive a 25-Year Early Retirement Benefit.

The 25-Year Early Retirement Benefit is determined by multiplying the pension based on service and average monthly salary at the date of early retirement by 7% per year for each year less than 30 years of paid membership.

Non-Service Connected Disability

Condition for Retirement

Any member who becomes disabled for reasons not connected with service after 10 or more years of paid membership service is entitled to receive a disability pension (full or partial).

Amount of Benefit

The monthly disability pension is computed in the same manner as the superannuation retirement benefit,



reduced for early commencement by the percentage shown in the following table. The early retirement factor is based on the number of years until the member would have been eligible for unreduced retirement benefits assuming continued employment.

<u>Years Early</u>	<u>Percentage</u>	<u>Years Early</u>	<u>Percentage</u>
1	93%	7	64%
2	87	8	60
3	82	9	57
4	77	10	54
5	72	11 or more	50
6	68		

Service Connected Disability

Condition for Retirement

Any member who becomes incapacitated for further performance of duty by reason of personal injury received as the result of an accident arising out of and in the course of employment is entitled to receive monthly disability benefits.

Amount of Benefit

The monthly disability pension is equal to 60% of the part of the member's monthly salary subject to deductions for pension purposes at the commencement of disability, reduced by workers compensation benefits.

Deferred Retirement

Condition for Retirement

- (a) Any member whose service is involuntarily terminated before eligibility for voluntary retirement who has 18 years of service, including 10 years of paid membership service, is eligible to receive a deferred pension payable either at age 60 or on the date the member would have completed 30 years of service if the member had remained employed by the County, provided the member makes contributions to the system between the termination date and retirement date equal to those both the member and the County would have made during that time on the basis of the member's salary subject to deductions for pension purposes at termination date.
- (b) Any member whose service is involuntarily terminated before eligibility for voluntary retirement who has 20 years of service, including at least 10 years of paid membership service, is eligible to receive a pension, commencing immediately, if the member has attained age 55 at retirement or a deferred pension commencing at age 55 if the member is



less than age 55 at retirement. No contributions are required of the member after involuntary retirement.

- (c) Any member who has completed 10 years of paid membership service and who upon separation from service, whether voluntary or involuntary, is not eligible to receive a superannuation retirement benefit, is eligible to receive a deferred pension payable at age 60.

Amount of Benefit

The monthly pension described under (a) above is payable upon the earlier of (1) the date the member reaches age 60, or (2) the date on which the member would have completed 30 years of service had the member continued employment, and is calculated using the Superannuation Retirement Benefit formula, which is reduced in the same manner as an Early Retirement Benefit if the member has not reached age 60 at the time payment commences.

The monthly pension described under (b) above is payable upon retirement if the member has reached age 55, or, if the member has not reached age 55, payment is delayed until the member attains age 55, and is calculated in accordance with the formula used for a Superannuation Retirement Benefit.

The monthly pension described under (c) above is payable when the member reaches age 60, and is calculated by multiplying the Superannuation Retirement Benefit that the member would have been entitled to receive had the member been age 60 when service terminated by the applicable percentage below:

<u>Years of Paid Membership Time</u>	<u>Percentage</u>
10	50%
11	60
12	70
13	80
14	90
15	100

Instead of receiving a deferred pension, the member may elect to receive a refund of the member's contributions with interest.



Return of Contributions

Upon Termination of Service

Upon termination of service for reasons other than death, before meeting the eligibility requirements for a deferred retirement benefit, a member is entitled to the return of the member's contributions less any disability benefits paid.

Death of Member Before Eligibility for a Deferred Retirement Benefit

Upon death before retirement and before the member is eligible for a deferred retirement benefit, the member's contributions without interest, less any disability benefit payments, are paid to the member's beneficiary, spouse, or legal representative.

Death of Member After Eligibility For Deferred Retirement

Condition for Benefit

Upon death in active service of a member who has completed 10 years of paid membership service, an allowance is payable to the member's surviving spouse, or if an unmarried member so elects, to the member's designated beneficiary.

Amount of Benefit

The pre-retirement survivorship benefit is 100% of the reduced retirement pension the member would have received had retirement occurred on the day of death.

Upon actual retirement, an unmarried member who had elected the pre-retirement joint and survivorship benefit will have his benefit reduced by an amount which is of equivalent actuarial value to the actuarial cost of the coverage for the pre-retirement joint survivorship benefit under such election.

A refund of contributions plus interest is made in lieu of a survivor's benefit if the surviving spouse or dependent so elects.

Optional Benefits

A member may elect to have the superannuation, early retirement or deferred retirement benefit otherwise payable converted to a smaller pension payable during the member's lifetime with the provision that, upon the member's death after pension payments commence, a specified part of such reduced pension will be continued to the member's designated beneficiary. In addition, a member may elect to have the member's benefit converted to a further reduced pension payable as above but with the additional provision that, if the member's designated beneficiary predeceases the member, benefit payments will revert to the unreduced amount and will be payable until the member's death.



Increases to Retired Members and Beneficiaries

The following increases to pensions in pay status have been made:

3% per year (simple interest) with the calculation period beginning on the later of the date of retirement and October 1, 1977, and ending on September 30, 1982. (The maximum increase was 15%.)

3% per year (simple interest) with the calculation period beginning on the later of the date of retirement and October 1, 1982, and ending on September 30, 1984. (The maximum increase was 6%.)

2% per year (simple interest) with the calculation period beginning on the later of the date of retirement and October 1, 1984, and ending on September 30, 1986. (The maximum increase was 4%.)

2% per year (simple interest) with the calculation period beginning on the later of the date of retirement and October 1, 1986, and ending on September 30, 1992. (The maximum increase was 12%.)

2% per year (simple interest) retroactive to October 1, 1992 with a maximum increase of 12%.

2% per year (simple interest) retroactive to October 1, 1998 with a maximum increase of 6%.

1% per year (simple interest) retroactive to October 1, 2001.

2% per year retroactive to October 1, 2004, with the calculation period beginning on the later of the date of retirement and October 1, 2006, and ending September 30, 2007. (The maximum increase was 4%.)

In December 2019 a one-time payment was provided to retirees according to the following schedule:

- Members retired between October 2, 2014 and October 1, 2019 - 20% of the Member's gross monthly benefit.
- Members retired between October 2, 2009 and October 1, 2014 - 40% of the Member's gross monthly benefit.
- Members retired between October 2, 2004 and October 1, 2009 - 60% of the Member's gross monthly benefit.
- Members retired on or before October 1, 2004 - 80% of the member's gross monthly benefit.



CONTRIBUTIONS

By Members

Each member contributes 6% of compensation.

A member who has accrued the maximum retirement benefit of 75% of basic average salary may elect to terminate contributions.

By County

The County pays an amount equal to member's contributions.



SCHEDULE G

TABLE 1

AGE – SERVICE TABLE

Distribution of Active Members as of October 1, 2020 by Age and Service Groups

Attained Age	Completed Years of Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Over	
Under 25	40	33								73
Avg Pay	38,704	39,525								39,075
25 to 29	56	106	21							183
Avg Pay	36,260	42,190	49,792							41,248
30 to 34	44	136	54	7	3					244
Avg Pay	42,436	46,806	53,683	62,782	60,268					48,164
35 to 39	33	124	54	42	21	3				277
Avg Pay	42,416	47,562	56,673	64,991	59,882	62,372				52,462
40 to 44	38	131	35	57	52	56	2			371
Avg Pay	45,780	54,553	68,663	66,749	68,875	63,719	58,055			60,269
45 to 49	30	122	28	47	58	76	34			395
Avg Pay	49,275	58,215	58,686	64,651	74,086	70,211	65,539			63,604
50 to 54	24	98	34	33	52	71	56	6		374
Avg Pay	57,664	57,072	59,102	66,873	70,154	73,218	73,702	97,850		66,188
55 to 59	22	92	30	67	32	56	35	13	1	348
Avg Pay	50,508	55,260	63,197	60,847	75,150	70,420	67,512	78,131	69,716	63,116
60 to 64	4	35	24	43	38	24	20	12		200
Avg Pay	51,693	51,273	58,329	65,546	75,024	67,601	64,587	78,680		64,645
65 to 69	2	9	9	16	8	14	6	6	3	73
Avg Pay	54,313	53,816	92,991	66,355	64,336	79,009	90,638	73,054	112,393	74,407
70 & Over		4	1	6		3	3	1		18
Avg Pay		51,104	16,836	58,861		67,085	70,956	49,561		57,672
Total Count	293	890	290	318	264	303	156	38	4	2,556
Avg Pay	43,939	51,066	59,346	64,558	70,967	69,846	69,763	79,864	101,724	58,797

Average Age 46.15

Average Service 10.06



TABLE 2
NUMBER OF RETIRED MEMBERS
AND THEIR BENEFITS BY AGE
SERVICE RETIREMENTS

<u>Attained Age</u>	<u>Number of Members</u>	<u>Total Annual Benefits</u>	<u>Average Annual Benefit</u>
50 and Under	4	\$ 141,877	\$ 35,469
51 – 55	61	2,645,972	43,377
56 – 60	146	6,206,147	42,508
61 – 65	392	13,749,174	35,074
66 – 70	557	17,685,190	31,751
71 – 75	436	12,464,798	28,589
76 – 80	283	6,684,039	23,619
Over 80	<u>260</u>	<u>5,382,759</u>	<u>20,703</u>
Total	2,139	\$ 64,959,956	\$ 30,369

TABLE 3
NUMBER OF RETIRED MEMBERS
AND THEIR BENEFITS BY AGE
DISABILITY RETIREMENTS

<u>Attained Age</u>	<u>Number of Members</u>	<u>Total Annual Benefits</u>	<u>Average Annual Benefit</u>
50 and Under	2	\$ 54,571	\$ 27,285
51 – 55	8	131,444	16,431
56 – 60	8	168,624	21,078
61 – 65	21	348,752	16,607
Over 65	<u>32</u>	<u>410,630</u>	<u>12,832</u>
Total	71	\$ 1,114,021	\$ 15,690



TABLE 4

NUMBER OF RETIRED MEMBERS
AND THEIR BENEFITS BY AGE

BENEFICIARIES OF DECEASED MEMBERS

<u>Attained Age</u>	<u>Number of Members</u>	<u>Total Annual Benefits</u>	<u>Average Annual Benefit</u>
50 and Under	6	\$ 122,756	\$ 20,459
51 – 55	9	123,715	13,746
56 – 60	15	297,097	19,806
61 – 65	23	416,965	18,129
66 – 70	35	666,828	19,052
71 – 75	42	831,015	19,786
76 – 80	46	777,000	16,891
Over 80	<u>81</u>	<u>977,759</u>	<u>12,071</u>
Total	257	\$ 4,213,135	\$ 16,394

TABLE 5

NUMBER OF DEFERRED FORMER MEMBERS
AND THEIR BENEFITS BY AGE

<u>Attained Age</u>	<u>Number of Members</u>	<u>Total Annual Benefits</u>	<u>Average Annual Benefit</u>
50 and Under	29	\$ 611,460	\$ 21,085
51 – 55	22	496,089	22,549
56 – 60	42	842,760	20,066
61 and over	<u>25</u>	<u>451,426</u>	<u>18,057</u>
Total	118	\$ 2,401,735	\$ 20,354