



**REPORT ON THE ANNUAL VALUATION COVERING
THE PARTICIPATION OF THE CITY OF HATTIESBURG IN
THE MISSISSIPPI MUNICIPAL RETIREMENT SYSTEMS
PREPARED AS OF JUNE 30, 2018**



Cavanaugh Macdonald

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December 12, 2018

Board of Trustees
Mississippi Municipal Retirement Systems
429 Mississippi Street
Jackson, MS 39201-1005

Ladies and Gentlemen:

Presented in this report are the results of the annual actuarial valuation covering the participation of the City of Hattiesburg in the Mississippi Municipal Retirement Systems. The purpose of the valuation was to measure the System's funding progress and to determine the contribution rates necessary for the period beginning October 1, 2019. The results may not be applicable for other purposes.

The date of the valuation was June 30, 2018.

The valuation was based upon data, furnished by the Executive Director and the PERS staff, concerning active, inactive and retired members along with pertinent financial information. While not verifying data at the source, the actuary performed tests for consistency and reasonableness. The complete cooperation of the PERS staff in furnishing materials requested is hereby acknowledged with appreciation.

Your attention is directed particularly to the presentation of contribution rates on page 4 and the comments on page 5. Please note that with the adoption by the PERS Board in 2011 of a new funding policy which extended contributions beyond 2020 and generated an ultimate asset reserve level equal to projected benefit payments, we have calculated the contribution rates based on this new policy and the old funding policy. Ultimately, the municipality has the option of which contribution rate to set as their certified millage rate.

To the best of our knowledge, this report is complete and accurate. The valuation was performed by, and under the supervision of, independent actuaries who are members of the American Academy of Actuaries with experience in performing valuations for public retirement systems. The undersigned meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

The valuation was prepared in accordance with the principles of practice prescribed by the Actuarial Standards Board. We have reviewed the actuarial methods, including the asset valuation method, and continue to believe they are appropriate for the purpose of determining contribution rates.

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.

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Board of Trustees
December 12, 2018
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This actuarial valuation was performed to determine the adequacy of statutory contributions to fund the plan. The asset values used to determine unfunded liabilities and funded ratios are not market values but less volatile market related values. A smoothing technique is applied to market values to determine the market related values. The unfunded liability amounts and funded ratios using the market value of assets would be different. The interest rate used for determining liabilities is based on the expected return on assets. Therefore, liability amounts in this report cannot be used to assess a settlement of the obligation.

The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the System, and on actuarial assumptions that are, in the aggregate, internally consistent and reasonably based on the actual experience of the System. In addition, the valuations were completed in compliance with the laws governing the System. Those laws state, as a financing objective, that contributions will be in amounts sufficient to maintain actuarial soundness for the system for all future years.

Respectfully submitted,

A handwritten signature in blue ink, reading 'Edward J. Koebel'.

Edward J. Koebel, EA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in blue ink, reading 'Jonathan T. Craven'.

Jonathan T. Craven, ASA, EA, FCA, MAAA
Consulting Actuary

EJK/JTC:bdm



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**REPORT ON THE ANNUAL VALUATION OF THE
CITY OF HATTIESBURG PARTICIPATION IN THE
MISSISSIPPI MUNICIPAL RETIREMENT SYSTEMS
PREPARED AS OF JUNE 30, 2018**

SECTION I – SUMMARY OF PRINCIPAL RESULTS

1. This report, prepared as of June 30, 2018, presents the results of the annual actuarial valuation of the City of Hattiesburg. For convenience of reference, the principal results of the valuation and a comparison with the preceding year's results are summarized below. The current valuation reflects benefit increases granted to retirees and amendments to the System, if any, effective through July 1, 2018.

SUMMARY OF PRINCIPAL RESULTS

VALUATION DATE	June 30, 2018	June 30, 2017
Active members included in valuation		
Number	1	1
Annual compensation	\$ 55,403	\$ 53,825
Retirees		
Number	143	147
Annual allowances	\$ 3,353,707	\$ 3,401,402
Assets		
Market related actuarial value	\$ 21,153,482	\$ 21,253,428
Market value	\$ 21,089,030	\$ 21,374,106
Unfunded employer liability	\$ 14,184,974	\$ 14,968,783
Value of Assessed Property	\$ 470,026,110	\$ 437,346,637

2. Actuarial present values for the City are shown in Section III.
3. Rate of contribution payable by the employer is given in Section IV, and comments on the valuation year are given in Section V.



4. The current funding policy was adopted by the Board in February, 2011. In this funding policy, contributions are extended past 2020 and an employer contribution rate, expressed as a millage rate tax applied to assessed property values, is established that will generate an ultimate asset reserve level equal to a reasonable percentage (initially 100% - 150%) of the next year's projected benefit payment. At that point, employer contributions are set equal to the fiscal year's projected benefit payments (basically on a pay as you go basis) and adjusted as necessary to maintain the assets at the established reserve level. This calculation is performed using projected cash flow analysis using the current market value of assets as of the valuation date, a 6.50% assumption on investment earnings and an assumption that assessed property values will remain level over time. Schedule F of this report shows the projected cash flow for the City, including the certified millage rates, based on the funding policy.
5. Although the development of the certified millage rates assume a 6.50% investment rate on cash flow, the development of liabilities and funding progress assume the Board-adopted investment return rate of 7.75%. Since the trust fund assets are commingled with the PERS trust fund assets, it has the same investment portfolio as the PERS System.
6. There were no changes to benefit provisions since the last valuation.
7. There were no changes in actuarial assumptions since the last valuation.
8. Schedule A details the actuarial assumptions and methods employed. Schedule B gives a summary of the benefit and contribution provisions of the plan.



SECTION II – MEMBERSHIP DATA

Data regarding the membership of the City of Hattiesburg for use as a basis for the valuation were furnished by the PERS office. The following tables summarize the membership of the system as of June 30, 2018 upon which the valuation was based. Detailed tabulations of the data are given in Schedule C.

Active Members

Number	Payroll	Salary	Group Averages	
			Age*	Service*
1	\$55,403	\$55,403	67.7	40.3

Retired Lives

Type of Benefit Payment	Number	Annual Benefits	Group Averages	
			Benefit	Age*
Retirement	101	\$2,678,492	\$26,520	67.7
Disability	6	78,455	13,076	66.6
Survivor	36	596,760	16,577	75.2
Total	143	\$3,353,707	\$23,452	69.5

* Years



SECTION III – ACTUARIAL PRESENT VALUES

The following exhibit shows the assets and liabilities of the City's retirement system as of the valuation date of June 30, 2018. The items shown in the exhibit are present values actuarially determined as of the valuation date.

MISSISSIPPI MUNICIPAL RETIREMENT SYSTEMS CITY OF HATTIESBURG ACTUARIAL PRESENT VALUES AS OF JUNE 30, 2018

Active Members	Retired Members	Total	Portion Covered by Future Active Member Contributions	Total Employer Liability	Assets Used in Valuation	Unfunded Employer Liability
\$457,289	\$34,881,167	\$35,338,456	\$ 0	\$35,338,456	\$21,153,482	\$14,184,974

SECTION IV – COMPUTED EMPLOYER CONTRIBUTION RATE

Mississippi Municipal Retirement Systems City of Hattiesburg Computed Employer Contribution Rates¹ June 30, 2018

Members Contributions ²	Certified Rate for Fiscal Year Ending 9/30/2019	Current Millage Rate Fiscal Year Ending 9/30/2019	<u>Computed Rates for 2019-2020 Fiscal Year</u>			Value of Assessed Property ⁵
			Pre-2011 Funding Policy Rate ³	Post-2011 Funding Policy Rate ⁴	Certified Rate for Fiscal Year Ending 9/30/2020	
10.00%	3.08	3.08	30.23	2.75	2.75	\$470,026,110

¹ Millage rates applied to assessed property

² % of Active Member Payroll

³ 2 Year level % amortization

⁴ Calculated using cash flow projections and 6.50% investment return assumption

⁵ This is the value of taxable property adjusted to reflect all property-related contributions

The System is funded through taxes levied on assessed properties.



SECTION V – COMMENTS ON VALUATION

1. Based on the Board funding policy, the millage rate established by the City must be set at a level that will ensure actuarial soundness of the System. As can be seen from the table on the previous page, the current millage rate for the fiscal year ending September 30, 2019 is greater than the certified rate for the fiscal year ending September 30, 2020 under the post-2011 funding policy. Therefore, if desired, the City can decrease their current millage rate to the certified millage rate for the fiscal year ending September 30, 2020.

SECTION VI – SUPPLEMENTAL DISCLOSURE INFORMATION

City of Hattiesburg

1. Governmental Accounting Standards Board (GASB) Statements No. 67 and 68 replaced Statement No. 25 and 27 for plan years beginning after June 15, 2013. The information required under the new GASB Statements will be issued in separate reports. The following supplemental disclosure information is provided for informational purposes only. One such item is a distribution of the number of employees by type of membership, as follows:

NUMBER OF ACTIVE AND RETIRED PARTICIPANTS AS OF JUNE 30, 2018

GROUP	NUMBER
Retired participants and beneficiaries currently receiving benefits	143
Terminated participants and beneficiaries entitled to benefits but not year receiving benefits	0
Active Participants	1
Inactive Participants	<u>0</u>
Total	144



2. The actuarial accrued liability is as follows:

Actuarial Accrued Liability

Actives	Retirees	Vested Terminated Members	Total Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability
\$457,289	\$34,881,167	\$ 0	\$35,338,456	\$21,153,482	\$14,184,974

During the year ended June 30, 2018, the System experienced a net change of \$(883,755) in the actuarial accrued liability.

3. Another such item is the schedule of funding progress as shown below.

**SCHEDULE OF FUNDING PROGRESS
(\$ Thousands)**

Numbers shown above reflect all changes in benefit provisions, actuarial assumptions, and/or actuarial methods.

Plan Year Ended	(1) Actuarial Value of Assets	(2) Actuarial Liability (AAL) Entry Age	(3) Percent Funded (1)/(2)	(4) Unfunded AAL (2) – (1)	(5) Annual Covered Payroll	(6) Unfunded AAL as a Percentage of Covered Payroll (4)/(5)
09/30/09	\$24,340	\$39,166	62.1%	\$14,826	\$308	4,813.6%
09/30/10	22,892	38,779	59.0	15,887	260	6,110.4
09/30/11	21,940	38,274	57.3	16,334	210	7,778.1
09/30/12	20,487	37,820	54.2	17,333	156	11,110.9
06/30/13	19,968	37,105	53.8	17,137	94	18,172.8
06/30/14	20,826	36,598	56.9	15,772	95	16,602.1
06/30/15	21,715	37,102	58.5	15,387	98	15,701.0
06/30/16	21,288	36,520	58.3	15,232	51	29,866.7
06/30/17	21,253	36,222	58.7	14,969	54	27,720.4
06/30/18	21,153	35,338	59.9	14,185	55	25,790.9



4. The annual required contribution (ARC) of the employer as a dollar amount, determined in accordance with the parameters of GASB 25/27, is shown below.

**2018/2019 FISCAL YEAR
ANNUAL REQUIRED CONTRIBUTION (ARC)
BASED ON THE VALUATION AS OF JUNE 30, 2018**

ANNUAL REQUIRED CONTRIBUTION (ARC)		
Normal	\$	0
Accrued Liability		<u>1,549,927</u>
Total	\$	1,549,927

5. Additional information as of June 30, 2018 follows.

Valuation date	6/30/2018
Actuarial cost method	Entry age
Amortization method	Level dollar closed
Remaining amortization period	16 years
Asset valuation method	5-year smoothed market
Actuarial assumptions:	
Investment rate of return*	7.75%
Projected salary increases#	4.00% - 5.50%
*Includes price inflation at	3.00%
#Includes wage inflation at	3.25%
Cost of living adjustments	2.50% per year, not to exceed 30%.



SCHEDULE OF EMPLOYER CONTRIBUTION

Fiscal Year 10/1-9/30	Valuation Date	Annual Required Contribution	Percentage Contributed
2009-10	9/30/2009	\$1,411,127	124.7%
2010-11	9/30/2010	1,519,076	116.9
2011-12	9/30/2011	1,579,521	121.8
2012-13	9/30/2012	1,695,623	88.6
2013-14	6/30/2013	1,695,790	95.9
2014-15	6/30/2014	1,593,250	102.1
2015-16	6/30/2015	1,562,148	84.9
2016-17	6/30/2016	1,569,815	85.8
2017-18	6/30/2017	1,586,000	N/A
2018-19	6/30/2018	1,549,927	N/A



SCHEDULE A

STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

INTEREST RATE: 7.75% per annum, compounded annually (net after investment expenses) for prior funding policy rate determination and GASB disclosure.

6.50% per annum, compounded annually (net after investment expenses) for current funding policy rate determination.

PRICE INFLATION: 3.00% per annum, compounded annually.

SEPARATIONS FROM ACTIVE SERVICE: Representative values of the assumed annual rates of separation from active service are as follows:

Age	Withdrawal	Death		Disability	
		Non-Duty	Duty	Non-Duty	Duty
20	10.65%	.04%	.02%	.08%	.06%
25	8.64	.05	.03	.12	.12
30	6.87	.08	.04	.18	.26
35	4.86	.11	.05	.24	.52
40	2.97	.15	.07	.36	.60
45	1.44	.22	.09	.64	.54
50	0.24	.34	.14	1.10	.88
55		.44	.20	1.58	1.18
60		.51	.32	2.20	1.30
64		.57	.42	2.86	1.38

Service Retirement	
Years of Service	Percent
20	45.0%
21 – 28	17.5
29 – 33	35.0
34 and over	20.0
Age 65	100.0



SALARY INCREASES: 3.25% for wage inflation plus the following chart.

Ages	Merit and Seniority Salary Increase
Under 43	1.50%
43 – 47	1.00
48 – 52	0.50
53 and Over	0.00

DEATH AFTER RETIREMENT: The mortality table, for post-retirement mortality, used in evaluating allowances to be paid was the RP-2014 Healthy Annuitant Blue Collar Mortality Table projected with Scale BB to 2022 with male rates set forward one year and adjusted by 106% for males at all ages and as follows for females: 90% for ages less the 76, 95% for age 76, 105% for age 78, and 1.10% for ages 79 and greater. The RP-2014 Disabled Retiree Mortality Table set forward 4 years for males and 3 years for females was used for the period after disability retirement. This assumption is used to measure the probabilities of each benefit payment being made after retirement. Mortality improvement is anticipated under this assumption as recent mortality experience shows actual deaths 11.2% greater than expected under the selected table for non-disability mortality and 10.5% greater than expected under the selected table for disability mortality.

MARRIAGE ASSUMPTION: 85% married with the husband three years older than this wife.

VALUATION METHOD: Unfunded employer liabilities are amortized over a closed 30 year period from September 30, 1990 as a level percent of the municipality's assessed property valuation.

ASSESSED PROPERTY VALUE RATE OF INCREASE: 2.0% per annum, compounded annually used in determining the millage rate under the prior funding policy.

EXPENSE LOAD: 2.0% of employer contributions.



ASSET VALUATION METHOD: The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected actuarial 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. Actuarial value of assets was set equal to the market value on September 30, 2006, and smoothing commenced in 2007. Actuarial assets were allocated to individual cities in the same proportion that their market value of assets was to the total market value of assets for all cities.



SCHEDULE B

MISSISSIPPI MUNICIPAL RETIREMENT SYSTEMS

CITY OF HATTIESBURG

SUMMARY OF BENEFIT PROVISIONS EVALUATED

JUNE 30, 2018

The following summary presents the main provisions of the System in effect June 30, 2018, as interpreted in preparing the actuarial valuation. As used in the summary, "average compensation" means the average compensation of a member during the six month period prior to receipt of an allowance.

BENEFITS

Service Retirement

Condition for Retirement

A retirement allowance is payable to any member who retires and has completed at least 20 years of creditable service, regardless of age.

Any general employee member who has attained age 70 and any fireman or policeman who has attained age 65 shall be retired forthwith.

Amount of Allowance

The annual retirement allowance payable to a retired member is equal to:

1. 50% of average compensation, plus
2. 1.7% of average compensation for each year of credited service over 20.

The aggregate amount of (1) and (2) above shall not exceed 66-2/3% of average compensation regardless of service.

Disability Retirement

Condition for Retirement

A retirement allowance is payable to any member who is not eligible for a service retirement benefit but who becomes totally and permanently disabled, either physically or mentally, regardless of creditable service, if the disability is due to causes in the performance of duty. If the disability is not in the performance of duty, the member must have completed at least 5 years of creditable service to be eligible for retirement.



Amount of Allowance

The annual disability retirement allowance payable is equal to 50% of his salary at the time of retirement, if the disability is due to causes in the performance of duty.

If the disability is not in the performance of duty, the allowance is equal to 2.5% times credited service, not in excess of 20, times his salary at the time of retirement for firemen and policemen, and average compensation for general employees.

Death Benefit

Condition for Benefits

A benefit is payable upon the death of a member under the following conditions.

- (a) the member has retired,
- (b) the member is eligible to retire,
- (c) the death is in the line of duty, or
- (d) the death is not in the line of duty, but occurs after the member has 5 years of credited service.

The benefit is payable to the surviving spouse and to children under age 18, to dependent children through age 23 when full time students, and to dependent children of any age if handicapped.

Amounts of Benefits

The annual benefit payable under all conditions in the case of firemen and policemen and under other than condition (c) in the case of general employees, is equal to 2.5% of average compensation for each year of credited service up to 20 and 1.7% of average compensation for each year over 20, with a maximum benefit of 66-2/3% of average compensation.

For general employee members under condition (c), the annual benefit payable is equal to 50% of salary at the time of death.

Refund of Contributions

Upon a member's termination of employment for any reason before retirement, his accumulated contributions are refunded. Upon the death of a member who is not eligible for any other death benefit, his accumulated contributions, together with regular interest thereon, are paid to his beneficiary.

Minimum Allowances

The minimum monthly allowance paid to members, for all retirement and death benefits, is \$750.



**Post Retirement Adjustments
In Allowances**

The allowances of all retirees and beneficiaries are adjusted annually by a cost-of-living adjustment (COLA) of 2.5% per year (not to exceed 30%). This adjustment has been included in System liabilities.



SCHEDULE C

DETAILED TABULATIONS OF THE DATA
Mississippi Municipal Retirement System
City of Hattiesburg
Retirants & Beneficiaries as of June 30, 2018
Tabulated by Year of Retirement

Year of Retirement	No.	Annual Benefits excluding COLA	COLA	Total Annual Benefits	Average Monthly Benefit
2018	0	\$ 0	\$ 0	\$ 0	\$ 0
2017	0	0	0	0	0
2016	1	32,760	819	33,579	2,798
2015	0	0	0	0	0
2014	0	0	0	0	0
2013	1	41,880	4,188	46,068	3,839
2012	1	36,362	4,545	40,907	3,409
2011	0	0	0	0	0
2010	2	61,491	10,095	71,586	2,983
2009	0	0	0	0	0
2008	2	43,255	9,732	52,987	2,208
2007	4	121,012	28,761	149,773	3,120
2006	4	86,982	23,695	110,677	2,306
2005	6	124,403	35,355	159,758	2,219
2004	11	231,473	69,441	300,914	2,280
2003	6	126,520	37,956	164,476	2,284
2002	9	186,776	56,033	242,809	2,248
2001	3	85,125	25,537	110,662	3,074
2000	14	293,936	88,182	382,118	2,275
1999	1	18,767	5,630	24,397	2,033
1998	3	66,371	19,912	86,283	2,397
1997	6	144,708	43,411	188,119	2,613
1996	1	15,997	4,799	20,796	1,733
1995	4	70,928	21,279	92,207	1,921
1994	10	136,665	41,000	177,665	1,481
1993	6	106,137	31,842	137,979	1,916
1992	11	181,791	54,538	236,329	1,790
1991	3	48,590	14,577	63,167	1,755
1990	1	12,113	3,634	15,747	1,312
1989	1	11,323	3,397	14,720	1,227
1988	4	48,699	14,610	63,309	1,319
1987	6	56,740	17,023	73,763	1,024
1986	2	19,238	5,771	25,009	1,042
1985	5	71,018	21,306	92,324	1,539
1984 & Prior	15	135,061	40,518	175,579	975
Totals	143	\$ 2,616,121	\$ 737,586	\$ 3,353,707	\$ 1,954



Mississippi Municipal Retirement System

City of Hattiesburg

Total Benefits Payable June 30, 2018

Tabulated by Attained Ages of Benefit Recipients

Attained Age	Service Benefits		Disability Benefits		Survivor and Beneficiaries		Totals	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20								
20-24								
25-29								
30-34								
35-39								
40-44								
45-49								
50-54	1	\$25,918					1	\$25,918
55-59	17	480,021			1	\$11,700	18	491,721
60-64	21	628,780			1	28,150	22	656,930
65-69	20	592,210	5	\$65,551	6	117,073	31	774,834
70-74	18	392,527	1	12,904	4	65,492	23	470,923
75-79	18	436,905			13	232,132	31	669,037
80-84	4	61,402			10	130,513	14	191,915
85-89	2	60,729			1	11,700	3	72,429
90-94								
95								
96								
97								
98								
99								
100 & Over								
Total	101	\$2,678,492	6	\$78,455	36	\$596,760	143	\$3,353,707

Average age: 69.5 years

Average age at retirement: 47.5 years



Mississippi Municipal Retirement System
City of Hattiesburg
Total Active Member Data as June 30, 2018
Tabulated By Attained Age and Years of Service

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
Under 20									
20-24									
25-29									
30-34									
35-39									
40-44									
45-49									
50-54									
55-59									
60 & Over							1	1	\$55,403
Totals							1	1	\$55,403

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 67.7 years.

Service: 40.3 years.

Annual Pay: \$55,403.



SCHEDULE D

GLOSSARY

Actuarial Accrued Liability. The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability".

Accrued Service. The service credited under the plan which was rendered before the date of the actuarial valuation.

Actuarial Assumptions. Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method".

Actuarial Equivalent. A series of payments is called an actuarial equivalent of another series of payments if the two series have the same actuarial present value.

Actuarial Present Value. The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Amortization. Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

Experience Gain (Loss). A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

Normal Cost. The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost". Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

Reserve Account. An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

Unfunded Actuarial Accrued Liability. The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded accrued liability".

Valuation Assets. The value of current plan assets recognized for valuation purposes. Generally based on a market-related smoothing method.



SCHEDULE E

THE NATURE OF ACTUARIAL PROJECTIONS

Regular actuarial valuations measure the Retirement System's present financial position and contributions adequacy by calculating and financing the liabilities created by the present benefit program. This process involves discounting to present values the future benefit payments on behalf of present active and retired members and their survivors. However, valuations do not produce information regarding future changes in the makeup of the covered group or the amounts of benefits to be paid or investment income to be received – actuarial projections do.

Whereas valuations provide a snapshot of the retirement system as of a given date, projections provide a moving picture. Projected active and retired groups are developed from year to year by the application of assumptions regarding pre-retirement withdrawal from service, retirements, deaths and disabilities. Projected information regarding the retired life group leads to assumed future benefit payout. Combining future benefit payments with assumed contributions and expected investment earnings produces the net cash flow of the System each year, and thus end of year asset levels.

Projections are used for many purposes. Among them are (i) developing cash flow patterns for investment policy and asset mix consideration, (ii) exploring the effect of alternative assumptions about future experience, (iii) analyzing the impact on system funding progress of changes in the workforce, and (iv) examining the potential effect of changes in benefits on system financial activity.

Projection results are useful in demonstrating changing relationships among key elements affecting system financial activity. For example: how benefits payable and system assets will grow in future decades. Projections are not predictions of specific future events and do not provide numeric precision in absolute terms. For instance, cash flow projected to occur 10 years in the future will not be exact (except by coincidence), but understanding the changed relationships between future benefits payout and future investment income can be very useful.



SCHEDULE F

CASH FLOW PROJECTIONS BASED ON FUNDING POLICY



**Mississippi Municipal Retirement Systems
City of Hattiesburg**

Cash Flow Projection (Based on Post-2011 Funding Policy)

No Assumed Growth in Assessed Property, Certified Millage Rates, Assume 6.5% on Investments

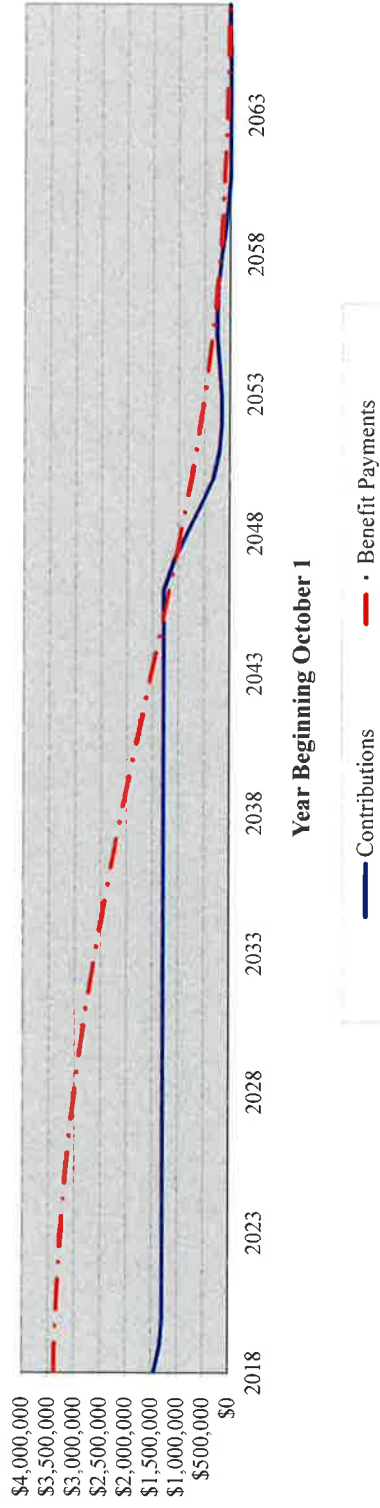
Year Beginning July 1	Value of Assessed Property	MVA Balance July 1	Millage Rate	Contributions	Benefit Payments	Investment Income	Cash Flow	MVA Balance June 30	Year Ending June 30
2018	\$470,026,110	\$21,089,030	0.00275	\$1,449,851	\$3,379,894	\$1,309,048	(\$620,995)	\$20,468,035	2019
2019	470,026,110	20,468,035	0.00275	1,331,349	3,368,436	1,265,259	(771,828)	19,696,207	2020
2020	470,026,110	19,696,207	0.00275	1,292,572	3,349,745	1,214,448	(842,725)	18,853,482	2021
2021	470,026,110	18,853,482	0.00275	1,292,572	3,325,714	1,160,439	(872,703)	17,980,779	2022
2022	470,026,110	17,980,779	0.00275	1,292,572	3,295,265	1,104,688	(898,005)	17,082,775	2023
2023	470,026,110	17,082,775	0.00275	1,292,572	3,260,736	1,047,422	(920,742)	16,162,033	2024
2024	470,026,110	16,162,033	0.00275	1,292,572	3,221,016	988,844	(939,600)	15,222,432	2025
2025	470,026,110	15,222,432	0.00275	1,292,572	3,176,024	929,210	(954,242)	14,268,190	2026
2026	470,026,110	14,268,190	0.00275	1,292,572	3,125,384	868,804	(964,008)	13,304,182	2027
2027	470,026,110	13,304,182	0.00275	1,292,572	3,068,695	807,957	(968,166)	12,336,016	2028
2032	470,026,110	8,533,919	0.00275	1,292,572	2,701,375	509,639	(899,164)	7,634,755	2033
2037	470,026,110	4,457,373	0.00275	1,292,572	2,206,304	260,500	(653,232)	3,804,142	2038
2042	470,026,110	1,968,569	0.00275	1,292,572	1,639,777	116,850	(230,355)	1,738,214	2043
2047	470,026,110	1,928,885	0.00227	1,100,457	1,068,737	126,392	158,112	2,086,997	2048
2052	470,026,110	1,287,047	0.00122	167,045	574,143	70,636	(336,462)	950,585	2053
2057	470,026,110	444,775	0.00051	229,172	241,846	28,505	15,831	460,606	2058
2062	470,026,110	274,079	0.00018	0	84,886	15,100	(69,786)	204,293	2063
2067	470,026,110	36,140	0.00007	22,676	32,672	2,029	(7,967)	28,172	2068



Mississippi Municipal Retirement Systems
City of Hattiesburg

50 Year Cash Flow Projection
Based on Valuation Assumptions

Projected Contributions and Benefits



Net Change in Asset Values

