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PERS
of MISSISSIPPI

Report on the Annual Valuation of the Mississippi Highway Safety Patrol Retirement System

Prepared as of June 30, 2016

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CONSULTING, LLC
The experience and dedication you deserve

October 21, 2016

Board of Trustees
Public Employees' Retirement System of Mississippi
429 Mississippi Street
Jackson, MS 39201-1005

Ladies and Gentlemen:

Presented in this report are the results of the annual actuarial valuation of the Mississippi Highway Safety Patrol Retirement System. The purpose of the valuation was to measure the System's funding progress and to determine the unfunded actuarial accrued liability amortization period beginning July 1, 2016. The results may not be applicable for other purposes.

The date of the valuation was June 30, 2016.

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 results on page 1 and the comments on page 8.

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 opinion 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 employer contribution levels.

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 system'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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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.

Respectfully submitted,

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REPORT ON THE ANNUAL VALUATION OF THE
MISSISSIPPI HIGHWAY SAFETY PATROL RETIREMENT SYSTEM
PREPARED AS OF JUNE 30, 2016

SECTION I – SUMMARY OF PRINCIPAL RESULTS

1. This report, prepared as of June 30, 2016, presents the results of the annual actuarial valuation of the System. 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 and reported benefits amount reflect any benefit increases granted to retirees as of July 1, 2016. Based on the funding policy adopted by the Board in 2012, the employer contribution rate is to be set at 37.00% of annual compensation and the amortization period calculated on an open basis.

SUMMARY OF PRINCIPAL RESULTS

VALUATION DATE	June 30, 2016	June 30, 2015
Active members included in valuation		
Number	484	518
Annual compensation	$ 27,380,162	$ 25,504,676
Retirees		
Number	724	724
Annual allowances	$ 28,782,015	$ 28,076,536
Assets		
Market related actuarial value	$ 324,894,000	$ 316,149,000
Market value	$ 311,612,000	$ 322,323,000
Unfunded actuarial accrued liability	$ 169,207,470	$ 161,654,058
Funded Ratio	65.8%	66.2%
Fiscal Year End	**June 30, 2018**	**June 30, 2017**
Employer contribution rate		
Normal Cost*	16.67%	16.78%
Accrued liability	20.33	20.22
Total	37.00%	37.00%
Anticipated accrued liability payment period	42.9 years	45.5 years
Unfunded actuarial accrued liability based on Market value of assets	$ 182,489,470	$ 155,480,058
Funded Ratio	63.1%	67.5%
Payment period	58.4 years	39.7 years

* Includes load for administrative expenses. See page 10 for more contribution rate detail.

2. The valuation balance sheet showing the results of the valuation is given in Section III.

3. Comments on the valuation results are given in Section IV, the derivation of the experience gains and losses during the valuation year are given in Section V and the rates of contribution payable by employers are given in Section VI.

4. Due to Senate Bill No. 2659 enacted in 2004 and House Bill No. 1015 enacted April 25, 2013, additional contributions are being made to the System and are expected to continue in the future. We have increased our expected contributions from these sources to $3,700,000 from $3,600,000 based on actual monies received for the last three fiscal years. The employers are also required to contribute 37.00% of payroll. The funding period of the UAAL of 42.9 years shown on the previous page reflects the additional contributions from Senate Bill No. 2659 and House Bill No. 1015. Without these additional contributions, the funding period would have been 71.8 years. If the funding period was kept at 30 years, without the additional contributions the employer contribution rate would have been 50.16%.

5. Schedule A of this report presents the development of the actuarial value of assets. Schedule B details the actuarial assumptions and methods employed. Since the previous valuation, the assumed rate of interest credited to employee contributions has been changed from 3.50% to 2.00%.

6. Schedule C gives a summary of the benefit and contribution provision of the System. Effective July 1, 2016, the interest rate on employee contributions shall be calculated based on the money market rate as published by the Wall Street Journal on December 31 of each preceding year with a minimum rate of one percent and a maximum rate of five percent. The rate for the fiscal year 2016 will be one percent.

7. The table on page 4 provides a ten-year history of some pertinent figures.

8. GASB 67 has replaced GASB 25 for accounting results and a separate GASB 67 report will be prepared for the Board. For continuity and informational purposes, we have provided GASB 25 results in Section VIII.

Mississippi Highway Safety Patrol Retirement System

Comparative Schedule

Valuation Date June 30	Active Members				Retired Lives				Valuation Results ($ thousands)		
	Number	Payroll ($ thousands)	Average Salary	% increase from previous year	Number	Active/ Retired Ratio	Annual Benefits** ($ thousands)	Benefits as % of Payroll	Accrued Liability	Valuation Assets	UAAL
2007	591	$27,037	$45,748	5.3%	638	0.9	$18,722.6	69.2%	$371,233	$284,626	$86,607
2008	626	29,597	47,280	3.3	651	1.0	19,798.7	66.9	381,578	298,630	82,948
2009	570	26,390	46,298	(2.1)	692	0.8	21,994.1	83.3	394,630	292,322	102,308
2010	542	26,353	48,623	5.0	696	0.8	22,899.7	86.9	411,277	281,088	130,189
2011	515	24,872	48,295	(0.7)	704	0.7	23,975.7	96.4	414,432	278,265	136,167
2012	547	25,670	46,929	(2.8)	713	0.8	25,167.9	98.0	421,415	268,424	152,991
2013	520	25,816	49,646	5.8	713	0.7	25,835.6	100.1	431,575	271,097	160,478
2014	495	25,554	51,624	4.0	720	0.7	26,966.4	105.5	445,822	295,298	150,524
2015	518	25,505	49,237	(4.6)	724	0.7	28,076.5	110.1	477,803	316,149	161,654
2016	484	27,380	56,571	14.9	724	0.7	28,782.0	105.1	494,101	324,894	169,207

SECTION II – MEMBERSHIP DATA

Data regarding the membership of the System for use as a basis for the valuation were furnished by the System's office. The following tables summarize the membership of the System as of June 30, 2016 upon which the valuation was based. Detailed tabulations of the data are given in Schedule D.

Active Members

Employers	Number of Employers	Number	Payroll	Group Averages Salary	Group Averages Age	Group Averages Benefit Service
State Agencies	1	484	$ 27,380,162	$56,571	42.6	14.3

Of the 484 active members, 393 are vested and 91 are non-vested.

Retired Lives

Type of Benefit Payment	No.	Annual Benefits	Group Averages Benefit	Group Averages Age
Retirement	526	$24,397,440	$46,383	66.7
Disability	17	429,666	25,274	67.5
Survivor	181	3,954,909	21,850	73.6
Total in HSPRS	724	$28,782,015	$39,754	68.4

Deferred Vested/Inactive Lives

Type of Member	No.	Deferred Benefits	Outstanding Balance
Deferred Vested – Benefit Included	38	$576,887	N/A
Inactive	42	N/A	$402,419
Total in HSPRS	80	$576,887	$402,419

SECTION III – VALUATION BALANCE SHEET

The following valuation balance sheet shows the assets and liabilities of the retirement system as of the current valuation date of June 30, 2016 and, for comparison purposes, as of the immediately preceding valuation date of June 30, 2015. The items shown in the balance sheet are present values actuarially determined as of the relevant valuation date. The development of the actuarial value of assets is presented in Schedule A.

VALUATION BALANCE SHEET
SHOWING THE ASSETS AND LIABILITIES OF THE
MISSISSIPPI HIGHWAY SAFETY PATROL RETIREMENT SYSTEM

	JUNE 30, 2016	JUNE 30, 2015
ASSETS		
Current actuarial value of assets:		
Annuity Savings Account	$ 25,791,417	$ 24,826,750
Annuity Reserve	34,044,437	35,134,611
Employers' Accumulation Account	265,058,146	256,187,639
Total current assets	$ 324,894,000	$ 316,149,000
Future member contributions to Annuity Savings Account	$ 17,709,278	$ 16,818,420
Prospective contributions to Employer's Accumulation Account		
Normal contributions	$ 40,157,315	$ 38,392,393
Unfunded actuarial accrued liability contributions	169,207,470	161,654,058
Total prospective contributions	$ 209,364,785	$ 200,046,451
Total assets	$ 551,968,063	$ 533,013,871
LIABILITIES		
Present value of benefits payable on account of present retired members and beneficiaries	$ 343,635,042	$ 338,459,234
Present value of benefits payable on account of inactive members for service rendered before the valuation date	4,754,624	5,298,553
Present value of benefits payable on account of active members	$ 203,578,397	$ 189,256,084
Total liabilities	$ 551,968,063	$ 533,013,871

BREAKDOWN OF TOTAL AND ACCRUED LIABILITIES
AS OF JUNE 30, 2016

	Total Liability	Accrued Liability
Active Members		
Retirement	$ 196,834,113	$ 143,231,831
Death	1,312,306	510,559
Disability	3,073,918	1,087,574
Termination	2,358,060	881,840
Total	$ 203,578,397	$ 145,711,804
Retirees		
Retirement	$ 303,830,515	$ 303,830,515
Survivor	35,519,285	35,519,285
Disability	4,285,242	4,285,242
Total	$ 343,635,042	$ 343,635,042
Deferred Vested Members	3,949,787	3,949,787
Inactive Members	804,837	804,837
Total Actuarial Values	$ 551,968,063	$ 494,101,470
Actuarial Value of Assets		324,894,000
Unfunded Actuarial Accrued Liability		$ 169,207,470

SECTION IV – COMMENTS ON VALUATION

The valuation balance sheet gives the following information with respect to the funds of the System as of June 30, 2016.

Total Assets

The Annuity Savings Account is the fund to which are credited contributions made by members together with interest thereon. When a member retires, the amount of his or her accumulated contributions is transferred from the Annuity Savings Account to the Annuity Reserve. The Employer's Accumulation Account is the fund to which are credited employer contributions and investment income, and from which are paid all employer-provided benefits under the system. The assets credited to the Annuity Savings Account as of the valuation date, which represent the accumulated contributions of members to that date, amounted to $25,791,417. The assets credited to the Annuity Reserve were $34,044,437 and the assets credited to the Employer's Accumulation Account totaled $265,058,146. Current actuarial assets as of the valuation date equaled the sum of these three funds, $324,894,000. Future member contributions to the Annuity Savings Account were valued to be $17,709,278. Prospective contributions to the Employer's Accumulation Account were calculated to be $209,364,785 of which $40,157,315 is attributable to service rendered after the valuation date (normal contributions) and $169,207,470 is attributable to service rendered before the valuation date (unfunded actuarial accrued liability contributions).

Therefore, the balance sheet shows the present value of current and future assets of the System to be $551,968,063 as of June 30, 2016.

Total Liabilities

The present value of benefits payable on account of presently retired members and beneficiaries totaled $343,635,042 as of the valuation date. The present value of future benefit payments on behalf of active members amounted to $203,578,397. In addition, the present value of benefits for inactive members, due to service rendered before the valuation date, was calculated to be $4,754,624.

Therefore, the balance sheet shows the present value for all prospective benefit payments under the System to be $551,968,063 as of June 30, 2016.

Section 25-11-7 of State law requires that active members contribute the current rate of 7.25% of annual compensation to the System.

Section 25-11-123(c) requires that the State contribute a certain percentage of the annual compensation of members to cover the normal contributions and a certain percentage to cover the accrued liability contributions of the System. These individual contribution percentages are established in accordance with an actuarial valuation. Based on the funding policy adopted by the Board in October, 2012, the employer rate is set at 37.00% of annual compensation and the amortization period calculated on an open basis. Therefore, the amortization period for the June 30, 2016 valuation is 42.9 years, compared to 45.5 years for the last valuation.

The primary reason for the decrease in the amortization period was the growth in the expected future contributions assumed to be made to the System due to the higher than normal growth in payroll and the additional contribution assumption from the Senate Bills enacted in 2004 and 2013. This decrease was partially offset due to experience losses. See Schedule E for a complete analysis of the Financial Experience.

SECTION V – DERIVATION OF EXPERIENCE GAINS AND LOSSES

Actual experience will never (except by coincidence) coincide exactly with assumed experience. It is assumed that gains and losses will be in balance over a period of years, but sizable year to year fluctuations are common. Detail on the derivation of the experience gain/(loss) for the year ended June 30, 2016 is shown below.

			$ Thousands
(1)	UAAL* as of June 30, 2015	$	161,654.1
(2)	Total normal cost from last valuation		6,365.1
(3)	Total contributions		16,883.0
(4)	Interest accrual: [[(1) + (2)] x .0775] - [(3) x .03875]		12,367.3
(5)	Expected UAAL before changes: (1) + (2) – (3) + (4)	$	163,503.5
(6)	Change due to plan amendments		0.0
(7)	Change due to actuarial assumptions or methods		(0.4)
(8)	Expected UAAL after changes: (5) + (6) + (7)	$	163,503.1
(9)	Actual UAAL as of June 30, 2016	$	169,207.5
(10)	Gain/(loss): (8) – (9)	$	(5,704.4)
(11)	Gain/(loss) as percent of actuarial accrued liabilities at start of year ($477,803.1)		(1.2)%

*Unfunded actuarial accrued liability.

Valuation Date June 30	Actuarial Gain/(Loss) as a % of Beginning Accrued Liabilities
2011	(0.8)%
2012	(3.5)
2013	(0.9)
2014	3.1
2015	2.3
2016	(1.2)

SECTION VI – REQUIRED CONTRIBUTION RATES

The valuation balance sheet gives the basis for determining the percentage rates for contributions to be made by employers to the Retirement System. The following table shows the rates of contribution payable by employers as determined from the present valuation for the 2017/2018 fiscal year and a comparison to the previous valuation results.

Contribution for	2017/2018 Fiscal Year	2016/2017 Fiscal Year
Normal Cost:		
Service retirement benefits	21.66%	21.89%
Disability benefits	0.99	1.06
Survivor benefits	0.37	0.39
Total	23.03%	23.34%
Member Contributions:	7.25%	7.25%
Less future refunds	(0.66)	(0.46)
Available for benefits	6.59%	6.79%
Employer Normal Cost	16.44%	16.55%
Administrative Expense Load	0.23%	0.23%
Unfunded Actuarial Accrued Liabilities (42.9 year level % of payroll amortization*)	20.33%	20.22%
Total Computed Employer Contribution Rate	37.00%	37.00%

*Amortization period a year ago was 45.5 years.

The components of the change in the computed unfunded actuarial accrued liability amortization period from 45.5 years to 42.9 years are as follows:

Previously Reported Period	45.5 years
Change due to:	
Normal amortization	(1.0)
Actuarial experience	3.6
Assumption/Method changes	(0.1)
Additional Assumed Contributions	(1.1)
Contribution experience	(4.0)
Computed Period	42.9 years

SECTION VII – CASH FLOW PROJECTION

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, disabilities, and the addition of new members. 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 relationship between future benefit payout and future investment income can be very useful.

The following projections assume a 7.75% investment return and salary increases of 3.75% each year in the future. Due to the funding policy, all future contribution rates are assumed to remain at 37.00% of payroll.

Mississippi Highway Safety Patrol Retirement System

Twenty-five Year Cash Flow Projection

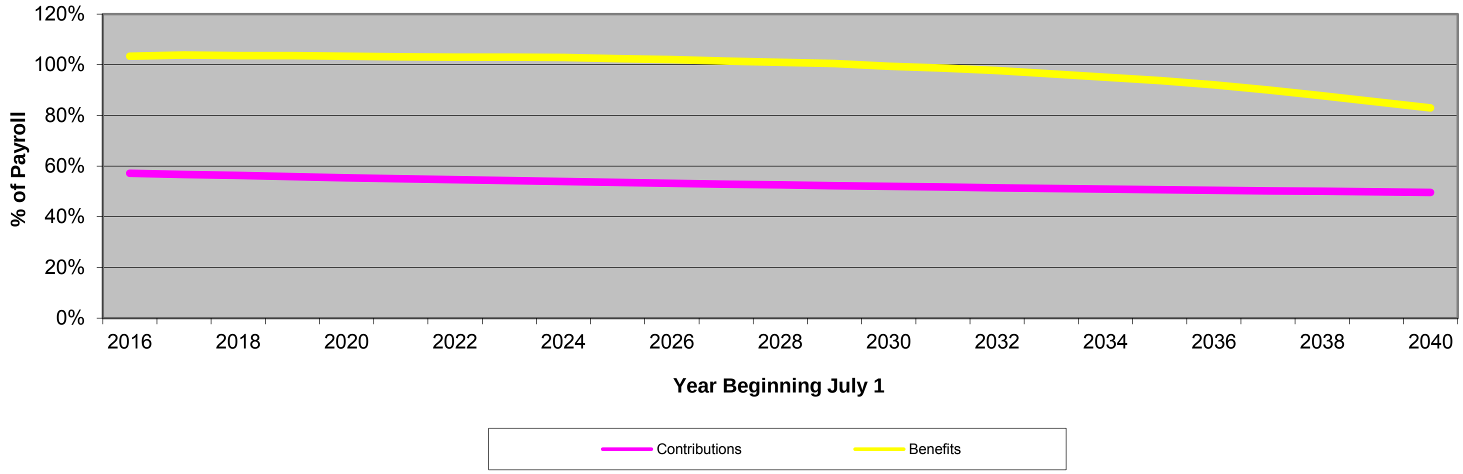
Year	Valuation Payroll	Market Value of Assets Balance July 1	Contributions	Projected Benefit Payments	Expected Investment Return	Cash Flow	Market Value of Assets Balance June 30
2016	$28,708,586	$311,612,000	$16,403,549	$29,667,900	$23,635,936	$10,371,585	$321,983,585
2017	29,785,158	321,983,585	16,879,932	30,921,461	24,409,619	10,368,089	332,351,674
2018	30,902,101	332,351,674	17,374,180	32,017,679	25,189,819	10,546,321	342,897,995
2019	32,060,930	342,897,995	17,886,962	33,200,228	25,981,206	10,667,940	353,565,935
2020	33,263,215	353,565,935	18,418,973	34,373,525	26,783,121	10,828,569	364,394,504
2021	34,510,586	364,394,504	18,970,934	35,583,761	27,596,827	10,984,000	375,378,504
2022	35,804,733	375,378,504	19,543,594	36,860,253	28,420,814	11,104,155	386,482,659
2023	37,147,410	386,482,659	20,137,729	38,231,873	29,251,258	11,157,114	397,639,773
2024	38,540,438	397,639,773	20,754,144	39,635,632	30,085,425	11,203,937	408,843,710
2025	39,985,704	408,843,710	21,393,674	40,934,971	30,928,162	11,386,865	420,230,575
2026	41,485,168	420,230,575	22,057,187	42,307,940	31,783,153	11,532,400	431,762,975
2027	43,040,862	431,762,975	22,745,581	43,660,533	32,651,176	11,736,224	443,499,198
2028	44,654,894	443,499,198	23,459,791	45,086,434	33,533,155	11,906,512	455,405,710
2029	46,329,453	455,405,710	24,200,783	46,507,964	34,429,539	12,122,358	467,528,069
2030	48,066,807	467,528,069	24,969,562	47,784,969	35,349,328	12,533,921	480,061,990
2031	49,869,312	480,061,990	25,767,171	49,194,454	36,296,997	12,869,714	492,931,704
2032	51,739,411	492,931,704	26,594,689	50,525,406	37,274,892	13,344,175	506,275,879
2033	53,679,639	506,275,879	27,453,240	51,749,427	38,294,903	13,998,717	520,274,596
2034	55,692,625	520,274,596	28,343,987	52,961,692	39,367,345	14,749,640	535,024,235
2035	57,781,098	535,024,235	29,268,136	54,130,748	40,500,952	15,638,340	550,662,576
2036	59,947,889	550,662,576	30,226,941	55,196,954	41,708,762	16,738,749	567,401,325
2037	62,195,935	567,401,325	31,221,701	55,977,756	43,014,306	18,258,250	585,659,575
2038	64,528,283	585,659,575	32,253,765	56,573,509	44,446,227	20,126,483	605,786,058
2039	66,948,094	605,786,058	33,324,532	57,094,627	46,027,328	22,257,233	628,043,292
2040	69,458,648	628,043,292	34,435,452	57,600,977	47,775,691	24,610,166	652,653,458

* Includes expected administrative expenses.

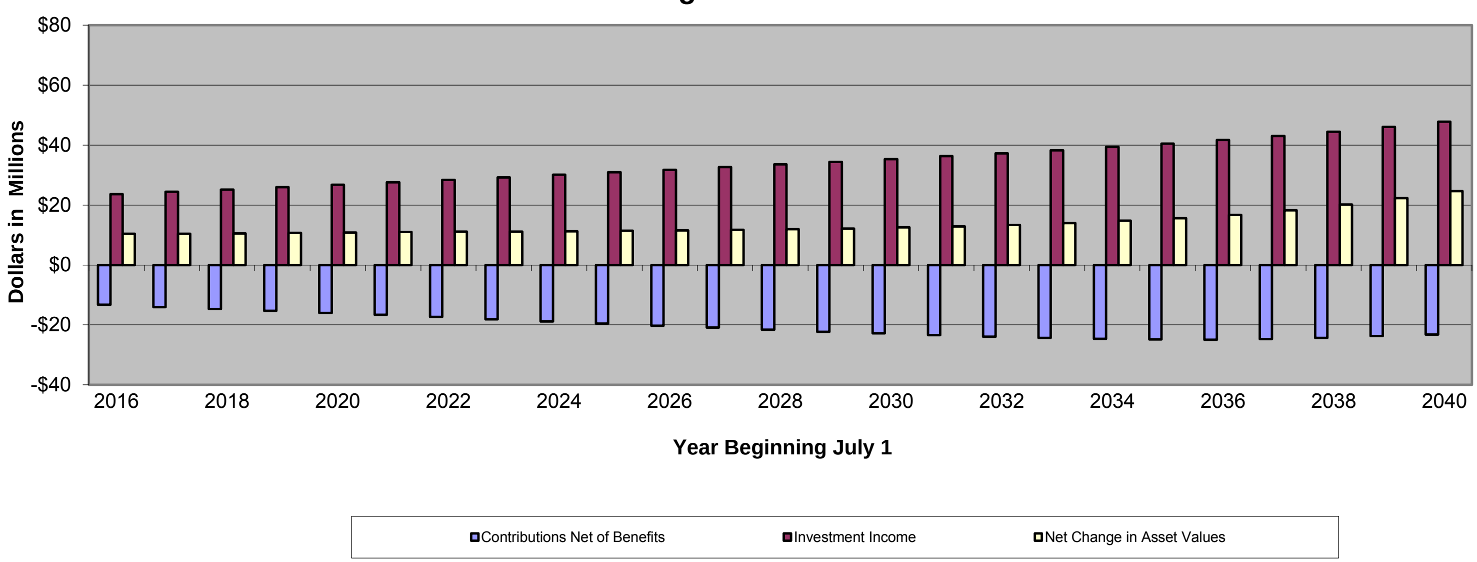
Mississippi Highway Safety Patrol Retirement System

Twenty-five Year Cash Flow Projection Based on Valuation Assumptions

Projected Contributions and Benefits Expressed as Percents of Active Member Payroll



Net Change in Asset Values



SECTION VIII – SUPPLEMENTAL DISCLOSURE INFORMATION

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, 2016

GROUP	NUMBER
Retired participants and beneficiaries currently receiving benefits	724
Terminated participants and beneficiaries entitled to benefits but not yet receiving benefits	80
Active Participants	484
Total	1,288

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

SCHEDULE OF FUNDING PROGRESS
($ Thousands)

Plan Year Ended	(1) Actuarial Value of Assets	(2) Actuarial Accrued 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)
06/30/2007#	$284,626	$371,233	76.7%	$86,607	$27,037	320.3%
06/30/2008*	298,630	381,578	78.3	82,948	29,597	280.3
06/30/2009#	292,322	394,630	74.1	102,308	26,390	387.7
06/30/2010	281,088	411,277	68.3	130,189	26,353	494.0
06/30/2011#	278,265	414,432	67.1	136,167	24,872	547.5
06/30/2012	268,424	421,415	63.7	152,991	25,670	596.0
06/30/2013#	271,097	431,575	62.8	160,478	25,816	621.6
06/30/2014	295,298	445,822	66.2	150,524	25,554	589.0
06/30/2015#	316,149	477,803	66.2	161,654	25,505	633.8
06/30/2016	324,894	494,101	65.8	169,207	27,380	618.0

* After change in benefit provisions.
\# After change in actuarial assumptions.

3. Under GASB 25/27, the determination of the employer contribution as a percentage of payroll was referred to as the annual required contribution (ARC) and was the basis of the prior funding policy. In the calculation of the ARC, the accrued liability rate was based on the amortization of the unfunded actuarial accrued liability over a fixed 30 year period from the valuation date. The calculation of the ARC for the past two valuations is shown below:

Annual Required Contribution (ARC)		
Valuation Date June 30	**2016**	**2015**
Employer contribution rate		
Normal Cost*	16.67%	16.78%
Accrued liability	24.34	24.79
Total	41.01%	41.57%
Anticipated accrued liability payment period	30 years	30 years

* Includes load for administrative expenses. See page 10 for more contribution rate detail.

4. Additional information for the calculation of the ARC as of June 30, 2016 follows.

Valuation date	6/30/2016
Actuarial cost method	Entry age
Amortization method	Level percent open
Amortization period	30.0 years
Asset valuation method	5-year smoothed market
Actuarial assumptions:	
Investment rate of return*	7.75%
Projected salary increases#	4.25% - 9.31%
Cost-of-living adjustments	3.00%
*Includes price inflation at	3.00%
# Includes wage inflation at	3.75%

Solvency Tests
($ in Thousands)

	Actuarial Accrued Liabilities for				Portions of Accrued Liabilities Covered by Assets		
Valuation Date	(1) Accumulated Employee Contributions Including Allocated Investment Earnings	(2) Retirees and Beneficiaries Currently Receiving Benefits	(3) Active and Inactive Members Employer Financed Portion	Net Assets Available for Benefits	(1)	(2)	(3)
6/30/2007	$20,870	$231,771	$118,592	$284,626	100%	100.0%	27.0%
6/30/2008	21,371	242,265	117,941	298,630	100	100.0	29.7
6/30/2009	20,136	273,774	100,721	292,322	100	99.4	0.0
6/30/2010	20,658	284,106	106,513	281,088	100	91.7	0.0
6/30/2011	20,621	292,234	101,577	278,265	100	88.2	0.0
6/30/2012	20,760	300,753	99,902	268,424	100	82.3	0.0
6/30/2013	23,706	306,273	101,596	271,097	100	80.8	0.0
6/30/2014	24,411	317,825	103,586	295,298	100	85.2	0.0
6/30/2015	24,827	338,459	114,517	316,149	100	86.1	0.0
6/30/2016	25,791	343,635	124,675	324,894	100	87.0	0.0

Schedule of Active Member Valuation Data

Valuation Date	Number of Employers	Active Members Number	Annual Payroll	Annual Average Pay	% Increase in Average Pay
2007	1	591	$27,037,063	$45,748	5.3%
2008	1	626	29,597,374	47,280	3.3
2009	1	570	26,389,909	46,298	(2.1)
2010	1	542	26,353,400	48,623	5.0
2011	1	515	24,872,085	48,295	(0.7)
2012	1	547	25,670,030	46,929	(2.8)
2013	1	520	25,815,787	49,646	5.8
2014	1	495	25,553,765	51,624	4.0
2015	1	518	25,504,676	49,237	(4.6)
2016	1	484	27,380,162	56,571	14.9

Schedule of Number of Retirants Added To and Removed From Rolls
Last Ten Fiscal Years

	Fiscal Year Ended June 30									
Item	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Beginning of Year	625	638	651	692	696	704	713	713	720	724
Added	29	42	62	22	32	31	23	28	22	26
Removed	(16)	(29)	(21)	(18)	(24)	(22)	(23)	(21)	(18)	(26)
End of Year	638	651	692	696	704	713	713	720	724	724

Schedule of Benefit Payments Added To and Removed From Rolls
Last Seven Fiscal Years

Year Ending	2010	2011	2012	2013	2014	2015	2016
Beginning of Year	$21,994,109	$22,899,689	$23,975,708	$25,167,940	$25,835,619	$26,966,360	$28,076,536
Added	806,092	1,089,231	1,157,796	642,344	1,113,236	890,167	833,870
Removed	(450,658)	(609,133)	(574,614)	(596,871)	(661,028)	(480,408)	(830,278)
Benefit increase due to annual COLA	550,146	595,921	609,050	622,206	678,533	700,417	701,887
Benefit increase due to plan amendments	0	0	0	0	0	0	0
End of Year	$22,899,689	$23,975,708	$25,167,940	$25,835,619	$26,966,360	$28,076,536	$28,782,015

Schedule of Average Benefit Payments

	Years of Credited Service								
	0-4	5-9	10-15	16-20	21-24	25	26-29	30	31+
July 1, 2015 to June 30, 2016									
Average Monthly Benefit		$314.65			$2,078.23		$3,012.97	$1,729.45	$5,059.27
Average Final Salary		$53,305.68			$45,947.58		$37,841.45	$50,692.08	$51,223.20
Number of Active Retirants		3			6		13	1	3
July 1, 2014 to June 30, 2015									
Average Monthly Benefit				$1,831.19	$1,719.04	$1,978.03	$4,054.02		$4,758.40
Average Final Salary				$45,652.04	$30,832.33	$36,844.69	$51,499.73		$67,377.63
Number of Active Retirants				3	3	2	10		4
July 1, 2013 to June 30, 2014									
Average Monthly Benefit				$401.76	$2,013.42		$2,756.37	$3,898.78	$4,528.45
Average Final Salary				$15,019.06	$54,344.38		$51,232.69	$69,760.18	$68,010.73
Number of Active Retirants				1	5		8	5	9
July 1, 2012 to June 30, 2013									
Average Monthly Benefit		$661.61	$710.09		$1,172.98	$1,696.31	$2,859.71		$3,269.65
Average Final Salary		$21,843.63	$36,998.42		$31,851.99	$28,672.69	$54,157.79		$54,646.02
Number of Active Retirants		1	2		3	2	11		4
July 1, 2011 to June 30, 2012									
Average Monthly Benefit		$1,648.69		$2,340.93	$982.05	$1,568.62	$2,267.88	$4,335.37	$3,798.92
Average Final Salary		$39,568.45		$58,021.27	$39,971.01	$28,716.82	$46,824.02	$71,048.35	$62,979.14
Number of Active Retirants		1		1	1	1	10	5	12

Schedule of Average Benefit Payments

	Years of Credited Service								
	0-4	5-9	10-15	16-20	21-24	25	26-29	30	31+
July 1, 2010 to June 30, 2011									
Average Monthly Benefit			$716.18	$1,020.55	$2,433.84	$1,896.54	$2,408.76	$3,791.81	$3,296.52
Average Final Salary			$28,057.78	$26,202.46	$60,342.83	$43,144.33	$50,019.57	$52,042.20	$51,855.68
Number of Active Retirants			1	2	3	2	11	4	9
July 1, 2009 to June 30, 2010									
Average Monthly Benefit				$1,405.04		$3,155.49	$3,024.51	$3,461.46	$2,973.70
Average Final Salary				$37,962.84		$59,219.21	$47,430.92	$30,160.22	$41,004.34
Number of Active Retirants				4		2	5	2	9
July 1, 2008 to June 30, 2009									
Average Monthly Benefit		$466.11		$438.86	$1,580.07	$3,177.63	$3,143.57	$4, 604.35	$3,055.97
Average Final Salary		$33,559.84		$16,844.95	$38,404.11	$61,298.36	$59,583.98	$75,125.92	$52,752.04
Number of Active Retirants		3		1	7	13	21	7	10
July 1, 2007 to June 30, 2008									
Average Monthly Benefit		$346.95	$1,157.63	$407.81	$1,778.14	$3,442.30	$2,411.10	$4,364.71	$3,034.57
Average Final Salary		$13,030.50	$46,554.36	$12,949.33	$48,156.36	$64,164.63	$45,198.00	$73,561.75	$54,588.25
Number of Active Retirants		1	1	3	9	2	9	5	12
July 1, 2006 to June 30, 2007									
Average Monthly Benefit			$213.25		$2,107.95	$2,246.68	$2,536.45	$1,044.36	$2,257.21
Average Final Salary			$4,971.00		$42,893.86	$48,745.57	$47,312.51	$29,283.33	$40,152.62
Number of Active Retirants			1		7	3	13	1	4

SCHEDULE A
Development of Actuarial Value of Assets
($ thousands)

	Valuation Date June 30:	2015	2016	2017	2018	2019	2020
A.	Actuarial Value Beginning of Year	$295,298	$316,149				
B.	Market Value End of Year	322,323	311,612				
C.	Market Value Beginning of Year	326,032	323,207*				
D.	Cash Flow						
	D1. Contributions	11,844	12,989				
	D2. Other Revenue	3,789	3,894				
	D3. Benefit Payments	(29,072)	(29,965)				
	D4. Administrative Expenses	(198)	(217)				
	D5. Investment Expenses	(1,138)	(1,138)				
	D6. Net	(14,775)	(14,437)				
E.	Investment Income						
	E1. Market Total: B.-C.-D6.	11,066	2,842				
	E2. Assumed Rate	8.00%	7.75%				
	E3. Amount for Immediate Recognition	26,675	25,671				
	E4. Amount for Phased-In Recognition	(15,609)	(22,829)				
F.	Phased-In Recognition of Investment Income						
	F1. Current Year: 0.20*E4.	(3,122)	(4,566)				
	F2. First Prior Year	5,820	(3,122)	(4,566)			
	F3. Second Prior Year	2,707	5,820	(3,122)	(4,566)		
	F4. Third Prior Year	(4,212)	2,707	5,820	(3,122)	(4,566)	
	F5. Fourth Prior Year	7,758	(4,212)	2,707	5,820	(3,122)	(4,566)
	F6. Total Recognized Investment Gain	8,951	(3,372)	840	(1,867)	(7,687)	(4,566)
G.	Adjustment*	0	883				
H.	Actuarial Value End of Year:						
	A.+D6.+E3.+F6.+G.	$316,149	$324,894				
I.	Difference Between Market & Actuarial Values	$6,174	$(13,282)	$(14,122)	$(12,255)	$(4,568)	$(2)

The Actuarial Valuation of Assets recognizes assumed investment income (line E3) fully each year. Differences between actual and assumed investment income (line E4) are phased in over a closed 5 year period. During periods when investment performance exceeds the assumed rate, Actuarial Value of Assets will tend to be less than market value. During periods when investment performance is less than the assumed rate, Actuarial Value of Assets will tend to be greater than market value. If assumed rates are exactly realized for 4 consecutive years, actuarial value will become equal to market value.

*Adjusted from prior year due to revised assets.

	Asset Summary June 30, 2016 ($ in Thousands)		
	Market Value	**Book Value**	**Actuarial Value**
1. Assets at June 30, 2015	$323,207	$267,562	$316,149
2. Contributions and Misc. Revenue	16,883	16,883	16,883
3. Investment Increment	2,842	13,521	22,299
4. Benefit Payments	(29,965)	(29,965)	(29,965)
5. Expenses	(1,355)	(1,355)	(1,355)
6. Adjustment	0	0	883
7. Assets at June 30, 2016 (1)+(2)+(3)+(4)+(5)+(6)	$311,612	$266,646	$324,894
8. Investment Increment/Mean Assets*	0.9%	5.2%	7.2%

*Based on the approximation formula: I/[.5 x (A + B – I)], where

I = Investment increment
A = Beginning of year asset value
B = End of year asset value

SCHEDULE B

STATEMENT OF ACTUARIAL ASSUMPTIONS AND METHODS

INTEREST RATE: 7.75% per annum, compounded annually (net of investment expenses only).

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

Age	Withdrawal and Vesting*	Death Males	Death Females	Disability Non-Duty	Disability Duty	Service	Service Retirement*
25	4.00%	0.03%	0.01%	0.10%	0.01%	5	5%
30	3.50	0.03	0.01	0.12	0.02	10	5%
35	2.50	0.03	0.01	0.16	0.05	15	5%
40	1.00	0.04	0.01	0.20	0.07	20	5%
45	1.00	0.05	0.02	0.30	0.06	25	10%
50	0.50	0.09	0.04	0.50	0.05	30	25%
55	0.00	0.15	0.06	0.91	0.02	35	25%
60	0.00	0.24	0.08	1.55	0.01	40+	100%

* The annual rate of service retirement is 100% at age 61.

It is assumed that a member will be granted 1¾ years of service credit for unused leave at termination of employment. In addition, it is assumed that, on average, ¼ year of service credit for peace-time military service will be granted to each member.

SALARY INCREASES: Representative values of the assumed annual rates of salary increases are as follows:

	Annual Rates of		
Age	Merit & Seniority	Base (Economy)	Increase Next Year
20	5.56%	3.75%	9.31%
25	2.31	3.75	6.06
30	1.49	3.75	5.24
35	1.49	3.75	5.24
40	1.49	3.75	5.24
45	1.00	3.75	4.75
50	0.50	3.75	4.25
55	0.50	3.75	4.25

PAYROLL GROWTH: 3.75% per annum, compounded annually.

PRICE INFLATION: 3.00% per annum, compounded annually.

ADMINISTRATIVE EXPENSES: 0.23% of payroll.

TIMING OF DECREMENT AND PAY INCREASES: Middle of Year.

ASSUMED INTEREST RATE ON EMPLOYEE CONTRIBUTIONS: 2.00%

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 to 2016 by Scale BB (set forward 1 year for males). The RP-2014 Disabled Retiree Mortality Table (set forward 5 years for males and set forward 4 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.

MARRIAGE ASSUMPTION: 100% married with the husband three years older than his wife.

VALUATION METHOD: The valuation is prepared on the projected benefit basis, which is used to determine the present value of each member's expected benefit payable at retirement, disability or death. The calculations are based on the member's age, years of service, sex, compensation, expected future salary increases, and an assumed future interest earnings rate (currently 7.75%). The calculations consider the probability of a member's death or termination of employment prior to becoming eligible for a benefit and the probability of the member terminating with a service, disability, or survivor's benefit. The present value of the expected benefits payable to active members is added to the present value of the expected future payments to current benefit recipients to obtain the present value of all expected benefits payable to the present group of members and survivors.

The employer contributions required to support the benefits of HSPRS are determined following a level funding approach, and consist of a normal contribution and an accrued liability contribution.

The normal contribution is determined using the "entry age normal" method. Under this method, a calculation is made for pension benefits to determine the uniform and constant percentage rate of employer contribution which, if applied to the compensation of the average new 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.

The unfunded actuarial accrued liability is determined by subtracting the current assets and the present value of prospective employer normal contributions and member contributions from the present value of expected benefits to be paid from the HSPRS. The accrued liability contribution amortizes the balance of the unfunded actuarial accrued liability over a period of years from the valuation date.

ASSET VALUATION METHOD: Actuarial value, as developed in Schedule A. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected market 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 market value.

SCHEDULE C

SUMMARY OF MAIN BENEFIT AND CONTRIBUTION PROVISIONS

The following summary presents the main benefit and contribution provisions of the System in effect June 30, 2016, as interpreted in preparing the actuarial valuation.

DEFINITIONS

Average Compensation	Average annual covered earnings of an employee during the four highest consecutive years of service.
Covered Earnings	Gross salary not in excess of the maximum amount on which contributions were required.
Fiscal Year	Year commencing on July 1 and ending June 30.
Credited Service	Service while a contributing member plus additional service as described below.
Unused Sick and Vacation Leave	Service credit is provided at no charge to members for unused sick and vacation time that has accrued at the time of retirement.
Additional Service	Additional service credit may be granted for service prior to July 1, 1958, active duty military service, and retroactive service

The maximum covered earnings for employers and employees over the years are as follows:

EMPLOYER AND EMPLOYEE RATES OF CONTRIBUTION
AND MAXIMUM COVERED EARNINGS

Fiscal Date From	Fiscal Date To	Employer Rate	Employee Rate	Maximum Covered Earnings*
7/1/1958	6/30/1968	13.33%	5.00%	
7/1/1968	6/30/1971	15.33	5.00	
7/1/1971	6/30/1973	18.59	5.00	
7/1/1973	6/30/1975	20.77	5.00	
7/1/1975	6/30/1978	24.65	5.00	
7/1/1978	6/30/1980	26.16	6.00	
7/1/1980	6/30/1989	26.16	6.50	
7/1/1989	6/30/1990	27.97	6.50	
7/1/1990	6/30/2003	26.16	6.50	
7/1/2003	6/30/2006	28.16	6.50	
7/1/2006	6/30/2008	30.30	6.50	
7/1/2008	12/31/2011	30.30	7.25	
1/1/2012	6/30/2012	35.21	7.25	
7/1/2012	6/30/2016	37.00	7.25	

*Maximum covered earnings equal wages paid, not to exceed wages paid to the Commissioner of the Department of Public Safety (currently $146,850).

Effective July 1, 2016, additional contributions from SB 2659 and HB 1015 are estimated to be $3,700,000 combined.

BENEFITS

Superannuation Retirement

Condition for Retirement

(a) A retirement allowance is payable to any member who retires and has attained age 55 and completed at least five years of membership service, or has attained age 45 and completed at least 20 years of creditable service, or has completed 25 years of creditable service regardless of age.

Any member who has attained age 63 shall be retired forthwith. Effective July 1, 2011, the Commissioner of Public Safety is authorized to allow a member who has attained age 63 to continue in active service. Such continued service may be authorized annually until the member attains age 65.

(b) Any member who withdraws from service prior to his or her attainment of age 55 but after having completed five or more years of creditable service is entitled to receive, in lieu of a refund of his or her accumulated contributions, a retirement allowance commencing at age 55.

Amount of Allowance

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

1. A member's annuity which is the actuarial equivalent of the member's accumulated contributions at the time of his or her retirement, plus

2. An employer's annuity which, together with the member's annuity, is equal to 2-1/2% of his or her average compensation for each year of membership service, plus

3. A prior service annuity equal to 2-1/2% of average compensation for each year of prior service.

The aggregate amounts of (2) and (3) above shall not exceed 100% of average compensation, regardless of service, for retirements on or after January 1, 2000; 85% for retirements prior to January 1, 2000.

The minimum allowance for both service and disability retirement based on the following table for each year of creditable service, reduced if necessary as indicated below.

Service	Monthly Benefit
Less than 10 years	$250
10-15 years	$300
15 or more years	$500

The annual retirement allowance payable to a member who retires under condition (a) above prior to age 55 is computed in accordance with the above formula except that the employer's annuity and prior service annuity are reduced 3% for each year of age below age 55, or 3% for each year of service below 25 years of creditable service, whichever is less.

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 membership service to be eligible for retirement.

Amount of Allowance

The annual disability retirement allowance payable is equal to the greater of 50% of his or her average salary for the 2 years immediately preceding retirement, or a retirement allowance as calculated under the provisions for superannuation retirement.

Death Prior to Retirement

Upon the death of a highway patrolman who is eligible for service retirement, family benefits are payable equal to those which would have been payable had he been retired on his or her date of death.

Upon the death of a highway patrolman either in the line of duty or as a result of an accident occurring in the line of duty, the following benefits are payable:

a) a benefit to the spouse equal to one-half the member's average compensation.

b) a benefit to a dependent child payable to age 19 (23 if a full-time student) equal to one-fourth of the member's average compensation for one child or one-half for two or more children.

Death After Retirement

Upon the death of a highway patrolman who has retired for service or disability and who has not elected any other optional form of benefit, his widow or her widower is eligible for a benefit equal to 50% of his or her retirement allowance and each child (but not more than 2) who has not attained age 19 (23 if a full-time student) is eligible for a benefit equal to 25% of his or her retirement allowance. The benefit to the widow is payable for life and to children until they attain age 19 (23 if a full-time student) or for life if they are totally and permanently disabled.

Refund of Contributions

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

Effective July 1, 2016, the interest rate on employee contributions shall be calculated based on the money market rate as published by the Wall Street Journal on December 31 of each preceding year with a minimum rate of one percent and a maximum rate of five percent.

Normal Form of Benefit

The normal form of benefit is an allowance payable during the life of the member. Upon death the benefits described above are payable.

Optional Benefits

A member upon retirement may elect to receive his allowance in one of the following forms which are computed to be actuarially equivalent to the applicable retirement allowance.

Option 1. Reduced allowance with the provision that if the pensioner dies before he receives the value of the member's annuity as it was at the time of retirement, the balance shall be paid to his or her beneficiary.

Option 2. Upon his or her death, his or her reduced retirement allowance shall be continued throughout the life of, and paid to, his or her beneficiary.

Option 3. Upon his or her death, 50% of his or her reduced retirement allowance shall be continued throughout the life of, and paid to, a designated beneficiary and the other 50% of his or her reduced retirement allowance to some other designated beneficiary.

Option 4. Upon his or her death, 75% of his or her reduced retirement allowance shall be continued throughout the life of, and paid to, a designated beneficiary.

Option 4A. Upon his or her death, 50% of his or her reduced retirement allowance shall be continued throughout the life of, and paid to, a designated beneficiary.

Option 4B. A reduced retirement allowance shall be continued throughout the life of the pensioner, but with the further guarantee of payment to the pensioner or his or her beneficiary for a specified number of years certain.

Option 4C. A member may elect any option with the added provision that the member shall receive, so far as possible, the same total amount annually (considering both HSPRS and Social Security benefits) before and after the earliest age at which the member becomes eligible for a Social Security benefit. This option was only available to those who retired prior to July 1, 2004.

A member who elects Option 2, Option 4, or Option 4A, at retirement may revert to the normal form of benefit if the designated beneficiary predeceases the retired member or if the retired member divorces the designated beneficiary. A member who elects the normal form of benefit or Option 1 at retirement may select Option 2, Option 4, or Option 4A to provide beneficiary protection to a new spouse if married after retirement.

A member who qualifies for an unreduced retirement allowance may select a partial lump-sum option at retirement. Under this option, the retiree has the option of taking a partial lump-sum distribution equal to either 12, 24, or 36 times the base maximum monthly benefit. With each lump-sum amount, the base maximum monthly benefit will be actuarially reduced. A member selecting this option may also select any of the regular options except Option 1, the prorated single-life annuity, and Option 4-C, the Social Security leveling provision. The benefit is then calculated using the new reduced maximum benefit as a starting point in applying the appropriate option factors for the reduction.

Post-Retirement Adjustments In Allowances

The allowances of retired members are adjusted annually by an amount equal to (a) 3% of the annual retirement allowance for each full fiscal year of retirement prior to the year in which the member reaches age 60*, plus (b) 3% compounded for each year thereafter beginning with the fiscal year in which the member turns age 60*.

A prorated portion of the annual adjustment will be paid to the member, beneficiary, or estate of any member or beneficiary who is receiving the annual adjustment in a lump sum, but whose benefits are terminated between July 1 and December 1.

Those members who retired on or before July 1, 1999 received an ad hoc benefit increase in the amount of $3.50 per month per each full fiscal year of retirement through June 30, 1999 plus $1.00 per month for each year of credited service. The benefits were increased on July 1, 1999.

*this age will be reduced in five phases to age 55 if the actuary certifies that reducing the age will not result in the amortization period of the unfunded actuarial accrued liability exceeding 20 years.

CONTRIBUTIONS

Members contribute 7.25% of compensation and the employer contributes 37.00% of compensation. Funds from SB 2659 and HB 1015 are also provided.

SCHEDULE D

DETAILED TABULATIONS OF THE DATA

Retirants & Beneficiaries as of June 30, 2016
Tabulated by Year of Retirement

Year of Retirement Ending June 30	No.	Total Annual Benefits, excluding COLA	COLA	Total Annual Benefits	Average Monthly Total Benefit
2016	17	$729,600	$0	$729,600	$3,576
2015	15	698,924	10,363	709,287	3,940
2014	21	961,502	40,840	1,002,342	3,978
2013	16	644,831	46,877	691,708	3,603
2012	19	836,376	84,065	920,441	4,037
2011	20	883,693	116,129	999,822	4,166
2010	45	1,797,873	315,519	2,113,392	3,914
2009	30	1,293,254	250,429	1,543,683	4,288
2008	14	574,347	133,816	708,163	4,215
2007	20	687,799	173,224	861,023	3,588
2006	19	599,553	173,319	772,872	3,390
2005	19	600,369	192,513	792,882	3,478
2004	18	672,565	243,577	916,142	4,241
2003	9	243,443	89,796	333,239	3,086
2002	30	820,486	344,544	1,165,030	3,236
2001	22	662,763	302,250	965,013	3,655
2000	16	436,147	214,343	650,490	3,388
1999	14	400,097	215,484	615,581	3,664
1998	29	862,890	496,491	1,359,381	3,906
1997	31	814,957	520,581	1,335,538	3,590
1996	21	514,584	318,466	833,050	3,306
1995	17	452,358	310,833	763,191	3,741
1994	13	298,076	219,814	517,890	3,320
1993	17	342,906	258,001	600,907	2,946
1992	3	64,186	49,939	114,125	3,170
1991	5	69,809	60,508	130,317	2,172
1990	14	232,114	215,530	447,644	2,665
1989	1	20,314	19,144	39,458	3,288
1988	6	66,607	52,915	119,522	1,660
1987	107	1,852,728	1,941,277	3,794,005	2,955
1986	10	181,222	214,573	395,795	3,298
1985	10	141,727	177,212	318,939	2,658
1984	8	87,502	120,311	207,813	2,165
1983	6	71,343	96,173	167,516	2,327
1982	15	128,301	181,934	310,235	1,724
1981 & Prior	47	308,449	527,530	835,979	1,482
TOTAL	724	$20,053,695	$8,728,320	$28,782,015	$3,313

Schedule of Retired Members by Type of Retirement

Benefits Payable June 30, 2016

Amount of Monthly Benefit	Number of Rets.	Ret Type 1*	Ret Type 2*	Ret Type 3*
$1 – $100	1			1
101 – 200	2			2
201 – 300	8			8
301 – 400	19	1		18
401 – 500	10		3	7
501 – 600	16	2		14
601 – 700	15	2		13
701 – 800	21	1	1	19
801 – 900	25	3		22
901 – 1,000	23	1	1	21
Over 1,000	584	516	12	56
Totals	724	526	17	181

*Type of Retirement
1 – Retirement for Age & Service
2 – Disability Retirement
3 – Survivor Payment

Schedule of Retired Members by Type of Option

Benefits Payable June 30, 2016

Amount of Monthly Benefit	Number of Rets.	Life	Option 1	Option 2	Option 3	Option 4	Option 4A	Option 4B	Option 4C**	Option 5	PLSO** 1 Year	PLSO** 2 Years	PLSO** 3 Years
$1 – $100	1	1											
101 – 200	2	2											
201 – 300	8	8											
301 – 400	19	18		1									
401 – 500	10	7					3						
501 – 600	16	14					2						
601 – 700	15	13					2						
701 – 800	21	19					2		1				
801 – 900	25	22			1		2					1	
901 – 1,000	23	21					2						
Over 1,000	584	62	2	46	3		456	15	10		38	23	121
Totals	724	187	2	47	4	0	469	15	11	0	38	24	121

<u>Option Selected</u>

Life	-	Return of Contributions
Opt. 1	-	Return of Member's Annuity
Opt. 2	-	100% Survivorship
Opt. 3	-	50%/50% Dual Survivorship
Opt. 4	-	75% Survivorship
Opt. 4A	-	50% Survivorship
Opt. 4B	-	Years Certain & Life
Opt. 4C	-	Social Security Leveling**
Opt. 5	-	Pop-Up
PLSO	-	Partial Lump Sum** (Reflects reduced monthly benefit)

**Included in other options

Mississippi Highway Safety Patrol Retirement System

Retirant and Beneficiary Information June 30, 2016

Attained Age	Service Retirement		Disability Retirement		Survivors and Beneficiaries		Total	
	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits
Under 20					5	$32,450	5	$32,450
20 – 24					3	17,561	3	17,561
25 – 29					1	16,487	1	16,487
30 – 34					1	21,140	1	21,140
35 – 39								
40 – 44					3	64,990	3	64,990
45 – 49	5	$190,400	2	$65,280	3	59,287	10	314,967
50 – 54	32	1,338,987	2	45,086	2	38,225	36	1,422,298
55 – 59	93	4,472,086	1	30,298	3	88,224	97	4,590,608
60 – 64	114	5,282,951	1	18,575	8	188,004	123	5,489,530
65 – 69	118	5,441,796	4	126,018	15	362,730	137	5,930,544
70 – 74	69	3,208,017	1	20,789	35	867,857	105	4,096,663
75 – 79	51	2,341,293	3	65,784	34	822,684	88	3,229,761
80 – 84	24	1,130,069	3	57,836	30	631,381	57	1,819,286
85 – 89	15	770,988			26	527,756	41	1,298,744
90 – 94	4	171,705			9	164,892	13	336,597
95	1	49,148			2	29,155	3	78,303
96								
97								
98					1	22,086	1	22,086
99								
100 & Over								
Totals	526	$24,397,440	17	$429,666	181	$3,954,909	724	$28,782,015

Average Age: 68.4 years
Average Age at Retirement: 50.0 years

Mississippi Highway Safety Patrol Retirement System

Total Active Member Data as of June 30, 2016
Tabulated by Attained Ages 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+	No.	Valuation Payroll
Under 20									
20 – 24	3							3	$120,201
25 – 29	36	2						38	1,605,310
30 – 34	30	22	9					61	2,833,795
35 – 39	15	30	29	11				85	4,267,036
40 – 44	2	25	20	48	7			102	5,693,771
45 – 49	4	8	9	35	40	5		101	6,308,465
50 – 54	1	2	2	7	24	18	1	55	3,793,107
55 – 59				5	3	12	11	31	2,201,511
60 – 64		1		1		2	4	8	556,966
65 – 69									
70 – 74									
75 – 79									
Totals	91	90	69	107	74	37	16	484	$27,380,162

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

Age: 42.6 years
Service: 14.3 years
Annual Pay: $56,571

SCHEDULE E

MISSISSIPPI HSPRS
ANALYSIS OF FINANCIAL EXPERIENCE

Gains & Losses in Accrued Liabilities
Resulting from Difference Between
Assumed Experience & Actual Experience
($ Thousands)

Type of Activity	$ Gain (or Loss) For Year Ending 6/30/2016	$ Gain (or Loss) For Year Ending 6/30/2015
Age & Service Retirements. If members retire at older ages, there is a gain. If younger ages, a loss.	$ 1,136.1	$ 106.6
Disability Retirements. If disability claims are less than assumed, there is a gain. If more claims, a loss.	144.0	126.3
Death-in Service Benefits. If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.	12.3	25.4
Withdrawal From Employment. If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, a loss.	2,435.3	442.4
Pay Increases. If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.	(6,086.9)	1,436.6
New Members / Rehires. Additional unfunded actuarial accrued liability will produce a loss.	(1,265.7)	0.0
Investment Income. If there is a greater investment income than assumed, there is a gain. If less income, a loss.	(2,826.2)	11,203.7
Death After Retirement. If retirants live longer than assumed, there is a loss. If not as long, a gain.	2,164.1	(802.4)
Other. Miscellaneous gains and losses resulting from data adjustments, timing of financial transactions, etc.	(1,417.4)	(2,347.7)
Gain (or Loss) During Year From Financial Experience	$ (5,704.4)	$ 10,190.9
Non-Recurring Items. Adjustments for plan amendments, software changes, assumption changes, or method changes.	0.4	(19,175.9)
Composite Gain (or Loss) During Year	$ (5,704.0)	$ (8,985.0)

SCHEDULE F

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 on 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.

Valuation Assets. The value of current plan assets recognized for valuation purposes. Generally based on book value plus a portion of unrealized appreciation or depreciation.