



May 22, 2020

Ms. Carol Eady
Senior Director of Benefits & Compensation
Milwaukee Public Schools
Administration Building
5225 West Vliet Street
Milwaukee, Wisconsin 53208

**Subject: Milwaukee Public Schools – Retiree Healthcare and Life Insurance Benefits
Closed Group – Alternative B (55/15/70%) with Level Dollar Funding**

Dear Carol:

With respect to the retiree healthcare benefits (“OPEB”) program sponsored by Milwaukee Public Schools (“MPS”), we have estimated the cost impact of the following proposed changes in retirement eligibility and pre-funding policy:

	Current Plan Benefits	Alternative B	Alternative B with Level Dollar Funding
Eligible for OPEB if hired before	July 1, 2013	July 1, 2013	July 1, 2013
Minimum age at retirement	60	55	55
Minimum service at retirement	20	15	15
Percentage of maximum sick leave accrued at retirement	90%	70%	70%
Pre-funding Policy for Current Plan Benefits	5.0% of PAYGO Costs	5.6% of PAYGO Costs	5.0% of PAYGO Costs
Pre-funding Policy for Additional Plan Benefits	N/A	5.6% of PAYGO Costs	Level Dollar Funding Through 2037

This communication is intended to accompany the letter dated March 13, 2020, which shows the impact of changing OPEB eligibility requirements to age 57 with 20 years of service (Alternative A), and age 55 with 15 years of service (Alternative B). Both Alternative A and Alternative B have a requirement of 70% of maximum sick leave accrued at retirement. The prefunding policy is based on 5.0% of PAYGO costs for Alternative A and 5.6% of PAYGO costs for Alternative B.

Our cost estimates are based on the following:

- Census data as of January 1, 2020, which reflects
 - 159 normal retirements
 - 278 retirements due to the Early Retirement Window (ERW) program
 - 85 active members who have elected to retire under the ERW (out of 342 eligible)
- Pension-related assumptions used for:
 - Actuarial valuations as of June 30, 2018, of the MPS Supplemental Pension Plans
 - Actuarial valuation as of January 1, 2019, of the City of Milwaukee Employees Retirement System
- OPEB-related assumptions used for the July 1, 2017, GASB 75 actuarial valuation adjusted for
 - Premium changes during fiscal years 2019 and 2020
 - Trend rate updates for fiscal years 2019 and 2020 based on actual premium increases
 - Decrease in long-term rate of return on assets from 7.25% to 7.00%
 - Decrease in the short-term rate of return on assets from 3.00% to 2.75%
- Accelerated retirement rates for members who are eligible for the ERW
- Increased retirement rates under Alternative B since members are able to retire earlier and receive healthcare benefits
- Increased likelihood that members are expected to accrue the minimum number of sick leave hours needed for a Board paid subsidy. Since the percentage of maximum accumulated sick leave at retirement was reduced from 90% to 70% under Alternative B, the likelihood was increased from 60% to 76%.
- Market value of assets as of January 31, 2020

Cost Impact of Alternative Benefit Designs

Under the current plan provisions and funding policy, if MPS pre-funds five percent of expected claim costs and invests these contributions in a long-term account which earns 7.00 percent per year, then the program is projected to be fully funded by 2037.

The following table shows key actuarial valuation results under the baseline and alternative scenarios including additional contribution needed to reach full funding by 2037:

(\$ in Millions)	Baseline (60/20/90%)	Alternative B (55/15/70%) PAYGO Pre-funding	Alternative B (55/15/70%) Level-Dollar Funding
Actuarial Liability at 1/1/2020	\$ 905.62	\$ 1,000.74	\$ 1,000.74
Increase in Actuarial Liability		95.12	95.12
Market Value of Assets at 1/1/2020	160.57	160.57	160.57
Funded Ratio at 1/1/2020	17.7%	16.0%	16.0%
FY 2025 Expected PAYGO Contributions	57.24	64.16	57.24
FY 2025 Pre-Fund Contributions	2.86	3.60	2.86
Pre-Fund Contributions as a Percent of PAYGO Contributions	5.0%	5.6%	5.0%
Level-Dollar Contribution	-	-	7.93
Year Program is Fully Funded	2037	2037	2037

Exhibits A, B and C provide more details on the projections.

Alternative B reduces: (i) the retirement eligibility age from 60 to 55, (ii) the service eligibility from 20 years to 15 years, and (iii) the eligibility requirement relating to the percentage of maximum sick leave hours accrued at retirement from 90% to 70%. These changes are expected to: (i) cause members to retire earlier and (ii) expand the group of members who are eligible to receive Board Paid subsidies at retirement. For members hired before July 1, 2013, this change is expected to increase the actuarial liability as of January 1, 2020, by approximately \$95.12 million.

Key observations include:

- Under current plan provisions, a funding policy based on PAYGO contributions plus 5.0% of PAYGO costs is projected to fully fund the projected actuarial liability at plan year end 2037.
- Under Alternative B (55/15/70%), a funded policy based on PAYGO contributions plus 5.6% of PAYGO costs is projected to fully fund the projected actuarial liability at plan year end, 2037. When compared to current plan provisions, additional contributions are approximately \$542,000 in 2020, increasing gradually to \$7,651,000 in 2025, \$13,626,000 in 2031, and decreasing to \$11,539,000 in 2037. At 2037, the actuarial liabilities are fully funded. The additional contributions increase significantly during the first 12 years of the projection period.
- Under Alternative B (55/15/70%) with level contribution funding, a funding policy based on current plan contributions plus additional contributions of \$7,934,000 per year from 2020 to 2037 is projected to fully fund actuarial liabilities at 2037. Under this funding policy, a significant portion of additional benefits due to plan design changes are financed with investment income.



Under Alternative B (55/15%/70%) with level contribution funding, experience gains and losses due to investment performance, demographic experience, and healthcare claims experience would be recognized by adjusting the \$7,934,000 level dollar contribution in future years. For example, if during 2020 plan assets were to experience a 1% loss and actuarial liabilities were to experience a 1% loss, the level contributions from 2021 to 2037 would increase by \$451,000, from \$7,934,000 to \$8,385,000. Exhibits D and E illustrate the sensitivity of investment and liability gains and losses on level dollar contributions.

DRAFT

Caveats

This report is intended for use by MPS and those designated or approved by MPS. This report may be provided to parties other than MPS only in its entirety with supporting documents and only with the permission of MPS. This report should not be relied on for any purpose other than estimating the financial impact of providing the alternative scenarios as described in this report. GRS is not responsible for unauthorized use of this report.

Future actuarial measurements may differ significantly from the current measurements 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.

The actuaries submitting this statement are independent of the plan sponsor, are Members of the American Academy of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

To the best of our knowledge, the information contained in this report is accurate and fairly presents the financial impact of the changes described on the OPEB actuarial valuation results. All calculations have been made in conformity with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

If you have any questions or comments, please call us at 312.368.6613.

Sincerely,

Alex Rivera, F.S.A., E.A., M.A.A.A., F.C.A.
Senior Consultant

Lance J. Weiss, E.A., M.A.A.A., F.C.A.
Senior Consultant

cc. Mr. Matthew J. Chason, Milwaukee Public Schools



Exhibit A

Long-term asset return	7.000%	Baseline - 60/20/90%
Short-term asset return	2.750%	
Average number of monthly benefits in short-term reserve account	3	
Pre funding contribution rate, percentage of expected benefits	5.000%	
Operating expense rate, percentage of expected benefits	0.500%	
Discount rate	4.890%	

CYE	Assets (bo)	Benefits	Operating Expense	PAYGO Contributions	Pre-Fund Contribution	Income Short-term Cash Flow	Income Long-term Account	Total Income	Assets (eoy)	Accrued Liability (eoy)	Funded Ratio	Normal Cost
2019									\$ 160,573,726	\$ 905,619,495	17.7%	
2020	\$ 160,573,726	\$ 52,971,545	\$ 264,858	\$ 52,971,545	\$ 2,648,577	\$ 364,179	\$ 10,313,159	\$ 10,677,338	173,634,784	898,425,426	19.3%	\$ 2,706,984
2021	173,634,784	52,833,057	264,165	52,833,057	2,641,653	363,227	11,229,856	11,593,084	187,605,355	890,793,136	21.1%	2,484,106
2022	187,605,355	54,611,541	273,058	54,611,541	2,730,577	375,454	12,176,673	12,552,127	202,615,002	880,820,980	23.0%	2,342,330
2023	202,615,002	55,569,938	277,850	55,569,938	2,778,497	382,043	13,210,576	13,592,620	218,708,269	869,252,636	25.2%	2,218,327
2024	218,708,269	56,400,967	282,005	56,400,967	2,820,048	387,757	14,322,562	14,710,319	235,956,631	856,143,690	27.6%	2,097,442
2025	235,956,631	57,244,833	286,224	57,244,833	2,862,242	393,558	15,515,180	15,908,738	254,441,386	841,405,362	30.2%	1,976,267
2026	254,441,386	58,234,071	291,170	58,234,071	2,911,704	400,359	16,791,801	17,192,160	274,254,079	824,786,796	33.3%	1,833,323
2027	274,254,079	59,209,856	296,049	59,209,856	2,960,493	407,068	18,161,613	18,568,681	295,487,204	806,206,579	36.7%	1,687,208
2028	295,487,204	60,052,981	300,265	60,052,981	3,002,649	412,864	19,633,177	20,046,041	318,235,629	785,705,903	40.5%	1,542,315
2029	318,235,629	60,378,858	301,894	60,378,858	3,018,943	415,105	21,219,864	21,634,969	342,587,646	763,733,106	44.9%	1,409,632
2030	342,587,646	60,484,861	302,424	60,484,861	3,024,243	415,833	22,922,650	23,338,484	368,647,949	740,432,156	49.8%	1,267,936
2031	368,647,949	60,496,772	302,484	60,496,772	3,024,839	415,915	24,746,663	25,162,578	396,532,882	715,850,684	55.4%	1,142,069
2032	396,532,882	60,881,427	304,407	60,881,427	3,044,071	418,560	26,691,877	27,110,437	426,382,983	689,523,107	61.8%	995,488
2033	426,382,983	60,543,553	302,718	60,543,553	3,027,178	416,237	28,787,297	29,203,534	458,310,976	662,136,048	69.2%	880,173
2034	458,310,976	60,167,969	300,840	60,167,969	3,008,398	413,655	31,028,829	31,442,484	492,461,018	633,685,529	77.7%	773,852
2035	492,461,018	59,521,020	297,605	59,521,020	2,976,051	409,207	33,430,653	33,839,860	528,979,325	604,396,593	87.5%	666,676
2036	528,979,325	58,482,323	292,412	58,482,323	2,924,116	402,066	36,005,112	36,407,178	568,018,207	574,639,715	98.8%	569,520
2037	568,018,207	57,172,618	285,863	57,172,618	2,858,631	393,062	38,760,754	39,153,815	609,744,790	544,673,953	111.9%	476,646



Exhibit B

Long-term asset return	7.000%
Short-term asset return	2.750%
Average number of monthly benefits in short-term reserve account	3
Pre funding contribution rate, percentage of expected benefits	5.605%
Operating expense rate, percentage of expected benefits	0.500%
Discount rate	4.890%

Alternative B - 55/15/70%
Percent of PAYGO Prefunding

CYE	Assets (bo)	Benefits	Operating Expense	PAYGO Contributions	Pre-Fund Contribution	Income Short-term Cash Flow	Income Long-term Account	Total Income	Assets (eo)	Accrued Liability (eo)	Funded Ratio	Normal Cost
2019									\$ 160,573,726	\$ 1,000,744,382	16.0%	
2020	\$ 160,573,726	\$ 53,181,655	\$ 265,908	\$ 53,181,655	\$ 2,980,619	\$ 365,624	\$ 10,309,482	\$ 10,675,106	173,963,543	1,003,105,499	17.3%	\$ 7,705,006
2021	173,963,543	53,737,764	268,689	53,737,764	3,011,787	369,447	11,237,037	11,606,484	188,313,125	1,004,260,469	18.8%	6,970,683
2022	188,313,125	56,343,480	281,717	56,343,480	3,157,827	387,361	12,195,908	12,583,269	203,772,504	1,002,325,435	20.3%	6,504,137
2023	203,772,504	59,048,926	295,245	59,048,926	3,309,456	405,961	13,230,719	13,636,680	220,423,396	997,057,582	22.1%	6,047,771
2024	220,423,396	61,591,794	307,959	61,591,794	3,451,974	423,444	14,351,781	14,775,225	238,342,635	988,483,898	24.1%	5,614,310
2025	238,342,635	64,161,861	320,809	64,161,861	3,596,016	441,113	15,561,152	16,002,265	257,620,106	976,430,328	26.4%	5,195,938
2026	257,620,106	66,717,315	333,587	66,717,315	3,739,239	458,682	16,865,854	17,324,536	278,350,294	960,725,016	29.0%	4,761,306
2027	278,350,294	69,059,689	345,298	69,059,689	3,870,519	474,785	18,275,976	18,750,761	300,626,277	941,401,812	31.9%	4,321,001
2028	300,626,277	70,890,926	354,455	70,890,926	3,973,153	487,375	19,803,248	20,290,623	324,535,598	918,827,563	35.3%	3,900,496
2029	324,535,598	72,094,455	360,472	72,094,455	4,040,606	495,649	21,455,839	21,951,488	350,167,220	893,522,683	39.2%	3,515,647
2030	350,167,220	72,804,031	364,020	72,804,031	4,080,375	500,528	23,237,635	23,738,163	377,621,737	865,848,788	43.6%	3,120,309
2031	377,621,737	73,053,606	365,268	73,053,606	4,094,362	502,244	25,155,083	25,657,327	407,008,159	836,197,260	48.7%	2,760,233
2032	407,008,159	73,219,948	366,100	73,219,948	4,103,685	503,387	27,209,222	27,712,609	438,458,353	804,553,982	54.5%	2,397,565
2033	438,458,353	72,658,247	363,291	72,658,247	4,072,204	499,525	29,420,565	29,920,091	472,087,357	771,640,602	61.2%	2,106,578
2034	472,087,357	72,015,324	360,077	72,015,324	4,036,171	495,105	31,785,847	32,280,952	508,044,403	737,505,378	68.9%	1,842,132
2035	508,044,403	70,962,217	354,811	70,962,217	3,977,148	487,865	34,321,269	34,809,135	546,475,875	702,512,101	77.8%	1,581,050
2036	546,475,875	69,521,714	347,609	69,521,714	3,896,414	477,962	37,036,681	37,514,643	587,539,324	667,037,737	88.1%	1,341,616
2037	587,539,324	67,771,620	338,858	67,771,620	3,798,328	465,930	39,941,749	40,407,679	631,406,473	631,382,547	100.0%	1,108,739



Exhibit C

Long-term asset return	7.000%
Short-term asset return	2.750%
Average number of monthly benefits in short-term reserve account	3
Pre funding contribution rate, percentage of expected benefits	5.000%
Operating expense rate, percentage of expected benefits	0.500%
Discount rate	4.890%

**Alternative B - 55/15/70%
Level-Dollar Funding**

CYE	Assets (bo)	Expected Benefits Current Plan	Additional Expected Benefits due to Plan Improvements	Total Expected Benefits	Operating Expense	PAYGO Contributions Current Plan	Pre-Fund Contributions Current Plan	Level Dollar Contribution due to Plan Improvements	Emerging Experience Adjustment	Income Short-term Cash Flow	Income Long-term Account	Total Income	Assets (eo)	Accrued Liability (eo)	Funded Ratio	Normal Cost
2019													\$ 160,573,726	\$ 1,000,744,382	16.0%	
2020	\$ 160,573,726	\$ 52,971,545	\$ 210,110	\$ 53,181,655	\$ 265,908	\$ 52,971,545	\$ 2,648,577	\$ 7,933,997	\$ -	\$ 365,624	\$ 10,309,482	\$ 10,675,106	181,355,387	1,003,105,499	18.1%	\$ 7,705,006
2021	181,355,387	52,833,057	904,707	53,737,764	268,689	52,833,057	2,641,653	7,933,997	-	369,447	11,754,466	12,123,913	202,881,555	1,004,260,469	20.2%	6,970,683
2022	202,881,555	54,611,541	1,731,939	56,343,480	281,717	54,611,541	2,730,577	7,933,997	-	387,361	13,215,698	13,603,059	225,135,531	1,002,325,435	22.5%	6,504,137
2023	225,135,531	55,569,938	3,478,988	59,048,926	295,245	55,569,938	2,778,497	7,933,997	-	405,961	14,726,131	15,132,092	247,205,885	997,057,582	24.8%	6,047,771
2024	247,205,885	56,400,967	5,190,827	61,591,794	307,959	56,400,967	2,820,048	7,933,997	-	423,444	16,226,556	16,649,999	269,111,143	988,483,898	27.2%	5,614,310
2025	269,111,143	57,244,833	6,917,028	64,161,861	320,809	57,244,833	2,862,242	7,933,997	-	441,113	17,714,947	18,156,060	290,825,603	976,430,328	29.8%	5,195,938
2026	290,825,603	58,234,071	8,483,244	66,717,315	333,587	58,234,071	2,911,704	7,933,997	-	458,682	19,190,239	19,648,921	312,503,393	960,725,016	32.5%	4,761,306
2027	312,503,393	59,209,856	9,849,833	69,059,689	345,298	59,209,856	2,960,493	7,933,997	-	474,785	20,666,693	21,141,478	334,344,230	941,401,812	35.5%	4,321,001
2028	334,344,230	60,052,981	10,837,945	70,890,926	354,455	60,052,981	3,002,649	7,933,997	-	487,375	22,163,505	22,650,880	356,739,356	918,827,563	38.8%	3,900,496
2029	356,739,356	60,378,858	11,715,597	72,094,455	360,472	60,378,858	3,018,943	7,933,997	-	495,649	23,710,102	24,205,751	379,821,977	893,522,683	42.5%	3,515,647
2030	379,821,977	60,484,861	12,319,170	72,804,031	364,020	60,484,861	3,024,243	7,933,997	-	500,528	25,313,468	25,813,996	403,911,023	865,848,788	46.6%	3,120,309
2031	403,911,023	60,496,772	12,556,834	73,053,606	365,268	60,496,772	3,024,839	7,933,997	-	502,244	26,995,333	27,497,577	429,445,333	836,197,260	51.4%	2,760,233
2032	429,445,333	60,881,427	12,338,521	73,219,948	366,100	60,881,427	3,044,071	7,933,997	-	503,387	28,779,824	29,283,211	457,001,992	804,553,982	56.8%	2,397,565
2033	457,001,992	60,543,553	12,114,694	72,658,247	363,291	60,543,553	3,027,178	7,933,997	-	499,525	30,718,620	31,218,146	486,703,326	771,640,602	63.1%	2,106,578
2034	486,703,326	60,167,969	11,847,355	72,015,324	360,077	60,167,969	3,008,398	7,933,997	-	495,105	32,808,965	33,304,070	518,742,360	737,505,378	70.3%	1,842,132
2035	518,742,360	59,521,020	11,441,197	70,962,217	354,811	59,521,020	2,976,051	7,933,997	-	487,865	35,070,126	35,557,992	553,414,391	702,512,101	78.8%	1,581,050
2036	553,414,391	58,482,323	11,039,391	69,521,714	347,609	58,482,323	2,924,116	7,933,997	-	477,962	37,522,377	38,000,339	590,885,843	667,037,737	88.6%	1,341,616
2037	590,885,843	57,172,618	10,599,002	67,771,620	338,858	57,172,618	2,858,631	7,933,997	-	465,930	40,176,006	40,641,936	631,382,547	631,382,547	100.0%	1,108,739



Exhibit D

Long-term asset return	7.000%
Short-term asset return	2.750%
Average number of monthly benefits in short-term reserve account	3
Pre funding contribution rate, percentage of expected benefits	5.000%
Operating expense rate, percentage of expected benefits	0.500%
Discount rate	4.890%

Alternative B - 55/15/70%
1% Loss on Assets and Liabilities

12/31/2020
Asset Loss \$ 1,813,554

CYE	Assets (boy)	Expected Benefits Current Plan	Additional Expected Benefits due to Plan Improvements	Total Expected Benefits	Operating Expense	PAYGO Contributions Current Plan	Pre-Fund Contributions Current Plan	Level Dollar Contribution due to Plan Improvements	Level Dollar Contribution due to Plan Improvements Emerging Experience Adjustment	Income Short-term Cash Flow	Income Long-term Account	Total Income	Assets (eoy)	Accrued Liability (eoy)	Funded Ratio	Normal Cost
2019													\$ 160,573,726	\$ 1,000,744,382	16.0%	
2020	\$ 160,573,726	\$ 52,971,545	\$ 210,110	\$ 53,181,655	\$ 265,908	\$ 52,971,545	\$ 2,648,577	\$ 7,933,997	\$ -	\$ 365,624	\$ 10,309,482	\$ 10,675,106	179,541,833	1,013,136,554	17.7%	\$ 7,705,006
2021	179,541,833	53,361,388	913,754	54,275,141	271,376	53,361,388	2,668,069	7,933,997	451,000	373,142	11,618,113	11,991,255	201,401,025	1,014,303,074	19.9%	7,040,390
2022	201,401,025	55,157,656	1,749,259	56,906,915	284,535	55,157,656	2,757,883	7,933,997	451,000	391,235	13,102,201	13,493,436	224,003,547	1,012,348,689	22.1%	6,569,178
2023	224,003,547	56,125,637	3,513,778	59,639,415	298,197	56,125,637	2,806,282	7,933,997	451,000	410,021	14,636,559	15,046,580	246,429,430	1,007,028,157	24.5%	6,108,249
2024	246,429,430	56,964,977	5,242,735	62,207,712	311,039	56,964,977	2,848,249	7,933,997	451,000	427,678	16,161,425	16,589,103	268,698,005	998,368,737	26.9%	5,670,453
2025	268,698,005	57,817,281	6,986,199	64,803,480	324,017	57,817,281	2,890,864	7,933,997	451,000	445,524	17,674,799	18,120,323	290,783,973	986,194,631	29.5%	5,247,897
2026	290,783,973	58,816,412	8,568,077	67,384,488	336,922	58,816,412	2,940,821	7,933,997	451,000	463,268	19,175,650	19,638,918	312,843,709	970,332,266	32.2%	4,808,919
2027	312,843,709	59,801,955	9,948,331	69,750,286	348,751	59,801,955	2,990,098	7,933,997	451,000	479,533	20,678,430	21,157,963	335,079,683	950,815,830	35.2%	4,364,211
2028	335,079,683	60,653,511	10,946,325	71,599,836	357,999	60,653,511	3,032,676	7,933,997	451,000	492,249	22,202,581	22,694,830	357,887,861	928,015,838	38.6%	3,939,501
2029	357,887,861	60,982,647	11,832,753	72,815,399	364,077	60,982,647	3,049,132	7,933,997	451,000	500,606	23,777,881	24,278,487	381,403,647	902,457,910	42.3%	3,550,803
2030	381,403,647	61,089,710	12,442,361	73,532,071	367,660	61,089,710	3,054,485	7,933,997	451,000	505,533	25,411,444	25,916,977	405,950,085	874,507,276	46.4%	3,151,512
2031	405,950,085	61,101,740	12,682,402	73,784,142	368,921	61,101,740	3,055,087	7,933,997	451,000	507,266	27,125,283	27,632,549	431,971,395	844,559,232	51.1%	2,787,835
2032	431,971,395	61,490,241	12,461,906	73,952,148	369,761	61,490,241	3,074,512	7,933,997	451,000	508,421	28,943,835	29,452,256	460,051,492	812,599,522	56.6%	2,421,541
2033	460,051,492	61,148,989	12,235,841	73,384,829	366,924	61,148,989	3,057,449	7,933,997	451,000	504,521	30,919,370	31,423,891	490,315,064	779,357,008	62.9%	2,127,644
2034	490,315,064	60,769,649	11,965,829	72,735,477	363,677	60,769,649	3,038,482	7,933,997	451,000	500,056	33,049,184	33,549,240	522,958,277	744,880,432	70.2%	1,860,553
2035	522,958,277	60,116,230	11,555,609	71,671,839	358,359	60,116,230	3,005,812	7,933,997	451,000	492,744	35,352,822	35,845,566	558,280,683	709,537,222	78.7%	1,596,861
2036	558,280,683	59,067,146	11,149,785	70,216,931	351,085	59,067,146	2,953,357	7,933,997	451,000	482,741	37,850,852	38,333,593	596,451,761	673,708,114	88.5%	1,355,032
2037	596,451,761	57,744,344	10,704,992	68,449,336	342,247	57,744,344	2,887,217	7,933,997	451,000	470,589	40,553,760	41,024,349	637,701,086	637,696,372	100.0%	1,119,826



Exhibit E

Long-term asset return	7.000%
Short-term asset return	2.750%
Average number of monthly benefits in short-term reserve account	3
Pre funding contribution rate, percentage of expected benefits	5.000%
Operating expense rate, percentage of expected benefits	0.500%
Discount rate	4.890%

**Alternative B - 55/15/70%
1% Gain on Assets and Liabilities**

12/31/2020
Asset Gain \$ 1,813,554

CYE	Assets (boy)	Expected Benefits Current Plan	Additional Expected Benefits due to Plan Improvements	Total Expected Benefits	Operating Expense	PAYGO Contributions Current Plan	Pre-Fund Contributions Current Plan	Level Dollar Contribution due to Plan Improvements	Level Dollar Contribution due to Plan Improvements Emerging Experience Adjustment	Income Short-term Cash Flow	Income Long-term Account	Total Income	Assets (eoy)	Accrued Liability (eoy)	Funded Ratio	Normal Cost
2019													\$ 160,573,726	\$ 1,000,744,382	16.0%	
2020	\$ 160,573,726	\$ 52,971,545	\$ 210,110	\$ 53,181,655	\$ 265,908	\$ 52,971,545	\$ 2,648,577	\$ 7,933,997	\$ -	\$ 365,624	\$ 10,309,482	\$ 10,675,106	183,168,941	993,074,444	18.4%	\$ 7,705,006
2021	183,168,941	52,304,726	895,660	53,200,386	266,002	52,304,726	2,615,236	7,933,997	(451,000)	365,753	11,890,819	12,256,572	204,362,084	994,217,865	20.6%	6,900,976
2022	204,362,084	54,065,426	1,714,620	55,780,045	278,900	54,065,426	2,703,271	7,933,997	(451,000)	383,488	13,329,195	13,712,683	226,267,515	992,302,180	22.8%	6,439,096
2023	226,267,515	55,014,239	3,444,198	58,458,437	292,292	55,014,239	2,750,712	7,933,997	(451,000)	401,902	14,815,703	15,217,605	247,982,339	987,087,006	25.1%	5,987,293
2024	247,982,339	55,836,957	5,138,919	60,975,876	304,879	55,836,957	2,791,848	7,933,997	(451,000)	419,209	16,291,686	16,710,895	269,524,280	978,599,059	27.5%	5,558,167
2025	269,524,280	56,672,385	6,847,858	63,520,243	317,601	56,672,385	2,833,619	7,933,997	(451,000)	436,702	17,755,095	18,191,797	290,867,234	966,666,024	30.1%	5,143,979
2026	290,867,234	57,651,730	8,398,412	66,050,142	330,251	57,651,730	2,882,587	7,933,997	(451,000)	454,095	19,204,829	19,658,924	312,163,078	951,117,766	32.8%	4,713,693
2027	312,163,078	58,617,757	9,751,335	68,369,092	341,845	58,617,757	2,930,888	7,933,997	(451,000)	470,038	20,654,956	21,124,994	333,608,776	931,987,794	35.8%	4,277,791
2028	333,608,776	59,452,451	10,729,566	70,182,017	350,910	59,452,451	2,972,623	7,933,997	(451,000)	482,501	22,124,429	22,606,930	355,590,850	909,639,287	39.1%	3,861,491
2029	355,590,850	59,775,069	11,598,441	71,373,510	356,868	59,775,069	2,988,753	7,933,997	(451,000)	490,693	23,642,323	24,133,016	378,240,308	884,587,456	42.8%	3,480,491
2030	378,240,308	59,880,012	12,195,978	72,075,990	360,380	59,880,012	2,994,001	7,933,997	(451,000)	495,522	25,215,492	25,711,014	401,871,961	857,190,300	46.9%	3,089,106
2031	401,871,961	59,891,804	12,431,266	72,323,070	361,615	59,891,804	2,994,590	7,933,997	(451,000)	497,221	26,865,384	27,362,605	426,919,271	827,835,287	51.6%	2,732,631
2032	426,919,271	60,272,613	12,215,136	72,487,749	362,439	60,272,613	3,013,631	7,933,997	(451,000)	498,353	28,615,813	29,114,167	453,952,491	796,508,442	57.0%	2,373,589
2033	453,952,491	59,938,117	11,993,547	71,931,664	359,658	59,938,117	2,996,906	7,933,997	(451,000)	494,530	30,517,870	31,012,400	483,091,589	763,924,196	63.2%	2,085,512
2034	483,091,589	59,566,289	11,728,882	71,295,171	356,476	59,566,289	2,978,314	7,933,997	(451,000)	490,154	32,568,746	33,058,900	514,526,442	730,130,324	70.5%	1,823,711
2035	514,526,442	58,925,810	11,326,785	70,252,595	351,263	58,925,810	2,946,290	7,933,997	(451,000)	482,987	34,787,431	35,270,417	548,548,099	695,486,980	78.9%	1,565,240
2036	548,548,099	57,897,500	10,928,997	68,826,497	344,132	57,897,500	2,894,875	7,933,997	(451,000)	473,182	37,193,903	37,667,085	585,319,926	660,367,359	88.6%	1,328,200
2037	585,319,926	56,600,892	10,493,012	67,093,903	335,470	56,600,892	2,830,045	7,933,997	(451,000)	461,271	39,798,252	40,259,522	625,064,008	625,068,721	100.0%	1,097,652

