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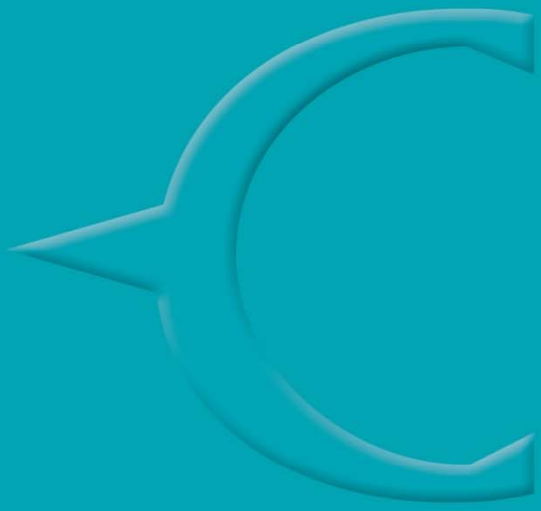

Maine Public Employees Retirement System Group Life Insurance Premium Study

Produced by Cheiron

July 2020

www.cheiron.us 1.877.CHEIRON (243.4766)

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Via Electronic Mail

July 16, 2020

Board of Trustees
Maine Public Employees Retirement System
P.O. Box 349
Augusta, ME 04332-0349

Re: Maine Public Employees Retirement System Group Life Insurance Premium Study Report

Dear Members of the Board:

At your request, in the spring of 2020, we completed the quadrennial study of premiums paid for the Maine Public Employees Retirement System Group Life Insurance Benefits. Our study compared premiums collected vs. benefits paid for Basic, Supplemental, and Dependent Life Insurance for active participants and Basic Life Insurance for retirees. We analyzed results for participants in the State Employee and Teacher Retirement Programs as well as Participating Local Districts Plans (PLDs). For this study, we looked at historical premium collection and life insurance claims for these groups, projected future claims, and income based on the future premium rates approved by the Board.

Section I summarizes the conclusions of this study.

Section II contains a historical summary of the premiums and claims for the Post-retirement Group Life Insurance obligations.

Sections III and IV contain the projections of claims and income based on current premiums and the future premiums approved by the Board. The projections are based on data through the valuation as of June 30, 2019. The changes to premiums will be effective on or after Fiscal Year Ending (FYE) 2022 but will be reflected in projections for the next full biennial valuation performed as of June 30, 2020 to the extent any changes are adopted by the Board.

Appendix A describes the Participant Data, Assumptions, and Methods used in the projections contained in Sections I-IV.

Appendix B contains the substantive plan provisions provided by the system.

The purpose of this report is to present the study of premium adequacy for the Group Life Insurance program as of June 30, 2019 for the Maine Public Employees Retirement System (MainePERS). This report was prepared exclusively for the use of the Maine Public Employees Retirement System. This report is not intended to benefit any third party, and Cheiron assumes no duty or liability to any such party.

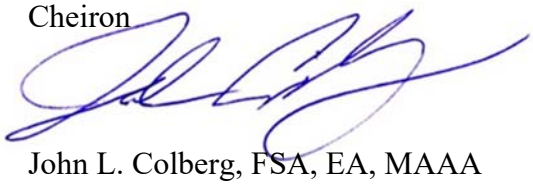
This report does not contain any adjustments for the potential impact of COVID-19. We anticipate the virus will impact both mortality and claims in the short term, as well as potentially other demographic experience. However, the net impact is not determinable at this time.

In preparing our report, we relied on information (some oral and some written) supplied by MainePERS. This information includes, but is not limited to, the Plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

If you have any questions, please contact us.

Sincerely,
Cheiron



John L. Colberg, FSA, EA, MAAA
Principal Consulting Actuary

Ryan Benitez, ASA, MAAA
Associate Actuary

SECTION I – EXECUTIVE SUMMARY

Maine Public Employees Retirement System (MainePERS) engaged Cheiron to provide an analysis of the Group Life Insurance premium using data through June 30, 2019, and financial data through December 2019. The primary purpose of this study is to analyze if the premiums being charged for the Group Life Benefits are sufficient to fund the Plan and to show the impact of the premium changes approved by the Board.

Below is a summary of key findings:

State Employees

- No change is recommended in the premiums for basic active coverage of $0.09 bi-weekly per $1,000 of coverage.
- As recommended in the 2016 premium study, the premiums for basic retiree coverage will be increased from $0.29 bi-weekly per $1,000 of coverage to $0.33 beginning in FYE 2022, and $0.36 beginning in FYE 2024. See pages (9 to 13) for the discussion of these increases.
- The current age-based premiums for supplemental insurance are sufficient, and no change is recommended.
- The premiums for dependent coverage are sufficient, and no change is recommended.

Teachers

- No change is recommended in the premiums for basic active coverage of $0.05 bi-weekly per $1,000 of coverage.
- The State contributes the Actuarially Determined Contribution (ADC) for basic retiree coverage. No change is recommended to this method.
- The current age-based premiums for supplemental insurance are sufficient and no change is recommended.
- The premiums for dependent coverage are sufficient and no change is recommended.

Participating Local District

- Changes should be considered for PLDs. See pages (18 to 26) for the discussion of options.
- The current age-based premiums for supplemental insurance are sufficient and no change is recommended.
- The premiums for dependent coverage are sufficient and no change is recommended.

For all plans, we recommend reviewing the sufficiency of the premiums whenever the cash flows deviate significantly from the projections presented in this report and no less frequently than every four years. The experience should be closely monitored in light of the COVID-19 pandemic.

The body of this report provides additional detail and support for our conclusions.

SECTION II – HISTORICAL SUMMARY

Cheiron has developed premiums for the MainePERS Group Life Insurance program since the 2005 premium study. This study developed recommendations that went into effect for Fiscal Year Ending 2008 when the State needed to record the liability for Other Post-Employment Benefits paid by the State on its financial statements for the implementation of GASB 43/45. Since then, Cheiron has conducted premium studies in 2012, 2016, and now 2020.

Premium rates have been set historically to ensure that the Unfunded Actuarial Liability is paid within 30 years, the maximum established by GASB 43/45, as of the Fiscal Year Ending 2008 for State & Teachers. A 23-year period was used for PLDs, which was the projected period over which the current rates would amortize the UAL at that time.

Below is a historical summary of the premium rates paid for Maine's Basic Group Life Insurance benefits.

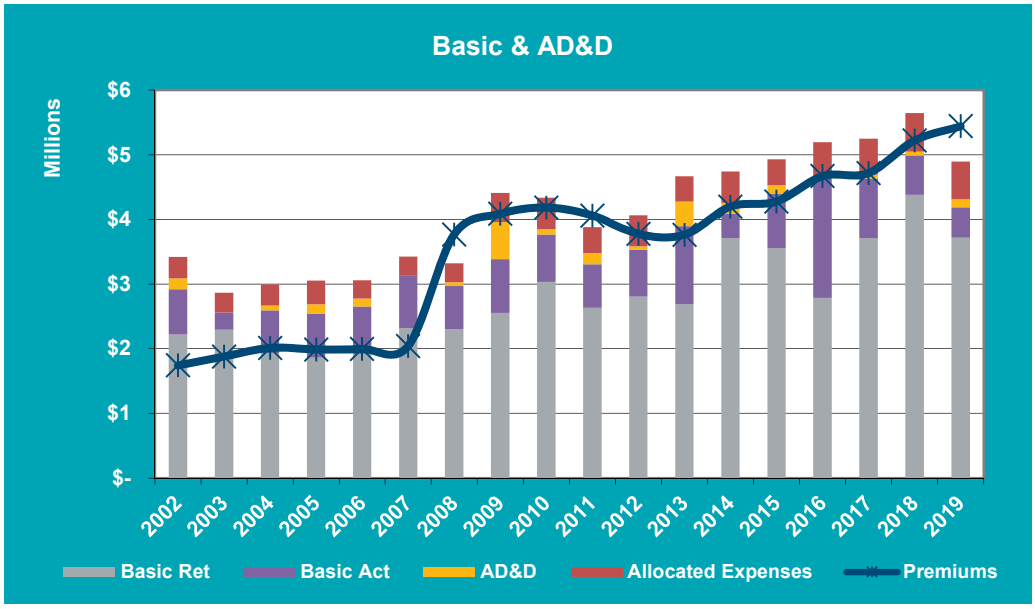
Bi-weekly per $1,000	State Active Basic	State Retiree Basic	Teacher Active Basic	Teacher Retiree Basic*	PLDs Active & Retiree Basic
FYE 2007	$0.14		$0.10		$0.21
FYE 2008	$0.06	$0.20	$0.05	ARC	$0.21
FYE 2010	$0.06	$0.20	$0.05	ARC	$0.21
FYE 2012	$0.06	$0.20	$0.05	ARC	$0.21
FYE 2014	$0.07	$0.22	$0.05	ARC	$0.21
FYE 2016	$0.07	$0.24	$0.05	ARC	$0.21
FYE 2018	$0.09	$0.26	$0.05	ADC	$0.21
FYE 2020	$0.09	$0.29	$0.05	ADC	$0.21

*The "Annual Required Contribution" (ARC) as defined by GASB 43/45 has changed to the "Actuarially Determined Contribution" (ADC) as defined by GASB 74/75.

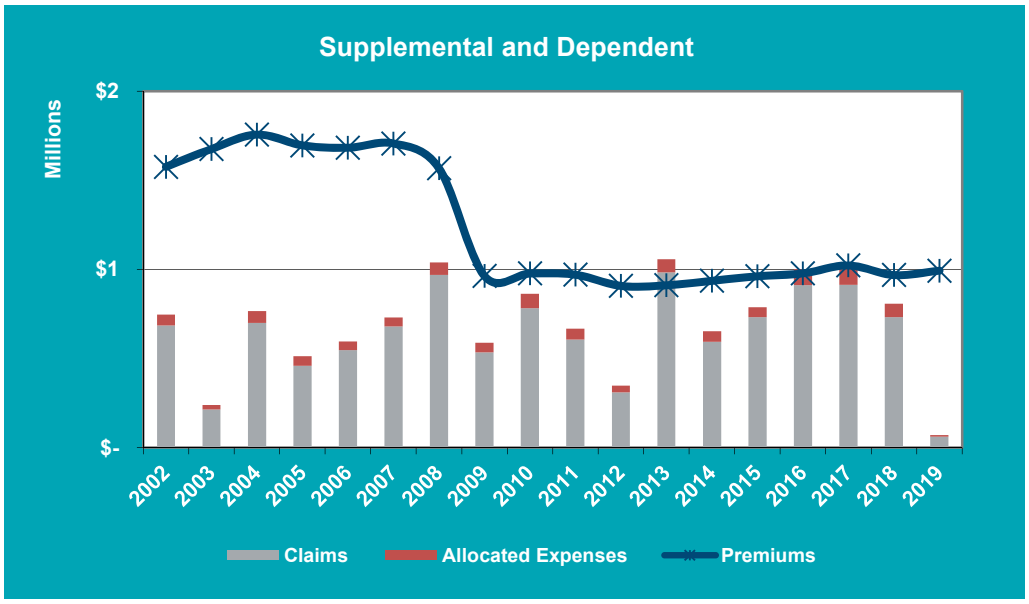
Contribution Year	Teacher Retiree ARC/ADC
FYE 2008	$2,394,002
FYE 2009	$2,507,718
FYE 2010	$3,222,106
FYE 2011	$3,375,156
FYE 2012	$3,804,356
FYE 2013	$3,985,063
FYE 2014	$4,196,485
FYE 2015	$4,343,362
FYE 2016	$3,160,319
FYE 2017	$3,270,928
FYE 2018	$3,459,442
FYE 2019	$3,546,978
FYE 2020	$4,478,090
FYE 2021	$4,601,233

SECTION II – HISTORICAL SUMMARY

The chart below shows the historical premiums and claims for State Employees for Basic Active Life Insurance, Accidental Death and Dismemberment (AD&D), Basic Retiree Life Insurance, and expenses.

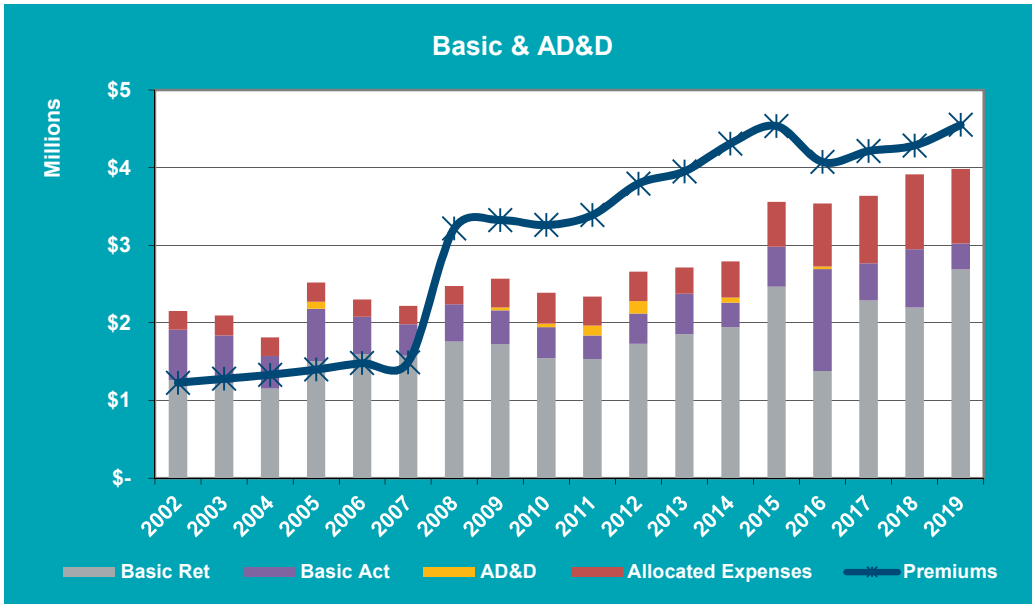


The chart below shows the historical premiums and claims for State Employees for Supplemental and Dependent Life Insurance and expenses.

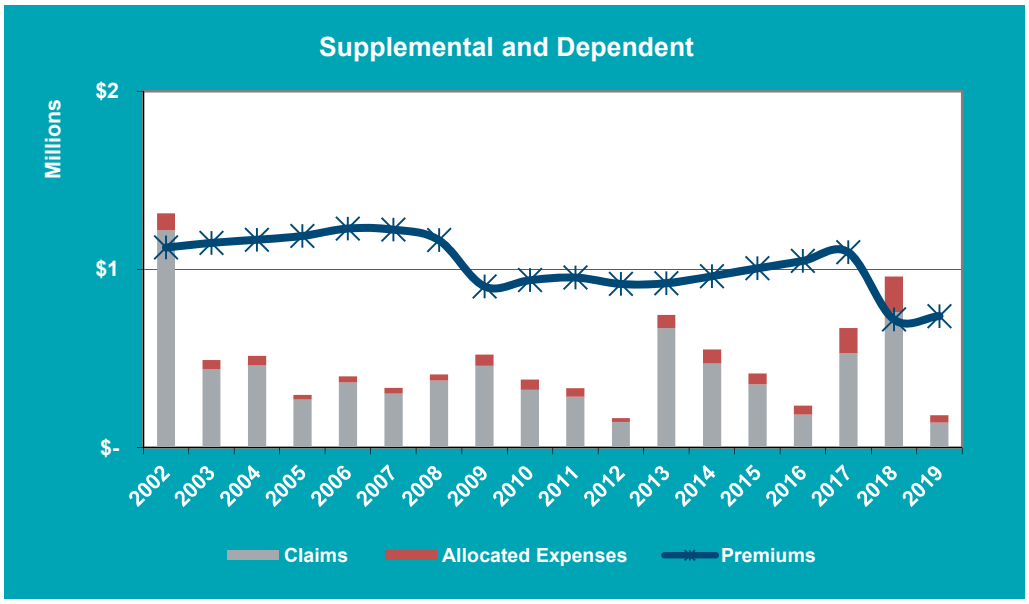


SECTION II – HISTORICAL SUMMARY

The chart below shows the historical premiums and claims for Teachers for Basic Active Life Insurance, Accidental Death and Dismemberment (AD&D), Basic Retiree Life Insurance, and expenses.

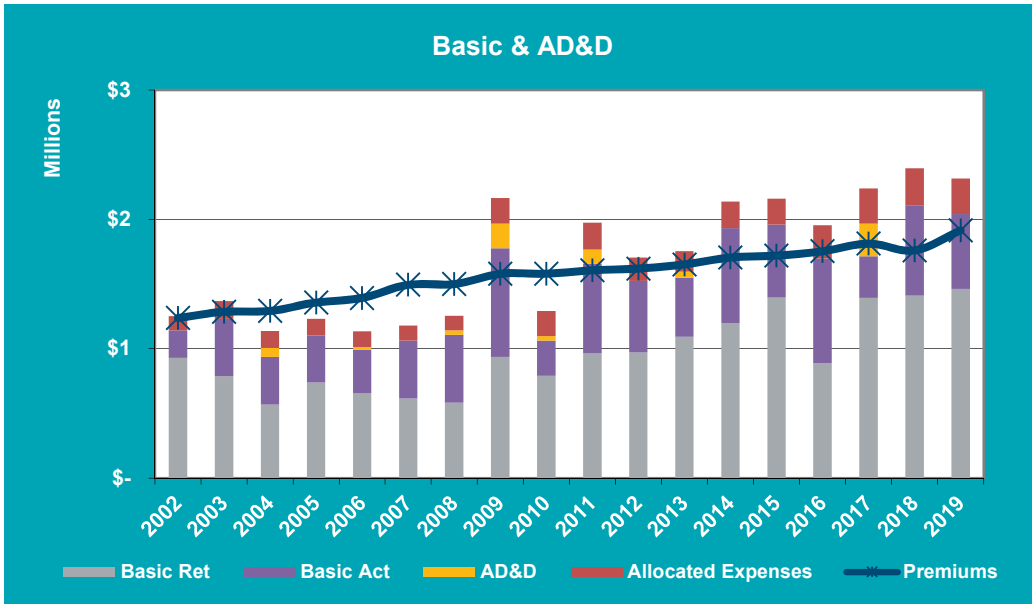


The chart below shows the historical premiums and claims for Teachers for Supplemental and Dependent Life Insurance and expenses.

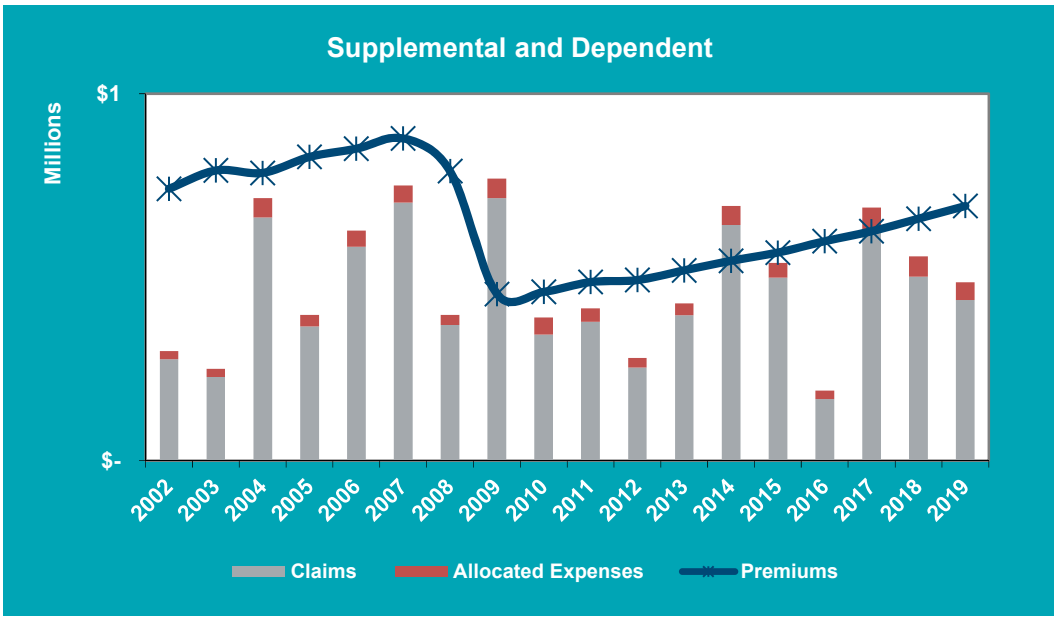


SECTION II – HISTORICAL SUMMARY

The chart below shows the historical premiums and claims for PLD employees for Basic Active Life Insurance, Accidental Death and Dismemberment (AD&D), Basic Retiree Life Insurance, and expenses.



The chart below shows the historical premiums and claims for PLD employees for Supplemental and Dependent Life Insurance and expenses.



SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

The premiums used for the Group Life Insurance benefits were last adjusted for the Fiscal Year ending 2020, developed from the 2016 experience study. For this study, we reviewed the premiums collected vs. the claims paid for the State, Teacher, and PLD Program life insurance benefits since 2007, and show projected claims and premiums for the next 10 years.

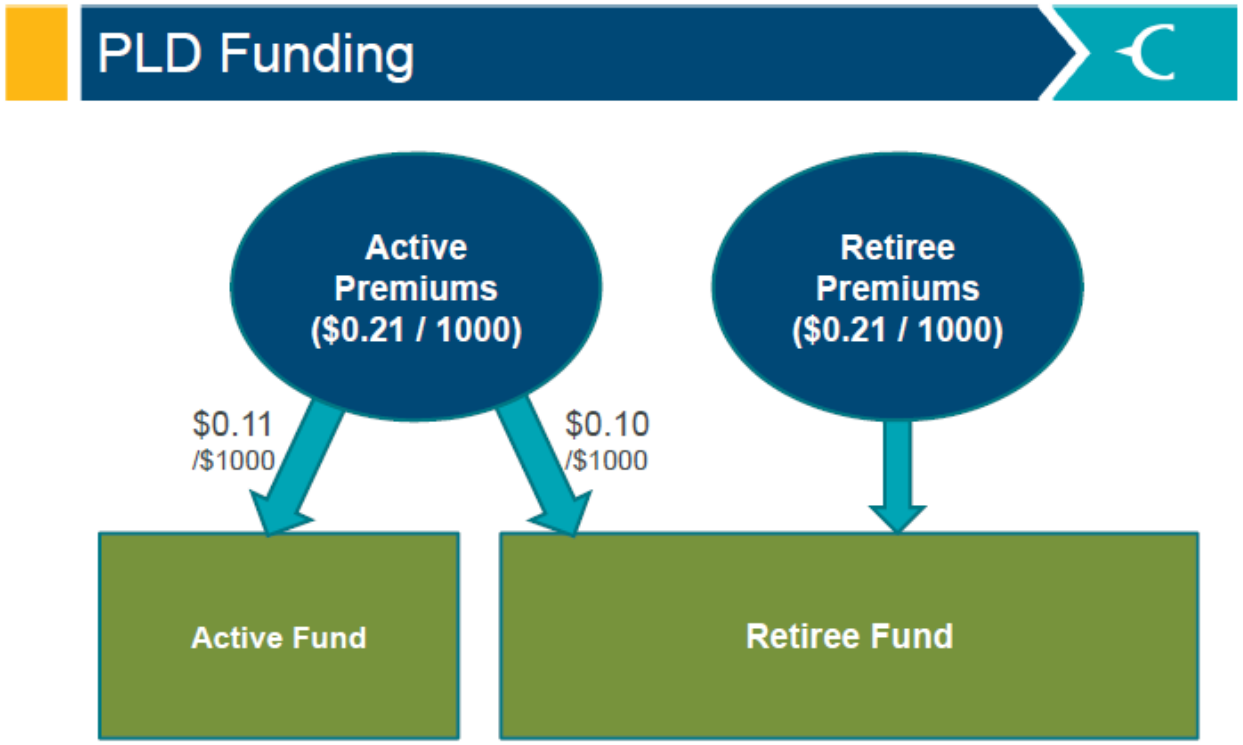
The fundamental principle underlying our analysis is that the cost of benefits should be related to the period in which benefits are earned. For active employees and dependents, the cost of coverage should be equal to the claims expected to be paid from the plan plus any expenses. If the premiums are expected to be less than claims, an increase in premiums is indicated.

To apply the fundamental principle to retirees, however, requires that the cost of coverage for a benefit that will be paid after retirement be funded during the active working life of participants (the period in which benefits are earned), rather than after retirement (the period of benefit distribution). The cost of retiree benefits is represented as the Actuarially Determined Contribution (ADC) calculated under the provisions of GASB Statements 74 and 75 and is the sum of two components: the normal cost and the amortization of the Unfunded Actuarial Liability (UAL). The *normal cost* is the annual amount which would be sufficient to fund the substantive plan benefits (net of retiree contributions) if it were paid from each employee's entry into the Plan until termination or retirement. The *actuarial liability* represents the portion of the value of the projected benefit at retirement that is allocated to service earned prior to the valuation date. The *Unfunded Actuarial Liability* (UAL) represents the excess of the actuarial liability over plan assets and is amortized as a level percent of pay over a period not to exceed 30 years. If premiums are expected to be less than the ADC, a premium increase is indicated.

SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

Due to the implementation of GASB 74/75, the State has established separate asset funds to pay for active benefits and retiree benefits.

For PLD funding, actives and retirees pay the same biweekly premium rate of $0.21/$1000. For retirees, all of that goes into the Retiree Fund. The active PLD premium of $0.21 bi-weekly per $1,000 of coverage is currently allocated as $0.11 to the Active fund and $0.10 to the Retiree Fund. The graphic below illustrates this allocation.



SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

The chart below shows the current and recommended scheduled premium rates.

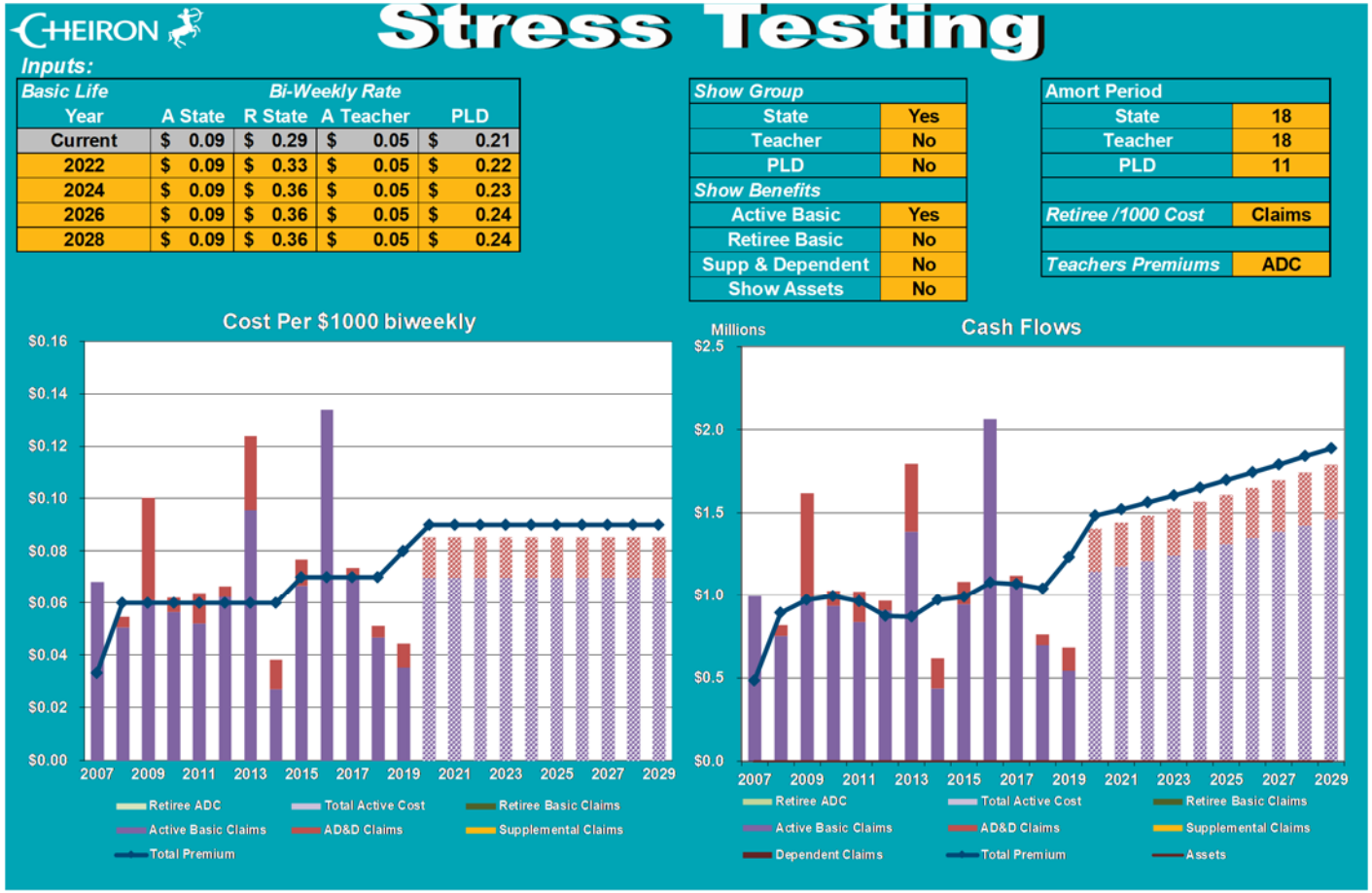
Rate Schedule - Bi-weekly Rates Per $1,000 of Coverage									
Current Rates					Rates as of Fiscal Year Ending 2021				
	State	Teacher	PLD			State	Teacher	PLD	
Active Basic	$ 0.09	$ 0.05	$ 0.21		**Active Basic**	$ 0.09	$ 0.05	Review	
Retiree Basic	$ 0.29	ADC			**Retiree Basic**	up to $0.36	ADC	Options	
Supplemental					**Supplemental**				
Age <= 34	$ 0.02	$ 0.01	$ 0.02		Age <= 34	$ 0.02	$ 0.01	$ 0.02	
35-44	$ 0.02	$ 0.01	$ 0.03		35-44	$ 0.02	$ 0.01	$ 0.03	
45-49	$ 0.04	$ 0.02	$ 0.05		45-49	$ 0.04	$ 0.02	$ 0.05	
50-54	$ 0.06	$ 0.04	$ 0.07		50-54	$ 0.06	$ 0.04	$ 0.07	
55-59	$ 0.10	$ 0.07	$ 0.14		55-59	$ 0.10	$ 0.07	$ 0.14	
60-64	$ 0.15	$ 0.10	$ 0.20		60-64	$ 0.15	$ 0.10	$ 0.20	
65 plus	$ 0.20	$ 0.13	$ 0.40		65 plus	$ 0.20	$ 0.13	$ 0.40	
Dependent A	$ 0.89	$ 0.89	$ 0.89		**Dependent A**	$ 0.89	$ 0.89	$ 0.89	
Dependent B	$ 1.57	$ 1.57	$ 1.57		**Dependent B**	$ 1.57	$ 1.57	$ 1.57	

State Retiree Basic	Increase to $0.33 in Fiscal Year 2022 and $0.36 in Fiscal Year 2024, as recommended in the 2016 Premium Study.
PLD Active and Retiree Basic	Review 4 Options for Basic Life Premiums

SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

State Employees: Active Life Insurance (Basic and AD&D)
Current Premium Rate: $0.09 bi-weekly per $1,000 of coverage.

This chart shows premium and cost on a bi-weekly basis per $1,000 of coverage, historic and projected cash flows on a fiscal year basis, for the current rate. Since the premiums coming in are expected to exceed claims and expenses, these charts show that for the State plan, the premium allocated for the Basic Active Life Insurance is covering the costs of the Plan and no change in premiums is required at this time.



SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

State: Basic Retiree Life Insurance

The following charts show the retiree premium compared to the cost on a bi-weekly basis per $1,000 of retiree coverage, as well as historic and projected cash flows on a fiscal year basis for the current rate. The current rate of $0.29 bi-weekly per $1,000 of coverage is not sufficient to pay off the Unfunded Actuarial Liability in 18 years (by 2038), the funding target established by the Board.

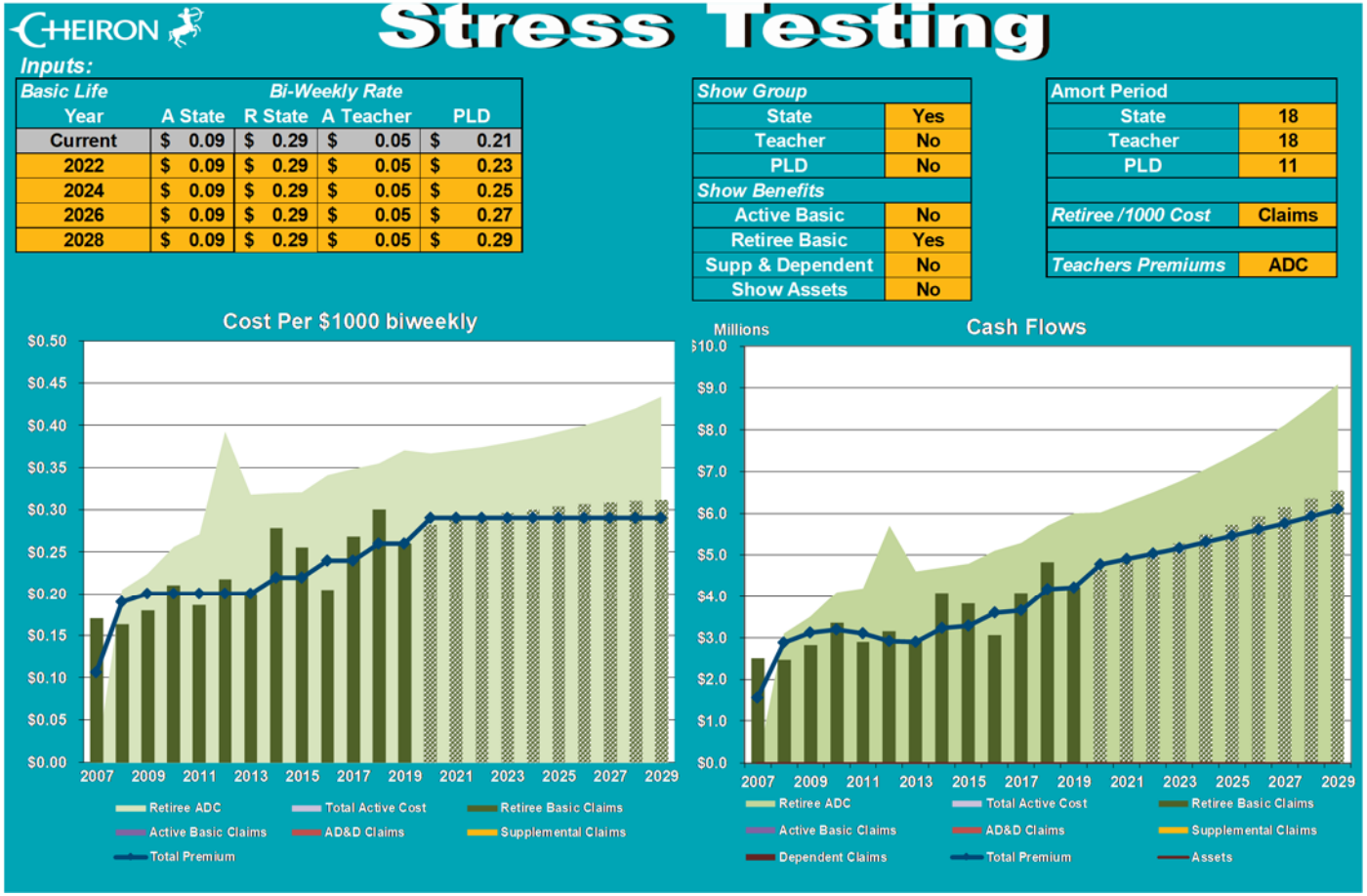
Based on the current projections, the current rates without increases are expected to fully pay for the Unfunded Actuarial Liability in 25 years (by 2045). We recommend that the Board continue with the increase schedule established in the 2016 premium study which recommended additional increases to $0.33 bi-weekly per $1,000 of coverage in FY 2022 and $0.36 bi-weekly per $1,000 of coverage in FY 2024, which is expected to fully pay for the Unfunded Actuarial Liability in 18 years (by 2038).

The State premium for basic retiree coverage after the UAL has been paid is expected to be approximately $0.06 bi-weekly per $1,000 of coverage.

SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

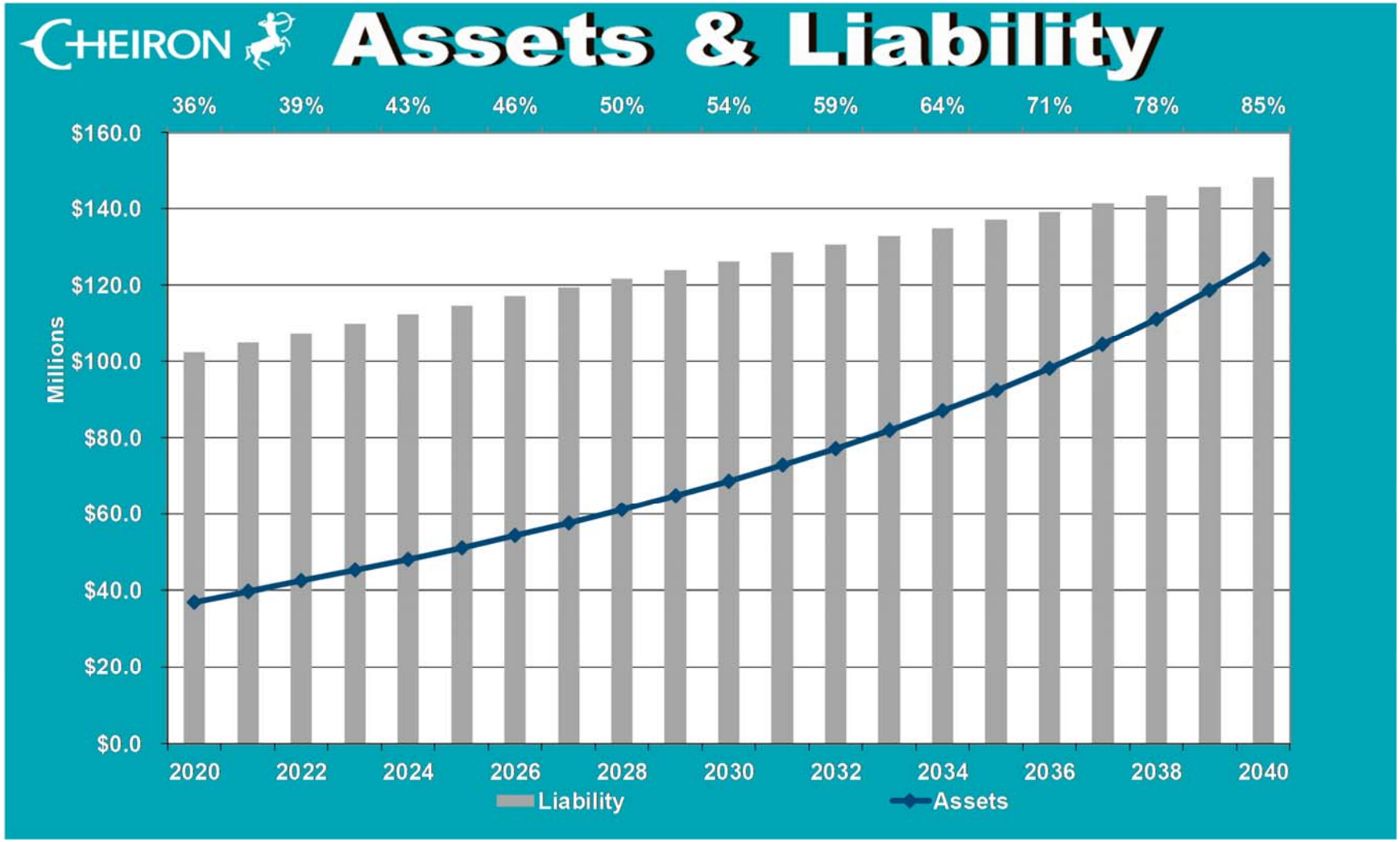
State Employees: Basic Retiree Life Insurance
Current rate: $0.29 bi-weekly per $1,000 of coverage.

This chart shows premium and cost on a bi-weekly basis per $1,000 of coverage, historic and projected cash flows on a fiscal year basis, for the current rate without increases. The current rate is not sufficient to pay off the Unfunded Actuarial Liability in 18 years (by 2038), at this rate full funding would occur in 25 years (by 2045).



SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

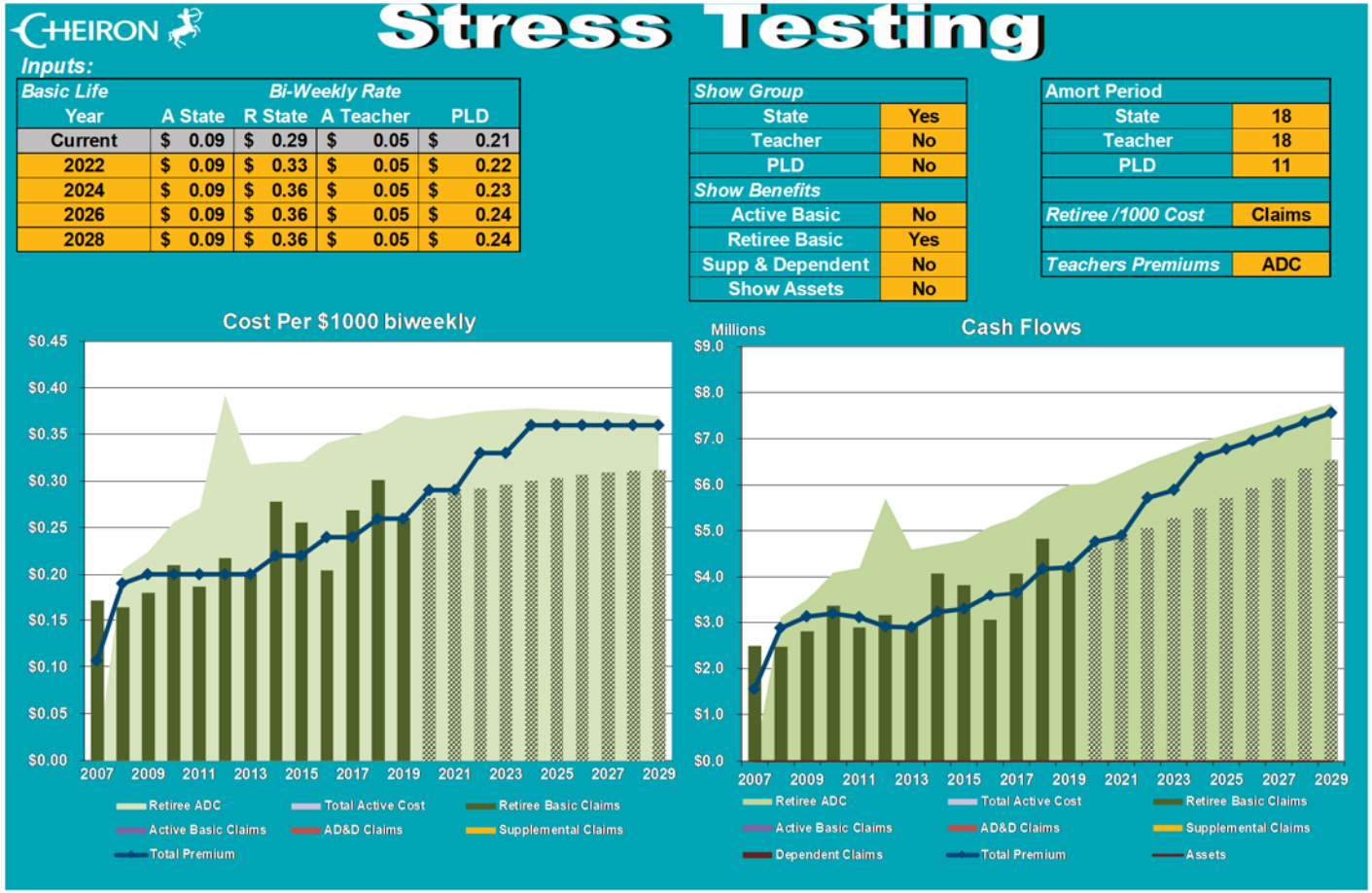
This chart displays the projected State Assets and Liabilities for Retiree Group Life Insurance under the current premium rate of $0.29 bi-weekly per $1,000 of coverage without increases.



SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

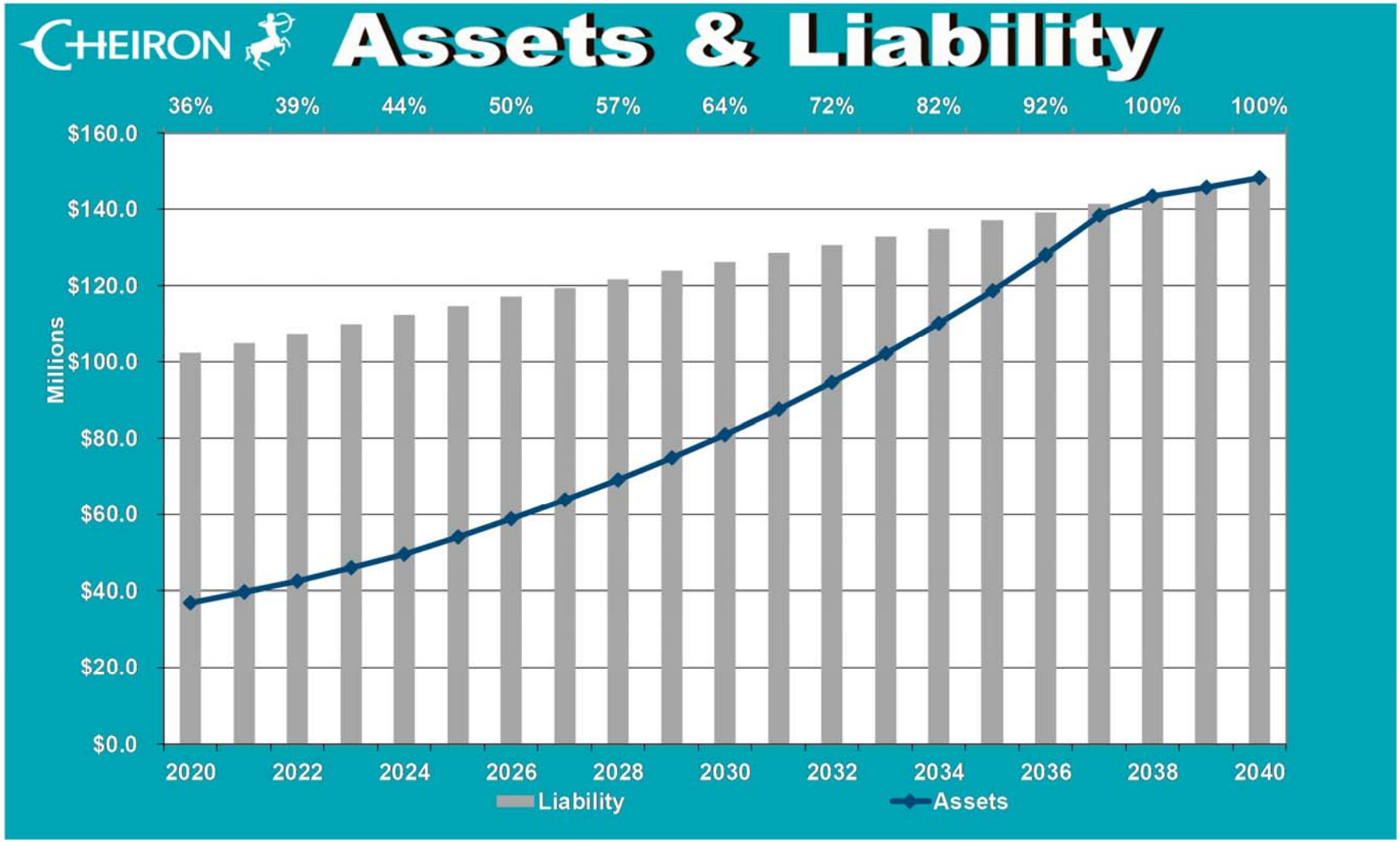
State Employees: Basic Retiree Life Insurance
Current rate: $0.29 bi-weekly per $1,000 of coverage, increasing to $0.33 in 2022 and then to $0.36 in 2024, as recommended from the 2016 premium study.

This chart shows premium and cost on a bi-weekly basis per $1,000 of coverage, historic and projected cash flows on a fiscal year basis, for the current rate. The current rate is expected to be sufficient to fully pay for the Unfunded Actuarial Liability within 18 years.



SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

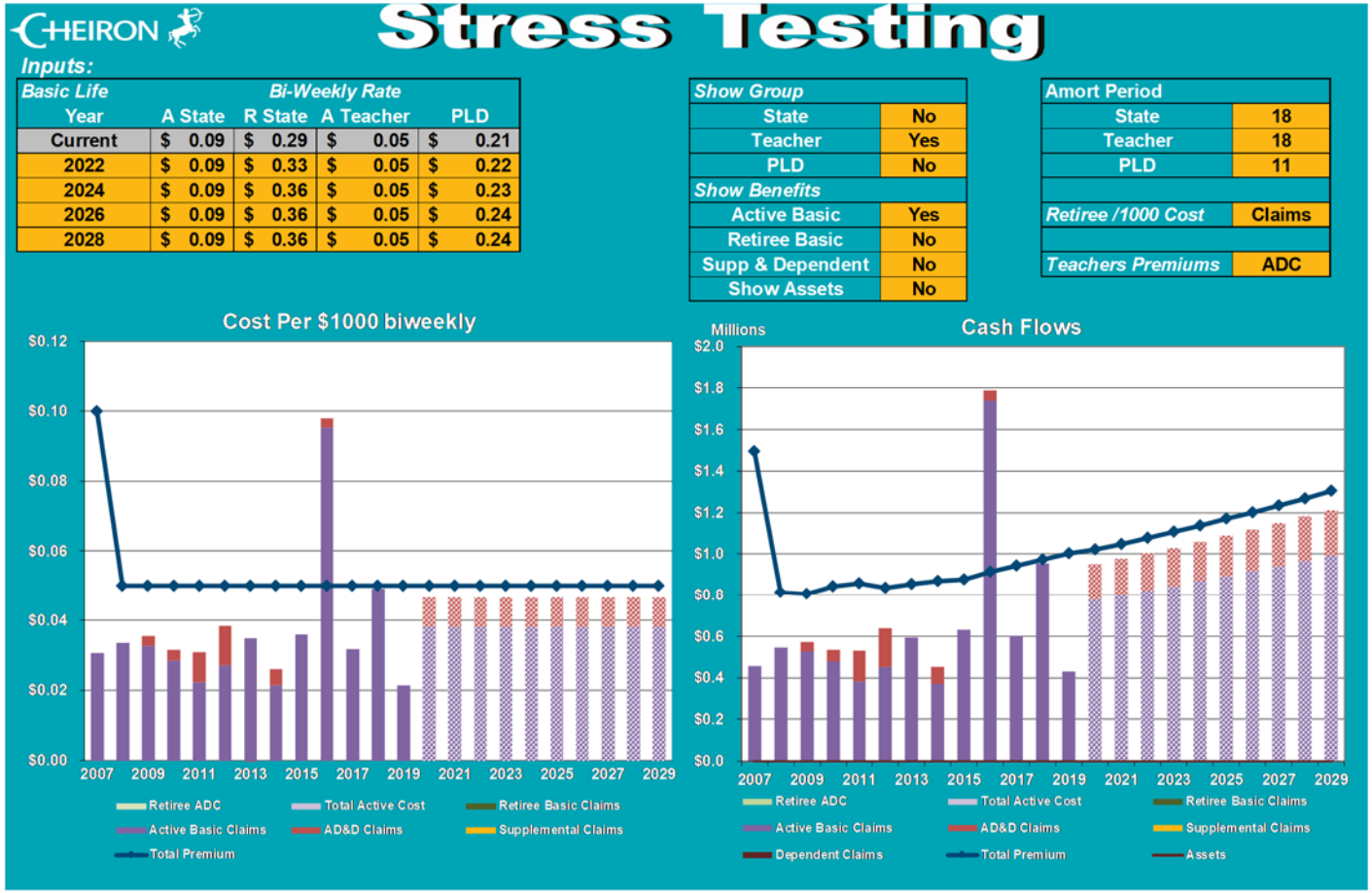
This chart displays the projected State Assets and Liabilities for Retiree Group Life Insurance under the adopted schedule starting in FYE 2021, including the 2022 and 2024 increases.



SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

Teachers: Basic Active Life Insurance and AD&D
Current rate of $0.05 bi-weekly per $1,000 of coverage

This chart shows premium and cost on a bi-weekly basis per $1,000 of coverage, and historic and projected cash flows on a Fiscal Year basis, for the current rate. Since the premiums coming in are expected to modestly exceed claims and expenses, these charts show that for the Teacher plan, the premium allocated for the Basic Active Life Insurance is covering the costs of the Plan and no change in premiums is required at this time.

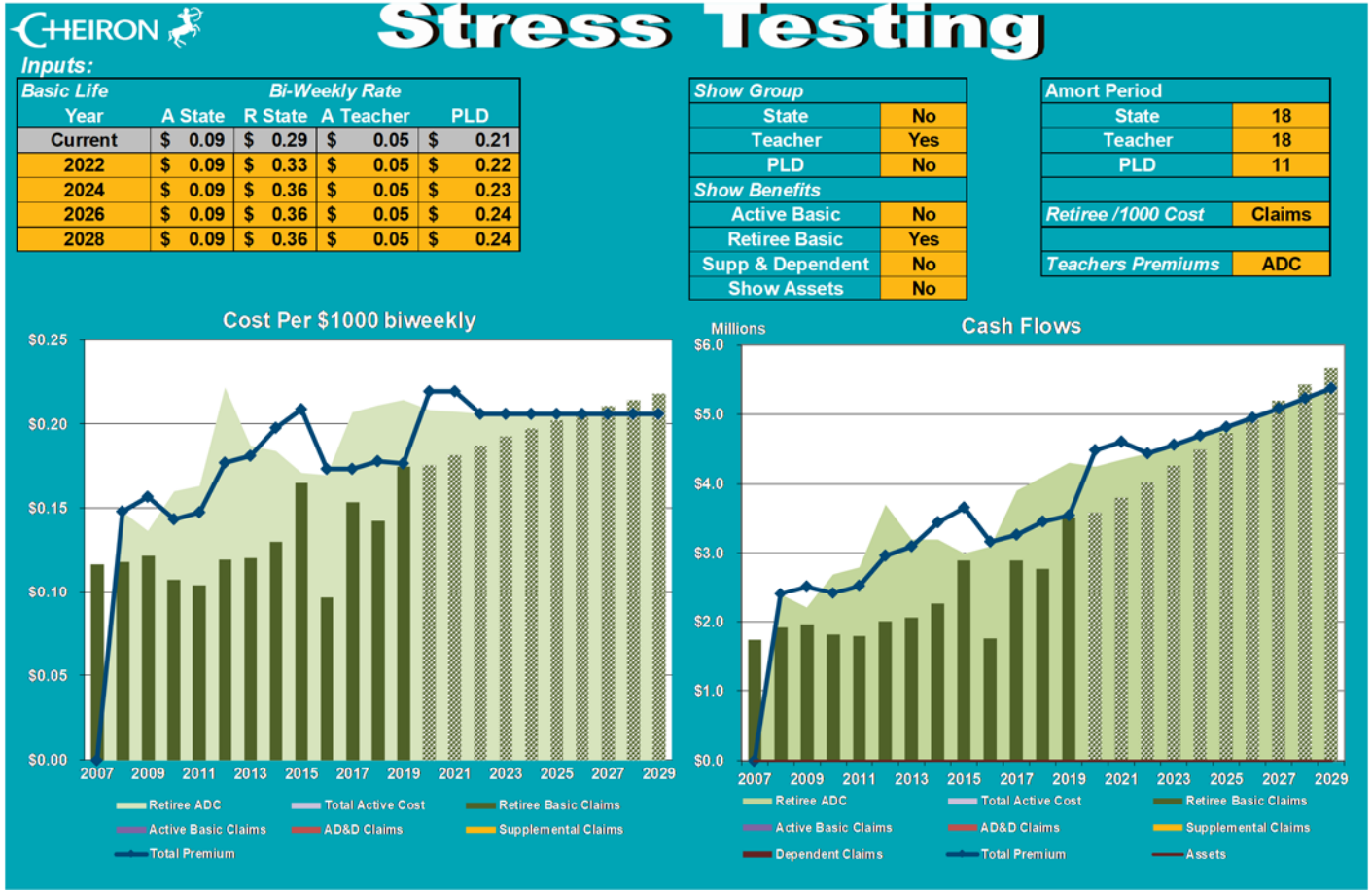


SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

Teachers: Basic Retiree Life Insurance

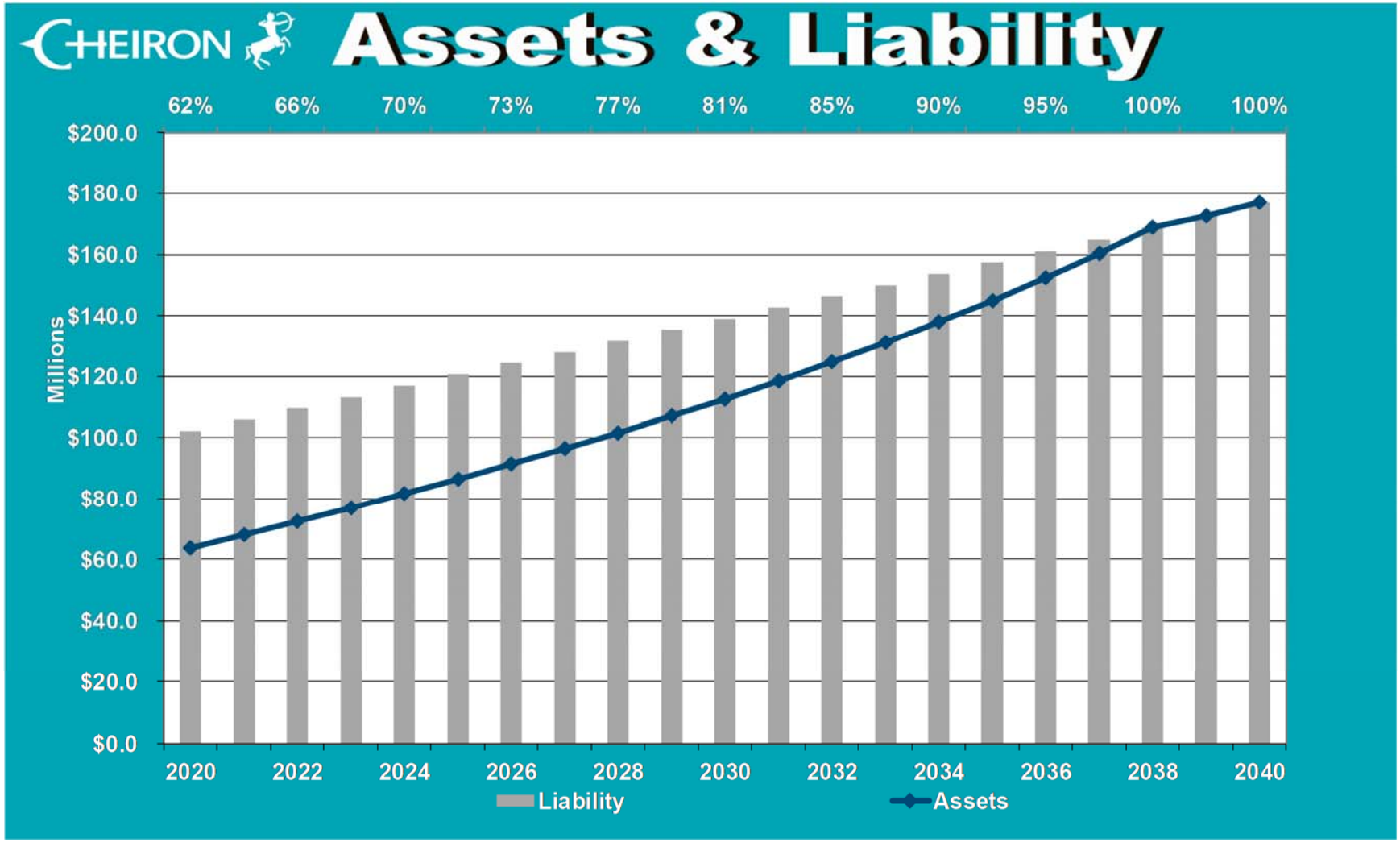
The premiums for the Teachers' Basic Retiree Life Insurance benefit are paid by the State as the dollar amount of each year's ADC. (This benefit is not funded using a rate per $1000 of coverage.) This funding method is appropriate for funding the benefits, and a change is not indicated at this time.

This chart shows projected cost, historic and projected cash flows, and retiree ADC on a Fiscal Year basis.



SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

This chart displays the projected Teacher Assets and Liabilities for Retiree Group Life Insurance under the current method of funding the ADC.

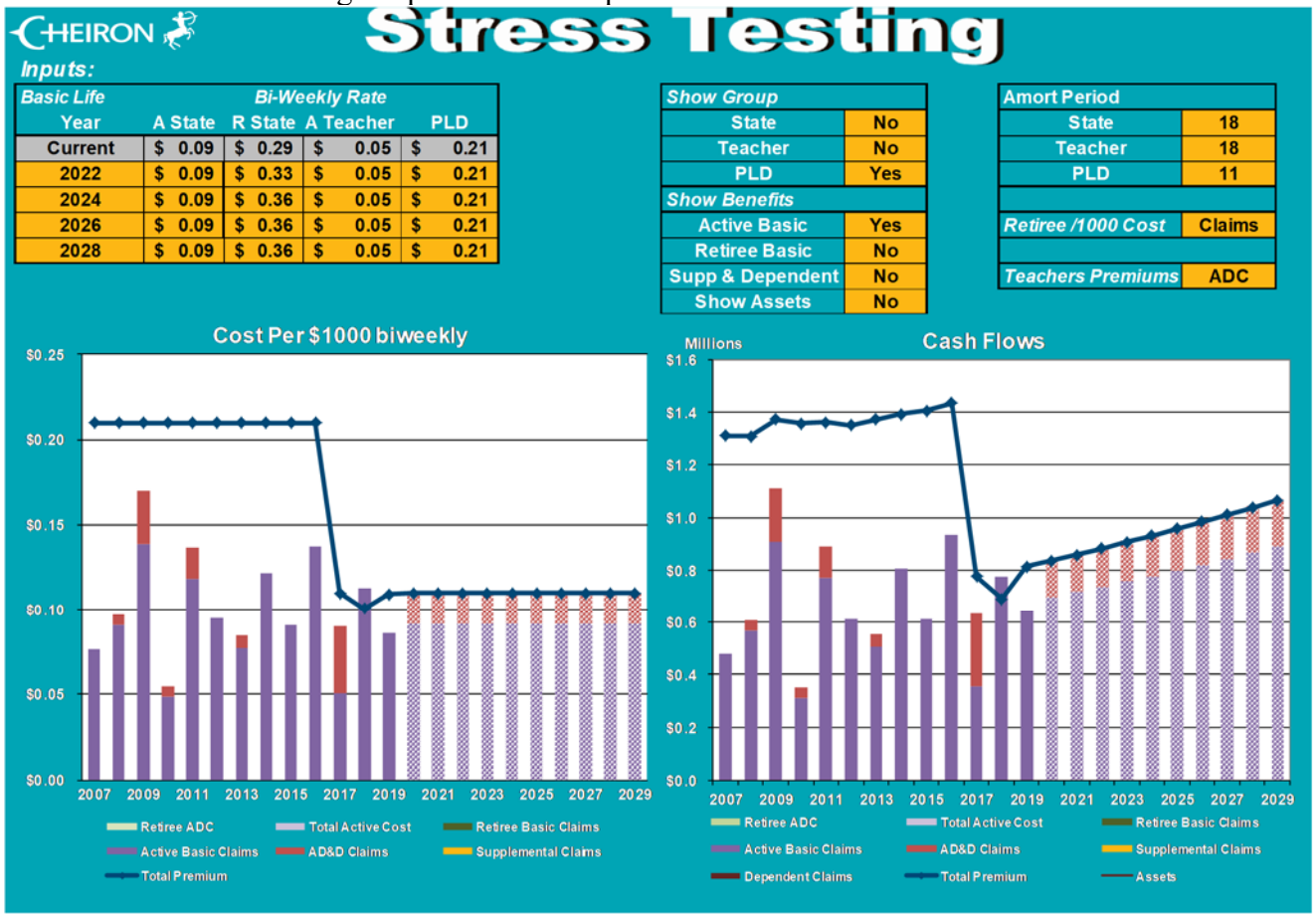


SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

PLD: Basic Active Life Insurance and AD&D

Current rate of $0.21 bi-weekly per $1,000 of coverage, with $0.11 being used for current active benefits and $0.10 being allocated for future retirement benefits.

This chart shows the active portion of the premium compared to the cost on a bi-weekly basis per $1,000 of active coverage as well as historic and projected cash flows on a Fiscal Year basis, for the current rate. Since the premiums coming in are expected to fund claims and expenses, these charts show that for the PLD plan, the $0.11 premium allocated for the Basic Active Life Insurance is covering the costs of the Plan and no change in premiums is required at this time.



SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

PLD: Basic Retiree Life Insurance

The following charts show the retiree portion of the active premium plus the retiree premium compared to the cost on a bi-weekly basis per $1,000 of retiree coverage, as well as historic and projected cash flows on a fiscal year basis for the current rate. The current rate of $0.21 bi-weekly per $1,000 of coverage for current retirees plus $0.10 of active premium allocated to the Retiree Fund is not sufficient to pay off the Unfunded Actuarial Liability in 11 years (by 2031), the funding target established by the Board.

Based on the current projections, the current rates are expected to fully pay for the Unfunded Actuarial Liability in 20 years (by 2040). If the Board wants to meet the 2031 funding target, the premiums will need to be increased to $0.28 bi-weekly per $1,000 of coverage beginning in FYE 2022. Two significant developments occurred after the last premium study that resulted in additional funding needed to meet the targeted 2031 date. As a result of GASB 74/75, PLD assets were split into separate active and retiree trusts. As a result, the active trust received some of the assets that previously had been available to retirees. Second, there were improvements and corrections to the census and benefit data that resulted in actuarial losses.

The following pages show four scenarios:

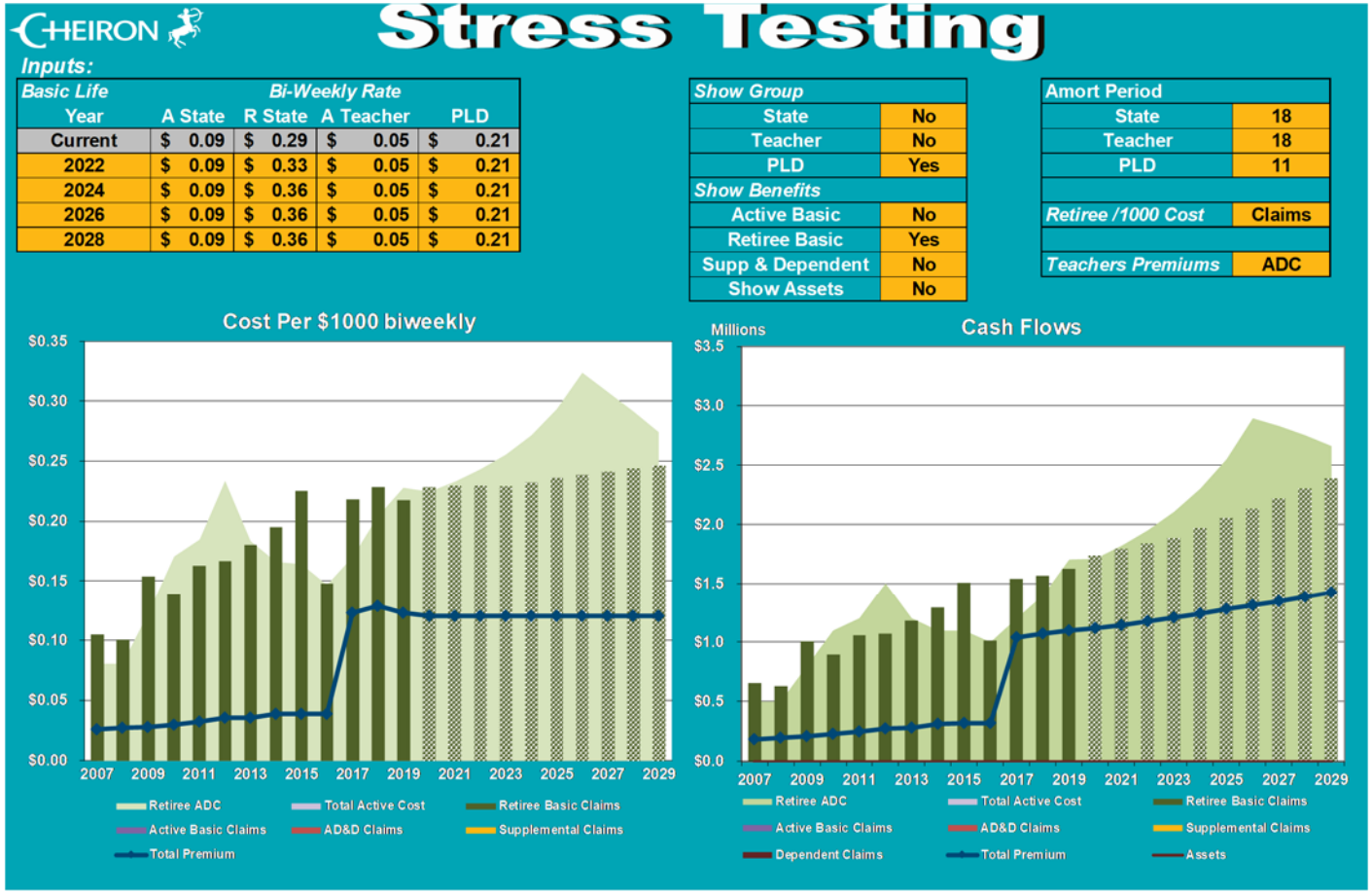
- Results if premiums continue at $0.21 for retirees with the portion of active premiums allocated to the Retiree Fund remaining at $0.10 (UAL is paid for in 20 years by 2040).
- Results if premiums continue at $0.28 for retirees with the portion of active premiums allocated to the Retiree Fund remaining at $0.17. (UAL is paid for in 11 years at 2031).
- Results if premiums are increased according to the following schedule (UAL is paid for in 16 years by 2036):
    - FYE 2022 - $0.22 for retirees with $0.11 of active premiums allocated to the Retiree Fund
    - FYE 2024 - $0.23 for retirees with $0.12 of active premiums allocated to the Retiree Fund
    - FYE 2026 - $0.24 for retirees with $0.13 of active premiums allocated to the Retiree Fund
- Results if premiums are increased according to the following schedule (UAL is paid for in 13 years by 2033):
    - FYE 2022 - $0.23 for retirees with $0.12 of active premiums allocated to the Retiree Fund
    - FYE 2024 - $0.25 for retirees with $0.14 of active premiums allocated to the Retiree Fund
    - FYE 2026 - $0.27 for retirees with $0.16 of active premiums allocated to the Retiree Fund
    - FYE 2028 - $0.29 for retirees with $0.18 of active premiums allocated to the Retiree Fund

The PLD premium after the UAL has been paid is expected to be approximately $0.13 with $0.02 of active premiums allocated to the Retiree Fund.

SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

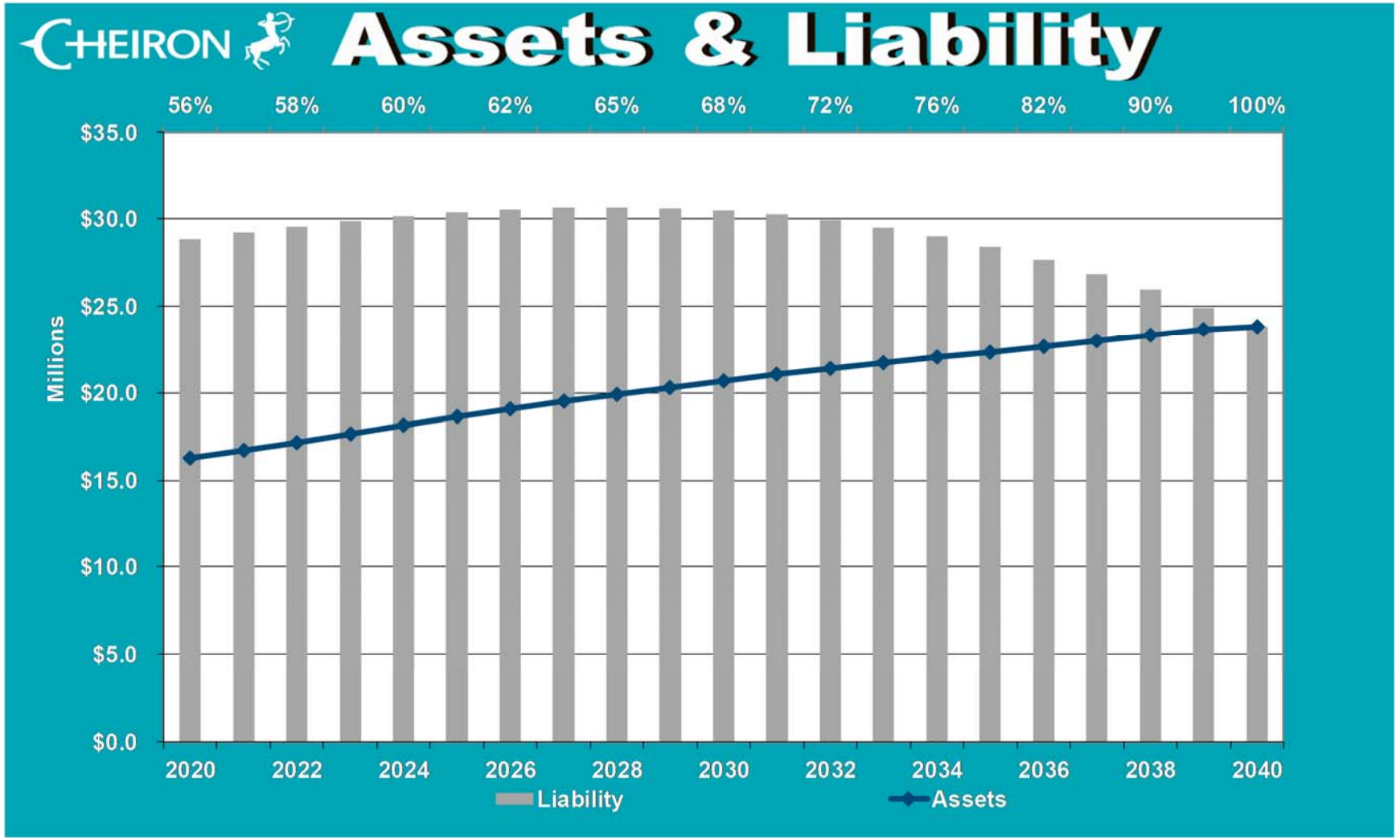
PLD: Basic Retiree Life Insurance – Continue at the current rate
Current rate: $0.21 bi-weekly per $1,000 of coverage for current retirees plus $0.10 of active premium is allocated to the Retiree Fund.

This chart shows the retiree portion of the active premium plus the retiree premium compared to the cost on a bi-weekly basis per $1,000 of retiree coverage, as well as historic and projected cash flows on a fiscal year basis for the current rate. The current rate is not sufficient to pay off the Unfunded Actuarial Liability in 11 years (by 2031), at this rate full funding would occur in 20 years (by 2040).



SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

This chart displays the projected PLD Assets and Liabilities for the post-retirement life insurance benefit under the current premium rates of $0.21 bi-weekly per $1,000 of coverage for current retirees plus $0.10 of active premium is allocated to the Retiree Fund.

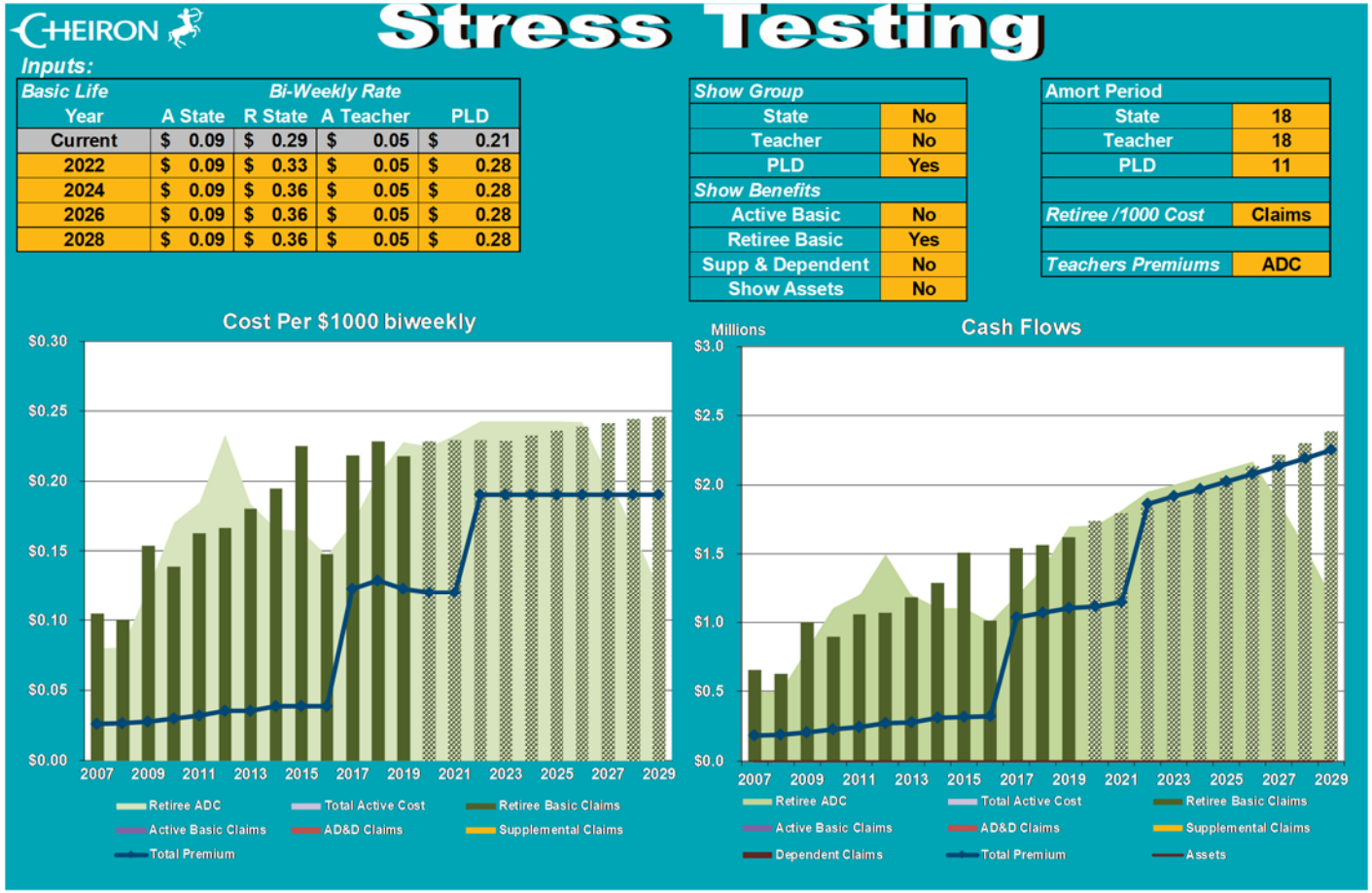


SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

PLD: Basic Retiree Life Insurance – Alternative to pay UAL in 12 years

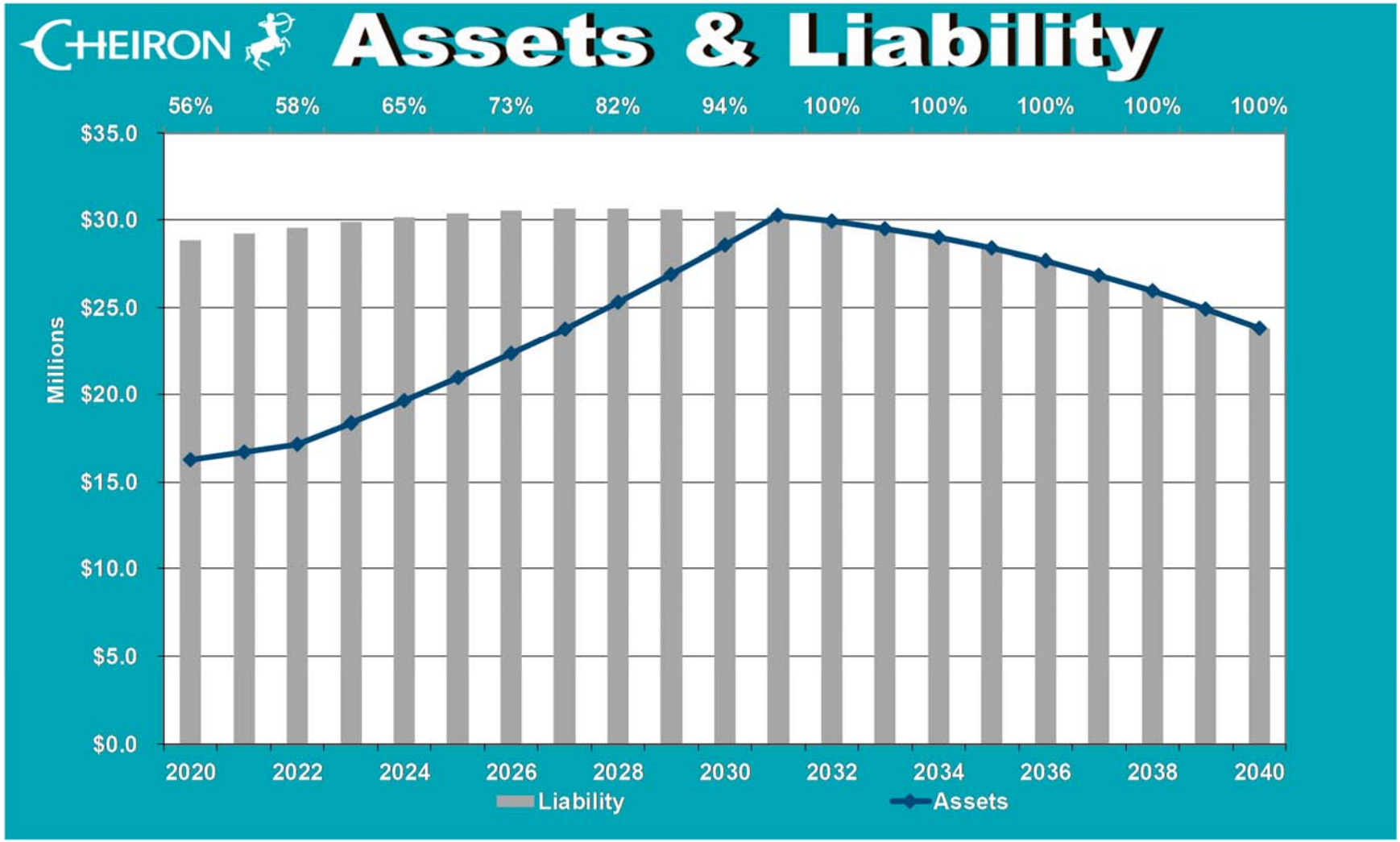
Alternative rate: Beginning in Fiscal Year ending 2022, $0.28 bi-weekly per $1,000 of coverage for current retirees plus $0.17 of active premium is allocated to the Retiree Fund.

In order to fully pay for the Unfunded Actuarial Liability in 11 years (by 2031), a rate of $0.28 bi-weekly per $1,000 of coverage for both Active and Retired PLD participants would be required, with all of the increase in active premiums being allocated to the Retiree Fund.



SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

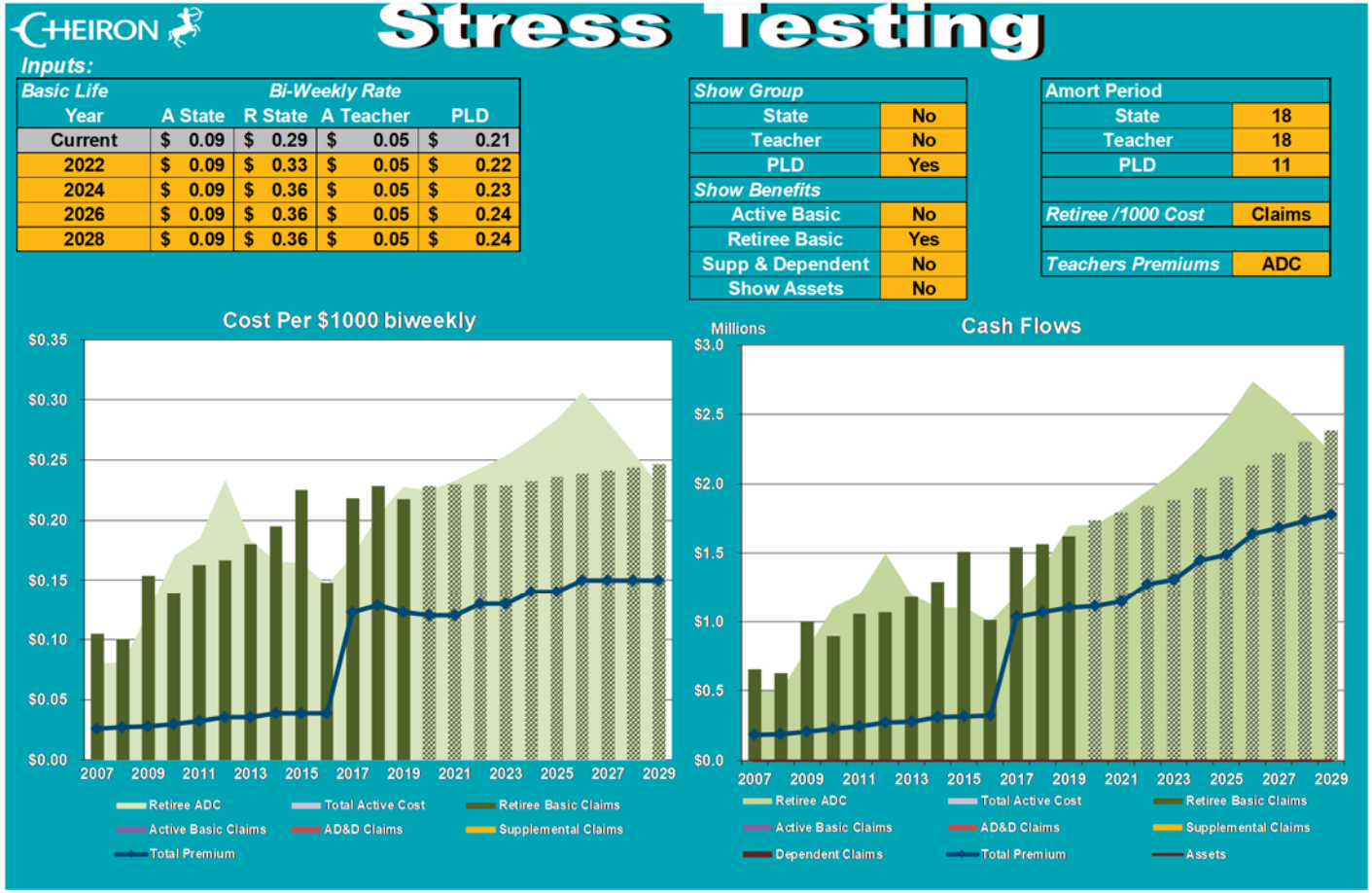
This chart displays the projected PLD Assets and Liabilities for the post-retirement life insurance benefit if beginning in Fiscal Year ending 2022, the rate is increased to $0.28 bi-weekly per $1,000 of coverage for current retirees plus $0.17 of active premium is allocated to the Retiree Fund.



SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

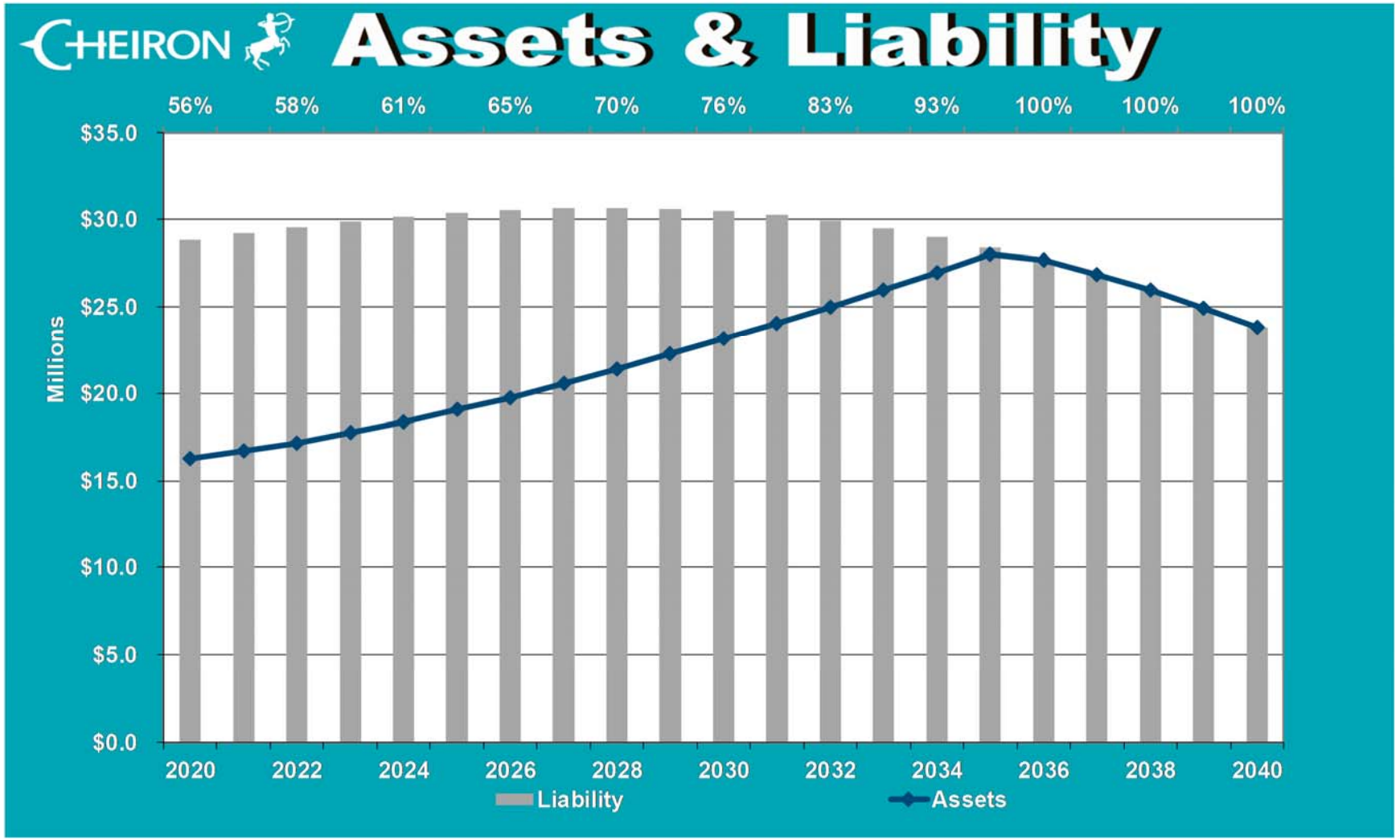
PLD: Basic Retiree Life Insurance – Alternative to pay UAL in 16 years with $0.01 increases in Fiscal Years 2022, 2024, 2026
Alternative rate: Increasing from $0.21 bi-weekly per $1,000 of coverage to $0.22 in 2022, $0.23 in 2024, and then $0.24 in 2026. For active benefits, $0.11 would still be allocated to the Active Fund with the remainder being allocated to the Retiree Fund.

With these three increases of $0.01 up to a rate of $0.24 bi-weekly per $1,000 of coverage for both Active and Retired PLD participants in 2022, 2024, and 2026, the UAL would be fully paid in 16 years (by 2036).



SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

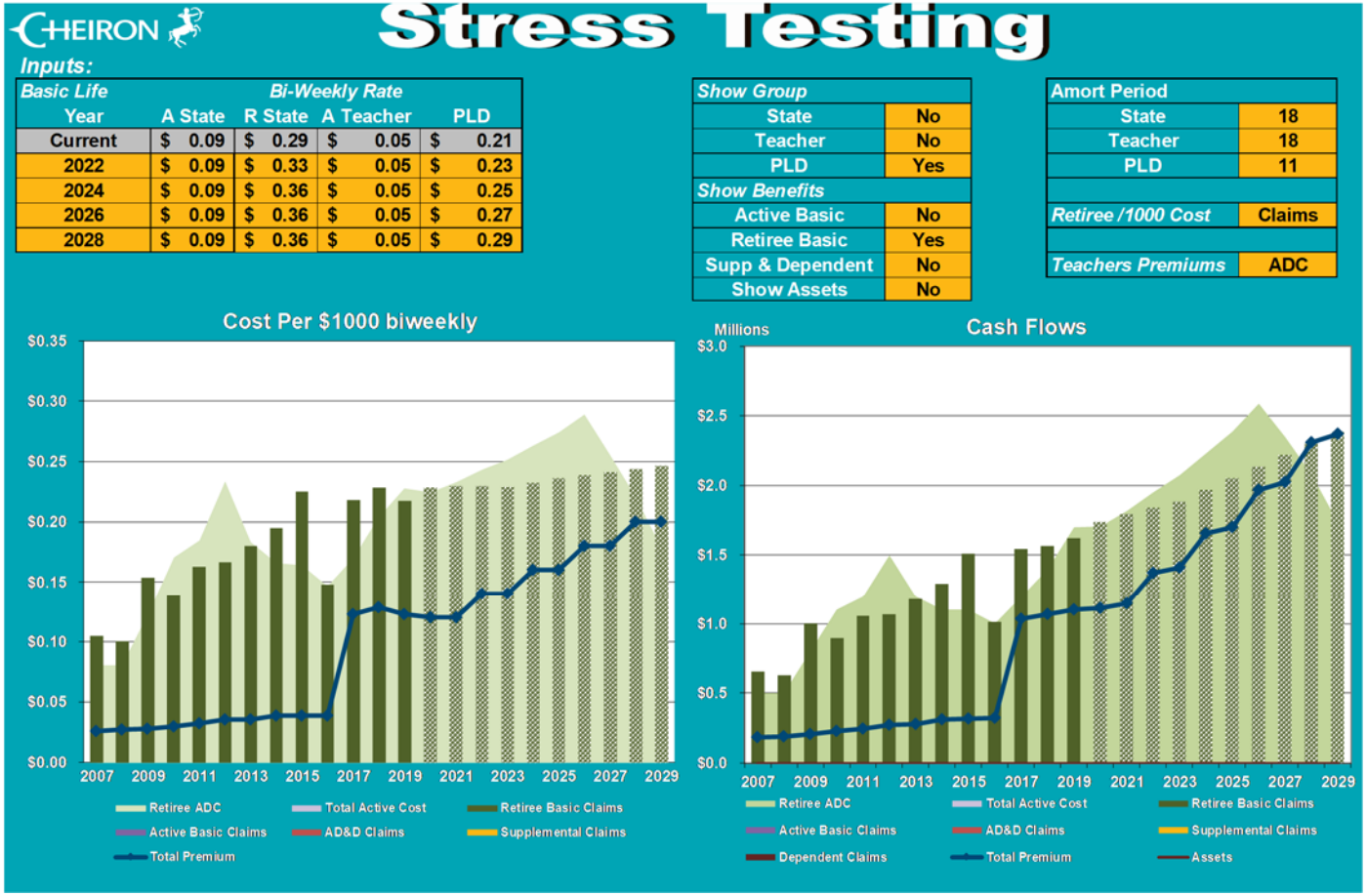
This chart displays the projected PLD Assets and Liabilities for the post-retirement life insurance benefit if the rate is increased to $0.22 bi-weekly per $1,000 of coverage in 2022, and then increasing again to $0.23 in 2024, and then increasing again to $0.24 in 2026. For active benefits, $0.11 would still be allocated to the Active Fund with the remainder being allocated to the Retiree Fund.



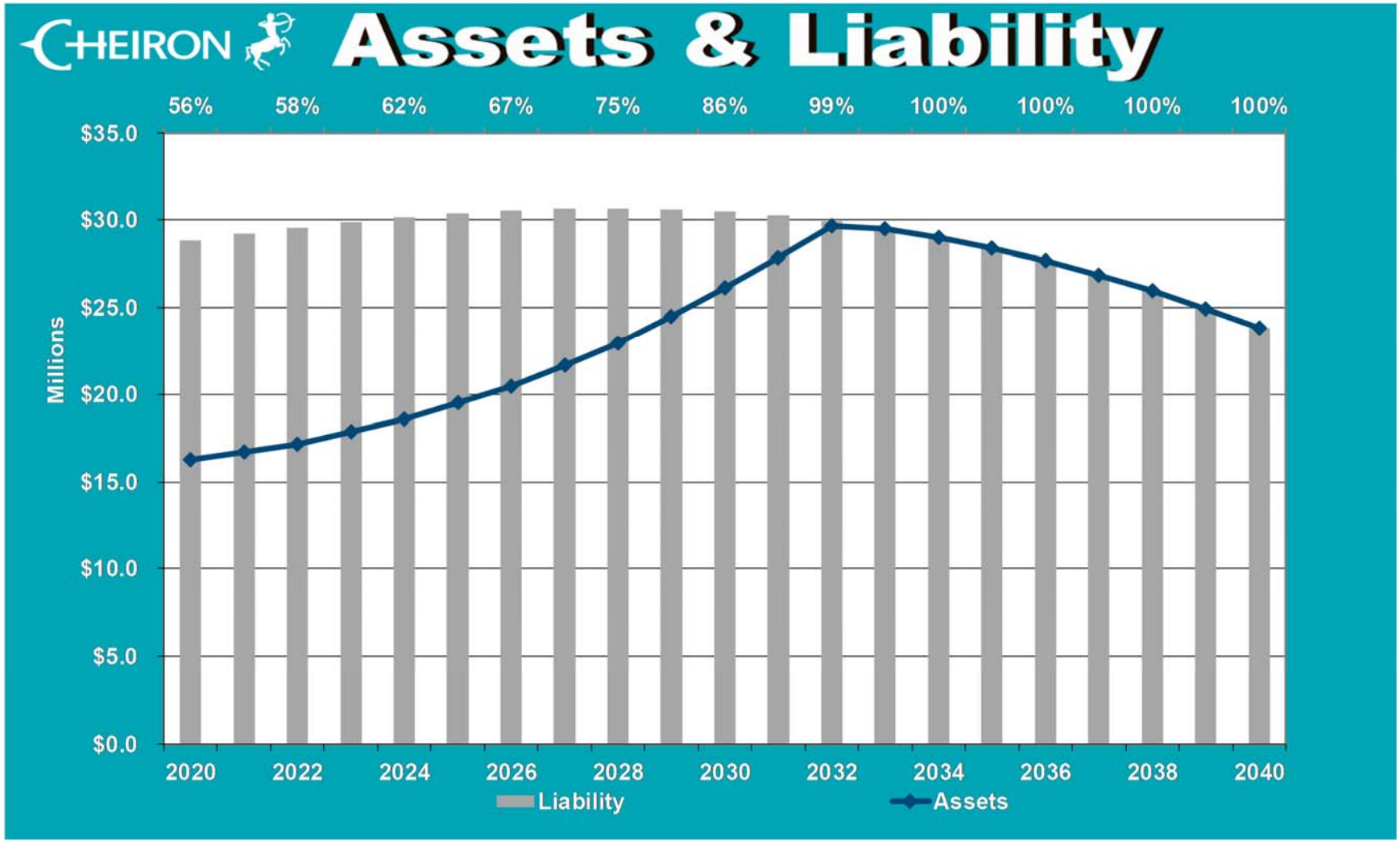
SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

PLD: Basic Retiree Life Insurance – Alternative to pay UAL in 13 years with $0.02 increases every two years until 2028
Alternative rate: Increasing from $0.21 bi-weekly per $1,000 of coverage to $0.23 in 2022, $0.25 in 2024, $0.27 in 2026, and $0.29 in 2028. For active benefits, $0.11 would still be allocated to the Active Fund with the remainder being allocated to the Retiree Fund.

With these three increases of $0.02 up to a rate of $0.29 bi-weekly per $1,000 of coverage for both Active and Retired PLD participants in 2022, 2024, 2026, and 2028, the UAL would be fully paid in 13 years (by 2033).



SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

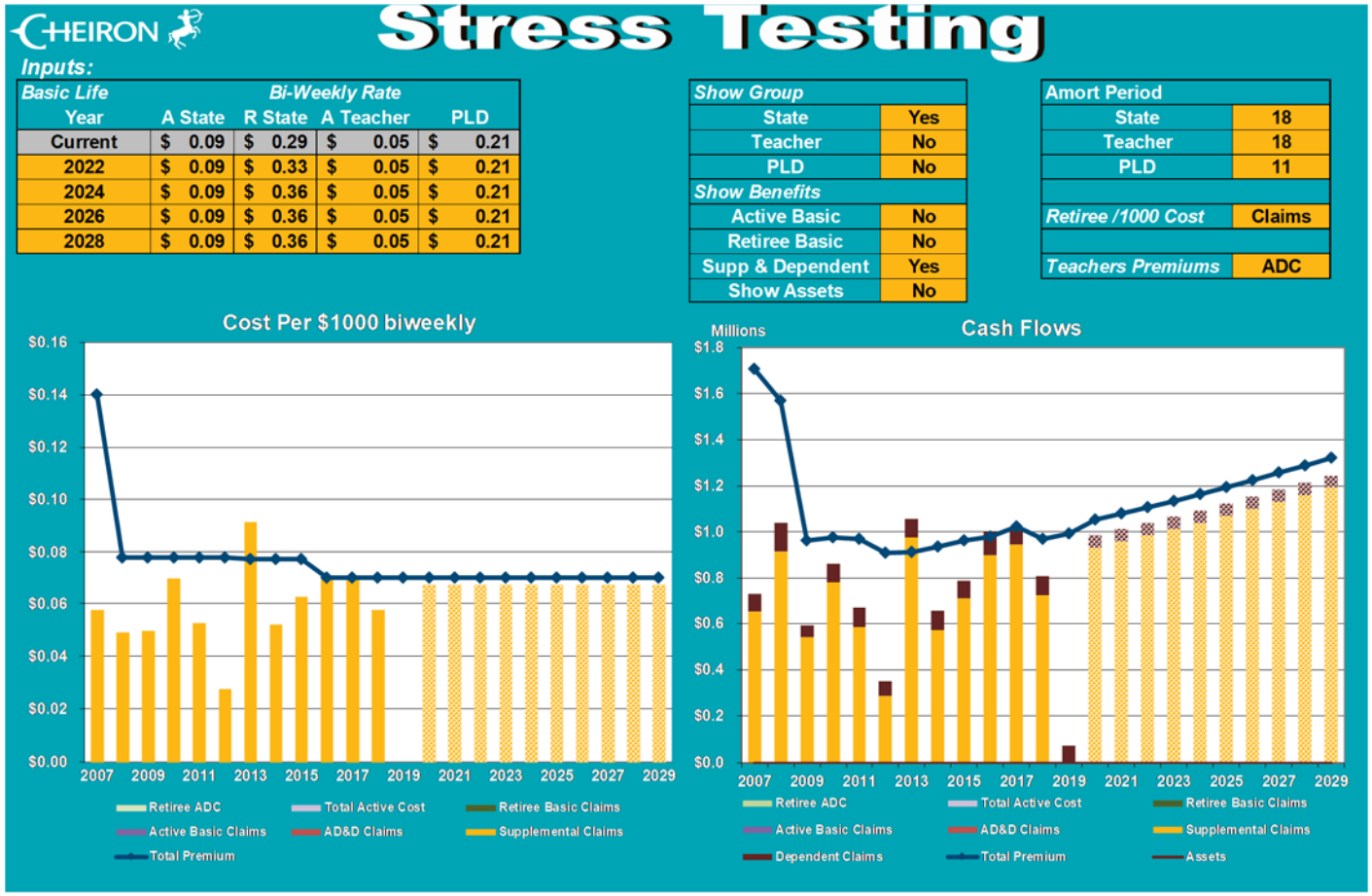


SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

State Active Supplemental Life Insurance

The current supplemental rates are appropriate for funding the benefits, and a change is not indicated at this time.

This chart shows premium and cost on a bi-weekly basis per $1,000 of coverage, historic and projected cash flows on a Fiscal Year basis, for the current rates.

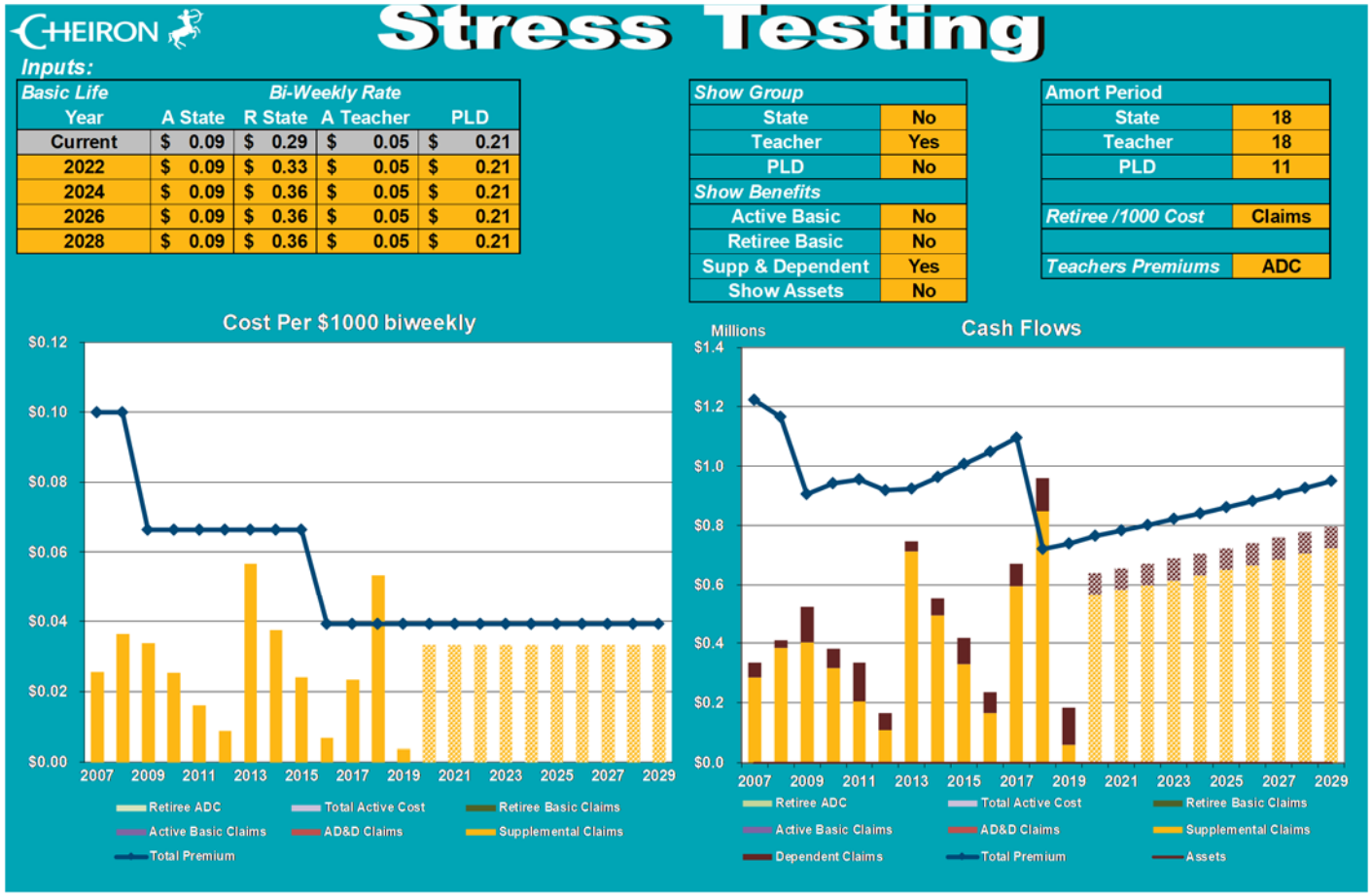


SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

Teacher Active Supplemental Life Insurance

The current supplemental rates are appropriate for funding the benefits, and a change is not indicated at this time.

This chart shows premium and cost on a bi-weekly basis per $1,000 of coverage, historic and projected cash flows on a Fiscal Year basis, for the current rates.

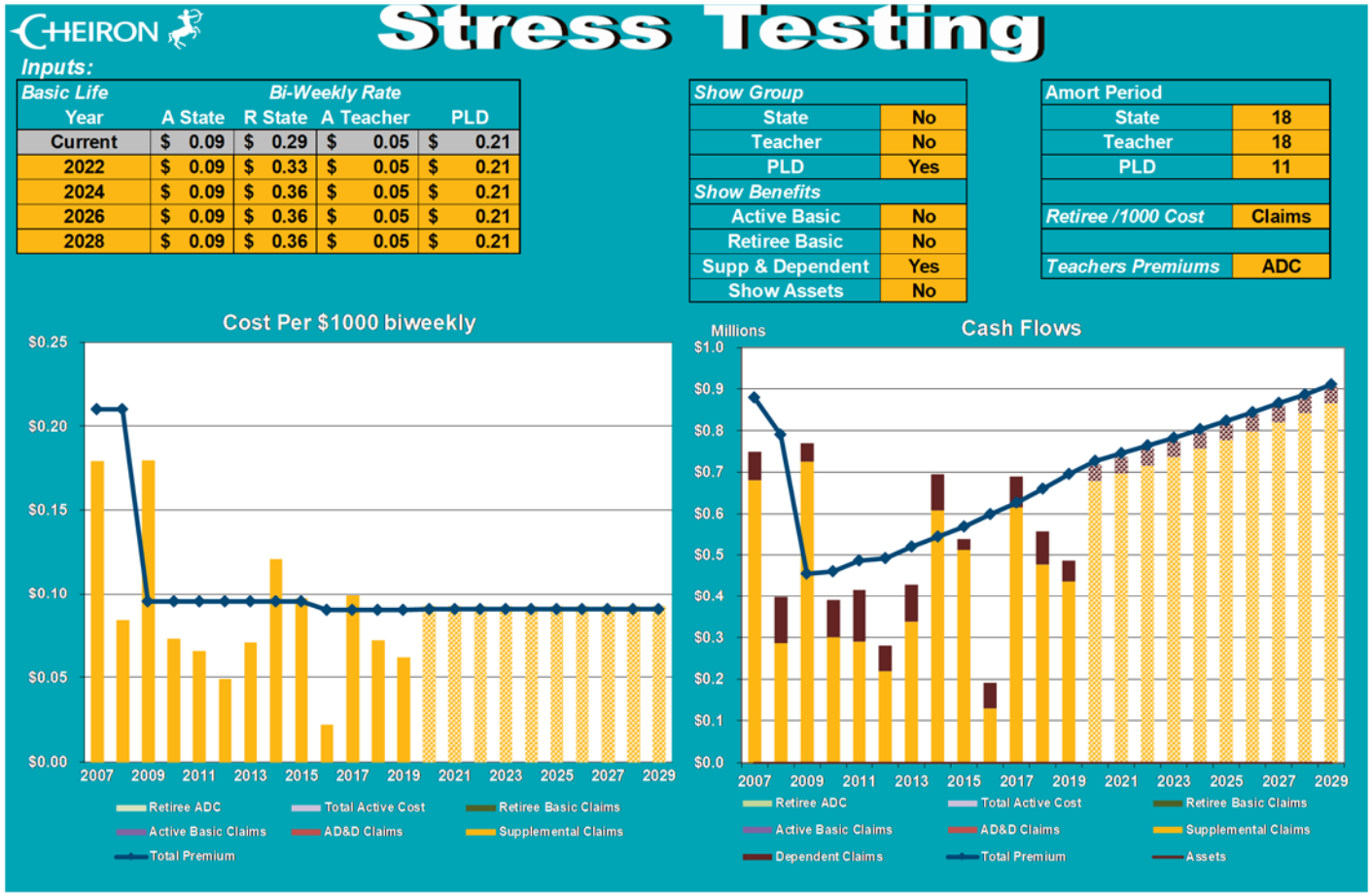


SECTION III – PREMIUM PROJECTIONS AND SCENARIOS

PLD Active Supplemental Life Insurance

The current supplemental rates are appropriate for funding the benefits, and a change is not indicated at this time.

This chart shows premium and cost on a bi-weekly basis per $1,000 of coverage, historic and projected cash flows on a Fiscal Year basis, for the current rates.



SECTION IV – IMPACT ON CONTRIBUTIONS

The following tables show the impact on contributions due to each of the potential premium changes proposed.

	State Basic Retiree - Increase Bi-weekly rate schedule to to $0.33 in 2022, $0.36 in 2024		
FYE (6/30)	Premiums (0.29)	Premiums (0.29/0.33/0.36)	Difference
2020	$4,766,697	$4,766,697	$0
2021	$4,897,781	$4,897,781	$0
2022	$5,032,470	$5,726,603	$694,134
2023	$5,170,863	$5,884,085	$713,222
2024	$5,313,061	$6,595,524	$1,282,463
2025	$5,459,170	$6,776,901	$1,317,731
2026	$5,609,298	$6,963,266	$1,353,968
2027	$5,763,553	$7,154,756	$1,391,203
2028	$5,922,051	$7,351,512	$1,429,461
2029	$6,084,907	$7,553,678	$1,468,771
Active Basic Insurance in Force in 2019		$ 615,268,000	
Retiree Basic Insurance in Force in 2019		$ 189,389,113	

	PLD Basic - Increase Bi-weekly rate schedule to $0.28 in 2022 with Active allocation to Retiree Fund increasing to $0.17		
FYE (6/30)	Current	Proposed	Difference
2020	$1,950,528	$1,950,528	$0
2021	$2,004,168	$2,004,168	$0
2022	$2,059,283	$2,745,710	$686,428
2023	$2,115,913	$2,821,217	$705,304
2024	$2,174,101	$2,898,801	$724,700
2025	$2,233,888	$2,978,518	$744,629
2026	$2,295,320	$3,060,427	$765,107
2027	$2,358,442	$3,144,589	$786,147
2028	$2,423,299	$3,231,065	$807,766
2029	$2,489,939	$3,319,919	$829,980
Active Basic Insurance in Force in 2019		$ 284,357,000	
Retiree Basic Insurance in Force in 2019		$ 63,321,490	

SECTION IV – IMPACT ON CONTRIBUTIONS

	PLD Basic - Increase Bi-weekly rate schedule to $0.22 in 2022, $0.23 in 2024, $0.24 in 2026 with Active allocation to Retiree Fund increasing to $0.11, $0.12, and $0.13		
FYE (6/30)	Current	Proposed	Difference
2020	$1,950,528	$1,950,528	$0
2021	$2,004,168	$2,004,168	$0
2022	$2,059,283	$2,157,344	$98,061
2023	$2,115,913	$2,216,671	$100,758
2024	$2,174,101	$2,381,158	$207,057
2025	$2,233,888	$2,446,640	$212,751
2026	$2,295,320	$2,623,223	$327,903
2027	$2,358,442	$2,695,362	$336,920
2028	$2,423,299	$2,769,484	$346,186
2029	$2,489,939	$2,845,645	$355,706

Active Basic Insurance in Force in 2019	$	284,357,000
Retiree Basic Insurance in Force in 2019	$	63,321,490

	PLD Basic - Increase Bi-weekly rate schedule to $0.23 in 2022, $0.25 in 2024, $0.27 in 2026, $0.29 in 2028 with Active allocation to Retiree Fund increasing to $0.12, $0.14, $0.16, and $0.18		
FYE (6/30)	Current	Proposed	Difference
2020	$1,950,528	$1,950,528	$0
2021	$2,004,168	$2,004,168	$0
2022	$2,059,283	$2,255,405	$196,122
2023	$2,115,913	$2,317,428	$201,516
2024	$2,174,101	$2,588,215	$414,114
2025	$2,233,888	$2,659,391	$425,503
2026	$2,295,320	$2,951,126	$655,806
2027	$2,358,442	$3,032,282	$673,840
2028	$2,423,299	$3,346,460	$923,161
2029	$2,489,939	$3,438,488	$948,548

Active Basic Insurance in Force in 2019	$	284,357,000
Retiree Basic Insurance in Force in 2019	$	63,321,490

APPENDIX A – PARTICIPANT DATA, ASSUMPTIONS, AND METHODS

Participant Data as of June 30, 2018

ACTIVE MEMBER DATA				
Group	Count	Average Age	Average Service	Average Salary
State	11,268	48.5	12.3	$ 52,378
Teachers	14,592	46.6	12.7	51,145
Judges	57	61.1	17.6	125,754
Legislators	37	60.6	4.2	13,054
PLD	5,495	49.5	10.7	50,280
TOTAL	31,449	47.8	12.2	51,526

Note that Legislators are subject to eight-year term limits for each house. Therefore, it is assumed that no active Legislators will reach the 10 years of service required to be eligible for retiree life benefits. However, they are included in the counts for the above exhibit because they are included in the expected remaining service life.

NON-ACTIVE MEMBER DATA			
Group	Count	Average Age	Average Benefit[1]
State	8,714	71.8	$ 17,413
Teachers	7,437	72.8	19,984
Judges	42	75.1	42,488
Legislators	12	77.7	5,491
PLD	2,850	71.9	17,136
TOTAL	19,055	72.2	18,423

[1] Ultimate benefit (40% of initial base benefit)

APPENDIX A – PARTICIPANT DATA, ASSUMPTIONS, AND METHODS

Insurance Enrollment as of June 30, 2019

Group	Active Basic	Retiree Basic	Supplemental	Dependent A	Dependent B
State[1]	11,208	8,843	4,258	979	1,450
Teachers	14,684	7,654	5,636	1,219	1,740
PLDs	5,489	2,892	2,532	717	1,087
Total	31,381	19,389	12,426	2,915	4,277

[1] State Group including Judges and Legislators

Note: All assumptions are based on the MainePERS Pension assumptions, except where otherwise indicated.

APPENDIX A – PARTICIPANT DATA, ASSUMPTIONS, AND METHODS

Economic Assumptions

Valuation Date: June 30, 2019 for the purposes of measuring active life insurance. June 30, 2018 for the purposes of measuring retiree life insurance cost. Projections were based on the mortality, investment return rate, and salary scale assumptions approved for the Pension valuation as of the 6/30/2019 valuation, shown below.

Investment Return: 6.750% per year

Cost-of-Living Increases in Life Benefits:
N/A. Unlike pension benefits, life insurance benefits do not increase with Cost-of-Living.

Premium Expense and Conversion Assumption:
To reflect administrative expenses and conversion expenses associated with the distribution of benefits, the following loads have been added to the liabilities, normal cost, and benefit payments.

Expense Load
State Employees, Judges, and Legislators: 9.84%
Teachers: 16.51%
PLDs: 9.36%

Conversion Load
State Employees, Judges, and Legislators: 2.73%
Teachers: 3.07%
PLDs: 1.62%

Rates of Salary Increase (Experience-based sample rates by service including both merit scale increase and yearly increase):

Service	State	Teachers	Judges	Legislators	PLD
0	8.75%	14.50%	2.75%	2.75%	9.00%
5	5.00%	5.75%	2.75%	2.75%	2.75%
10	3.75%	4.75%	2.75%	2.75%	2.75%
15	3.20%	4.00%	2.75%	2.75%	2.75%
20	2.95%	2.75%	2.75%	2.75%	2.75%
25+	2.75%	2.75%	2.75%	2.75%	2.75%

APPENDIX A – PARTICIPANT DATA, ASSUMPTIONS, AND METHODS

Demographic Assumptions

Rates of Termination
(Experience-based sample rates by service):

Service	State	Teachers	PLDs	PLDs Special
0	33.50%	33.50%	25.00%	25.00%
5	10.50	10.50	9.00	4.00
10	5.95	5.95	6.00	2.50
15	4.25	4.25	4.00	2.50
20	4.00	4.00	2.50	2.50
25	4.00	4.00	2.50	2.50

(Experience-based sample rates by age):

Age	Judges
25	7.00%
30	6.00%
35	5.00%
40	4.00%
45	3.00%
50	2.00%
55	1.00%

(Experience-based sample rates by service):

Service	Legislators
0-1	0.00%
2-3	30.00
4-5	25.00
6-7	10.00
8-9	50.00
10-15	25.00
16+	50.00

APPENDIX A – PARTICIPANT DATA, ASSUMPTIONS, AND METHODS

Rates of Healthy Mortality

State Healthy Employees:

Rates for Active State Employees are based on 104% and 120% of the RP-2014 Total Dataset Employee Mortality Table, respectively, for males and females, using the RP-2014 Total Dataset Healthy Annuitant Mortality Table rates after the end of the Total Employee Mortality Table, both projected from the 2006 base rates using the RPEC_2015 model, with an ultimate rate of 0.85% for ages 20-85, grading down to an ultimate rate of 0.00% for ages 111-120, and convergence to the ultimate rate in the year 2020.

Rates for Retiree State Employees are based on 104% and 120% of the RP-2014 Total Dataset Healthy Annuitant Mortality Table, respectively, for males and females, using the RP-2014 Total Dataset Employee Mortality Table for ages prior to start of the Healthy Annuitant Mortality Table, both projected from the 2006 base rates using the RPEC_2015 model, with an ultimate rate of 0.85% for ages 20-85, grading down to an ultimate rate of 0.00% for ages 111-120, and convergence to the ultimate rate in the year 2020.

	State	
Age	Male	Female
20	4	2
30	4	3
40	6	5
50	18	13
60	80	64
65	114	98
70	177	158
75	289	259
80	486	437
85	845	773
90	1,479	1,374
95	2,326	2,253

Sample Rates – Number of deaths per 10,000 members, showing values in 2015. Ages 20-50 show sample rates for actives, ages 60+ show sample rates for retirees.

APPENDIX A – PARTICIPANT DATA, ASSUMPTIONS, AND METHODS

Teacher Healthy Employees:

Rates for Active Teachers are based on 99% of the RP-2014 Total Dataset Healthy Annuitant Mortality Table for both males and females, using the RP-2014 Total Dataset Healthy Annuitant Mortality Table rates after the end of the Total Employee Mortality Table, respectively, both projected using the RPEC_2015 model, with an ultimate rate of 0.85% for ages 20-85, grading down to an ultimate rate of 0.00% for ages 111-120, and convergence to the ultimate rate in the year 2020.

Rates for Retiree Teachers are based on 99% of the RP-2014 Total Dataset Healthy Annuitant Mortality Table for both males and females, using the RP-2014 Total Dataset Employee Mortality Table for ages prior to the start of the Healthy Annuitant Mortality Table, respectively, both projected using the RPEC_2015 model, with an ultimate rate of 0.85% for ages 20-85, grading down to an ultimate rate of 0.00% for ages 111-120, and convergence to the ultimate rate in the year 2020.

	Teachers	
Age	Male	Female
20	4	2
30	4	2
40	6	4
50	17	27
60	76	52
65	108	81
70	169	130
75	275	214
80	462	361
85	804	638
90	1,408	1,134
95	2,215	1,859

Sample Rates – Number of deaths per 10,000 members, showing values in 2015. Ages 20-50 show sample rates for actives, ages 60+ show sample rates for retirees.

APPENDIX A – PARTICIPANT DATA, ASSUMPTIONS, AND METHODS

PLD Healthy Employees:

Rates for Active PLD employees are based on 104% and 120% of the RP-2014 Total Dataset Employee Mortality Table, respectively, for males and females, using the RP-2014 Total Dataset Healthy Annuitant Mortality Table rates after the end of the Total Employee Mortality Table, both projected from the 2006 base rates using the RPEC_2015 model, with an ultimate rate of 0.85% for ages 20-85, grading down to an ultimate rate of 0.00% for ages 111-120, and convergence to the ultimate rate in the year 2020.

Rates for Retiree PLD employees are based on 104% and 120% of the RP-2014 Total Dataset Healthy Annuitant Mortality Table, respectively, for males and females, using the RP-2014 Total Dataset Employee Mortality Table for ages prior to start of the Healthy Annuitant Mortality Table, both projected from the 2006 base rates using the RPEC_2015 model, with an ultimate rate of 0.85% for ages 20-85 grading down to an ultimate rate of 0.00% for ages 111-120, and convergence to the ultimate rate in the year 2020.

	PLD	
Age	Male	Female
20	4	2
30	4	3
40	6	5
50	18	13
60	80	64
65	114	98
70	177	158
75	289	259
80	486	437
85	845	773
90	1,479	1,374
95	2,326	2,253

Sample Rates – Number of deaths per 10,000 members, showing values in 2015. Ages 20-50 show sample rates for actives, ages 60+ show sample rates for retirees.

APPENDIX A – PARTICIPANT DATA, ASSUMPTIONS, AND METHODS

Rates of Disabled Mortality – (Experience-based sample deaths per 10,000 members by age):

Rates are based on 108% and 105% of the RP-2014 Total Dataset Disabled Annuitant Mortality Table, respectively, for males and females, projected from the 2006 base rates using the RPEC_2015 model, with an ultimate rate of 0.85% for ages 20-85, grading down to an ultimate rate of 0.00% for ages 111-120, and convergence to the ultimate rate in the year 2020.

	Disabled Mortality	
Age	Male	Female
25	85	25
30	81	31
35	95	43
40	115	59
45	180	93
50	220	123
55	251	153
60	284	182
65	340	122
70	442	303

Rates of Retirement
(Experience-based sample retirements per 1,000 members by age):

	State Employees and Teachers		
Age	Tier 1	Tier 2	Tier 3
45	13	NA	NA
50	29	NA	NA
55	40	40	40
59	150	40	40
60	250	75	40
61	200	175	40
62	200	250	40
63	200	150	75
64	250	200	225
65	350	250	300
70	200	200	300
75	1,000	1,000	1,000

APPENDIX A – PARTICIPANT DATA, ASSUMPTIONS, AND METHODS

Judges:

Age	Tier 1	Tier 2	Tier 3
60-61	1,000	NA	NA
62-64	1,000	500	NA
65-69	1,000	500	500
70-74	1,000	500	500
75+	1,000	1,000	1,000

Legislators:

Age	Assumption
60-69	250
75+	1,000

PLD Regular:

Age	Tier 1	Tier 2
45	50	50
50	50	50
55	50	50
60	200	50
65	250	200
70	1,000	1,000

PLD Special:

Age	Assumption
20	400
21-24	300
25	400
26-29	300
30	400
31-34	300
35+	1,000

APPENDIX A – PARTICIPANT DATA, ASSUMPTIONS, AND METHODS

Participants who are not members of MainePERS: Age 62

Rates of Disability
(Experience-based sample disablements per 10,000 members by service):

Age	State	Teachers	Judges & Legislators	PLDs
25	5.0	2.1	0	1.8
30	6.1	2.3	0	2.4
35	9.3	2.3	0	3.0
40	14.8	3.1	0	4.2
45	22.8	7.0	0	9.0
50	34.0	10.9	0	19.8
55	39.9	14.9	0	36.6
60	43.4	18.8	0	65.0

Participation Percent for Future Retirees:
100% of those currently enrolled (unique to this valuation).

APPENDIX A – PARTICIPANT DATA, ASSUMPTIONS, AND METHODS

Other Assumptions (Unique to this Valuation)

Conversion Charges:
Apply to the cost of Active Group Life Insurance, and not Retiree Group Life Insurance.

Form of Benefit Payment: Lump Sum

Mortality Projections Cashflows shown in Section III:
For actives, the static tables of the above mortality assumptions were used, projected to the year 2020, and adjusted by factors of 0.8 for State, 0.58 for Teachers, and 0.9 for PLD. For retires the factors were 0.9, 0.8, and 0.95, respectively.

Child Assumption for Dependent Insurance:
We made an assumption for the number of eligible children covered under dependent insurance, based on the sample employee's age. Employees are assumed to have zero children prior to age 24, one child from ages 24-28, two children from ages 28-46, one child from ages 46-50, and no children after age 50. Child mortality was assumed to be one half of the mortality at age 15.

Probability of AD&D:
Probability of receiving AD&D insurance was assumed to be 10% of mortality for healthy employees for all three groups.

APPENDIX A – PARTICIPANT DATA, ASSUMPTIONS, AND METHODS

Actuarial Cost Method

To be consistent with past analyses and with the Pension Plan funding, the individual entry age normal method is used to determine liabilities. Under this funding method, a normal cost rate is calculated for each member. This rate is determined by taking the value, as of age at entry into the Plan, of the member's projected future benefits, and dividing it by the value, also as of the member's entry age of his expected future salary. The normal cost for each member is the product of annual salary and the normal cost rate. The normal cost for the group is the sum of the normal costs for all members.

The actuarial liability is defined as the present value of future benefits, less the present value of future normal costs. The UAL is the total of the actuarial liability for all members, less the actuarial value of the System's assets.

The discount rate used reflects the long term funding policy to fully fund the benefits on an actuarial basis by FY 2038 for State and Teachers and by FY 2031 for PLDs.

To amortize the UAL, we used amortization period to the beginning of FY 2038 for State and Teacher employees and to the beginning of FY 2031 year amortization period for PLD employees. Amortization payments are calculated using a level percent of pay with a 2.75% annual increase in payroll assumed and a discount rate of 6.75%.

Asset Valuation Method

Figures were reported by MainePERS without audit or change, except that State assets are allocated to State, Judges, and Legislators based on total actuarial liability.

Assumption Changes Implemented for Premium Study

None

APPENDIX B – SUMMARY OF KEY PLAN PROVISIONS

Membership

Service Retirement: A retiree must have participated in the group life insurance program for at least 10 years and possess coverage just prior to retirement.

Disability Retirement: An employee must have participated in the group life insurance program immediately prior to disablement.

Basic Insurance

Average final compensation calculated for retirement purposes.

Amount of Insurance for a Retiree

Service Retirement: The Basic Insurance will be reduced by 15% per year until the amount equal to the greater of (a) 40% of the initial Basic Insurance, or (b) $2,500.

Disability Retirement: The amount of basic life insurance in force prior to retirement will be continued until normal retirement age. At normal retirement age, the amount of insurance will be reduced as for service retirement.

Retiree Contributions

State Employees: None

Teachers: None

PLDs: PLD must pay $0.46 per month per $1,000 of base benefit, based on the coverage amounts declining from 100% to 40%.

Judges: None

Legislators: None

Normal Retirement Age

The specified age, the years of service requirement, or any age and years of service combination at which a participant may become eligible for unreduced service retirement benefits.

Discontinued Coverages at Retirement

- Supplemental Life
- Accidental Death and Dismemberment
- Dependent Life

(Discontinued coverage may be ported to another group term product or converted to an individual policy. MainePERS is charged a fee for those active employees who convert to an individual policy upon termination from employment. Conversion charges are considered a cost of active, not retiree group life insurance. Therefore, it is not included in these liabilities.)