# Redacted

# Actuarial Memorandum Supporting Rate Revision for Senior Health Insurance Company of Pennsylvania Long-Term Care Insurance Plan

#### 1. PURPOSE OF FILING

This is a rate increase filing for Senior Health Insurance Company of Pennsylvania's (SHIP) policy forms outlined below. SHIP is requesting a 15% rate increase for policyholders with a 5% compound lifetime inflation rider. In lieu of the rate increase, an option is provided to policyholders to freeze future inflation increases and receive a 40% decrease in their current premium. The rate increase is necessary because the current estimate of the nationwide lifetime loss ratio is in excess of expected. This rate filing is not intended to be used for other purposes.

#### 2. SCOPE OF FILING

This filing applies to Long Term Care active policies with a 5% compound lifetime inflation rider. This includes the following policy and rider forms:

<u>Series 10955 & 11001</u>

Policy Forms: 10955, 11001 Benefit Increase Rider Forms: 10955-IPR, 11001-IPR Return of Premium Benefit Rider Forms: 11001-ROP Home Health Care Rider Forms: 10955-HHC, 11001-HHC Originally Issued by Transport Life Insurance Company

10956 Series

Policy Forms: 10956 Benefit Increase Rider Forms: 10956-IPR Home Health Care Rider Forms: 10956-HHC Originally Issued by Transport Life Insurance Company

<u>CSHIC 5000 Series</u> Policy Forms: CSHIC-5003-MD-2 Benefit Increase Rider Forms: CSHIC-6004(5%), CSHIC-6006(5%) Original Issued by Conseco Senior Health Insurance Company

<u>FQ Series</u> Policy Forms: ATL-FQ-LTC Benefit Increase Rider Forms: ATL-BIR-FQ, ATL-BIR-FQ.1 Originally Issued by American Travellers Life Insurance Company

HHC Series

Policy Forms: ATL-HHC-3, ATL-HHC-4 Benefit Increase Rider Forms: ATL-BIR-HHC-3, ATL-BIR-HHC-4 Originally Issued by American Travellers Life Insurance Company

LTC-1 Series

Policy Forms: ATL-LTC-1(MD), ATL-LTC-1-MD-93 Benefit Increase Rider Forms: ATL-BIR-LTC-1(MD), ATL-BIR-LTC-1-MD-93 Originally Issued by American Travellers Life Insurance Company

<u>LTC-6</u>

Policy Forms: ATL-LTC-6 Benefit Increase Rider Forms: ATL-BIR-LTC-6 Originally Issued by American Travellers Life Insurance Company

The rate increase will apply to all insureds issued coverage under the above referenced forms in this State. The number of lives inforce and average premiums before and after the rate increase are shown in Exhibit A.

The rate increase will apply to in-force business only, as SHIP no longer markets these policy forms.

## 3. REASON FOR RATE INCREASE REQUEST

This rate filing is a request for a 15% increase. The purpose of the requested rate increase is to mitigate future losses and to assist in maintaining the solvency of SHIP, so that future policyholder obligations can be met. SHIP operates as an independent trust for the exclusive benefit of its policyholders and does not have a profit motive.

This request is part of an overall plan that SHIP has developed to maintain its solvency while minimizing the impact to policyholders as a whole.

The rate increase is justified because the actual lifetime loss ratio is 96% and higher than the required minimum loss ratio for these forms.

## 4. POLICYHOLDER OPTIONS TO MITIGATE IMPACT OF RATE INCREASE

SHIP will offer the following options to policyholders to mitigate the impact of the premium increase:

## **Benefit Reduction Offer**

The Company will give policyholders Benefit Reduction Offers to help mitigate the impact to policyholders of the premium rate increase on the Base policy and Riders. The Benefit Reduction Offers will allow the policyholder with a 5% compound lifetime inflation protection rider to freeze the inflation protection at the current level by electing a new rider option. Along with the benefit reduction, policyholders will receive a 40% premium reduction to all premium due prior to the benefit reduction offer (including all rider premium).

The benefit reduction offer is not intended to be actuarial equivalent to the rate increase.

## **Non-Forfeiture Offer**

Upon approval of the requested 15% rate increase, SHIP agrees to offer a nonforfeiture benefit to policyholders impacted by the rate increase. This offer will be made to all active policyholders regardless of issue age or premium rate increase history. The nonforfeiture benefit will provide a pool of benefits for long term care expenses equal to the sum of premiums paid-to-date less the sum of claims paid-to-date.

## 5. PROPOSED EFFECTIVE DATE

The proposed effective date is as soon as possible following approval and fulfillment of all statutory, contractual, and operational requirements. The projection assumes a 1/1/2017 effective date.

#### 6. APPLICABILITY

The revised rates contained in the rate filing will be applicable to all renewals of the policy form and riders described in Section 1 as well as all future periodic inflation protection offers. The revised premium rate schedules can be found as part of the filing. The rate revision will be applied as a consistent percentage to all premium classes. The modal premium factors will remain unchanged from the current factors.

#### 7. PROJECTION ASSUMPTIONS

Mortality, lapse, and morbidity assumptions used in the lifetime loss ratio projection are consistent with the assumptions used in SHIP's 2015 cash flow testing. They are based on best estimate assumptions and do not include any margin for adverse deviation.

#### Interest

A 4.96% net annual rate of interest has been assumed for accumulating historical experience and for discounting projected future experience. This is a weighted average of the valuation rate based on the policy issue date of all policies subject to this filing.

#### Mortality

Projected future experience assumes 85% of the 1983 Group Annuitant Mortality (GAM), graded up to 100% over 10 years. In addition, a 0.6% per year mortality improvement assumption was used for 15 years.

#### Lapse Rates

On average, the projected lapse rate is 4% (benefit exhaust is not modeled explicitly, but implied in the lapse rate). Projected future experience assumes best estimate lapse rates, which vary by policy form and issue age. There is also an additional lapse applied, which increases by attained age, starting with attained age 80 at zero and increasing to 5% at age 100.

#### Morbidity

Projected future experience uses morbidity assumptions which are based on SHIP experience. Claim costs were calculated by attained age, sex, marital status, policy duration, benefit period, and elimination period. Adjustment factors were applied to estimated claim costs to reflect actual experience.

#### 8. ISSUE AGE RANGE

These products were available for issue ages 38 to 86. Premiums are based on issue age.

## 9. AREA FACTORS

The Company did not use area factors within the State in the premium scale for these products.

#### **10. CLAIM LIABILITY AND RESERVE**

Claim reserves were calculated using appropriate actuarial methods for IBNR and using continuance curves validated for the company's experience for open claims on a disabled life basis. The claim reserves were discounted to the date of incurral for each claim and have been included in the historical incurred claims. The valuation rate for the claim reserve is consistent with the rate used to produce the historical loss ratios.

#### 11. ACTIVE LIFE RESERVES

We have provided supporting evidence for the justification of the proposed increase based on the relationship of incurred claims divided by earned premium compared to the minimum loss ratio. Incurred claims are calculated without the impact of the change in active life reserves.

#### **12. DISTRIBUTION OF BUSINESS**

The historical experience reflects the actual distribution of policies during the experience period. The projected future experience is based on a seriatim projection of the current inforce policies.

## **13. NUMBER OF POLICYHOLDERS**

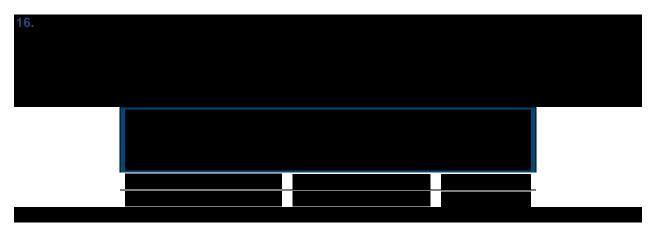
Please refer to Exhibit A for the projected number of policyholders as of December 31, 2015 in this State.

#### 14. AVERAGE ANNUAL PREMIUM

The average annual premium for this product both prior to the impact of the requested rate increase, and after, is indicated in Exhibit A to this memorandum.

#### **15. MINIMUM REQUIRED LIFETIME LOSS RATIO**

The minimum required lifetime loss ratio for these forms is 60%.



## **17. PROJECTED FUTURE EXPERIENCE**

Future experience, **and** has been projected for forty years using the best estimate assumptions described in Section 5, **and the sector of the** 

Nationwide (Exc 5% C	Table 2 rance Company of Pen luding FL) Future Expe ompound Inflation imptions Without Rate	erience
Earned Premiums	Incurred Claims	Loss Ratio
\$221,776,780	\$912,092,408	411.3%

## **18. LIFETIME ANTICIPATED LOSS RATIO**

The lifetime anticipated loss ratio is defined as the present value of the historical and projected future incurred claims divided by the present value of the historical and projected future earned premium.


## 19. RELATIONSHIP OF RENEWAL PREMIUM TO NEW BUSINESS PREMIUM

The company is no longer selling any new proprietary long-term care products. Therefore, the comparison of renewal premium rates after the rate increases to the Company's current new business premium rate schedule is not applicable.

## 20. ACTUARIAL CERTIFICATION

I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries, and I meet the Academy's qualification standards for rendering this opinion and am familiar with the requirements for filing long-term care insurance rate filings.

To the best of my knowledge and judgment this rate filing is in compliance with the applicable laws and regulations of this State as they relate to premium rate developments and revisions. This memorandum complies with all applicable Actuarial Standards of Practice, including ASOP No. 8.

In forming my opinion, I have used actuarial assumptions and actuarial methods and such tests of the actuarial calculations as I considered necessary.

I have reviewed and taken into consideration the policy design and coverage provided, and the Company's original underwriting and claims adjudication processes.

The projected experience shown in this Memorandum is based on best estimate assumptions and does not include any provision for moderately adverse experience. The rate increase being filed is lower than what would be required to meet any minimum lifetime loss ratio requirements or to do a certification of adequacy under rate stability requirements. If the experience does not improve, the Company will need to file for future rate increases. In my opinion, the rates are not excessive or unfairly discriminatory.

Consulting Actuary



Exhibit A Senior Health Insurance Company of Pennsylvania ATL & Transport Lives & Premium				
	Lives Inforce as Average Annualized Premiums (as of 1/1/2018) Per Infor			
of Without Rate				
			<b>3</b>	
Maryland Only	795	\$3,170	\$2,069	\$3,582

#### Exhibit C - 3 Senior Health Insurance Company of Pennsylvania (SHIP) Historical and Projected Experience Maryland 5% Compound Lifetime Inflation

Historical			
Calendar	Earned	Incurred	Incurred
Year	Premium	Claims	Ratio
2000 & Prior	21,291,143	5,210,199	24%
2001	4,095,387	1,090,563	27%
2002	4,106,676	3,113,156	76%
2003	3,987,677	1,809,755	45%
2004	3,893,218	1,583,008	41%
2005	3,906,641	2,035,203	52%
2006	4,029,490	3,875,389	96%
2007	3,822,553	2,062,822	54%
2008	3,838,036	3,402,703	89%
2009	3,911,773	2,955,417	76%
2010	3,793,882	3,348,371	88%
2011	3,529,883	4,720,177	134%
2012	3,282,419	5,084,257	155%
2013	3,142,679	8,254,215	263%
2014	2,971,251	6,294,146	212%
2015	2,696,526	5,904,330	219%

#### Projection without Rate Increase

	Calendar	Earned	Incurred	Incurred
	Year	Premium	Claims	Ratio
	2016	2,493,797	8,809,740	353%
	2017	2,207,971	7,601,854	344%
	2018	1,948,217	6,599,809	339%
	2019	1,712,319	5,929,383	346%
	2020	1,498,408	5,488,252	366%
	2021	1,305,021	5,071,501	389%
	2022	1,130,849	4,825,782	427%
	2023	974,735	4,549,637	467%
	2024	835,557	4,274,963	512%
	2025	712,170	3,956,209	556%
	2026	603,938	4,008,499	664%
	2027	510,096	3,410,151	669%
	2028	429,068	2,969,404	692%
	2029	359,357	2,644,178	736%
	2030	299,666	2,344,986	783%
	2031	248,680	2,108,646	848%
	2032	205,232	1,896,115	924%
	2033	168,383	1,692,560	1005%
	2034	137,333	1,504,945	1096%
	2035	111,354	1,327,291	1192%
	2036	89,750	1,303,006	1452%
	2037	71,925	1,054,771	1466%
	2038	57,323	894,579	1561%
	2039	45,444	778,181	1712%
	2040	35,852	674,465	1881%
	2041	28,150	590,562	2098%
	2042	22,002	519,597	2362%
	2043	17,130	457,251	2669%
	2044	13,296	401,838	3022%
	2045	10,289	352,204	3423%
	2046	7,944	331,488	4173%
	2047	6,126	266,402	4348%
	2048	4,710	223,877	4753%
	2049	3,611	190,981	5289%
	2050	2,762	160,611	5814%
	2051	2,107	133,990	6359%
	2052	1,605	110,403	6878%
	2053	1,218	89,272	7328%
	2054	918	70,513	7679%
ļ	2055 & Later	2,378	184,606	7763%

#### Projection with Rate Increase

Calendar	Earned	Incurred	Incurred
Year	Premium	Claims	Ratio
2016	2,493,797	8,809,740	353%
2017	2,436,491	7,696,453	316%
2018	2,202,839	6,637,550	301%
2019	1,937,891	5,957,201	307%
2020	1,697,394	5,513,264	325%
2021	1,479,742	5,088,816	344%
2022	1,283,498	4,843,095	377%
2023	1,107,394	4,566,801	412%
2024	950,205	4,296,033	452%
2025	810,677	3,976,951	491%
2026	688,133	4,083,760	593%
2027	581,745	3,445,235	592%
2028	489,767	2,984,565	609%
2029	410,536	2,654,672	647%
2030	342,610	2,352,421	687%
2031	284,522	2,113,741	743%
2032	234,967	1,901,270	809%
2033	192,896	1,697,690	880%
2034	157,411	1,510,540	960%
2035	127,696	1,332,602	1044%
2036	102,966	1,328,483	1290%
2037	82,548	1,064,129	1289%
2038	65,811	898,470	1365%
2039	52,189	780,873	1496%
2040	41,184	675,796	1641%
2041	32,344	591,616	1829%
2042	25,285	520,714	2059%
2043	19,689	458,358	2328%
2044	15,285	402,925	2636%
2045	11,829	353,330	2987%
2046	9,134	336,319	3682%
2047	7,045	267,618	3799%
2048	5,416	224,225	4140%
2049	4,152	191,303	4607%
2050	3,177	160,755	5060%
2051	2,423	134,100	5534%
2052	1,846	110,531	5988%
2053	1,401	89,395	6381%
2054	1,056	70,621	6688%
2055 & Later	2,735	184,933	6763%

#### Loss Ratio Summaries

Accumulated Value of Historical to 12/31/2015	131,536,096	83,828,434	64%	Accumulated Value of Historical to 12/31/2015	131,536,096	83,828,434	64%
Present Value of Future to 12/31/2015	13,445,577	58,731,708	437%	Present Value of Future to 12/31/2015	14,886,524	59,057,948	397%
Total Values	144,981,672	142,560,142	98%	Total Values	146,422,619	142,886,383	98%
(Discounted at 5%)				(Discounted at 5%)			
Projected Lifetime Loss Ratio			98%	Projected Loss Ra	atio with Rate Incr	ease	98%
Minimum Lifetime Loss Ratio			60%				
Maximum Allowable Increase			689%				
Requested Rate Increase			15.0%				

#### Exhibit C - 4 Senior Health Insurance Company of Pennsylvania (SHIP) Historical and Projected Experience Maryland 5% Compound Lifetime Inflation

Historical				
Calendar	Earned	Incurred	Incurred	
Year	Premium	Claims	Ratio	
2000 & Prior	21,291,143	5,210,199	24%	
2001	4,095,387	1,090,563	27%	
2002	4,106,676	3,113,156	76%	
2003	3,987,677	1,809,755	45%	
2004	3,893,218	1,583,008	41%	
2005	3,906,641	2,035,203	52%	
2006	4,029,490	3,875,389	96%	
2007	3,822,553	2,062,822	54%	
2008	3,838,036	3,402,703	89%	
2009	3,911,773	2,955,417	76%	
2010	3,793,882	3,348,371	88%	
2011	3,529,883	4,720,177	134%	
2012	3,282,419	5,084,257	155%	
2013	3,142,679	8,254,215	263%	
2014	2,971,251	6,294,146	212%	
2015	2,696,526	5,904,330	219%	

#### Projection without Rate Increase

Calendar	Earned	Incurred	Incurred
Year	Premium	Claims	Ratio
2016	2,493,797	8,809,740	353%
2017	2,207,971	7,601,854	344%
2018	1,948,217	6,599,809	339%
2019	1,712,319	5,929,383	346%
2020	1,498,408	5,488,252	366%
2021	1,305,021	5,071,501	389%
2022	1,130,849	4,825,782	427%
2023	974,735	4,549,637	467%
2024	835,557	4,274,963	512%
2025	712,170	3,956,209	556%
2026	603,938	4,008,499	664%
2027	510,096	3,410,151	669%
2028	429,068	2,969,404	692%
2029	359,357	2,644,178	736%
2030	299,666	2,344,986	783%
2031	248,680	2,108,646	848%
2032	205,232	1,896,115	924%
2033	168,383	1,692,560	1005%
2034	137,333	1,504,945	1096%
2035	111,354	1,327,291	1192%
2036	89,750	1,303,006	1452%
2037	71,925	1,054,771	1466%
2038	57,323	894,579	1561%
2039	45,444	778,181	1712%
2040	35,852	674,465	1881%
2041	28,150	590,562	2098%
2042	22,002	519,597	2362%
2043	17,130	457,251	2669%
2044	13,296	401,838	3022%
2045	10,289	352,204	3423%
2046	7,944	331,488	4173%
2047	6,126	266,402	4348%
2048	4,710	223,877	4753%
2049	3,611	190,981	5289%
2050	2,762	160,611	5814%
2051	2,107	133,990	6359%
2052	1,605	110,403	6878%
2053	1,218	89,272	7328%
2054	918	70,513	7679%
2055	2,378	184,606	7763%

#### Projection with Downgrade

Calendar	Earned	Incurred	Incurred
Year	Premium*	Claims*	Ratio
2016	2,493,797	8,809,740	353%
2017	1,444,413	7,165,889	496%
2018	1,269,226	6,093,160	480%
2019	1,110,795	5,282,932	476%
2020	967,777	4,709,567	487%
2021	839,096	4,196,310	500%
2022	723,786	3,838,273	530%
2023	620,978	3,477,080	560%
2024	529,830	3,135,579	592%
2025	449,485	2,787,725	620%
2026	379,419	2,700,718	712%
2027	319,030	2,215,965	695%
2028	267,202	1,856,714	695%
2029	222,879	1,589,206	713%
2030	185,148	1,355,155	732%
2031	153,101	1,172,604	766%
2032	125,937	1,017,277	808%
2033	103,015	878,106	852%
2034	83,791	757,469	904%
2035	67,776	649,684	959%
2036	54,508	643,323	1180%
2037	43,598	498,877	1144%
2038	34,687	411,674	1187%
2039	27,457	352,830	1285%
2040	21,633	301,835	1395%
2041	16,966	262,556	1548%
2042	13,247	230,247	1738%
2043	10,304	201,850	1959%
2044	7,992	176,423	2207%
2045	6,181	153,696	2487%
2046	4,770	148,693	3117%
2047	3,677	115,260	3134%
2048	2,827	95,627	3383%
2049	2,167	81,528	3763%
2050	1,658	68,480	4131%
2051	1,264	57,071	4514%
2052	963	46,691	4848%
2053	731	37,025	5066%
2054	551	28,315	5139%
2055	1,427	62,471	4378%

2055 1,427 62,471 437 \*Assumes inflation benefit frozen and 40% Premium Decrease

#### Loss Ratio Summaries Accumulated Value of Historical to 12/31/2015 131,536,096 83,828,434 64% Accumulated Value of Historical to 12/31/2015 131,536,096 83,828,434 64% 13,445,577 144,981,672 Present Value of Future to 12/31/2015 Total Values 58,731,708 142,560,142 437% 98% Present Value of Future to 12/31/2015 Total Values 9,466,453 141,002,549 47,368,158 131,196,592 500% 93% (Discounted at 5%) (Discounted at 5%) Projected Lifetime Loss Ratio 98% Projected Loss Ratio with Rate Increase 93% 60% Minimum Lifetime Loss Ratio Maximum Allowable Increase 689% Requested Rate Increase 15.0%

Senior	Exhibit D Health Insurance Company of Pennsylvania
Senior	ATL, TLI, UGL only
	Policy Form and Series Mapping
Milliman Grouping	Policy Form
A_Bser	500003
A_Bser	500104 500205
A_Bser A_FQSe	FQ-HHC
A_FQSe	FQ-LTC
A FQSe	FQ-LTC PAR
A_FQSe	FQ-NH
A_FQSe	NFQ-HHC
A_FQSe	NFQ-LTC
A_FQSe	NFQ-NH
A_HHC1	HHC-1
A_HHC1	HHC-5
A_HHC1	HHC-6
A_HHC1 A_HHC2	HHC-87 HHC-2
A_HHC3	HHC-3
A_HHC4	HHC-4
A_LT89	LTC-89
A_LTC1	LTC
A_LTC1	LTC-1
A_LTC1	LTC-2
A_LTC1	LTC-5
A_LTC1	LTC-7
A_LTC1	LTC-8
A_LTC1	LTCIT
A_LTC3	LTC-3
A_LTC3	LTC-3 PAR
A_LTC6 A_MISC	LTC-6
A_MISC A_MISC	AI AIG
A MISC	CIS-85
A_MISC	CSN
A_MISC	GRPB
A_MISC	NCP
A_MISC	NCP2
A_Misc	NH 701
A_Misc	NHP-1
A_Misc	NHP-ME
A_Misc	WD
A_Misc	WDIT
A_UGLI	660
A_UGLI A_UGLI	665 666
A_UGLI	668
T10770	10770
T10770	10902
T10853	10773
T10853	10853
T10853	10855
T10853	10860
T10853	10921
T10955	10955
T10955 T11001	10967 11001
T11001 T11001	11001 11006
T_Misc	10576
T_Misc	10576
T_Misc	10669
T_Misc	10674
T_Misc	10840
T_Misc	10841
T_Misc	10854
T_Misc	10869
T_Misc	10886
T_Misc	10918
T_Misc	10922
T_Misc	10956
T_Misc	10990
T_Misc	11003