

**Continental Casualty Company (“CCC”)
Actuarial Memorandum
In Support of a Premium Rate Increase Request
Maryland**

The following “Preferred Solution” individual long term care policy forms subject to this rate increase request were originally issued nationwide from 1998 to 2003:

Coverage Type	Policy Form*
Comprehensive	P1-N0080
	P1-N0081
	P1-N0085
	P1-N0086
	P1-N0095
	P1-N0096
	P1-N0100
	P1-N0101
Nursing Home Only	P1-N0075
	P1-N0076
	P1-N0090
	P1-N0091

*Policies with compound automatic increase benefit rider R1-N0088/R1-N0078 series or simple automatic increase benefit rider R1-N0098/ R1-N0079 series only.

1. Purpose and Justification of Filing

The purpose of this memorandum is to provide actuarial information supporting CCC’s request for a rate increase for the above-listed Preferred Solution policy forms, for insureds with an automatic increase benefit (“AIB”) rider. This 157.6% rate increase is requested in order to establish premium rates that are reasonable in relation to benefits based on actual historical experience and best-estimate projections for these forms. The Company acknowledges that COMAR 31.14.01.04A(5) limits annual rate increases to 15%, hence this memorandum also provides support for an equivalent, cumulative 582.3% increase implemented as thirteen 15% increases followed by a 10.9% increase. This rate filing is not intended to be used for other purposes.

This is a follow-up to prior filing SERFF filing #CNAB-130903197, which requested a 175.4% rate increase and received an approval for 32.25% on November 7, 2017. To the extent that states did not approve the requested amounts, it is the intent of management to submit follow up filings, where not otherwise limited by law or regulation, such that an actuarially equivalent increase amount is attained. In an effort to provide stability to rate indications, this follow-up filing does not consider experience

development since the initial filing, but reflects the additional cost of not receiving the full amount initially requested.

Upon approval of this rate revision, CCC will communicate to insureds their options to reduce the impact of the rate increase. These options may include increasing the elimination period, reducing the lifetime maximum, reducing the daily benefit or eliminating optional riders. Because the requested rate increase applies to policies with an AIB rider, insureds with an AIB rider who choose to drop it (i.e. Freeze and Drop) will:

- Not be subject to this rate increase;
- Retain their inflated benefits as of the effective date of the coverage change; and
- Be charged an original issue age premium based on the original non-inflated benefits.

Available options will depend upon the insured's current coverage levels, benefit options available under their specific policy form, and any statutory minimum benefit levels in your state.

In addition, the Company is making a number of alternative options available for all Preferred Solution insureds in conjunction with this rate increase. The first option provides an Increased Contingent Non-Forfeiture ("ICNF") benefit upon lapse. If this benefit is elected by the insured, the insured will not have to pay prospective premium, and their remaining benefit pool amount will equate to 150% of lifetime premiums paid, capped at current remaining lifetime benefits.

The second option, the "Conversion Option", provides a standard Contingent Non-Forfeiture ("CNF") benefit, along with a cash payment. If this option is elected by the insured, the insured will not have to pay prospective premium, and their remaining benefit pool will equate to 100% of lifetime premiums paid into the policy, capped at current remaining lifetime benefits. The amount of the one-time cash conversion payment is equal to the unisex-adjusted statutory active life reserve held for the specific insured, less the expected statutory active life reserve held for the CNF benefit.

The third option that is being offered to insureds is the "Surrender Option". If this option is elected by the insured, the insured will surrender their policy in return for a one-time cash payment from the Company. The amount of the one-time cash surrender payment is equal to the unisex-adjusted statutory active life reserve held for the specific insured.

All three of the above alternative options will be offered to all Preferred Solution insureds in your state (those with and without AIB riders), regardless of whether or not they receive a rate increase, in order to ensure fairness within the Preferred Solution product portfolio. If a policy lapses due to non-payment of premiums without notifying the Company of the insured's intention to elect any of the above options, the insured's coverage will default to a standard 100% CNF benefit.

Although certain policy forms were originally priced prior to rate stability under the NAIC model regulation, certificates have been added after rate stability. Therefore, this filing is being made according to rate stability requirements. The rate increase being requested meets the 58/85 loss ratio test established in the 2000 LTC NAIC Model Regulation.

Please note:

- The requested rate increase amount is less than the amount CCC can justify; and
- CCC will continue to monitor the experience of this block and will react accordingly to experience development.

2. Description of Benefits

This rate increase applies only to Preferred Solution policies with an optional AIB rider.

- All of the forms are guaranteed renewable individual long term care policies sold through non-captive agents. These tax qualified and non-tax qualified forms provide long term care confinement and home health care benefits with lifetime limits. Benefits are limited to the policy's lifetime maximum, which is equal to the following multipliers times the facility daily benefit amount: 365x, 730x, 1,095x, 1,460x, 1,825x, or Unlimited. Benefit eligibility for the tax qualified forms requires inability to perform two or more activities of daily living or being cognitively impaired. Benefit eligibility for the non-tax qualified forms requires inability to perform two or more activities of daily living, being cognitively impaired, or medical necessity.
- Long Term Care Benefits: These policies pay the long term care daily benefit amount, as shown on insured's policy schedule, for each day of long term care confinement in a nursing home or assisted living facility, limited to the benefit lifetime maximum.
- Home Health Care Benefits: For comprehensive policy forms, this policy pays 100% of the expenses incurred for each day of care for therapist or nurse, 100% or 80% (percentage varies by form) of the expenses incurred for each day of care for home health aide, medical social worker, or homemaker, and 100% or 80% (percentage varies by form) of expenses incurred for each day of care for adult day care or alternate care facility. The total benefits payable each day for home health care benefits are limited to the daily benefit amount shown on the insured's application and are subject to the policy's benefit lifetime maximum.
- Other Benefits: The policies may include a bed reservation, waiver of premium, non-forfeiture, and alternate plan of care benefit.
- Optional Benefits: Optional riders may include survivorship, shared benefit, dual waiver of premium, and restoration of benefits.

3. Renewability

These forms provide the insured guaranteed renewable individual long term care coverage.

4. Applicability of Rate Increase

This filing applies to in-force insureds only, as these forms are no longer being marketed. The premium change will apply to the base forms and all riders associated with the base forms for policies that include AIB riders only.

5. Experience Study and Actuarial Assumptions

This section provides a summary of the results of the annual experience study, along with the resulting assumptions utilized in the projection model. These liability assumptions below are consistent with the assumptions being used in the Company's reserve adequacy and asset adequacy testing. It is noted that some actual to expected ("A/E") analysis tables in this section have A/E ratios other than 100%. In order to reduce year over year volatility, if A/E results from the experience study are within an internal target range, the assumption will not be revised from the prior year's assumption.

Morbidity Overview

CCC has a sizeable block of LTC policies with a robust and credible amount of claims experience. As such, the 2018 morbidity study used experience from 2008 to 2017 to develop frequency and severity (claim utilization, disabled life mortality, and claim recovery) assumptions. CCC assesses morbidity experience separately for the Individual Long-Term Care (ILTC) and Group Long-Term Care (GLTC) blocks of business. Furthermore, any variation in assumption by different policyholder characteristics (i.e. gender) is based on company experience where meaningful variation has existed and is expected to continue in the future. Assumptions are set at a granular level to provide the best possible fit to experience. A dynamic validation is then performed to ensure that assumptions provide a reasonable fit in the aggregate. The dynamic validation was performed by modeling best-estimate assumptions with inforce liability data as of December 31, 2011 to see how well the assumptions would replicate actual historical experience.

For policyholders aged 85 and older, ILTC has approximately over 300K exposure years and over 40K claims, and GLTC has over 13K exposure years with over 2K claims. For older attained ages with less credible data, CCC has set incidence, claim recovery and utilization assumptions using age bands where assumptions do not vary beyond a certain age threshold. Disabled life mortality varies by attained age and is based on an impaired 2012 IAM mortality table which assumes an ultimate mortality rate beyond age 110.

Morbidity experience can vary by carrier to carrier based on policy language, claim adjudication practices and rate increase programs undertaken. None of these differences are captured in industry studies. Given the fact that CCC has credible and robust claims experience, assumptions were set entirely based on company experience and were not directly compared to industry data.

The ILTC block is at or near its peak so the number of new incurred claims has been slowing over the recent past and is near its inflection point. GLTC is a younger block and the number of new incurred claims is expected to continue to increase over the next twenty to thirty years. Also, within the study

period mentioned above, CCC has implemented ILTC and GLTC rate increases programs which have temporarily increased incidence due to anti-selection.

The amount of new incurred claim dollars has increased over the recent past due to increases in the cost of care. Incurred claim dollars are expected to continue to increase for both ILTC and GLTC over the near to mid-term.

CCC has granular assumptions which allows for variation in lapse rates. One variation that is worth noting is the assumption that lapse rates are expected to be lower for policies with richer benefits (i.e. policies with longer benefit periods and with AIB riders). Therefore, as the block ages, there is an expectation that the policies that persist will naturally have longer lengths of stay with higher severity as the mix shift changes over time. Also assumed in the claim utilization assumption is an expectation of rising cost of care inflation which will also lead to higher severity of claims over time.

Claim Incidence

The frequency of claim is the probability that a healthy insured will go into disabled status, also known as 'claim incidence'. The final incidence rate that gets modeled is comprised of a base incidence table, adjustment factors based on policy features and demographics, and adjustments for policyholder behavior to rate actions.

Base Incidence Actual to Expected Analysis

The below table summarizes the results of the experience study for ILTC base incidence rates, which includes experience over the past ten years. These tables show policy experience prior to any rate increases in order to avoid distortion caused by temporary anti-selection, which is layered on separately. This explains the shrinking exposure years over time. Something of note is the Individual Long-Term Care block has undergone significant rate action initiatives over the recent past, causing limited credibility that may not be representative of nationwide experience. This experience was factored into the assumption setting process but weighted according to the exposures shown below:

Best-Estimate Incidence A/E Results Individual Long Term Care						
Calendar Year	Exposures (Years)	Actual Claims	Expected Claims	Actual Incidence Rate	Expected Incidence Rate	Actual / Expected
2008	260,619	4,789	4,826	1.84%	1.85%	99%
2009	249,624	4,937	5,076	1.98%	2.03%	97%
2010	236,400	5,104	5,254	2.16%	2.22%	97%
2011	212,823	4,813	5,036	2.26%	2.37%	96%
2012	156,644	3,307	3,351	2.11%	2.14%	99%
2013	120,101	2,726	2,738	2.27%	2.28%	100%
2014	69,074	1,987	1,815	2.88%	2.63%	109%

2015	46,400	1,609	1,327	3.47%	2.86%	121%
2016	34,379	1,284	1,129	3.73%	3.28%	114%
2017	26,050	1,059	914	4.07%	3.51%	116%
Total	1,412,113	31,615	31,467	2.24%	2.23%	100%

Base Incidence Assumption

The base incidence rates are single-dimensional tables that vary by attained age. These base incidence tables vary by the following:

- Whether the policy covers comprehensive or facility only benefits
- The situs of the claim (Nursing Home, Home Health Care, Assisted Living Facility)
- Gender

A sample table is shown below:

Plan Type: Comprehensive
Situs: Assisted Living Facility
Gender: Male

Attained Age	Annual Incidence Rate (%)
44 and Prior	0.0030%
45	0.0031%
46	0.0034%
47	0.0038%
...	...
55	0.0062%
56	0.0067%
57	0.0074%
...	...
65	0.0169%
66	0.0189%
67	0.0218%
...	...
75	0.0997%
76	0.1272%
77	0.1570%
...	...
85	0.6584%
86	0.7566%
87	0.8910%
...	...
95	2.3029%

Incidence Rate Adjustment Factors

There are a number of incidence rate adjustment factors that are applied to adjust the base incidence tables for various policy features. The annual experience study reviews these adjustment factors and provides updates as needed. The incidence adjustment factors are shown below:

Category	Variable/Benefit Feature	Adjustment Factor
Underwriting Class	Preferred	0.88
	Standard	1.18
	Substandard	1.26
Elimination Period	0 Days	1.15
	1-89 Days	0.97
	90+ Days	0.83
Benefit Period	Lifetime	1.19
	Non-Lifetime	0.95
Plan Type	Comprehensive	1.08
	Facility Only	0.72
	Home Health Care Only	0.97
Spousal Discount	Yes	0.96
	No	1.05
Product Portfolio	Preferred Solution	1.15
Policy Duration	1	0.50
	2	0.55
	3	0.60
	4	0.65
	5	0.70
	6	0.75
	7	0.80
	8	0.85
	9	0.90
	10	0.95
	11+	1.00

Temporary Anti-Selection Overview

As part of the company's annual experience study, the relationship between premium rate actions and incidence rates were developed into an assumption set. When a rate increase is approved in a state, the company has observed an uptick in claims in that state, which is estimated to be driven by insureds that already qualify for their long term care benefits, but have not yet gone on claim. This observed uptick in claims following a rate action is theorized to be driven by this subset of insureds that currently qualify for benefits going on claim to avoid paying the increased premium, since their premium rates will be waived. This anti-selection is believed to be temporary in nature and that incidence rates will eventually return to a more normalized level.

For anti-selection assumptions, actual total incidence counts, which include both pre- and post-rate increase experience, were compared to expected base incidence counts to develop an anti-selection assumption that represents the incidence in excess of base. This analysis was performed by looking at the years since a rate increase occurred in order to observe the pattern of anti-selection across policies.

The below table outlines the assumed incidence rate adjustment factors resulting from temporary anti-selection for the ILTC Preferred Solution product:

Years Since Rate Increase	Temporary Anti-Selection Factors
0	1.44
1	1.67
2	1.74
3	1.27
4	1.17
5	1.12
6+	1.00

Future Incidence Improvement (i.e. Morbidity Improvement)

No future incidence improvement is assumed.

Model Calibration

The morbidity assumptions are intended to reflect the best-estimate of the long term. Long-Term Care policies are complex and have multiple decrements. Assumptions are developed independently and when combined in the model, they do not always produce results that seem reasonable. Model calibration is performed when necessary to fit the model to the long term view.

A dynamic validation was performed by modeling our best-estimate assumptions with inforce liability data as of December 31, 2011 to see how well the assumptions would replicate actual historical experience. This analysis was performed separately for ILTC and GLTC. Based on how

well the model 'fits' actual claims experience, additional incidence calibration factors may be applied. Given the modeled claims 'fit' with actual experience, calibration factors were set to 1.0.

Claim Severity

In the projection system, the severity of claim is the associated length and cost of a claim once an insured becomes disabled (or is already disabled). The severity of a claim is driven by three key assumptions:

- Recovery
- Utilization
- Disabled Life Mortality

A further breakdown of these three components is described below.

Recovery Overview

Once a policyholder is on claim, there is an associated probability that the policyholder will recover back in to a 'healthy' status prior to death or exhausting benefits. This is the recovery rate assumption in the projection model.

Recovery Actual to Expected Analysis

The below table summarizes the results of the experience study for ILTC recovery rates, which includes experience over the past seven years:

Best-Estimate Recovery A/E Results Individual Long Term Care									
Calendar Year	Actuals			Current Claims			Future Claims		
	Exposures (Months)	Actual Recoveries	Actual Recovery Rate	Expected Recoveries	Expected Recovery Rate	Actual / Expected	Expected Recoveries	Expected Recovery Rate	Actual / Expected
2011	129,767	1,362	12.6%	1,251	11.6%	109%	1,256	11.6%	108%
2012	137,810	1,241	10.8%	1,280	11.1%	97%	1,303	11.4%	95%
2013	146,365	1,383	11.3%	1,378	11.3%	100%	1,369	11.2%	101%
2014	155,703	1,379	10.6%	1,452	11.2%	95%	1,434	11.1%	96%
2015	163,560	1,424	10.4%	1,533	11.2%	93%	1,511	11.1%	94%
2016	170,494	1,488	10.5%	1,539	10.8%	97%	1,516	10.7%	98%
2017	175,196	1,444	9.9%	1,512	10.4%	95%	1,502	10.3%	96%
Total	1,078,894	9,721	10.8%	9,945	11.1%	98%	9,893	11.0%	98%

Recovery Assumption

The recovery tables are two-dimensional that vary by age of disability and disability duration. The first five years of the tables contain monthly rates and are annual thereafter. The recovery tables vary by the following:

- Benefit period (lifetime vs non-lifetime)
- Gender
- Presence of a restoration of benefits rider
- The situs of the claim (Nursing Home, Home Health Care, Assisted Living Facility)
- Diagnosis of the claim (for insureds currently on claim)

Insureds that are currently in claim status have a known situs of care, so the recovery rates will be different than a policy currently in healthy status, since the future claim situs is unknown.

A sample table is shown below for sample ages of disablement (rates shown are on a monthly basis):

Insured Status: Healthy

Benefit Period: Lifetime

Gender: Male

Restoration of Benefits Rider: No

Situs: Nursing Home (original, since policy is healthy)

Diagnosis: N/A (since status is healthy)

Disability Month	Disablement Age			
	65	75	85	95
1	2.34%	1.96%	1.60%	1.64%
2	2.56%	2.00%	1.52%	1.57%
3	3.74%	2.81%	2.05%	2.14%
4	3.12%	2.26%	1.58%	1.66%
5	3.27%	2.33%	1.59%	1.68%
6	2.64%	1.81%	1.18%	1.26%
7	3.07%	1.97%	1.16%	1.26%
8	2.36%	1.51%	0.89%	0.97%
9	1.75%	1.12%	0.66%	0.72%
10	1.55%	0.99%	0.58%	0.64%
11	1.44%	0.92%	0.54%	0.59%
12	1.34%	0.86%	0.50%	0.55%
...

Utilization Overview

The utilization assumption in the model for expense reimbursement policies represent the amounts, or severity, of paid claims and include components for cost of care, coverage available and the intensity of care (“health trend”). The available benefit is also considered by capping paid claims at the daily benefit amount.

Expense reimbursement refers to policies that are reimbursed up to the maximum daily benefit. They are considered separately from indemnity policies because indemnity policies pay the full maximum daily benefit. Expense reimbursement claim amounts are affected by cost of care inflation, intensity of care (referred to as “health trend”), and the amount of initial coverage purchased.

Health trends represent the intensity of care needed for claimants. Health trend is the ratio of inflation-adjusted paid claims divided by initial available benefits:

$$\text{Health Trend} = \frac{\text{Paid Claim}}{(1 + \text{CostOfCare Inflation})^{(\text{Experience Year} - \text{Issue Year})} \times \text{Initial Available Benefits}}$$

Indemnity policies have separate utilization assumptions from expense reimbursement policies because they pay their full available benefits and are not dependent on cost or intensity of care. Although indemnity policies pay the full maximum daily benefit, utilization rates are still below 100% because insureds are not in facilities 100% of the time. For example, if an insured is only in a facility 28 out of the 30 days in each month, then they would have a utilization rate equal to 28/30 = 93%. This is because benefit periods are based on service days and not strictly calendar days.

Prospective cost of care inflation is directionally tied to future interest rate expectations.

Utilization Actual to Expected Analysis

The below table summarizes the results of the experience study for ILTC utilization rates, which includes experience over the past seven years:

Best-Estimate Utilization A/E Results Individual Long Term Care												
Calendar Year	Current Claims						Future Claims					
	Maximum Available Benefit (\$millions)	Actual Paid Claims (\$millions)	Actual Utilization Rate	Expected Paid Claims (\$millions)	Expected Utilization Rate	Actual / Expected	Maximum Available Benefit (\$millions)	Actual Paid Claims (\$millions)	Actual Utilization Rate	Expected Paid Claims (\$millions)	Expected Utilization Rate	Actual / Expected
2011	353	217	61.6%	217	61.6%	100%	364	231	63.6%	230	63.3%	100%
2012	402	246	61.2%	246	61.1%	100%	413	261	63.1%	260	63.0%	100%
2013	462	281	60.8%	281	60.8%	100%	474	298	62.8%	297	62.5%	100%
2014	516	311	60.3%	312	60.3%	100%	530	330	62.3%	330	62.2%	100%
2015	581	345	59.3%	346	59.7%	99%	598	366	61.3%	366	61.3%	100%
2016	649	389	59.9%	387	59.7%	100%	671	415	61.9%	411	61.3%	101%
2017	704	422	60.0%	420	59.7%	100%	729	451	61.9%	447	61.4%	101%
Total	3,666	2,211	60.3%	2,210	60.3%	100%	3,779	2,353	62.3%	2,341	62.0%	100%

Utilization Assumption

The health trend component of utilization tables are two-dimensional that vary by age of disability and disability duration. The first five years of the tables contain monthly rates and are annual thereafter. These tables vary by the following:

- Benefit Period (lifetime vs non-lifetime)
- AIB Rider (simple, compound, none)
- Home health care percentage (0%, 1%-50%, 50%-75%, 75%+)
- The situs of the claim (Nursing Home, Home Health Care, Assisted Living Facility)
- Payment type (indemnity vs reimbursement)
- Diagnosis of the claim (for insureds currently on claim)

Insureds that are currently in claim status have a known situs of care, so the utilization rates will be different than a policy currently in healthy status, since the future claim situs is unknown.

A sample health trend table is shown below for sample ages of disablement (rates shown are on a monthly basis):

Insured Status: Disabled

Benefit Period: Non-Lifetime

AIB Rider: Compound

Home Health Care Percentage: N/A (since situs is not home health care)

Situs: Assisted Living Facility (current, since policy is disabled)

Payment Type: Reimbursement

Diagnosis: Other

Disability Month	Disablement Age			
	65	75	85	95
1	99%	91%	88%	90%
2	60%	66%	72%	74%
3	69%	75%	80%	85%
4	63%	65%	72%	77%
5	70%	72%	79%	82%
6	71%	75%	79%	82%
7	76%	76%	81%	85%
8	76%	77%	82%	85%
9	76%	77%	81%	83%
10	79%	77%	82%	85%
11	80%	80%	83%	86%
12	79%	80%	83%	86%
...

Cost of care tables are one-dimensional vectors that vary by calendar year and AIB rider for reimbursement policies. A sample cost of care inflation table is provided below:

AIB Rider: Compound

Calendar Year	Cost of Care Inflation Rate
Historic (Prior to Projection Date)	4.0%
Prospective (After Projection Date)	4.7%

Disabled Life Mortality Overview

Once an insured is on claim, there is an associated probability that the insured will decrement due to death, which influences the overall length of a claim. Generally, the probability of death from a currently disabled insured is greater than the probability associated with a currently healthy insured, so separate assumptions are developed and modeled.

Disabled Life Mortality Actual to Expected Analysis

The below table summarizes the results of the experience study for ILTC disabled mortality rates, which includes experience over the past seven years:

Best-Estimate Disabled Mortality A/E Results Individual Long Term Care									
Calendar Year	Actuals			Current Claims			Future Claims		
	Exposures	Disabled Deaths	Disabled Mortality Rate	Expected Disabled Deaths	Expected Disabled Mortality Rate	Actual / Expected	Expected Disabled Deaths	Expected Disabled Mortality Rate	Actual / Expected
2011	129,767	2,958	27.4%	3,066	28.4%	96%	3,061	28.3%	97%
2012	137,810	3,339	29.1%	3,292	28.7%	101%	3,296	28.7%	101%
2013	146,365	3,412	28.0%	3,540	29.0%	96%	3,539	29.0%	96%
2014	155,703	3,758	29.0%	3,821	29.5%	98%	3,812	29.4%	99%
2015	163,560	4,177	30.6%	4,069	29.9%	103%	4,057	29.8%	103%
2016	170,494	4,185	29.5%	4,266	30.0%	98%	4,246	29.9%	99%
2017	175,196	4,383	30.0%	4,404	30.2%	100%	4,387	30.0%	100%
Total	1,078,894	26,212	29.2%	26,459	29.4%	99%	26,397	29.4%	99%

Disabled Life Mortality Assumption

The disabled life mortality rates are two-dimensional tables that vary by age of disability and disability duration. Similar to the other severity assumptions, the first five years of the tables contain monthly rates and are annual thereafter. The disabled life mortality tables vary by the following:

- Benefit period (lifetime vs non-lifetime)
- The situs of the claim (Nursing Home, Home Health Care, Assisted Living Facility)
- Gender
- Diagnosis of the claim (for insureds currently on claim)

Insureds that are currently in claim status have a known situs of care, so the disabled life mortality rates will be different than a policy currently in healthy status, since the future claim situs is unknown.

A sample table is shown below for sample ages of disablement (rates shown are on a monthly basis):

Insured Status: Healthy

Benefit Period: Non-Lifetime

Situs: Nursing Home (original, since policy is healthy)

Gender: Male

Diagnosis: N/A (since status is healthy)

Disability Month	Disablement Age			
	65	75	85	95
1	1.73%	2.54%	2.89%	3.43%
2	2.30%	3.37%	3.83%	4.54%
3	2.48%	3.64%	4.13%	4.91%
4	2.79%	4.10%	4.66%	5.53%
5	2.48%	3.64%	4.14%	4.91%
6	2.17%	3.18%	3.61%	4.29%
7	2.12%	3.11%	3.54%	4.20%
8	1.82%	2.68%	3.08%	3.81%
9	1.84%	2.71%	3.12%	3.85%
10	2.09%	3.06%	3.56%	4.66%
11	2.25%	3.22%	3.80%	5.28%
12	2.50%	3.45%	4.10%	6.10%
...

Transitions of Situs

Following the annual claim reserve review, adjustments were made to the assumptions to account for transitions of situs. For 2018, a multiplier of 120% was applied to utilization, a multiplier of 92.5% was applied to disabled life mortality (for claim durations seven and later) and a multiplier of 95% was applied to recovery rates for current claims. Furthermore, multipliers of 110% and 80% were applied to disabled life mortality for the first six claim durations for current and future claims respectively. A 10% reserve development haircut was also applied to pending claims. The result of these adjustments produced smoother claim development and a better fit in the dynamic validation.

Persistency

In the projection system, the persistency assumptions relate to the probability that policyholders not on claim will lapse or die. Policyholder reduced benefit options are considered part of the persistency

assumption and are modeled as partial lapses in the projection system. The persistency of an insured is driven by four key assumptions:

- Voluntary Lapse
- Shock Lapse and Reduced Benefit Option (“RBO”)
- Healthy Life Mortality
- Healthy Life Mortality Improvement

A further breakdown of these components is described below.

Voluntary Lapse Overview

The voluntary lapse assumption reflects the probability associated with an insured voluntarily canceling their policy. The voluntary lapse rates differ from shock lapse rates in that the policy cancelation is not due to a rate increase notification.

Voluntary Lapse Actual to Expected Analysis

The below table summarizes the results of the experience study for ILTC voluntary lapse rates, which includes experience over the past seven years:

Best-Estimate Voluntary Lapse A/E Results Individual Long Term Care						
Calendar Year	Exposures (Years)	Actual Lapse	Expected Lapse	Actual Lapse Rate	Expected Lapse Rate	Actual / Expected
2011	230,273	1,776	1,786	0.77%	0.78%	99%
2012	219,293	1,568	1,682	0.71%	0.77%	93%
2013	206,404	1,632	1,550	0.79%	0.75%	105%
2014	194,670	1,380	1,435	0.71%	0.74%	96%
2015	182,263	1,283	1,314	0.70%	0.72%	98%
2016	171,149	1,153	1,205	0.67%	0.70%	96%
2017	160,642	1,070	1,102	0.67%	0.69%	97%
Total	1,364,695	9,861	10,074	0.72%	0.74%	98%

Voluntary Lapse Assumption

The voluntary lapse tables are two-dimensional varying by issue age and policy duration. The voluntary lapse assumptions vary by the following:

- Benefit Period (lifetime vs non-lifetime)
- AIB Rider (simple, compound, none)

A sample voluntary lapse table is shown below for sample issue ages:

Benefit Period: Lifetime

AIB Rider: None

Policy Duration	Issue Age			
	35	45	55	65
1	3.60%	2.40%	2.16%	2.40%
2	3.36%	2.24%	2.02%	2.24%
3	2.52%	1.68%	1.51%	1.68%
4	1.95%	1.30%	1.17%	1.30%
5	1.80%	1.20%	1.08%	1.20%
6	1.68%	1.12%	1.01%	1.12%
7	1.53%	1.02%	0.92%	1.02%
8	1.50%	1.00%	0.90%	1.00%
9	1.20%	0.80%	0.72%	0.80%
10-16	1.44%	0.96%	0.86%	0.96%
17+ (Ultimate)	1.20%	0.80%	0.72%	0.80%

Shock Lapse and Reduced Benefit Option

The shock lapse and RBO assumptions are modeled as a temporary increase in lapse rates in response to a rate increase. Shock lapse and RBO assumptions are determined by calculating the lapse rates in excess of base lapse rates during the years when a premium rate action occurs.

The assumed rates for each of these components are outlined in the below table for the Preferred Solution product:

Rate Increase	Shock Lapse %	RBO %	Total Additional Lapse % from Shock and RBO*
0%	0.0%	0.0%	0.0%
5%	0.0%	2.1%	2.1%
10%	0.2%	3.4%	3.7%
15%	0.7%	4.7%	5.4%
20%	1.1%	6.0%	7.1%
25%	1.6%	7.3%	8.8%
30%	2.1%	8.6%	10.5%
35%	2.5%	9.9%	12.2%
40%	3.0%	11.2%	13.8%
45%	3.4%	12.5%	15.5%
50%	3.9%	13.8%	17.1%

55%	4.3%	15.1%	18.8%
60%	4.8%	16.4%	20.4%
65%	5.3%	17.7%	22.0%
70%	5.8%	18.9%	23.6%
75%	6.2%	20.2%	25.2%
80%	6.7%	21.5%	26.8%
85%	6.7%	21.5%	26.8%
90%	6.7%	21.5%	26.8%
95%	6.7%	21.5%	26.8%
100%	6.7%	21.5%	26.8%
...

Total Additional Lapse % from Shock and RBO = 1 – (1 – Shock Lapse %)(1 – RBO %)

Healthy Life Mortality Overview

The healthy life mortality assumption is the probability of death associated with currently healthy insureds.

Healthy Life Mortality Actual to Expected Analysis

The below table summarizes the results of the experience study for ILTC healthy life mortality rates, which includes experience over the past seven years:

Best-Estimate Healthy Life Mortality A/E Results Individual Long Term Care						
Calendar Year	Exposures (Years)	Actual Death	Expected Death	Actual Death Rate	Expected Death Rate	Actual / Expected
2011	230,712	4,225	4,214	1.83%	1.83%	100%
2012	219,590	4,808	4,191	2.19%	1.91%	115%
2013	206,558	4,020	4,088	1.95%	1.98%	98%
2014	194,338	3,905	4,036	2.01%	2.08%	97%
2015	182,563	3,722	3,958	2.04%	2.17%	94%
2016	171,474	3,348	3,872	1.95%	2.26%	86%
2017	161,038	3,228	3,807	2.00%	2.36%	85%
Total	1,366,273	27,255	28,166	1.99%	2.06%	97%

Healthy Life Mortality Assumption

The base table for the healthy life mortality assumption is the 2012 IAM table, with additional multipliers based on company experience. There are also adjustments at higher attained ages, due to lack of credibility. At higher ages, the assumptions grade their credibility weighting from 100% of the best-estimate assumption at age 90, to 100% of the 2012 IAM tables at ages 104

and later. These base tables vary by gender and attained age. The additional multipliers to these base tables based on CCC's experience are as follows:

Category	Variable/Benefit Feature	Adjustment Factors
Attained Age	0-59	97%
	60-64	88%
	65-69	82%
	70-74	98%
	75-79	97%
	80-84	101%
	85-89	100%
	>=90	118%
Gender	Male	52%
	Female	48%
Underwriting Class	Preferred	81%
	Standard	128%
	Substandard	170%

Healthy Life Mortality Improvement

A healthy life mortality improvement factor is applied to the base healthy mortality table to reflect studies that examine the improvement of population mortality over time, based on improvement scale G2. The healthy life mortality improvement varies by gender and attained age with improvement beginning 1/1/2015 for 10 years. An example is shown below for reference:

Gender: Female

Attained Age	Annualized Improvement
<=50	1.00%
50	1.00%
60	1.30%
70	1.30%
80	1.30%
90	0.60%
100	0.20%
105	0.00%

Discount Rate

The inforce count-weighted average maximum statutory valuation interest rate for contract reserves of 4.50% is used to accumulate past actual experience and discount future expectations.

Expenses

This filing is based on loss ratios and expense levels have not been considered. Commissions are not paid on rate increase premiums.

6. Marketing Method

These policies were sold directly through non-captive agents.

7. Underwriting Description

These policy forms were fully underwritten with the use of various tools in addition to the application, which may have included medical records, an attending physician's statement, telephone interviews, and/or face-to-face assessments.

8. Premiums

Premiums are unisex and payable for life unless the insured selected a limited pay option. The premiums may vary by issue age, elimination period, benefit period / lifetime maximum, initial daily benefit amount, level of home health care coverage, AIB option, premium mode, underwriting class, marital status, and the selection of any other options or riders.

9. Modal Premium Factors

The following modal factors remain unchanged and are applied to the annual premium to obtain the modal premium.

Payment Mode	Modal Factor	Nationwide Premium Distribution at Dec. 31, 2018
Annual	1.000	62.2%
Semi-Annual	0.520	7.7%
Quarterly	0.270	11.1%
Monthly	0.090	19.0%

10. Issue Age Range

Issue ages range from 18 to 84.

11. Area Factors

Area factors are not used for these policy forms.

12. Average Annualized Premium

The average annualized premium for the policy forms subject to the rate increase request, both before and after the impact of the requested rate increase, is included in Exhibit 1.

13. Number of Insureds

The current number of insureds as of December 31, 2018 can be found in Exhibit 1.

14. Distribution of Business

The historical experience reflects the actual distribution of insureds during the experience period. The current distribution of business as of December 31, 2018 was used to project future experience. Exhibit 2 contains the distribution of the inforce insureds by key demographic and benefit characteristics.

15. Claim Liability and Reserves

Active life reserves have not been used in this rate increase analysis. Claim reserves as of December 31, 2018 have been discounted to the incurral date of each respective claim and included in historical incurred claims. Incurred but not reported reserve (“IBNR”) balances and terminated but not reported reserve (“TBNR”) balances as of December 31, 2018 have been allocated to a calendar year of incurral and included in historical incurred claims.

16. Trend Assumptions

As this is not medical insurance, explicit medical cost trends have not been included in the projections.

17. Experience – Past and Future

Earned premiums and incurred claims, projected through 2078 are developed from a first-principles actuarial model representing actual contracts in-force as of December 31, 2018. The assumptions described in Section 5 are used to project earned premiums and incurred claims.

Waived premiums are not included as premiums nor claims in either the actual historical or the projected future experience.

Historical results reflect earned premium by calendar year with claims captured by incurral year. That is, incurred claims for a calendar year represent all payments through December 31, 2018 for a claim incurred in a particular calendar year plus any claim reserve held as of December 31, 2018. Incurred claims also include IBNR and TBNR held as of December 31, 2018.

Exhibit 3 presents nationwide experience as described in Section 19 for all forms affected by this rate increase to ensure maximum credibility.

Annual loss ratios are calculated, with and without interest, as incurred claims divided by earned premiums.

A lifetime loss ratio as of December 31, 2018 is calculated as the sum of accumulated past experience and discounted future expectations using the nationwide inforce count-weighted average maximum statutory valuation interest rate for contract reserves.

18. History of Rate Adjustments

See Exhibit 1 for a history of prior rate adjustments in your state.

19. Ensuring No Cross-Subsidization Between States

We have ensured no state's rate increase approvals will subsidize other states' experience. Rate increase requests will vary by state, but only to reflect the timing and amount of prior rate increases approved by that state. This is accomplished by first backing-out all prior rate increases from our nationwide premium data. We then reintroduce prior rate increases with the amount and timing based on your state's prior approvals (as referenced in Section 17). The current proposed rate increase(s) are then determined.

Although some states may have capped our previous inforce rate increase filings, it is the intention of CCC's management that subsequent filings will be submitted at a later date until an actuarially equivalent amount is achieved.

20. Requested Rate Increase and Demonstration of Satisfaction of Requirements

CCC is requesting a 157.6% rate increase with 70.0% in year one and 51.5% in year two on the policy forms included in this filing for insureds with an AIB rider. Corresponding rate schedules reflecting the increase are included with this filing. Although this request is less than CCC can justify, we are limiting our rate increase request at this time. CCC will continue to monitor the experience of this block and take appropriate actions when necessary.

Upon approval of this rate revision, CCC will communicate to insureds their options to reduce the impact of the rate increase. These options may include increasing the elimination period, reducing the lifetime maximum, reducing the daily benefit or eliminating optional riders. Because the requested rate increase

applies to policies with an AIB rider, insureds with an AIB rider who choose to drop it (i.e. Freeze and Drop) will:

- Not be subject to this rate increase;
- Retain their inflated benefits as of the effective date of the coverage change; and
- Be charged an original issue age premium based on the original non-inflated benefits.

Available options will depend upon the insured's current coverage levels, benefit options available under their specific policy form, and any statutory minimum benefit levels in your state.

In addition, the Company is making a number of alternative options available for all Preferred Solution insureds in conjunction with this rate increase. The first option provides an Increased Contingent Non-Forfeiture ("ICNF") benefit upon lapse. If this benefit is elected by the insured, the insured will not have to pay prospective premium, and their remaining benefit pool amount will equate to 150% of lifetime premiums paid, capped at current remaining lifetime benefits.

The second option, the "Conversion Option", provides a standard Contingent Non-Forfeiture ("CNF") benefit, along with a cash payment. If this option is elected by the insured, the insured will not have to pay prospective premium, and their remaining benefit pool will equate to 100% of lifetime premiums paid into the policy, capped at current remaining lifetime benefits. The amount of the one-time cash conversion payment is equal to the unisex-adjusted statutory active life reserve held for the specific insured, less the expected statutory active life reserve held for the CNF benefit.

The third option that is being offered to insureds is the "Surrender Option". If this option is elected by the insured, the insured will surrender their policy in return for a one-time cash payment from the Company. The amount of the one-time cash surrender payment is equal to the unisex-adjusted statutory active life reserve held for the specific insured.

All three of the above alternative options will be offered to all Preferred Solution insureds in your state (those with and without AIB riders), regardless of whether or not they receive a rate increase, in order to ensure fairness within the Preferred Solution product portfolio. If a policy lapses due to non-payment of premiums without notifying the Company of the insured's intention to elect any of the above options, the insured's coverage will default to a standard 100% CNF benefit.

Note that the actual rates implemented may vary slightly from those filed due to implementation rounding algorithms.

Satisfaction of minimum required loss ratio requirements is demonstrated in Exhibit 1. This approach shows that with the requested rate increase, the expected lifetime loss ratio exceeds the minimum loss ratio requirement.

Exhibit 4 included with this memorandum provides a demonstration that the requested rate increase meets the 58/85 test required by your state's rate stability regulation.

The historical and future projected incurred claims in the 58/85 test were increased by 10% from the best estimate projections to reflect assumptions that include moderately adverse conditions (equates to a 10% deterioration in the lifetime loss ratio). Present and accumulated values in the demonstration are determined at the average maximum valuation interest rate for contract reserves over the issue period.

Because The Company is limiting the rate increase request, we cannot certify that the rates with the full requested rate increase will be sufficient under moderately adverse conditions.

21. Proposed Effective Date

The rate increase will apply to policies on their next premium due date following a notification period at least as long as required by your state following approval. No insured will receive more than one increase in a 12 month period.

22. Actuarial Certification

I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the Academy's qualification standards to render this actuarial opinion and am familiar with the filing requirements for long term care insurance premium and rate increases.

This memorandum has been prepared in conformity with all applicable Actuarial Standards of Practice ("ASOP"), including, but not limited to, the following:

- ASOP 7, "Analysis of Life, Health, or Property/Casualty Insurer Cash Flows";
- ASOP 8, "Regulatory Filings for Health Benefits, Accident and Health Insurance, and Entities Providing Health Benefits";
- ASOP 18, "Long Term Care Insurance";
- ASOP 23, "Data Quality"; and
- ASOP 41, "Actuarial Communications".

I have relied upon policy and claim information extracts, as of December 31, 2018, which contain a seriatim listing of all insureds covered under CCC Long Term Care insurance contracts. I have also relied upon associated paid premium extracts providing details of payment dates and amounts. I have also relied upon associated paid claim extracts providing details by claim regarding payment dates, service dates, benefit types and payment amounts. This information was provided by CCC's Long Term Care Operations team in partnership with our Third Party Administrator.

I have relied upon statutory reserves as of December 31, 2018, for Claims Reserves, Incurred but Not Reported reserves, and Terminated but Not Reported Reserves, provided by CCC's Long Term Care Finance and Reserving team.

I have relied upon actuarial assumptions developed by CCC's Long Term Care Projections and Experience Studies team, which develops assumptions primarily for asset and reserve adequacy

analysis, under the direction of the opining actuary, Philip Sanchez, FSA, MAAA, who approved those assumptions in collaboration with other CCC Long Term Care actuaries, including Inforce Management actuaries. These assumptions present the actuary's best judgement, as of December 31, 2018. We have reviewed these assumptions for reasonableness and consistency for use in this filing.

I have reviewed and considered the policy design and benefits, as well as the company's underwriting and claims adjudication processes, when developing the filed rates.

I hereby certify that, to the best of my knowledge and judgement, this rate filing is in compliance with the applicable laws and regulations of your state. In my opinion, the actuarial assumptions are appropriate and the rates are neither excessive nor unfairly discriminatory.

Because the company is limiting the rate increase request we cannot certify that the rates with the full requested rate increase will be sufficient under moderately adverse conditions.



John Munro, FSA, MAAA
AVP & Actuary – Long Term Care
(312) 822-2617
john.munro@cna.com

January 30, 2020

Date

23. Exhibit Listing

- Exhibit 1: State Specific Information
- Exhibit 2: Distribution of Inforce Insureds
- Exhibit 3: Nationwide Experience and Projections
- Exhibit 4: Nationwide 58/85 Test

Exhibit 1
 Continental Casualty Company
 Preferred Solution - AIB Rider Policies Only
 State Specific Information
 Maryland

12) Average Annualized Premium as of 12/31/2018

	Nationwide	Maryland
Without Increase	\$2,548	\$2,674
With Two-Year: 70%, 51.5% Increase	\$6,563	\$6,889
With Annual Increases Capped at 15% (14 year implementation)	\$17,383	\$18,247

13) Insured Count and Premium as of 12/31/2018

Insureds Eligible for Rate Increase

	Nationwide	Maryland
Insureds Not on Claim	50,526	3,112
Insureds on Claim	2,267	111
Total Insureds	52,793	3,223
2018 Annualized Premium	\$134,502,928	\$8,619,454

Insureds Not Eligible for Rate Increase

	Nationwide	Maryland
Non-Forfeiture Insureds Not on Claim	1,698	48
Non-Forfeiture Insureds on Claim	8	0
Paid-Up Limited Pay Insureds Not on Claim	534	34
Paid-Up Limited Pay Insureds on Claim	22	0
Total Non-Forfeiture and Paid-Up Insureds	2,262	82

18) History of Rate Adjustments

SERFF Number	Approval Date	Rate Increase Approved
MILL-128840937	6/26/2013	15.0%
MILL-129652548	3/25/2015	15.0%
MILL-130118407	1/28/2016	15.0%
CNAB-130903197	11/7/2017	32.3%*

*2017 approval was phased in over two years with 15% in year 1 and 15% in year 2

20) Satisfaction of Minimum Loss Ratio Requirements

1) Expected Lifetime Loss Ratio with Increase	87%
2) Minimum Required Loss Ratio	60%
Is 1) Greater than 2)?	Yes

Exhibit 2
 Continental Casualty Company
 Preferred Solution - AIB Rider Policies Only
 Distribution of Inforce Insureds Eligible for Rate Increase
 Maryland

		Nationwide				Maryland			
		Count	% of Count	Premium	% of Premium	Count	% of Count	Premium	% of Premium
Issue Year	1997	0	0%	\$0	0%	0	0%	\$0	0%
	1998	89	0%	\$243,982	0%	33	1%	\$80,029	1%
	1999	6,233	12%	\$15,792,873	12%	552	17%	\$1,465,199	17%
	2000	11,082	21%	\$27,511,673	20%	690	21%	\$1,758,912	20%
	2001	13,779	26%	\$35,224,612	26%	801	25%	\$2,178,123	25%
	2002	16,520	31%	\$42,688,296	32%	912	28%	\$2,490,600	29%
	2003	5,090	10%	\$13,041,491	10%	235	7%	\$646,591	8%
	Total	52,793	100%	\$134,502,928	100%	3,223	100%	\$8,619,454	100%
Issue Age	<35	148	0%	\$246,110	0%	16	0%	\$31,705	0%
	35-39	354	1%	\$599,693	0%	21	1%	\$40,465	0%
	40-44	1,324	3%	\$2,292,181	2%	94	3%	\$167,990	2%
	45-49	4,248	8%	\$8,038,052	6%	312	10%	\$605,704	7%
	50-54	10,443	20%	\$22,183,404	16%	743	23%	\$1,673,588	19%
	55-59	15,767	30%	\$37,580,670	28%	1,056	33%	\$2,695,672	31%
	60-64	12,398	23%	\$34,896,488	26%	627	19%	\$2,006,954	23%
	65-69	6,307	12%	\$20,759,007	15%	278	9%	\$1,010,829	12%
	70-74	1,628	3%	\$6,898,655	5%	69	2%	\$328,519	4%
	75-79	170	0%	\$977,565	1%	7	0%	\$58,028	1%
	80+	6	0%	\$31,104	0%	0	0%	\$0	0%
Total	52,793	100%	\$134,502,928	100%	3,223	100%	\$8,619,454	100%	
Attained Age	<45	31	0%	\$57,439	0%	5	0%	\$12,935	0%
	45-49	81	0%	\$137,049	0%	7	0%	\$12,001	0%
	50-54	260	0%	\$437,255	0%	20	1%	\$38,325	0%
	55-59	996	2%	\$1,712,313	1%	63	2%	\$114,790	1%
	60-64	3,126	6%	\$5,861,189	4%	227	7%	\$443,155	5%
	65-69	7,916	15%	\$16,582,401	12%	510	16%	\$1,115,075	13%
	70-74	15,121	29%	\$34,453,664	26%	1,051	33%	\$2,526,933	29%
	75-79	13,710	26%	\$36,817,510	27%	814	25%	\$2,386,827	28%
	80-84	8,291	16%	\$25,474,998	19%	380	12%	\$1,310,536	15%
	85-89	2,817	5%	\$10,665,217	8%	122	4%	\$501,784	6%
	90+	444	1%	\$2,303,894	2%	24	1%	\$157,091	2%
Total	52,793	100%	\$134,502,928	100%	3,223	100%	\$8,619,454	100%	
Gender	Male	21,726	41%	\$56,235,763	42%	1,355	42%	\$3,705,448	43%
	Female	31,067	59%	\$78,267,166	58%	1,868	58%	\$4,914,006	57%
	Total	52,793	100%	\$134,502,928	100%	3,223	100%	\$8,619,454	100%
Inflation Type	None	0	0%	\$0	0%	0	0%	\$0	0%
	Simple	16,929	32%	\$43,503,330	32%	929	29%	\$2,470,240	29%
	Compound	35,864	68%	\$90,999,598	68%	2,294	71%	\$6,149,214	71%
	Total	52,793	100%	\$134,502,928	100%	3,223	100%	\$8,619,454	100%
Elimination Period	0-Day	4,996	9%	\$14,794,373	11%	500	16%	\$1,550,436	18%
	30-Day	20,306	38%	\$52,020,317	39%	1,172	36%	\$3,165,092	37%
	60-Day	556	1%	\$1,336,319	1%	0	0%	\$0	0%
	90-Day	25,459	48%	\$62,714,935	47%	1,488	46%	\$3,739,764	43%
	180-Day	1,225	2%	\$3,002,950	2%	49	2%	\$132,180	2%
	365-Day	251	0%	\$634,034	0%	14	0%	\$31,983	0%
	Total	52,793	100%	\$134,502,928	100%	3,223	100%	\$8,619,454	100%
Maximum Benefit Period	365 days	49	0%	\$63,081	0%	0	0%	\$0	0%
	730 days	2,278	4%	\$4,206,690	3%	101	3%	\$188,103	2%
	1,095 days	10,803	20%	\$22,600,096	17%	491	15%	\$1,055,239	12%
	1,460 days	7,526	14%	\$16,805,577	12%	443	14%	\$1,028,885	12%
	1,825 days	11,716	22%	\$29,153,234	22%	822	26%	\$2,078,160	24%
	Unlimited	20,421	39%	\$61,674,250	46%	1,366	42%	\$4,269,067	50%
	Total	52,793	100%	\$134,502,928	100%	3,223	100%	\$8,619,454	100%
Home Health Care %	0%	1,898	4%	\$3,938,050	3%	75	2%	\$177,638	2%
	50%	5,630	11%	\$12,187,613	9%	170	5%	\$372,148	4%
	75%	3,276	6%	\$7,810,783	6%	101	3%	\$253,640	3%
	100%	41,989	80%	\$110,566,482	82%	2,877	89%	\$7,816,028	91%
	Total	52,793	100%	\$134,502,928	100%	3,223	100%	\$8,619,454	100%

Exhibit 3a
 Continental Casualty Company
 Preferred Solution - AIB Rider Policies Only
 Nationwide Historical and Projected Experience Restated with Approved Maryland Rate Increases

Calendar Year	Without Rate Increase				With 157.6% Cumulative Rate Increase			
	Earned Premium	Incurred Claims	Annual Loss Ratio	Cumulative Loss Ratio	Earned Premium	Incurred Claims	Annual Loss Ratio	Cumulative Loss Ratio
Historical								
1998	33,363	-	0%	0%	33,363	-	0%	0%
1999	7,330,873	5,088	0%	0%	7,330,873	5,088	0%	0%
2000	38,017,385	1,320,397	3%	3%	38,017,385	1,320,397	3%	3%
2001	74,312,937	2,986,443	4%	4%	74,312,937	2,986,443	4%	4%
2002	117,639,298	6,391,671	5%	5%	117,639,298	6,391,671	5%	5%
2003	149,458,471	8,126,290	5%	5%	149,458,471	8,126,290	5%	5%
2004	141,985,570	12,458,809	9%	6%	141,985,570	12,458,809	9%	6%
2005	139,182,779	14,734,296	11%	7%	139,182,779	14,734,296	11%	7%
2006	127,624,160	22,642,337	18%	9%	127,624,160	22,642,337	18%	9%
2007	128,735,922	19,963,059	16%	10%	128,735,922	19,963,059	16%	10%
2008	125,619,689	34,613,957	28%	12%	125,619,689	34,613,957	28%	12%
2009	121,841,924	33,536,765	28%	13%	121,841,924	33,536,765	28%	13%
2010	118,266,392	42,108,632	36%	15%	118,266,392	42,108,632	36%	15%
2011	115,193,823	52,630,616	46%	18%	115,193,823	52,630,616	46%	18%
2012	110,174,362	66,075,683	60%	21%	110,174,362	66,075,683	60%	21%
2013	106,010,301	82,641,692	78%	25%	106,010,301	82,641,692	78%	25%
2014	116,136,954	108,784,540	94%	29%	116,136,954	108,784,540	94%	29%
2015	113,727,798	125,904,973	111%	34%	113,727,798	125,904,973	111%	34%
2016	122,976,857	144,520,759	118%	39%	122,976,857	144,520,759	118%	39%
2017	127,369,325	162,586,485	128%	45%	127,369,325	162,586,485	128%	45%
2018	131,453,794	167,054,728	127%	50%	131,453,794	167,054,728	127%	50%
Total Actual	2,233,091,975	1,109,087,219	50%	50%	2,233,091,975	1,109,087,219	50%	50%
Projected								
2019	146,838,593	176,656,965	120%	54%	146,838,593	186,373,098	127%	54%
2020	147,335,208	203,242,696	138%	59%	160,034,324	225,369,936	141%	60%
2021	140,916,858	201,398,229	143%	63%	192,581,773	190,060,359	99%	63%
2022	134,241,012	209,005,082	156%	68%	215,109,528	162,283,175	75%	64%
2023	127,355,448	228,581,904	179%	73%	206,885,420	159,772,047	77%	64%
2024	120,316,283	245,254,096	204%	78%	195,450,491	163,810,654	84%	66%
2025	113,179,051	267,028,857	236%	83%	183,856,253	173,415,026	94%	67%
2026	105,951,861	291,513,837	275%	90%	172,115,881	184,955,645	107%	69%
2027	98,656,892	315,528,704	320%	96%	160,265,405	198,998,274	124%	71%
2028	91,365,246	338,638,144	371%	104%	148,420,328	213,572,982	144%	74%
2029	84,114,655	359,808,387	428%	111%	136,641,942	226,924,673	166%	77%
2030	76,969,691	378,374,500	492%	119%	125,035,145	238,633,986	191%	80%
2031	69,982,142	393,848,844	563%	128%	113,684,063	248,393,377	218%	84%
2032	63,206,070	405,622,204	642%	137%	102,676,521	255,818,623	249%	88%
2033	56,691,828	412,812,078	728%	145%	92,094,315	260,353,147	283%	92%
2034	50,484,489	414,523,878	821%	154%	82,010,663	261,432,748	319%	96%
2035	44,626,926	411,543,802	922%	163%	72,495,212	259,553,268	358%	100%
2036	39,148,845	404,460,531	1033%	172%	63,596,221	255,085,977	401%	104%
2037	34,069,119	392,383,703	1152%	180%	55,344,347	247,469,339	447%	107%
2038	29,405,971	375,085,500	1276%	188%	47,769,191	236,559,673	495%	111%
2039	25,171,137	353,751,376	1405%	196%	40,889,819	223,104,625	546%	115%
2040	21,371,184	329,858,455	1543%	203%	34,716,901	208,035,790	599%	118%
2041	17,993,383	304,982,508	1695%	209%	29,229,755	192,346,978	658%	121%
2042	15,018,343	278,934,343	1857%	215%	24,396,885	175,918,870	721%	124%
2043	12,428,168	251,402,894	2023%	221%	20,189,217	158,555,280	785%	127%
2044	10,200,098	223,162,932	2188%	226%	16,569,779	140,744,844	849%	129%
2045	8,307,111	195,528,880	2354%	230%	13,494,674	123,316,545	914%	131%
2046	6,715,593	169,870,080	2529%	234%	10,909,297	107,134,002	982%	133%
2047	5,389,122	146,475,798	2718%	237%	8,754,480	92,379,649	1055%	135%
2048	4,293,784	125,217,013	2916%	240%	6,975,134	78,972,116	1132%	136%
2049	3,397,870	105,983,608	3119%	242%	5,519,747	66,841,954	1211%	137%
2050	2,672,399	88,843,456	3324%	244%	4,341,239	56,031,969	1291%	138%
2051	2,090,256	73,809,474	3531%	246%	3,395,564	46,550,306	1371%	139%
2052	1,626,919	60,883,825	3742%	247%	2,642,885	38,398,333	1453%	140%
2053	1,260,916	49,940,619	3961%	248%	2,048,323	31,496,650	1538%	140%
2054	973,747	40,703,263	4180%	249%	1,581,826	25,670,815	1623%	141%
2055	749,590	33,038,491	4408%	250%	1,217,688	20,836,781	1711%	141%
2056	575,589	26,696,221	4638%	251%	935,028	16,836,826	1801%	141%
2057	441,209	21,515,824	4877%	251%	716,732	13,569,643	1893%	142%
2058	337,856	17,313,051	5124%	251%	548,839	10,919,030	1989%	142%
2059	258,637	13,842,164	5352%	252%	420,149	8,730,004	2078%	142%
2060	198,043	11,062,125	5586%	252%	321,715	6,976,683	2169%	142%
2061	151,729	8,842,559	5828%	252%	246,480	5,576,843	2263%	142%
2062	116,398	7,081,143	6084%	252%	189,085	4,465,949	2362%	142%
2063	89,414	5,665,897	6337%	253%	145,250	3,573,379	2460%	142%
2064	68,785	4,524,310	6577%	253%	111,740	2,853,401	2554%	142%
2065	53,006	3,612,422	6815%	253%	86,106	2,278,289	2646%	143%
2066	40,922	2,904,301	7097%	253%	66,477	1,831,690	2755%	143%
2067	31,632	2,320,618	7336%	253%	51,385	1,463,572	2848%	143%
2068	24,459	1,883,449	7700%	253%	39,733	1,187,857	2990%	143%
2069	18,911	1,522,453	8050%	253%	30,721	960,184	3125%	143%
2070	14,594	1,236,846	8475%	253%	23,707	780,057	3290%	143%
2071	11,225	996,676	8879%	253%	18,234	628,586	3447%	143%
2072	8,607	803,730	9338%	253%	13,982	506,898	3625%	143%
2073	6,569	643,457	9796%	253%	10,671	405,816	3803%	143%
2074	4,989	515,185	10326%	253%	8,105	324,918	4009%	143%
2075	3,762	407,146	10822%	253%	6,112	256,780	4202%	143%
2076	2,805	323,782	11544%	253%	4,556	204,203	4482%	143%
2077	2,060	251,789	12222%	253%	3,347	158,799	4745%	143%
2078	1,491	197,048	13214%	253%	2,422	124,274	5130%	143%
Total Projected	1,916,978,502	9,391,861,153	490%	253%	2,903,779,403	6,219,785,197	214%	143%
Total Lifetime	4,150,070,478	10,500,948,373	253%	253%	5,136,871,378	7,328,872,417	143%	143%
Values Accumulated/Discounted to 12/31/18 at Maximum Statutory Valuation Interest Rates								
Past	3,438,796,787	1,320,118,855	38%		3,438,796,787	1,320,118,855	38%	38%
Future	1,357,181,826	4,964,404,664	366%	366%	2,005,677,283	3,402,383,245	170%	170%
Lifetime	4,795,978,614	6,284,523,518	131%	131%	5,444,474,070	4,722,502,099	87%	87%

Exhibit 3b
 Continental Casualty Company
 Preferred Solution - AIB Rider Policies Only
 Nationwide Historical and Projected Experience Restated with Approved Maryland Rate Increases
 Annual Rate Increases of 15% for 13 Years Plus 10.9% in the 14th Year

Calendar Year	Without Rate Increase				With 582.3% Cumulative Rate Increase			
	Earned Premium	Incurred Claims	Annual Loss Ratio	Cumulative Loss Ratio	Earned Premium	Incurred Claims	Annual Loss Ratio	Cumulative Loss Ratio
Historical								
1998	33,363	-	0%	0%	33,363	-	0%	0%
1999	7,330,873	5,088	0%	0%	7,330,873	5,088	0%	0%
2000	38,017,385	1,320,397	3%	3%	38,017,385	1,320,397	3%	3%
2001	74,312,937	2,986,443	4%	4%	74,312,937	2,986,443	4%	4%
2002	117,639,298	6,391,671	5%	5%	117,639,298	6,391,671	5%	5%
2003	149,458,471	8,126,290	5%	5%	149,458,471	8,126,290	5%	5%
2004	141,985,570	12,458,809	9%	6%	141,985,570	12,458,809	9%	6%
2005	139,182,779	14,734,296	11%	7%	139,182,779	14,734,296	11%	7%
2006	127,624,160	22,642,337	18%	9%	127,624,160	22,642,337	18%	9%
2007	128,735,922	19,963,059	16%	10%	128,735,922	19,963,059	16%	10%
2008	125,619,689	34,613,957	28%	12%	125,619,689	34,613,957	28%	12%
2009	121,841,924	33,536,765	28%	13%	121,841,924	33,536,765	28%	13%
2010	118,266,392	42,108,632	36%	15%	118,266,392	42,108,632	36%	15%
2011	115,193,823	52,630,616	46%	18%	115,193,823	52,630,616	46%	18%
2012	110,174,362	66,075,683	60%	21%	110,174,362	66,075,683	60%	21%
2013	106,010,301	82,641,692	78%	25%	106,010,301	82,641,692	78%	25%
2014	116,136,954	108,784,540	94%	29%	116,136,954	108,784,540	94%	29%
2015	113,727,798	125,904,973	111%	34%	113,727,798	125,904,973	111%	34%
2016	122,976,857	144,520,759	118%	39%	122,976,857	144,520,759	118%	39%
2017	127,369,325	162,586,485	128%	45%	127,369,325	162,586,485	128%	45%
2018	131,453,794	167,054,728	127%	50%	131,453,794	167,054,728	127%	50%
Total Actual	2,233,091,975	1,109,087,219	50%	50%	2,233,091,975	1,109,087,219	50%	50%
Projected								
2019	146,838,593	176,656,965	120%	54%	146,838,593	186,373,098	127%	54%
2020	147,335,208	203,242,696	138%	59%	150,125,412	233,993,979	156%	60%
2021	140,916,858	201,398,229	143%	63%	155,093,239	240,580,955	155%	66%
2022	134,241,012	209,005,082	156%	68%	160,783,624	242,165,975	151%	71%
2023	127,355,448	228,581,904	179%	73%	165,997,216	246,627,032	149%	75%
2024	120,316,283	245,254,096	204%	78%	170,661,030	251,366,223	147%	79%
2025	113,179,051	267,028,857	236%	83%	174,703,934	257,354,186	147%	82%
2026	105,951,861	291,513,837	275%	90%	177,980,288	263,507,507	148%	86%
2027	98,656,892	315,528,704	320%	96%	180,350,531	269,899,160	150%	89%
2028	91,365,246	338,638,144	371%	104%	181,759,746	274,111,574	151%	92%
2029	84,114,655	359,808,387	428%	111%	182,102,130	275,607,874	151%	94%
2030	76,969,691	378,374,500	492%	119%	181,338,402	274,265,410	151%	97%
2031	69,982,142	393,848,844	563%	128%	179,425,410	270,151,631	151%	99%
2032	63,206,070	405,622,204	642%	137%	176,352,729	263,286,492	149%	101%
2033	56,691,828	412,812,078	728%	145%	171,352,954	248,968,711	145%	102%
2034	50,484,489	414,523,878	821%	154%	160,944,787	229,457,346	143%	104%
2035	44,626,926	411,543,802	922%	163%	143,138,703	212,001,869	148%	105%
2036	39,148,845	404,460,531	1033%	172%	125,568,024	198,336,989	158%	106%
2037	34,069,119	392,383,703	1152%	180%	109,275,051	188,272,823	172%	108%
2038	29,405,971	375,085,500	1276%	188%	94,318,229	177,400,523	188%	109%
2039	25,171,137	353,751,376	1405%	196%	80,735,203	166,312,456	206%	110%
2040	21,371,184	329,858,455	1543%	203%	68,547,039	155,079,453	226%	112%
2041	17,993,383	304,982,508	1695%	209%	57,712,904	143,384,291	248%	113%
2042	15,018,343	278,934,343	1857%	215%	48,170,608	131,138,022	272%	115%
2043	12,428,168	251,402,894	2023%	221%	39,862,746	118,194,403	297%	116%
2044	10,200,098	223,162,932	2188%	226%	32,716,322	104,917,685	321%	117%
2045	8,307,111	195,528,880	2354%	230%	26,644,658	91,925,828	345%	118%
2046	6,715,593	169,870,080	2529%	234%	21,539,940	79,862,616	371%	119%
2047	5,389,122	146,475,798	2718%	237%	17,285,347	68,864,043	398%	120%
2048	4,293,784	125,217,013	2916%	240%	13,772,104	58,869,450	427%	121%
2049	3,397,870	105,983,608	3119%	242%	10,898,505	49,827,069	457%	121%
2050	2,672,399	88,843,456	3324%	244%	8,571,590	41,768,808	487%	122%
2051	2,090,256	73,809,474	3531%	246%	6,704,396	34,700,741	518%	122%
2052	1,626,919	60,883,825	3742%	247%	5,218,265	28,623,884	549%	123%
2053	1,260,916	49,940,619	3961%	248%	4,044,326	23,479,052	581%	123%
2054	973,747	40,703,263	4180%	249%	3,123,248	19,136,207	613%	123%
2055	749,590	33,038,491	4408%	250%	2,404,273	15,532,696	646%	123%
2056	575,589	26,696,221	4638%	251%	1,846,173	12,550,945	680%	124%
2057	441,209	21,515,824	4877%	251%	1,415,156	10,115,436	715%	124%
2058	337,856	17,313,051	5124%	251%	1,083,658	8,139,547	751%	124%
2059	259,637	13,842,164	5352%	252%	829,567	6,507,747	784%	124%
2060	198,043	11,062,125	5586%	252%	635,213	5,200,741	819%	124%
2061	151,729	8,842,559	5828%	252%	486,665	4,157,235	854%	124%
2062	116,398	7,081,143	6084%	252%	373,341	3,329,124	892%	124%
2063	89,414	5,665,897	6337%	253%	286,789	2,663,761	929%	124%
2064	68,785	4,524,310	6577%	253%	220,626	2,127,056	964%	124%
2065	53,006	3,612,422	6815%	253%	170,013	1,698,342	999%	124%
2066	40,922	2,904,301	7097%	253%	131,257	1,365,426	1040%	124%
2067	31,632	2,320,618	7336%	253%	101,458	1,091,014	1075%	124%
2068	24,459	1,883,449	7700%	253%	78,451	885,484	1129%	124%
2069	18,911	1,522,453	8050%	253%	60,657	715,765	1180%	124%
2070	14,594	1,236,846	8475%	253%	46,808	581,490	1242%	124%
2071	11,225	996,676	8879%	253%	36,002	468,577	1302%	124%
2072	8,607	803,730	9338%	253%	27,607	377,865	1369%	124%
2073	6,569	643,457	9796%	253%	21,069	302,514	1436%	124%
2074	4,989	515,185	10326%	253%	16,003	242,209	1514%	124%
2075	3,762	407,146	10822%	253%	12,067	191,415	1586%	124%
2076	2,805	323,782	11544%	253%	8,996	152,223	1692%	124%
2077	2,060	251,789	12222%	253%	6,608	118,376	1791%	124%
2078	1,491	197,048	13214%	253%	4,783	92,640	1937%	124%
Total Projected	1,916,978,502	9,391,861,153	490%	253%	3,643,960,474	6,198,420,997	170%	124%
Total Lifetime	4,150,070,478	10,500,948,373	253%	253%	5,877,052,449	7,307,508,216	124%	124%
Values Accumulated/Discounted to 12/31/18 at Maximum Statutory Valuation Interest Rates								
Past	3,438,796,787	1,320,118,855	38%	38%	3,438,796,787	1,320,118,855	38%	38%
Future	1,357,181,826	4,964,404,664	366%	366%	2,303,076,863	3,664,394,706	159%	159%
Lifetime	4,795,978,614	6,284,523,518	131%	131%	5,741,873,650	4,984,513,560	87%	87%

Exhibit 4a
 Continental Casualty Company
 Preferred Solution - AIB Rider Policies Only
 Nationwide 58/85 Test with Increase
 Nationwide Historical and Projected Premiums Restated with Approved Maryland Rate Increases

1 Accumulated value of initial earned premium	3,256,789,991	x	58%	=	1,888,938,195
2a Accumulated value of earned premium	3,438,796,787				
2b Accumulated value of prior premium rate schedule increases (2a - 1)	182,006,796	x	85%	=	154,705,776
3 Present value of future projected initial earned premium	678,005,392	x	58%	=	393,243,127
4a Present value of future projected premium	2,005,677,283				
4b Present value of future projected premium in excess of the projected initial earned premiums (4a - 3)	1,327,671,892	x	85%	=	1,128,521,108
5 Lifetime Earned Premium Times Prescribed Factors: Sum of 1, 2b, 3, and 4b					3,565,408,206
6a Accumulated value of incurred claims without the inclusion of active life reserves					1,452,130,740
6b Present value of future projected incurred claims without the inclusion of active life reserves					3,742,621,569
7 Lifetime Incurred Claims with Rate Increase: Sum of 6a and 6b					5,194,752,309
8 Test: 7 is not less than 5					TRUE

All values are accumulated or discounted at the average maximum valuation interest rate for contract reserves which is a constant 4.5%.
 The incurred claims (items 6a and 6b) were increased by 10% to reflect moderately adverse experience.

Exhibit 4b
 Continental Casualty Company
 Preferred Solution - AIB Rider Policies Only
 Nationwide 58/85 Test with Increase
 Nationwide Historical and Projected Premiums Restated with Approved Maryland Rate Increases
 Annual Rate Increases of 15% for 13 Years Plus 10.9% in the 14th Year

1	Accumulated value of initial earned premium	3,256,789,991	x	58%	=	1,888,938,195
2a	Accumulated value of earned premium	3,438,796,787				
2b	Accumulated value of prior premium rate schedule increases (2a - 1)	182,006,796	x	85%	=	154,705,776
3	Present value of future projected initial earned premium	678,005,392	x	58%	=	393,243,127
4a	Present value of future projected premium	2,303,076,863				
4b	Present value of future projected premium in excess of the projected initial earned premiums (4a - 3)	1,625,071,471	x	85%	=	1,381,310,750
5	Lifetime Earned Premium Times Prescribed Factors: Sum of 1, 2b, 3, and 4b					3,818,197,849
6a	Accumulated value of incurred claims without the inclusion of active life reserves					1,452,130,740
6b	Present value of future projected incurred claims without the inclusion of active life reserves					4,030,834,176
7	Lifetime Incurred Claims with Rate Increase: Sum of 6a and 6b					5,482,964,917
8	Test: 7 is not less than 5					TRUE
	All values are accumulated or discounted at the average maximum valuation interest rate for contract reserves which is a constant 4.5%. The incurred claims (items 6a and 6b) were increased by 10% to reflect moderately adverse experience.					