Kanawha Insurance Company
210 South White Street
Lancaster, SC 29720

NAIC No: 65110

Actuarial Memorandum
December 5, 2016

Product	Number
Comprehensive Long-Term Care (Tax Qualified)	80650 1/97 MD
Comprehensive Long-Term Care (Non-Tax Qualified)	80880 NTQ 1/98 MD

These forms were issued in Maryland by Kanawha Insurance Company (Kanawha) from 1997 through 2003. The above forms are no longer marketed in any state.

1. Purpose of Filing

This actuarial memorandum has been prepared for the purpose of supporting a rate increase request on Kanawha's existing long-term care policies. This request for a rate increase is being filed in accordance with the minimum loss ratio requirements. This memorandum may not be suitable for other purposes.

2. Description of Benefits

This is an individually underwritten policy that provides long-term care coverage. This form may also include a survivorship benefit that provides for premiums to become paid up upon the tenth anniversary of the policy if: (1) both the policyholder and the spouse are covered by long-term care policies issued by Kanawha, (2) the spouse dies, and (3) both policies are in-force at the time of the spouse's death. If the spouse's death occurs prior to the tenth anniversary of the policy, premiums must be paid as they fall due until the tenth anniversary of the policy for the benefit to remain in effect.

Forms 80650 1/97 MD (tax qualified [TQ], "LTC2") and 80880 NTQ 1/98 MD (non-tax qualified [NTQ], "NTQ2") provide long-term care benefits for periods of 2, 3, 4 years, or for lifetime. Optional coverage is available with the election of several riders. Riders 80660 1/97 (TQ) and 80900 NTQ 1/98 (NTQ) provide home health care benefits. Riders 80680 1/97 (TQ) and 93072 NTQ 1/98 (NTQ) provide 5% compound inflation protection. Additional applicable riders for this product include, but are not limited to, guaranteed future benefits option increase rider, return of premium rider, and non-forfeiture rider.

All of the above forms are no longer issued. Policies with the guaranteed future benefits option increase still have a limited option to purchase additional coverage.

3. Renewability

These policies are guaranteed renewable for life.

4. Applicability

The proposed rate increase will apply to all existing premium paying policyholders residing in the state with policies issued on the form number listed above or on a form number of similar series issued in another state. Paid up policyholders will not be affected by the rate increase as no additional premiums can be collected from such policies. The rate increase will apply to the base forms as well as all applicable options and riders.

5. Actuarial Assumptions

a. Morbidity

Incidence and termination rates used to project incurred claims in the Exhibits in this filing were developed using Milliman's 2011 Long-Term Care guidelines. These assumptions vary by age, product type, care setting, benefit period, elimination period, marital status, and inflation protection option. Utilization rates are projected as a scalar based on historical experience.

Adjustments to the morbidity assumptions were made to reflect Kanawha's actual historical experience and underwriting selection. The following sample of claim costs are applied to in-force insureds with comprehensive coverage, for $10 of daily benefit, a 0 day elimination period, and a 4 year lifetime maximum benefit, issued at age 52:

Attained Age	No Inflation
52	4.77
57	8.48
62	20.50
67	34.68
72	73.47
77	176.48
82	371.66
87	731.97
92	978.48

Original Pricing Assumption for Morbidity

When these policy forms were originally priced, claim costs were developed using the Society of Actuary's first Long-Term Care Study Intercompany Study, published in 1993. That study consisted primarily of the nursing home claims experience of ten LTC carriers, representing policyholder exposure between 1984 and 1991. The company adjusted claim costs to reflect underwriting selection, home health care benefits, spousal coverage, and the election of riders and GPOs.

Below are examples of annual claim costs by attained age developed at the time of original pricing for these policy forms, for $10 of daily benefit, a 0 day elimination period, and a 4 year lifetime maximum benefit with no inflation protection.

Attained Age	No Inflation
52	3.38
57	8.78
62	18.01
67	43.13
72	102.41
77	245.73
82	331.15
87	408.96
92	455.65

The company monitors the entire block of LTC policies regularly and has requested remedial rate increases as it has become apparent that premiums are not sufficient to cover anticipated future claims. The last rate increase approved in Maryland was implemented in 2016, and that filing reflected exposure through 2013. Original pricing morbidity assumptions have contributed to the need for remediation. This is consistent with the comparison between the original pricing claim costs above and the latest, best estimate claim costs.

The best estimate assumptions were developed reflecting claims through 2012. The following tables demonstrate how the latest best estimate assumptions compare to actual experience through December 31, 2012 for all of Kanawha's LTC products.

Incidence Rates Modeled vs. Actual

Product Type	NH	HHC
Tax Qualified	99.6%	99.8%
Non-Tax Qualified	100.3%	99.8%

Modeled claim termination rates were adjusted with a scalar factor, by type of care setting and duration, to reach an overall actual-to-expected model result of 100%.

b. Lapse

Lapse rates are developed from actual historical experience. A total decrement rate is calculated and mortality is subtracted based on the above assumption such that mortality and lapse combine to equal the historical experience.

Payment options other than lifetime are assumed to have no lapses.

The voluntary lapse rates for this product are:

Compound Inflation

	Issue Age								
Duration	37	42	47	52	57	62	67	72	77
1	2.19%	2.19%	2.19%	2.19%	2.19%	2.19%	2.19%	2.19%	0.35%
2	1.75%	1.75%	1.75%	1.75%	1.75%	1.75%	1.75%	1.75%	0.35%
3	1.67%	1.67%	1.67%	1.67%	1.67%	1.67%	1.67%	1.67%	0.35%
4	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%	0.35%
5	1.09%	1.09%	1.09%	1.09%	1.09%	1.09%	1.09%	1.09%	0.35%
6+	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.35%

No Inflation

	Issue Age								
Duration	37	42	47	52	57	62	67	72	77
1	4.38%	4.38%	4.38%	4.38%	4.38%	4.38%	4.38%	4.38%	0.70%
2	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	0.70%
3	3.33%	3.33%	3.33%	3.33%	3.33%	3.33%	3.33%	3.33%	0.70%
4	2.63%	2.63%	2.63%	2.63%	2.63%	2.63%	2.63%	2.63%	0.70%
5	2.19%	2.19%	2.19%	2.19%	2.19%	2.19%	2.19%	2.19%	0.70%
6+	1.40%	1.40%	1.40%	1.40%	1.40%	1.40%	1.40%	1.40%	0.70%

Original Pricing Assumption for Lapse

When these policy forms were originally priced, lapse rates were deemed appropriate based on industry experience for similar companies with similar products. The following tables show the original pricing lapse assumption:

	Issue Ages				
Duration	40-59	60-64	65-69	70-74	75+
1	25.0%	20.0%	12.0%	10.0%	8.0%
2	16.0%	13.0%	8.0%	5.0%	4.0%
3	11.0%	8.0%	5.0%	5.0%	4.0%
4	9.0%	6.0%	5.0%	5.0%	4.0%
5+					
< AA 65	7.0%	6.0%	5.0%	5.0%	4.0%
AA 65+	6.5%	6.0%	5.0%	5.0%	4.0%

For limited pay options (ex: 10 pay), original pricing assumed 0% lapses after the end of the premium paying period.

Reports on industry data issued around the time of original pricing, such as the SOA's Long-Term Care Intercompany Study in 1993, are consistent with these assumptions. Reported lapses during the exposure period in those studies were far greater than those which have emerged in recent years. Since the time of initial pricing, lapse rates have declined significantly industry-wide. The latest best estimate lapse assumptions reflect this reduction in overall lapse rates and late duration lapse rates in particular.

These long-term care policies were priced assuming that premiums earned in early durations would fund claims incurred in later durations. The premium rates originally established were supported by the assumption of voluntary lapses, which reduced expected claims in later years. With this block of business, as with similar blocks industry-wide, these lower lapse rates have had a significant, unfavorable impact on the financial health of these blocks. Lower than anticipated lapse rates are the primary driver of the need for remediation on this block of business.

c. Mortality

Mortality is assumed to be 100% of the 2012 Annuity Basic ANB Male and Female Table.

Original Pricing Assumption for Mortality

This product was originally priced assuming 90% of 1975-80 Select and Ultimate Age Last Birthday, weighted 1/3 Male and 2/3 Female.

The following table compares Male and Female ultimate mortality rates between original pricing mortality and current best estimate assumptions.

Mortality Rates Per Thousand

	Male			Female		
Age	Pricing	Current	Current/Pricing	Pricing	Current	Current/Pricing
62	0.0138	0.0069	0.497	0.0081	0.0049	0.603
67	0.0224	0.0101	0.451	0.0121	0.0078	0.645
72	0.0358	0.0152	0.424	0.0190	0.0120	0.633
77	0.0566	0.0262	0.462	0.0332	0.0195	0.587
82	0.0884	0.0470	0.531	0.0591	0.0361	0.611
87	0.1349	0.0848	0.629	0.0974	0.0702	0.721
92	0.1964	0.1524	0.776	0.1480	0.1192	0.805
97	0.2675	0.2386	0.892	0.2110	0.1997	0.946

Overall terminations on these policies are significantly lower than was anticipated at the time of original pricing. As an example, we originally projected that 15% of those policies issued at age 60 would still be in-force after 20 years. Our current best estimate model projects that over three times that number, or 60%, of those same policies would remain in-force after 20 years.

d. Expenses

Expenses have not been explicitly projected. Originally filed expense assumptions are assumed to remain appropriate. Reductions are made to the renewal commission rates so that the total commissions paid before and after any increase in premium will be similar (i.e., commissions will not be paid on the increased premium).

The above assumptions are based on the experience of Kanawha. These assumptions are based on the nationwide experience of the particular policy forms in this filing and other similar policy forms where appropriate. The above assumptions are deemed reasonable for the particular policy forms in this filing. The assumptions used in this filing are considered best-estimate and do not reflect moderately adverse conditions.

In establishing the assumptions described in this section, the policy design, underwriting, and claims adjudication practices for the above-referenced policy form were taken into consideration.

The company does not currently market any long-term care products.

6. Marketing Method

These plans were individually solicited by agents and independent brokers representing Kanawha Insurance Company.

7. Underwriting Description

These policy forms were fully underwritten based on responses to questions in the application and the use of additional underwriting tools such as telephone interviews, attending physician statements, and/or a face-to-face interview.

8. Premiums

Premiums are unisex and based on issue age. They vary by the amount of benefit purchased and optional benefits selected.

These forms and riders have three underwriting classes: Preferred (most favorable), Standard, and Select (least favorable). Varying premium payment periods are offered and include Lifetime, Ten Year, To-Age-65 or 5 year (whichever is longer), and Single Payment.

9. Issue Age Range

These forms were issued to policyholders aged 35 to 79.

10. Area Factors

Area factors are not used for this product.

11. Premium Modalization Rules

The following modal factors and distribution, which are based on nationwide data, are applied to the annual premium. Policies which are paid up as of December 31, 2015 are not reflected in this distribution.

Premium Mode	Modal Factor	Distribution of Policies
Annual	1.000	32.1%
Semi-annual	0.510	6.7%
Quarterly	0.260	8.7%
Monthly	0.092	52.5%

12. Reserves

Active life reserves have not been used in this rate increase analysis. Claim reserves as of December 31, 2015 have been discounted to the incurral date of each respective claim and included in historical incurred claims. A best estimate of the incurred but not reported (IBNR) reserve balance as of December 31, 2015 has been allocated to the 2015 calendar year of incurral and included in historic incurred claims.

13. Trend Assumptions

As this is not medical insurance, an explicit medical cost trend is not included in the projections.

14. Past and Future Policy Experience

Nationwide experience for this policy form is shown in Exhibit I. Historical experience is shown by claim incurral year with associated calendar year loss ratios. A future annual loss ratio is calculated as anticipated incurred claims divided by earned premiums.

A lifetime loss ratio as of December 31, 2015 is calculated as the sum of the accumulated past and discounted future claims divided by the sum of the accumulated past and discounted future earned premium where accumulation and discounting occur at 4.5%.

15. Projected Earned Premiums and Incurred Claims

Exhibit I contains lifetime projections of earned premium and incurred claims based on the current premiums and the filed premium rate increase. Earned premiums and incurred claims for projection years 2016 through 2065 are developed from an asset share model representing actual contracts in-force as of December 31, 2015.

The assumptions described in section 5 for morbidity, voluntary lapse, and mortality are used to project life years, earned premiums, and incurred claims. The projections reflecting the rate increase assume that the increase is effective on each policy's first anniversary on or after January 1, 2016.

16. History of Previous Rate Increases

The following rate increases have been implemented on these policy forms in Maryland:

Year	Rate Increase
2009	15%
2016	15%

17. Requested Rate Increase and Demonstration of Satisfaction of Loss Ratio Requirements

The company is requesting a rate increase of 25% for policies with no inflation option and 50% for policies with the compound inflation option. Projected experience assuming the implementation of this increase is shown in Exhibit I. Exhibit I demonstrates that the expected lifetime loss ratio with and without the requested rate increase exceeds the minimum loss ratio of 60%.

Corresponding rate tables are included with this memorandum in Exhibit II. The actual rate increases implemented may vary slightly from those proposed above due to rounding.

18. Average Annual Premium

Nationwide and Maryland average annual premium experience is shown in Appendix I.

Premiums vary by form between Maryland policies and those nationwide based on, for example, the mix of business by issue age, benefits selected, GPOs elected, and premium payment mode. Similar rate increases are being requested on policies nationwide.

19. Proposed Effective Date

This rate increase will apply to policies on their next premium payment date following at least a 45-day policyholder notification period following approval.

20. Nationwide Distribution of Business as of December 31, 2015

Nationwide experience showing distributions based on the count of in-force insureds is shown in Appendix I.

21. Number of Insureds and Annualized Premium

Based on Kanawha's experience as of December 31, 2015, the number of insureds in-force and the annualized premium that will be affected by this increase are shown in Appendix I.

22. Actuarial Certification

I, Andrew Besendorf, am 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 requirements for filing long-term care insurance premiums and rate increases.

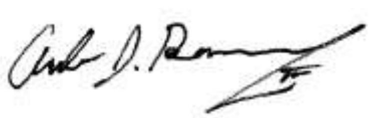
This memorandum has been prepared in conformity with all applicable Actuarial Standards of Practice, including Actuarial Standards of Practice No. 8, "Regulatory Filings for Health Plan Entities" and 18, "Long-Term Care Insurance".

I hereby certify that, to the best of my knowledge and judgment, this rate submission is in compliance with the applicable laws and regulations of this jurisdiction and the rules of the department of insurance.

In my opinion, the rates are not excessive or unfairly discriminatory and bear reasonable relationship to the benefits based on the loss ratio standards of this jurisdiction. This filing will enhance premium adequacy but may not be sufficient to prevent future rate action.

In forming my opinion, I have used actuarial assumptions and actuarial methods and such tests of the actuarial calculations as I considered necessary. Based on these assumptions, or statutory requirements where necessary, the premium rate filing is in compliance with the loss ratio standards of this jurisdiction.

The basis for contract reserves has been previously filed and there is no anticipation of any changes.



Andrew Besendorf, FSA, MAAA
Actuarial Director
Humana Inc.
December 5, 2016