Re: 1LTC-97-MD-1, 1LTC-97-MD-2, 2LTC-97-MD-1, 2LTC-97-MD-2 Issued by Metropolitan Life Insurance Company (MetLife)

Attached is the filing for the captioned forms. This letter provides an overview of the filing and notes on some of the content. After a careful review of earlier filings, we have endeavored to reflect in this filing additional content based on all the questions submitted by your Department. Hopefully, this will make your review easier and more effective.

## Filing Overview

In addition to this overview, this filing consists of the Actuarial Memorandum, the Addendum Automatic Inflation Choices "Landing Spots" focusing on premium rates for various levels of inflation protection for use as Landing Spots consequent to rate action, and supporting data based on earlier reviews. These documents are outlined and summarized here for your convenience.

| Title | Description |
| :---: | :---: |
| Actuarial Memorandum Exhibit I-A | Lifetime Loss Ratio ("LLR") <br> - Without/with proposed rate increase of 32.25\% (actuarially equivalent to two 15\% increases) <br> - Nationwide experience <br> - Weighted average statutory rate $4.5 \%$ <br> LLR without rate increase - 112.9\% <br> LLR with rate increase - 103.7\% |
| Exhibit II-A | Demonstration of rate action meeting Rate Stability (58/85) limitations |
| Exhibit I-B | Lifetime Loss Ratio ("LLR") <br> - Without/with proposed rate increase of $32.25 \%$ (equivalent to two $15 \%$ increases) <br> - Maryland experience <br> - Weighted average statutory rate $4.5 \%$ <br> LLR without rate increase -115.6 \% <br> LLR with rate increase - 105.5\% |
| Exhibit II-B | Demonstration of rate action meeting Rate Stability (58/85) limitations |
| Review of Prior Correspondence Attachment 1 | Comparison of Original Pricing and Current Best Estimate Assumptions |
| Attachment 2 | Nationwide Actual-to-Expected Loss Ratios by Duration <br> LLR without rate increase - 112.9\%; A/E - 1.85 |
| Attachment 3 | Nationwide Actual-to-Expected Loss Ratios by Calendar Year <br> LLR without rate increase - 112.9\%; A/E - 1.88 |


| Attachment 4 | Actual-to-Expected results for Lapse, Mortality and <br> Morbidity assumptions |
| :--- | :--- |
| Addendum - Actuarial Memorandum <br> Addendum | Memorandum on Premium Rates for use as <br> "Landing Spots" with Rate Increases |

## Additional Notes

MetLife requests the rate action based on deviations from anticipated experience outlined in the Actuarial Memorandum, the Addendum, and the supporting attachments. Lifetime Loss Ratios exceed all minimum requirements in Maryland as well as the application of rate stability standards even at the full requested rate action. In addition, though Maryland-only experience is not necessarily credible, the Maryland LLR's still meet the standards above at the full rate action level.

COMAR 31.14.01.04A(5) states, "An insurer may not charge a renewal premium rate for a longterm care policy which exceeds by more than 15 percent any premium charged for the policy during the preceding 12 months." This filing limits the requested rate increase to $15 \%$.

Despite the rate action requested, the experience of the block does not fully return to pricing levels. In general, the rate action restricts consideration of recovering historical losses by focusing on future lifetime experience. We will continue, of course, to analyze and adjust experience assumptions and reserve the right to update those in the future along with requesting any resulting changes in premium rates.

Thank you for your consideration. I look forward to hearing from you.

## ManR Dlenton

Mark D. Newton, FSA, MAAA

Actuarial Director, Metropolitan Life Insurance Company

# METROPOLITAN LIFE INSURANCE COMPANY 

## New York, NY

## Actuarial Memorandum for LTC97 Series

June 12, 2018

## Policy Forms

The premium rate schedule increase for which we are seeking approval will apply to the following individual long-term care policy forms:

- 1LTC-97-MD-1
- 1LTC-97-MD-2
- 2LTC-97-MD-1
- 2LTC-97-MD-2

These forms were developed as part of a nationwide series and were issued in Maryland from April 2000 to July 2003, but are no longer being marketed in any state. Nationwide, the last policies under this series were issued in 2003.

Policy forms 1LTC-97-MD and 2LTC-97-MD (subsequently referred to as 1LTC-97 and 2LTC-97 respectively) are existing individual tax-qualified policy forms and were previously approved in 2000, along with any rider or endorsement forms that were contemporaneously or subsequently approved for use with these policy forms.

Policy form 1LTC-97 provides comprehensive coverage. Policy form 2LTC-97 provides coverage for long-term care services received in a nursing home, assisted living facility (ALF), or hospice facility.

## 1. Purpose of Filing

This actuarial memorandum has been prepared for the purpose of demonstrating that the anticipated loss ratio standard of this product meets the minimum requirements of your state and may not be suitable for other purposes.

## 2. Description of Benefits

1LTC-97 and 2LTC-97 are part of a nationwide series of individually underwritten policy forms which reimburses $100 \%$ of charges, up to a maximum facility benefit amount, for confinement in a licensed nursing home or assisted living facility. Benefits are payable under skilled, intermediate, or custodial levels of care, as well as inpatient hospice care.

1LTC-97 also includes a home/community-based care benefit which reimburses $100 \%$ of charges from formal caregivers, up to a maximum home/community-based care benefit amount, for services received at home or at an adult day care center for maintenance or personal care, including hospice care.

For both policy forms, the daily benefit amount, home care/adult day care percentage, and maximum benefit period are selected at issue. Additional benefits for initial care advisory service and

# METROPOLITAN LIFE INSURANCE COMPANY 

New York, NY

Actuarial Memorandum for LTC97 Series
June 12, 2018
transition expenses are also provided. In addition, 1LTC-97 provides benefits for respite care, caregiver training, chore/transportation services, and alternate services.

Benefit eligibility is based on the inability to perform at least two of six activities of daily living (ADLs) including bathing, continence, dressing, eating, toileting, and transferring, for a period of at least 90 days due to loss of functional capacity; or due to severe cognitive impairment.

Benefit payments commence after a specified number of days in a waiting period, selected at issue, which accumulate over the lifetime of the policy. The waiting period need not be satisfied before receiving coverage for hospice care, respite care, caregiver training, or initial care advisory services; however, receipt of these services does not count towards satisfying the waiting period. Waiver of premium is provided beginning on the first day of the policy month coincident with or following the day the insured becomes eligible for benefit payments (includes completion of the waiting period).

At issue, the insured chose one of three inflation options: Automatic Simple Inflation Protection, Automatic Compound Inflation Protection, or Optional Inflation Protection. The insured could also elect nonforfeiture coverage at issue. For married couples that each had a primary policy, a Survivorship/Joint Waiver of Premium Rider was also available that provides for premiums to be waived when premiums are being waived on the spouse's policy and for a policy to become paid up when the spouse's policy is terminated due to death or exhaustion of the total lifetime benefit.

## 3. Renewability

These policy forms are guaranteed renewable for life.

## 4. Applicability

This filing is applicable to in-force policies only, as these policy forms are no longer being sold in the market. The premium changes will apply to the base forms as well as all applicable riders.

## 5. Actuarial Assumptions

a. Expected Claim Costs are the product of attained age frequency rates and continuance curves, adjusted by utilization factors and underwriting selection factors based on actual experience through June 30, 2016.
b. Voluntary Termination Rates vary by duration as developed from actual experience through June 30, 2016 and are shown in the following table:

# METROPOLITAN LIFE INSURANCE COMPANY 

New York, NY
Actuarial Memorandum for LTC97 Series
June 12, 2018
Voluntary Termination Rates

| Policy Duration | Lapse Rate |
| :---: | :---: |
| 1 | $5.00 \%$ |
| 2 | $4.50 \%$ |
| 3 | $4.00 \%$ |
| 4 | $3.50 \%$ |
| 5 | $2.50 \%$ |
| 6 | $2.00 \%$ |
| 7 | $1.80 \%$ |
| 8 | $1.50 \%$ |
| 9 | $1.30 \%$ |
| 10 | $1.10 \%$ |
| $11+$ | $1.10 \%$ |

In the year of rate increase implementation, it is assumed that an additional $4.0 \%$ of policies lapse and there is $3.0 \%$ net reduction to future premiums and benefits due to benefit downgrades. There is no adverse selection assumed due to the additional lapse rates.
c. Mortality $88 \%$ of Annuity 2000 Basic Table with selection consistent with experience.
d. Expenses Expenses have not been explicitly projected. It is assumed that the originally filed expense assumptions remain appropriate.

The above assumptions are based on actual inforce experience of MetLife and are deemed reasonable for these particular policy forms. In establishing the assumptions described in this section, the policy design, underwriting, and claims adjudication practices for the above-referenced policy forms were taken into consideration.

## 6. Marketing Method

These policy forms were marketed by agents and brokers of MetLife.

## 7. Underwriting Description

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

# METROPOLITAN LIFE INSURANCE COMPANY 

New York, NY

## Actuarial Memorandum for LTC97 Series

June 12, 2018

## 8. Premiums

Premiums are unisex, level and payable for life. The premiums vary by issue age, benefit period, initial daily benefit, waiting period, home and community care percentage, inflation protection option, and the selection of any other options or riders.

## 9. Issue Age Range

The issue ages are from 20 to 85 except for the unlimited benefit period option which was only issued to age 81.

## 10. Area Factors

Area factors are not used for this product.

## 11. Premium Modalization Rules

The following modal factors are applied to the annual premium (AP):

| Premium Mode | Modal Factors |
| :---: | :---: |
| Annual | $1.00^{*} \mathrm{AP}$ |
| Semi-Annual | $0.51^{*} \mathrm{AP}$ |
| Quarterly | $0.265^{*} \mathrm{AP}$ |
| Monthly | $0.09^{*} \mathrm{AP}$ |

## 12. Reserves

Active life reserves have not been used in this rate increase analysis. Claim reserves as of December 31, 2016 have been discounted to the incurral date of each respective claim and included in historical incurred claims. Incurred but not reported reserve balances as of December 31, 2016 have been allocated to a calendar year of incurral and included in historical incurred claims.

## 13. Trend Assumptions

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

## 14. Past and Future Policy Experience

Nationwide and Maryland experience for policy form series 1LTC-97 and 2LTC-97 are shown in Exhibit I-A and I-B, respectively.

# METROPOLITAN LIFE INSURANCE COMPANY 

New York, NY

Actuarial Memorandum for LTC97 Series
June 12, 2018
Historical experience is shown by claim incurral year. Claim payments and reserves were discounted to the mid-point of the year of incurral at the weighted average maximum valuation interest rate for contract reserves which is $4.50 \%$. Incurred but not reported reserve balances as of December 31, 2016 have been allocated to a calendar year of incurral and included in historical incurred claims.

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

A lifetime loss ratio as of December 31, 2016 is calculated as the sum of accumulated past experience and discounted future experience where accumulation and discounting occur at the weighted average maximum valuation interest rate for contract reserves, which is $4.50 \%$.

## 15. Projected Earned Premiums and Incurred Claims

Earned premiums for projection years 2017 through 2097 are developed by multiplying each prior period's earned premium (starting with December 31, 2016 actual earned premium) by a persistency factor. For a year in which the rate increase is effective, the earned premium prior to the increase is multiplied by 1 plus the rate increase percent and an effectiveness factor.

Each projection year claim amount is calculated by multiplying incidence, continuance and utilization factors by the policy and rider benefits on a seriatim basis.

Present and accumulated values in the lifetime projections in Exhibit I-A and I-B are determined at the average maximum valuation interest rate for contract reserves applicable to LTC business issued in the years in which the applicable business of this filing were issued. The maximum valuation interest rate averages $4.50 \%$.

The assumptions used in the projections in Exhibit I-A and I-B were developed from the company's LTC insurance experience.

Projections in Exhibit II provide a demonstration that the sum of the accumulated value of incurred claims without the inclusion of active life reserves, and the present value of future projected incurred claims, without the inclusion of active life reserves, will not be less than the sum of the following:

1. Accumulated value of the initial earned premium times $58 \%$;
2. $85 \%$ of the accumulated value of prior premium rate schedule increases;
3. Present value of future projected initial earned premium times $58 \%$; and
4. $85 \%$ of the present value of future projected premium in excess of the projected initial earned premium.

# METROPOLITAN LIFE INSURANCE COMPANY 

## New York, NY

Actuarial Memorandum for LTC97 Series
June 12, 2018

## 16. History of Previous Inforce Rate Increases

| Round | Authorized \% | Authorization Date | Implementation Date |
| :---: | :---: | :---: | :---: |
| 1 | $15.00 \%$ | $8 / 21 / 2009$ | $2 / 1 / 2010$ |
| 2 | $15.00 \%$ | $3 / 5 / 2014$ | $8 / 1 / 2014$ |
| 3 | $15.00 \%$ | $5 / 4 / 2016$ | $9 / 1 / 2016$ |

The 2009 premium rate increase applied to policyholders with an issue age under 70, except when reduced by new business caps that were based on policies with similar benefits that were available for sale from MetLife.

The experience and projections in Exhibit I-A have been restated to reflect a rate level similar to that authorized in Maryland on a nationwide basis.

## 17. Requested Rate Increase

The company is requesting two rate increases of $15.00 \%$ each, resulting in a cumulative compounded increase of $32.25 \%$. Corresponding rate tables reflecting the increases are included with this filing.

| Phase | Request | Expected Implementation Date |
| :---: | :---: | :---: |
| 1 | $15 \%$ | $1 / 1 / 2019$ |
| 2 | $15 \%$ | $4 / 1 / 2020$ |

The rate tables reflect the prior authorized increases, but do not reflect any issue age and/or new business cap associated with the 2009 rate increase. Also note that the actual rates implemented may vary slightly from those filed due to implementation rounding algorithms.

## 18. Analysis Performed

The initial premium schedule was based on pricing assumptions believed to be appropriate, given the information available, at the time the initial rate schedule was developed. The original pricing assumptions for claim costs, voluntary termination rates and mortality were as follows:
a. Incidence and claim termination rates: The original pricing expected claim costs for nursing home care were derived from the 1985 National Nursing Home Survey (TSA, 88-90 Reports). The incidence rates and lengths of stay vary by age and sex. The effects of selection at issue were assumed to reduce nursing home admission rates for the first seven policy durations.

# METROPOLITAN LIFE INSURANCE COMPANY 

## New York, NY

## Actuarial Memorandum for LTC97 Series

June 12, 2018
Home Care prevalence rates were derived from the 1982-1984 National Long-Term Care Surveys. These prevalence rates vary by age and sex. The effects of selection were assumed to reduce home care prevalence rates for the first nine policy durations.

The original pricing expected claim costs for nursing home, home and community care, and additional benefits were also adjusted to reflect the benefits available under these policy forms.
b. The original pricing expected voluntary termination rates varied by duration as shown in the following table:

| Duration | Lapse Rate |
| :---: | :---: |
| 1 | $10.0 \%$ |
| 2 | $9.0 \%$ |
| 3 | $8.0 \%$ |
| 4 | $7.5 \%$ |
| 5 | $7.0 \%$ |
| 6 | $6.5 \%$ |
| 7 | $6.0 \%$ |
| 8 | $5.5 \%$ |
| 9 | $5.0 \%$ |
| $10+$ | $4.5 \%$ |

c. The original pricing expected mortality rates were based on the 1983 Group Annuity Mortality Table, adjusted to remove loading. These mortality rates vary by age and sex. The effects of selection at issue were assumed to reduce mortality rates for the first six durations.

As part of the in-force management of its long-term care insurance business, MetLife monitors its performance by completing periodic analyses of lapse rates, mortality rates, claim incidence rates, claim continuance rates and claim utilization rates. The findings from these analyses were used to determine the current experience assumptions. A model of this business was developed for use in the cash flow testing that is part of the company's annual statutory reporting requirements. Using this model, a future projection of these policies under the new experience assumptions was performed and the projected lifetime loss ratio for these policies was determined. For these policies, the past experience and future projections based on current experience assumptions combine to a resulting loss ratio that far exceeds both original pricing expectations and state minimum requirements.

Similar analyses were done for the prior premium rate increases. Since then, morbidity levels have been worse than that assumed in the prior rate increase.

# METROPOLITAN LIFE INSURANCE COMPANY 

New York, NY

Actuarial Memorandum for LTC97 Series
June 12, 2018
The experience analysis, management's view of when a change to the original rate schedule may be considered, and the seriatim inforce and claim data used in developing the projections in Exhibit I and II have been relied upon by the actuary in the development of this memorandum.

## 19. Loss Ratio Requirement Compliance Demonstration

Projected experience assuming the increases are implemented is shown in Exhibit I-A and I-B. As shown in these exhibits, the expected lifetime loss ratio, both with and without the requested rate increase, exceeds the minimum loss ratio requirement.

## 20. Average Annual Premium

The average September 30, 2017 annualized premium for all premium-paying policies before and after the requested increases are:

Before increase: \$2,416
After $1^{\text {st }}$ phase of $15 \%$ : \$2,779
After $2^{\text {nd }}$ phase of $15 \%$ : $\$ 3,196$
The average September 30, 2017 annualized premiums for all premium-paying policies issued in Maryland, before and after the requested increases are:

| Before increase: | $\$ 2,445$ |
| :--- | :--- |
| After 1 |  |
| After $2^{\text {nt }}$ |  | phase of $15 \%$ : $\quad \$ 2,812$

## 21. Proposed Effective Date

This rate increase will become effective on each policy's modal premium due date (monthly, quarterly, semi-annually and annually) following at least a 60-day advance written notification to the policyholder.

## 22. Nationwide Distribution of Business as of September 30, 2017 (based on premium-paying policies inforce count)

By Issue Age

| Issue Age | $\mathbf{\%}$ |
| :---: | :---: |
| $<45$ | $4 \%$ |
| $45-49$ | $8 \%$ |
| $50-54$ | $19 \%$ |
| $55-59$ | $24 \%$ |
| $60-64$ | $22 \%$ |

New York, NY
Actuarial Memorandum for LTC97 Series
June 12, 2018

| $65-69$ | $14 \%$ |
| :---: | :---: |
| $70-74$ | $6 \%$ |
| $75+$ | $2 \%$ |
| Total | $100 \%$ |

By Benefit Period

| Benefit Period | $\mathbf{\%}$ |
| :---: | :---: |
| 1 Year | $0 \%$ |
| 1.5 Year | $0 \%$ |
| 2 Year | $5 \%$ |
| 3 Year | $17 \%$ |
| 4 Year | $13 \%$ |
| 5 Year | $20 \%$ |
| 6 Year | $0 \%$ |
| 7 Year | $0 \%$ |
| Lifetime | $45 \%$ |
| Total | $100 \%$ |

By Inflation Option

| Inflation Type | $\mathbf{\%}$ |
| :---: | :---: |
| Compound 3\% | $0 \%$ |
| Compound 5\% | $38 \%$ |
| Simple 5\% | $31 \%$ |
| FPO | $31 \%$ |
| None | $0 \%$ |
| Total | $100 \%$ |

By Home Care Percentage

| Home Care <br> Percentage | $\mathbf{\%}$ |
| :---: | :---: |
| None (FC Only) | $6 \%$ |
| $50 \%$ | $0 \%$ |
| $60 \%$ | $11 \%$ |
| $75 \%$ | $0 \%$ |
| $80 \%$ | $11 \%$ |
| $100 \%$ | $72 \%$ |
| Total | $100 \%$ |

# METROPOLITAN LIFE INSURANCE COMPANY 

New York, NY
Actuarial Memorandum for LTC97 Series
June 12, 2018
By Gender

| Gender | \% |
| :---: | :---: |
| Female | $63 \%$ |
| Male | $37 \%$ |
| Total | $100 \%$ |

## 23. Number of Policyholders

As of September 30, 2017, the number of premium-paying policies inforce and premiums that will be affected by this increase are:

|  | Issued Before Rate |  | Issued On or After Rate |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Stability Regulation Effective Date | Stability Regulation Effective Date |  |  |
|  | Number of | $\mathbf{2 0 1 7}$ | Number of | $\mathbf{2 0 1 7}$ |
|  | Insured | Annualized Premium | Insured | Annualized Premium |
| Maryland | 308 | 750,539 | 108 | $\$ 266,202$ |
| Nationwide | 14,563 | $\$ 35,623,386$ | 1,236 | $\$ 2,544,063$ |

## 24. 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 preparing health rate filings and to render the actuarial opinion contained herein.

This memorandum has been prepared in conformity with all applicable Actuarial Standards of Practice, including ASOP No. 8.

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 Maryland except the filing does not include the certification required for certain policies subject to your Department's long-term care Rate Stability rules. A larger rate increase would be needed in order to certify.

I further certify that:

- the analysis described in Section 18 of this memorandum was used in determining the need for a rate increase;
- the policy design, underwriting and claims adjudication practices have been taken into consideration in this rate increase request;


# METROPOLITAN LIFE INSURANCE COMPANY 

## New York, NY

## Actuarial Memorandum for LTC97 Series

June 12, 2018

- the actuarial assumptions are appropriate and the gross premiums bear reasonable relationship to the benefits; and
- the relationship between renewal premium rate schedules and new business premium rate schedules is not applicable because we are no longer marketing new business.

Mark D. Newton, FSA, MAAA
Actuarial Director, Metropolitan Life Insurance Company




|  |  | Loss Ratio Demonstration |  |  |  |  |  |  | Preactors Derived from Proiected values for ilustrative Purposes Only |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | hout titerest Loss ratio eemonst |  |  |  | Interest |  |  | $\begin{array}{\|c\|} \hline \text { Premium } \\ \text { Rate Increase } \\ \text { Factor } \end{array}$ | BenefitDowngrad | Porvor | $\begin{array}{\|c} \hline \text { Persistency F } \\ \hline \text { Policy } \\ \text { Shock Lapse } \end{array}$ |  | PremiumPersistency |
|  | Calenar Year | ${ }_{\text {Earned }}^{\text {Premium }}$ | Incured |  | $\begin{gathered} \text { Liet } \\ \text { Years } \end{gathered}$ | $\underset{\substack{\text { Earned } \\ \text { Premium }}}{\text { a }}$ | Incurred claims | $\xrightarrow[\substack{\text { Loss } \\ \text { Raio }}]{\text { a }}$ |  |  |  |  |  |  |
| Historical Experience | (1998 | - $\begin{array}{r}1686.478 \\ 2.56043\end{array}$ |  | ${ }_{\substack{0}}^{0.00 \%}$ | - 308 |  |  |  |  |  |  |  |  |  |
|  | 1999 | 2.560,434 | ${ }^{\text {c.469 }}$ | - ${ }_{\text {c.3\% }}$ | 3,034 | 5,531.574 2,561.057 | ${ }^{13,976}$ |  |  |  |  |  |  |  |
|  | ${ }_{201}^{2000}$ | 11, | ${ }_{\text {80, }}^{\text {807,649 }}$ | $7.10 \%$ | -1.499 |  | - | ${ }_{7}{ }^{\text {720 }}$ |  |  |  |  |  |  |
|  | 2022 | 40,913,902 | 6,033,271 | 14.7\% | 24,572 | ${ }^{\text {77,45,365 }}$ | 111,421,919 | 14.7\% |  |  |  |  |  |  |
|  | 203 | 45,945,058 | 8,205,406 | 17.9\% | ${ }^{24,335}$ | ${ }^{83,235,525}$ | 14,865,174 | 17.9\% |  |  |  |  |  |  |
|  | 2004 <br> 2005 |  |  | ${ }^{11.69 \%}$ | (23,394 <br> 22,685 |  |  | 年11.90\% |  |  |  |  |  |  |
|  | 2006 | 40,59,310 | 12,617,728 | 31.1\% | 22,125 | 64,43,6,616 | 20,030,980 | 31.1\% |  |  |  |  |  |  |
|  | 2007 | 39,48,8,834 | 17,57,086 |  | ${ }^{21,685}$ | 59,97,395 | 26,717,675 | 44.5\% |  |  |  |  |  |  |
|  | 2008 | 38,471,668 | 23,105, 271 | 60.1\% | 21,218 | 55,928,316 | 33,589,191 | 60.19 |  |  |  |  |  |  |
|  | 2009 | 37,185, 285 | 17,50,935 | 47.1\% | 20,756 | 51,730,096 | 24,350,500 | 47.196 |  |  |  |  |  |  |
|  | 2010 | 37,426,671 | 18,162,716 | 48.5\% | 20,189 | 49,823,827 | 24,178,908 | 48.5\% |  |  |  |  |  |  |
|  | 2011 | 38,554,435 | 19,564,570 | ${ }^{50.7 \%}$ | 19,689 | 49,114,976 | ${ }^{24,9293,550}$ | ${ }^{50.7 \% \%}$ |  |  |  |  |  |  |
|  | ${ }_{2013}^{2012}$ |  | $\xrightarrow{27,93,8786}$ | ${ }_{\text {7 }} 7.50 \%$ | 19,043 | ${ }^{4.2,245,016}$ | ${ }^{34,065,122}$ | 7.5.3\% |  |  |  |  |  |  |
|  | $\begin{array}{r}2013 \\ 2014 \\ \hline\end{array}$ |  | 23,284,466 <br> $31,14,026$ | ${ }_{9}^{65.7 \% \%}$ | 18,51 <br> 18,159 |  | ${ }_{\substack{2, 37,767,972,97}}^{27,623}$ |  |  |  |  |  |  |  |
|  | 2015 | 35,64, 0837 |  | ${ }^{83.50 \%}$ | ${ }^{1617,60}$ | ${ }_{\text {38, }}^{\text {3028,272 }}$ | ${ }_{3}^{31,94,524}$ | ${ }^{83.50 \%}$ |  |  |  |  |  |  |
| $\begin{aligned} & \text { Projected } \\ & \text { Future } \\ & \text { Experience } \end{aligned}$ | ${ }_{2016}^{2017}$ | - $\begin{array}{r}34,356,233 \\ 356741234 \\ \hline\end{array}$ | $32,308,665$ <br> 30,351414 | 94.0\% | ${ }_{\text {ckitio8 }}^{10.463}$ | 35.120 .742 $3+889759$ | - ${ }_{\text {3 }}$ |  |  |  |  |  |  |  |
|  | 2018 | 34,632,273 | 33,322,638 | ${ }_{96.2 \%}$ | 15,807 | 32,419,519 | 31,199,177 | ${ }_{96.2 \%}$ | ${ }_{1.4758}^{1.488}$ | ${ }_{1}^{1.0000}$ | 399 | ${ }_{1.0000}^{1000}$ | ${ }_{0}^{0.960}$ | ${ }_{0}^{0.946}$ |
|  | 209 | 34,012,626 | 35,09, 840 | 103.2\% | ${ }^{14,882}$ | 30,68,386 | 31,43,9,220 | 103.2\% | ${ }^{1.5957}$ | 0.9838 | 0.0629 | 0.9783 | 0.937 |  |
|  | 2020 | 34,486,229 | 37,068,206 | 107.5\% |  | 29,562,332 | ${ }^{31,775,658}$ | 107.5\% | ${ }^{1.7767}$ | ${ }^{0.97700}$ | 25 |  | 0.937 | 0.941 |
|  | ${ }_{2022}$ |  | ${ }_{4}^{4} \mathbf{4 , 5 8 5 6 , 6 1 0}$ | ${ }^{1313140 \%}$ | 13,230 1250 1250 | ${ }^{20,080,398}$ | $33,05,269$ 34292473 |  | - $1.9 .964{ }^{1}$ | -0.97700 | -0.0442 | ${ }^{0} 0.966000$ | ${ }_{0}^{0.955}$ | - |
|  | 2023 | 30,965,208 | 47, 424,093 | 152.2\% | 11.908 | 23,260,450 | 35,38,684 | 152.296 | ${ }^{1.9517}$ | 0.9770 | ${ }_{0} 0.0527$ | 0.9600 |  | 0.932 |
|  | 2024 | 28,70, ,588 | 50,58,319 | 177.0\% | 11,245 | 20,65,509 | 36,360,943 | 17.0\% | ${ }^{1.9517}$ | 0.9700 | ${ }_{0}^{0.0556}$ | ${ }_{0} .96600$ | 0.944 | 0.928 |
|  |  | 26,577,307 | 54,024,561 | 203.3 | 10,585 | 18,81,950 | 37,162,316 | 203.3\% | ${ }^{1.9517}$ | 0.9700 | 687 | 0.96 | 0.941 |  |
|  |  | 24,474 | 57,352, |  | 9,929 | 16,110,639 | 37,752,386 | 234.3\% | ${ }^{1.9517}$ |  | 19 |  |  |  |
|  |  | 22,44,004 | 60,455,989 |  | 9,882 | 14,137,717 | 38,107,067 | ${ }^{269.50}$ | 50517 |  |  |  |  |  |
|  | 2028 2029 | 20,492,442 | 63,428,990 6.6095159 | ${ }^{309.5 \%}$ | ${ }_{8}^{8,644}$ | ${ }^{12,352,543}$ | 38,234,063 | ${ }^{309.5 \%}$ | ${ }^{1.9517}$ | ${ }^{0.97700}$ | 0.0687 0.0722 0.0 | 0.9600 | ${ }^{0.9331}$ | - |
|  | 2030 | 16,85, 810 | 68,42, ,559 | 400.0\% | 7.411 | 9,301,454 | 37,76,918 | 400.0\% | ${ }^{1.9517}$ | 0.9700 | 0.0760 | 0.9600 | 0.924 | 0.905 |
|  | 2031 | 15,77,783 | 70,361,190 | 463.8\% | 6,820 | 8,014,020 | 37,66,098 | 463.8\% | 1.9517 | 0.9700 | 0.0798 | 0.9600 | 0.920 | 0.900 |
|  | 2032 | 13,593,159 | ${ }^{71,837,580}$ | 528.5\% | 6,249 | 6,870,967 | 36,311,918 | 528.5\% | 1.9517 | 0.9700 | 0.0837 | 0.9600 | 0.916 | 0.896 |
|  | ${ }_{2034}^{2033}$ | 12,115,946 | +72,89,992 | ${ }^{600.9 \%}$ | ${ }_{5}^{5,700}$ | ${ }_{5}^{5,860.552}$ | ${ }^{35,218,318}$ | ${ }^{600.90 \%}$ | ${ }^{1.9517}$ | ${ }^{0.9700}$ | ${ }^{0.0878}$ | 0.9600 | 0.912 | 0.891 |
|  | ${ }^{2034}$ | 10,741,667 |  | ${ }^{6822.20 \%}$ | 5,1766 | 4,972,063 | ${ }_{\substack{\text { a }}}^{33,2321,486}$ | ${ }^{682.206}$ | ${ }^{1.9517}$ | ${ }^{0.97700}$ | ${ }^{0.0920}$ | 0.9600 | ${ }^{0.9008}$ | ${ }^{0.8887}$ |
|  | ${ }_{2035}^{2035}$ | 9,4770.907 | 73,182,706 | ${ }^{772.7 \%}$ | ${ }_{4}^{4,677}$ |  |  | 772.76\% | ${ }^{1.9517}$ | 0.9700 | ${ }^{0.0963}$ | - 0.96000 | - 0.904 | - $\begin{gathered}0.882 \\ 0.872\end{gathered}$ |
|  | ${ }_{2036}^{2036}$ | $8,303,940$ $7,237.998$ | 72,489,955 | 873.0\% | 4,206 <br> 3763 | 3,519,7888 2.935.554 |  | 873.0\% | (1.9517 | 0.97700 0.9700 | (0.1008 | 0.9600 0.9600 | 0.899 0.895 | ${ }_{0}^{0.877}$ |
|  | ${ }_{2038}^{2038}$ |  | - | 1108.3\% |  | ${ }_{\text {coser }}^{\text {2,433,214 }}$ | ${ }_{2}^{26,9677.725}$ | -1108.3\% | ${ }^{1.95517}$ | ${ }_{0}^{0.97700}$ | 0.1101 | ${ }^{0.9600}$ | ${ }_{0}^{0.890}$ | ${ }_{0}^{0.866}$ |
|  | 2039 | 5,396,540 | 67,13,921 | 1243.6\% | 2,964 | 2,004,467 | 24,928,496 | 1243.6\% | 1.9517 | 0.9700 | 0.1149 | 0.9600 | 0.885 | 0.861 |
|  |  | 4,961,985 |  | ${ }^{13922.1 \%}$ |  | ${ }^{\text {1,641,064 }}$ | ${ }_{\text {2 }}^{22,845,733}$ | ${ }^{13922.19 \%}$ |  | 㖪 700 | 199 |  | 0.880 | ${ }^{0.856}$ |
|  | ${ }_{2042}^{2041}$ |  | - | $1554.40 \%$ $1732.9 \%$ |  | $1,334,969$ $1.088,739$ |  | - 1 154.4.909090 | 1.95171 | -0.97700 | - | ${ }^{0.96000}$ | 0.875 0.870 |  |
|  | 2043 | 2,780,008 | 53,610,261 | 1928.4\% | ${ }_{1,717}$ | 865,893 | 16,698,068 | 1928.4\% | ${ }_{1}^{1.9517}$ | 0.9770 | 0.1352 | ${ }_{0} .96600$ | 0.865 | 0.839 |
|  | 2044 | 2,315,812 | 49,605,400 | 2142.0\% | 1,476 | 690,248 | 14,785,328 | 2142.0\% | 1.9517 | 0.9700 | 0.1405 | 0.9600 | 0.860 |  |
|  | ${ }_{2}^{2045}$ | 1,916,304 <br> $1.54,783$ |  | ${ }^{2374.5 \%}$ | 1,260 1,070 1 | 546,575 |  | ${ }^{2374.590}$ | ${ }^{1.9517}$ | 0.97700 0.9700 | - 0.1460 | - $\begin{aligned} & 0.9600 \\ & 0.9600\end{aligned}$ | 0.854 | ene0.827 <br> 0.822 |
|  | 2047 | 1,284,801 | 37,320,510 | 2004.8\% | ${ }_{9} 92$ | 333,575 |  | 2904.8\% | ${ }_{1}^{1.9517}$ | 0.9770 | 0.1569 | ${ }_{0} 0.9600$ | ${ }_{0.843}$ | 0.816 |
|  | 2048 | 1,040,379 | 33,35, 323 | 3200.4\% |  | 260,033 | 8,337,600 | 320.4\% | ${ }^{1.9517}$ | 0.9700 | 0.1627 | 0.9600 | 0.837 |  |
|  | 2049 | ${ }_{836,632}$ | 29,53, ,35 | ${ }^{3530.4 \%}$ | 628 | 200,104 | 7,064,455 | 353.4\% | 1.9517 | 0.9700 | 0.1680 | 0.9600 | 0.832 | 0.804 |
|  | 2050 | ${ }^{667,391}$ | 25,914,554 | ${ }^{3883.0 \%}$ |  | 152,751 | 5,931,274 | ${ }^{3883.0 \%}$ | ${ }^{1.9517}$ | 0.9700 |  | ${ }^{0.9600}$ | 0.826 | 0.798 |
|  | ${ }_{2051}^{2051}$ | ${ }^{528,338}$ |  | ${ }^{42651.6 \%}$ |  | 115,718 | 4,931,481 | ${ }^{42661.6 \%}$ | ${ }^{1.9517}$ | ${ }^{0.97700}$ | ${ }^{0.11882}$ |  | 0.820 | ${ }^{0.792}$ |
|  | ${ }_{2053}^{2052}$ | ${ }_{3}^{415,067}$ | 19,369504 $16,485,219$ |  | 346 279 | (86,994 |  |  | 1.9517 | 0.97700 0.7700 | ${ }_{\substack{0.1981 \\ 0.1928}}^{0.17}$ | 0.9600 0.9600 | 0.814 0.807 | 0.786 0.780 0 |
|  | 2054 | ${ }_{250,258}$ | ${ }_{\text {1, }}^{1,877,842}$ | 5545.4\% | ${ }_{224}^{29}$ | ${ }_{48,032}^{64,9}$ | 2,66,551 | 545.46\% | ${ }^{1.9517}$ | 0.9700 | ${ }_{0} 0.1987$ | 0.9600 | 0.801 | 0.773 |
|  | 2055 | ${ }^{192,028}$ | 11,564,073 | ${ }^{6022.1 \%}$ |  | ${ }^{35,268}$ | ${ }^{2,123,898}$ | 6022.1\% | 1.9517 | 0.9700 | 0.2051 | 0.9600 | 0.795 |  |
|  | 2056 | 146,020 | 9,557,262 | ${ }^{6524.69 \%}$ | ${ }^{140}$ | ${ }^{25,664}$ | 1,674,459 | 6524.6\% | ${ }^{1.9517}$ | 0.9700 | ${ }^{0.2130}$ | 0.9600 | 0.787 | 0.760 |
|  | ${ }^{2057}$ 2058 | 110,165 82519 |  | ${ }^{7632.909}$ | $\begin{array}{r}109 \\ 84 \\ \hline 8\end{array}$ | ${ }_{\substack{18,528 \\ 13,281}}^{\text {c, }}$ | 1,309004 1.013709 | ${ }^{7663209090}$ | (1.9517 | -0.97000 | (0.2214 | 0.9660 0.9600 | 0.779 0.75 | 0.754 0.749 0.0 |
|  | 2059 | ${ }_{61,381}$ | $5.044,634$ | 8218.6\% |  | ${ }_{9,453}$ | 1776,940 | 8218.6\% | ${ }^{1.9517}$ | 0.9700 | 0.2317 | 0.9600 | 0.768 | 0.744 |
|  | ${ }^{2060}$ | 4,314 | 4,000,649 | ${ }^{8828.7 \% \%}$ | ${ }_{4}^{49}$ | ${ }_{6,667}$ | 5899,620 | ${ }^{8828.7 \% \%}$ | ${ }^{1.9517}$ | 0.9700 | ${ }^{0.2334}$ | ${ }^{0.9600}$ | 0.761 |  |
|  |  | ${ }_{\text {col }}$ |  |  |  |  |  |  |  |  |  |  | ${ }^{0.755}$ |  |
|  | 2063 | ${ }^{17,322}$ |  | 10880.6\% | ${ }_{21}^{26}$ | ${ }_{\substack{\text { j,237 }}}^{\text {2,257 }}$ | 241,618 | 10800.6\% | ${ }_{1}^{1.9517}$ | ${ }_{0}^{0.9770}$ | ${ }_{0}$ | ${ }_{0}^{0.9600}$ | ${ }_{0}^{0.743}$ | ${ }_{0} 0.719$ |
|  | 2064 | 12,353 | 1,414,486 | 11450.6\% | ${ }^{15}$ | ${ }_{1,527}$ | 174,813 | 11450.6\% | 1.9517 | 0.9700 | 0.2687 | 0.9600 | 0.732 | 0.713 |
|  |  |  | (1,775,8688 | ${ }^{1209932 \%}$ | ${ }_{8}^{11}$ | -1.033 | ${ }_{\text {124, }}^{12473}$ |  | ${ }^{1.9517}$ | -0.9700 | - | 0.9600 0.9600 |  |  |
|  | 2067 | 4,238 | 557,717 | 13161.0\% |  | 459 | 60,401 | 13161.0\% | ${ }^{1.9517}$ | 0.9770 | ${ }_{0} .2928$ | 0.9600 | 0.707 |  |
|  | 2068 | 2,903 | ${ }^{395,817}$ | 13636.0\% |  | 301 | 41.021 | 13836.0\% | 1.9517 | 0.9700 | 0.2973 | 0.9600 | 0.703 | 0.685 |
|  | 2069 | 1,960 | 27,857 | 13970.5\% | 3 | 194 | 27,159 | 13970.5\% | 1.9517 | 0.9700 | 0.3276 | 0.9600 | 0.672 |  |
|  | ${ }_{2071}^{2070}$ | (1,306 $\begin{array}{r}\text { \% } \\ \hline\end{array}$ | 1888796 12891 | 1445.9\%\% | ${ }^{2}$ | ${ }^{124}$ | ${ }^{117,917}$ | 14450.8\% | ${ }^{1.9517}$ | ${ }^{0.97700}$ | 0.3164 | ${ }^{0.9600}$ | 0.684 | ${ }^{0.666}$ |
|  | ${ }_{2072}^{2071}$ | 8588 <br> 858 | 128,911 | 1501.0\%\% | 1 | 78 | ${ }^{11,1707}$ |  | 1.19517 | 0.9700 |  | 0.9600 | 0.649 |  |
|  | ${ }_{2073}^{2017}$ | - |  | 15082.1\% | 1 | ${ }_{31}^{49}$ | ${ }_{4,935}^{4,4781}$ | 15820.20\% | ${ }^{1.95171}$ | ${ }_{0}^{0.9770}$ | N/A | -0.9600 | NA | N/A |
|  | 2074 | 242 | ${ }^{40,265}$ | 16646.3\% | 0 | 19 | 3,204 | 16646.3\% | ${ }^{1.9517}$ | 0.9700 | N/A | 0.9600 | N/A |  |
|  | ${ }_{2075} 20$ | ${ }^{160}$ | 27,831 | 17389.4\% | 0 | ${ }^{12}$ | ${ }^{2}, 1119$ | 17389.4.4\% | ${ }^{1.19517}$ | ${ }^{0.97700}$ | N/A | 0.9600 | N/ | N/ |
|  | 7-2097 | $\begin{array}{r}103 \\ 136 \\ \hline\end{array}$ | 18,791 <br> 28,26 | ${ }_{\text {12060.2\% }}^{1817.3 \%}$ |  | ${ }_{9}^{8}$ | 1.699 <br> 1.954 |  | ${ }_{1}^{1.9517}$ | -0.97000 | ${ }_{\text {N/ }}$ | - 0.96000 | N/ |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | 382.6\% | 223,935 |  | $369,018,601$ $950,129,609$ | 266.8\% |  |  |  |  |  |  |
|  | Note: - The premiums are normalized to reflect prior authorized increase by Maryland instead of rate action authorized by other state. <br> - The 1st round authorized increase of $15 \%$ was implemented from Febuary 2010 through January 2011 and the 2nd round authorized increase of $15 \%$ was implemented from August 2014 through July 2015 and the 3rd round authorized increase of $15 \%$ was implemented from September 2016 through August 2017. <br> - The current requested increases of $32.25 \%$ are assumed to be implemented in two phases at $15 \%$ each with the 1st phase starting January 2019 and the 2 nd phase starting April 2020 . <br> The projections |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## Exhibit II-A

## Demonstration that Lifetime Incurred Claims with Requested Increase are

## Not Less than Lifetime Earned Premium with Prescribed Factors

Policy Forms: 1LTC97 and 2LTC97

| 1 Accumulated value of initial earned premium | 876,988,738 | x | 58\% | $=$ | 508,653,468 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 2a Accumulated value of earned premium | 916,297,146 |  |  |  |  |
| 2 b Accumulated value of prior premium rate schedule increases (2a-1) | 39,308,408 | $x$ | 85\% | $=$ | 33,412,146 |
| 3 Present value of future projected initial earned premium | 209,871,494 | x | 58\% | = | 121,725,466 |
| 4a Present value of future projected premium | 356,147,978 |  |  |  |  |
| 4b Present value of future projected premium in excess of the projected initial earned premiums (4a-3) | 146,276,485 | x | 85\% | $=$ | 124,335,012 |
| 5 Lifetime Earned Premium Times Prescribed Factor: Sum of 1, 2b, 3, and 4b |  |  |  |  | 788,126,093 |
| 6a Accumulated value of incurred claims without the inclusion of active life reserves |  |  |  |  | 369,018,801 |
| 6b Present value of future projected incurred claims without the inclusion of active life reserves |  |  |  |  | 950,129,609 |
| 7 Lifetime Incurred Claims with Rate Increase: Sum of $\mathbf{6 a}$ and 6b |  |  |  |  | 1,319,148,410 |
| 8 Test: 7 is not less than 5 |  |  |  |  | TRUE |


--te tst round authorized increase of $15 \%$ was implemented from Febuary 2010 through January 201 and the 2nd round authorized increase of $15 \%$ was inplemented from Ausust 2014 through July 2015
The projections are based on the assumplions derived using experiencene datat at hrough $6 / 13012016$

Exibitit - 1



## Exhibit II-B

## Demonstration that Lifetime Incurred Claims with Requested Increase are

## Not Less than Lifetime Earned Premium with Prescribed Factors

Policy Forms: 1LTC97 and 2LTC97

| 1 Accumulated value of initial earned premium | 22,221,742 | x | 58\% | $=$ | 12,888,610 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 2a Accumulated value of earned premium | 23,281,013 |  |  |  |  |
| 2 b Accumulated value of prior premium rate schedule increases (2a-1) | 1,059,271 | $x$ | 85\% | $=$ | 900,380 |
| 3 Present value of future projected initial earned premium | 5,598,441 | x | 58\% | = | 3,247,095 |
| 4a Present value of future projected premium | 9,509,323 |  |  |  |  |
| 4b Present value of future projected premium in excess of the projected initial earned premiums (4a-3) | 3,910,882 | x | 85\% | $=$ | 3,324,250 |
| 5 Lifetime Earned Premium Times Prescribed Factor: Sum of 1, 2b, 3, and 4b |  |  |  |  | 20,360,336 |
| 6a Accumulated value of incurred claims without the inclusion of active life reserves |  |  |  |  | 7,840,638 |
| 6b Present value of future projected incurred claims without the inclusion of active life reserves |  |  |  |  | 26,760,459 |
| 7 Lifetime Incurred Claims with Rate Increase: Sum of $\mathbf{6 a}$ and 6b |  |  |  |  | 34,601,097 |
| 8 Test: 7 is not less than 5 |  |  |  |  | TRUE |

Attachment 1
Metropolitan Life Insurance Company
Assumptions Summary

|  | Original Pricing Assumptions | 2017 Best Estimate Assumptions |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Interest Rate: | 6.00\% | Maximum valuation interest rate for contract reserves, which average to $4.5 \%$ |  |  |  |
| Mortality: | 1983 GAM Basic Mortality Table With Mortality Selection Factors of: | 88\% of Annuity 2000 Basic table With Mortality Selection Factors of: |  |  |  |
| Voluntary <br> Lapse Rates | Duration Lapse Rate <br> 1 $10.00 \%$ <br> 2 $9.00 \%$ <br> 3 $8.00 \%$ <br> 4 $7.50 \%$ <br> 5 $7.00 \%$ <br> 6 $6.50 \%$ <br> 7 $6.00 \%$ <br> 8 $5.50 \%$ <br> 9 $5.00 \%$ <br> $10+$ $4.50 \%$ | Duration Lapse Rate <br> 1 $5.00 \%$ <br> 2 $4.50 \%$ <br> 3 $4.00 \%$ <br> 4 $3.50 \%$ <br> 5 $2.50 \%$ <br> 6 $2.00 \%$ <br> 7 $1.80 \%$ <br> 8 $1.50 \%$ <br> 9 $1.30 \%$ <br> 10 $1.10 \%$ <br> $11+$ $1.10 \%$ |  |  |  |
| Morbidity: <br> Incidence: | Morbidity underwiting savings vary by duration. However, we do not have the actual rates. | Current IB block experience with $m$ <br> Sample Ultimate Smoothed Inciden | idity UNW Sele <br> Rates (before | n Factors of: <br> ss-up to zero | ay elimination) |
|  | Incidence rates for nursing home care were based on a study published by the Society of Actuaries based on the 1985 NNHS with modifications. | Attained Ma  <br> Age Facility Care  <br> 81 $1.18 \%$  <br> 82 $1.45 \%$  <br> 83 $1.74 \%$  <br> 84 $2.07 \%$  <br> 84 $2.39 \%$  <br> 8   | Home Care <br> $1.16 \%$ <br> $1.55 \%$ <br> $1.93 \%$ <br> $2.18 \%$ <br> $2.43 \%$ | Fe Facility Care $1.61 \%$ $1.86 \%$ $2.09 \%$ $2.35 \%$ $2.57 \%$ | Home Care <br> $1.23 \%$ <br> $1.43 \%$ <br> $1.68 \%$ <br> $1.93 \%$ <br> $2.21 \%$ |
| Continuance: | Continuance rates for nursing home care were based on a study published by the Society of Actuaries based on the 1985 NNHS with modifications. | Termination curves were constructed separately for deaths and recoveries, gender and care path. Coefficients to an exponential-shaped curve were based on experience adjusted to minimize differences between actual and expected terminations in total as well as at periodic duration points along the curves. Death and recovery termination rates were recombined into a single termination table for modelling and valuation uses. |  |  |  |
| Utilization: | Home care prevalence rates were based on 1982-1984 National Long Term Care Surveys with modifications. Note that the actual utilization assumption at original pricing is not available. | Home Care Facility Care <br> $61 \%$ $79 \%$ |  |  |  |

Attachment 2
Metropolitan Life Insurance Company
Nationwide Experience Projections (Premium Normalized to Include Prior Authorized Increases) and With No Future Increase Actual to Expected Ratios
Policy Forms: 1LTC97 and 2LTC97

| Duration | Actual Experience through 12/31/2016 Projections based on Current Assumptions |  |  | Reproduced based on Original Pricing Assumptions since inception |  |  | $\mathbf{G}=\mathbf{C} / \mathrm{F}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | A | B | $\mathrm{C}=\mathrm{B} / \mathrm{A}$ | D | E | F = E / D |  |
|  | Earned Premium | Incurred Claims | Loss <br> Ratio | Earned Premium | Incurred Claims | Loss <br> Ratio | Actual to Expected Ratio |
| 1 | 30,925,558 | 681,323 | 2.2\% | 30,925,558 | 2,166,585 | 7.0\% | 0.31 |
| 2 | 50,313,679 | 4,855,251 | 9.6\% | 50,313,679 | 4,892,458 | 9.7\% | 0.99 |
| 3 | 45,903,356 | 5,758,743 | 12.5\% | 45,421,962 | 5,966,558 | 13.1\% | 0.96 |
| 4 | 43,472,446 | 9,165,080 | 21.1\% | 41,244,048 | 7,429,981 | 18.0\% | 1.17 |
| 5 | 41,800,003 | 7,438,934 | 17.8\% | 37,584,429 | 8,835,423 | 23.5\% | 0.76 |
| 6 | 40,551,788 | 12,182,498 | 30.0\% | 34,306,263 | 10,329,283 | 30.1\% | 1.00 |
| 7 | 39,550,134 | 14,668,738 | 37.1\% | 31,401,198 | 11,080,251 | 35.3\% | 1.05 |
| 8 | 38,572,086 | 20,282,239 | 52.6\% | 28,800,631 | 11,856,163 | 41.2\% | 1.28 |
| 9 | 37,833,356 | 20,951,640 | 55.4\% | 26,457,493 | 13,108,429 | 49.5\% | 1.12 |
| 10 | 37,331,341 | 15,014,149 | 40.2\% | 24,312,332 | 14,050,790 | 57.8\% | 0.70 |
| 11 | 36,933,022 | 22,765,221 | 61.6\% | 22,350,853 | 14,553,488 | 65.1\% | 0.95 |
| 12 | 36,345,900 | 22,798,428 | 62.7\% | 20,494,317 | 15,084,707 | 73.6\% | 0.85 |
| 13 | 35,765,229 | 29,128,528 | 81.4\% | 18,746,293 | 15,596,016 | 83.2\% | 0.98 |
| 14 | 35,481,107 | 32,077,620 | 90.4\% | 17,103,440 | 16,399,703 | 95.9\% | 0.94 |
| 15 | 35,744,743 | 29,636,722 | 82.9\% | 15,562,913 | 16,866,802 | 108.4\% | 0.77 |
| 16 | 35,984,103 | 30,329,714 | 84.3\% | 14,122,667 | 17,400,439 | 123.2\% | 0.68 |
| 17 | 35,511,452 | 31,598,505 | 89.0\% | 12,779,924 | 17,748,681 | 138.9\% | 0.64 |
| 18 | 34,388,662 | 34,183,529 | 99.4\% | 11,531,970 | 18,031,320 | 156.4\% | 0.64 |
| 19 | 32,805,498 | 36,523,296 | 111.3\% | 10,374,584 | 18,183,378 | 175.3\% | 0.64 |
| 20 | 30,875,648 | 39,976,672 | 129.5\% | 9,304,019 | 18,292,679 | 196.6\% | 0.66 |
| 21 | 28,963,504 | 43,588,404 | 150.5\% | 8,317,610 | 19,484,007 | 234.3\% | 0.64 |
| 22 | 27,076,868 | 47,332,741 | 174.8\% | 7,411,598 | 20,199,121 | 272.5\% | 0.64 |
| 23 | 25,221,227 | 51,159,954 | 202.8\% | 6,582,335 | 20,912,348 | 317.7\% | 0.64 |
| 24 | 23,404,202 | 55,028,018 | 235.1\% | 5,824,883 | 21,363,883 | 366.8\% | 0.64 |
| 25 | 21,631,862 | 58,849,440 | 272.0\% | 5,135,005 | 21,972,410 | 427.9\% | 0.64 |
| 26 | 19,910,867 | 62,572,728 | 314.3\% | 4,509,748 | 22,584,380 | 500.8\% | 0.63 |
| 27 | 18,247,524 | 66,095,673 | 362.2\% | 3,945,273 | 22,902,937 | 580.5\% | 0.62 |
| 28 | 16,648,129 | 69,352,514 | 416.6\% | 3,437,876 | 23,171,863 | 674.0\% | 0.62 |
| 29 | 15,118,283 | 72,304,973 | 478.3\% | 2,982,851 | 23,219,323 | 778.4\% | 0.61 |
| 30 | 13,662,732 | 74,851,819 | 547.9\% | 2,576,241 | 23,234,123 | 901.9\% | 0.61 |
| 31 | 12,285,895 | 76,927,590 | 626.1\% | 2,215,243 | 22,717,900 | 1025.5\% | 0.61 |
| 32 | 10,991,269 | 78,513,909 | 714.3\% | 1,896,262 | 22,389,752 | 1180.7\% | 0.60 |
| 33 | 9,781,105 | 79,520,165 | 813.0\% | 1,615,916 | 21,888,752 | 1354.6\% | 0.60 |
| 34 | 8,656,776 | 79,908,474 | 923.1\% | 1,370,099 | 20,955,082 | 1529.5\% | 0.60 |
| 35 | 7,618,523 | 79,671,861 | 1045.8\% | 1,155,074 | 19,964,444 | 1728.4\% | 0.61 |
| 36 | 6,665,303 | 78,827,629 | 1182.7\% | 968,220 | 18,797,692 | 1941.5\% | 0.61 |
| 37 | 5,795,781 | 77,337,495 | 1334.4\% | 806,796 | 17,549,477 | 2175.2\% | 0.61 |
| 38 | 5,008,322 | 75,199,055 | 1501.5\% | 668,143 | 16,058,872 | 2403.5\% | 0.62 |
| 39 | 4,300,456 | 72,490,899 | 1685.7\% | 549,725 | 14,525,616 | 2642.3\% | 0.64 |
| 40 | 3,668,717 | 69,266,519 | 1888.0\% | 449,559 | 13,345,588 | 2968.6\% | 0.64 |
| 41 | 3,109,065 | 65,568,819 | 2109.0\% | 365,012 | 11,620,765 | 3183.7\% | 0.66 |
| 42 | 2,616,998 | 61,532,536 | 2351.3\% | 293,889 | 10,550,212 | 3589.9\% | 0.65 |
| 43 | 2,187,522 | 57,222,116 | 2615.8\% | 234,953 | 9,488,536 | 4038.5\% | 0.65 |
| 44 | 1,816,037 | 52,765,882 | 2905.6\% | 186,589 | 8,459,601 | 4533.8\% | 0.64 |
| 45 | 1,496,998 | 48,214,944 | 3220.8\% | 147,230 | 7,457,475 | 5065.2\% | 0.64 |
| 46 | 1,224,958 | 43,684,044 | 3566.2\% | 115,450 | 6,337,115 | 5489.1\% | 0.65 |
| 47 | 994,944 | 39,247,575 | 3944.7\% | 90,009 | 5,462,694 | 6069.0\% | 0.65 |
| 48 | 802,010 | 34,938,796 | 4356.4\% | 69,812 | 4,617,720 | 6614.5\% | 0.66 |
| 49 | 641,497 | 30,791,046 | 4799.9\% | 53,895 | 3,866,552 | 7174.2\% | 0.67 |
| 50 | 509,074 | 26,878,737 | 5279.9\% | 41,466 | 3,296,798 | 7950.6\% | 0.66 |
| 51 | 400,845 | 23,229,559 | 5795.2\% | 31,750 | 2,624,149 | 8264.9\% | 0.70 |
| 52 | 313,128 | 19,863,677 | 6343.6\% | 24,311 | 2,088,741 | 8591.7\% | 0.74 |
| 53 | 242,635 | 16,804,346 | 6925.8\% | 18,615 | 1,662,573 | 8931.4\% | 0.78 |
| 54 | 186,452 | 14,055,791 | 7538.6\% | 14,253 | 1,323,356 | 9284.5\% | 0.81 |
| 55 | 142,042 | 11,629,345 | 8187.3\% | 10,914 | 1,053,350 | 9651.6\% | 0.85 |
| 56 | 107,288 | 9,526,877 | 8879.7\% | 8,357 | 838,434 | 10033.2\% | 0.89 |
| 57 | 80,352 | 7,724,383 | 9613.1\% | 6,399 | 667,367 | 10429.8\% | 0.92 |
| 58 | 59,709 | 6,200,247 | 10384.0\% | 4,899 | 531,204 | 10842.2\% | 0.96 |
| 59 | 44,016 | 4,931,153 | 11203.1\% | 3,751 | 422,822 | 11270.9\% | 0.99 |
| 60 | 32,207 | 3,882,074 | 12053.6\% | 2,872 | 336,553 | 11716.5\% | 1.03 |


| Lifetime | $1,057,754,234$ | $2,367,508,638$ | $223.8 \%$ | $567,281,458$ | $747,816,723$ | $131.8 \%$ | 1.70 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lifetime $^{*}$ | $591,711,816$ | $668,004,598$ | $112.9 \%$ | $344,795,718$ | $210,315,056$ | $61.0 \%$ | 1.85 |

Note
Figures in column A are normalized to reflect the prior rate actions authorized by Maryland (15\% on August 21, 2009, 15\% on March 5, 2014 and 15\% on May
$4,2016)$ rather than the prior rate action approved by other states

- Figures in column $D$ and $E$ do not reflect any rate action.
* Columns $A$ and $B$ are discounted back to the inception date at an interest rate of $4.5 \%$, which is the weighted average maximum valuation interest rate for
contract reserves. Columns D and E are discounted back to the inception date at the original pricing interest rate of $6 \%$.

|  | Calendar Year | Actual / Projected Experience |  |  | Reproduced Expected Pricing Experience |  |  |  | Accumulative Loss Ratio as of 12/31/2016 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | A | B | $\mathrm{C}=\mathrm{B} / \mathrm{A}$ | D | E | F=E/D | G = C/F | H | I | $\mathrm{J}=\mathrm{H} / \mathrm{l}$ |
|  |  | Earned Premium | Incurred Claims | Loss <br> Ratio | Earned Premium | Incurred Claims | Loss <br> Ratio | Actual to Expected Ratio | Actual/Projected at $4.5 \%$ (on C) | $\begin{aligned} & \text { Expected at 6\% } \\ & \text { (on F) } \end{aligned}$ | Actual to Expected Ratio |
| Historical <br> Experience | 1998 | 168,478 | 0 | 0.0\% | 168,478 | 11,803 | 7.0\% | 0.00 | 0.0\% | 7.0\% | 0.00 |
|  | 1999 | 2,560,434 | 6,469 | 0.3\% | 1,864,484 | 140,430 | 7.5\% | 0.03 | 0.2\% | 7.5\% | 0.03 |
|  | 2000 | 11,396,617 | 808,649 | 7.1\% | 8,312,609 | 682,259 | 8.2\% | 0.86 | 5.7\% | 8.1\% | 0.71 |
|  | 2001 | 26,357,874 | 1,975,285 | 7.5\% | 20,333,104 | 1,855,401 | 9.1\% | 0.82 | 6.9\% | 8.7\% | 0.78 |
|  | 2002 | 40,913,902 | 6,033,271 | 14.7\% | 33,676,757 | 3,503,259 | 10.4\% | 1.42 | 10.7\% | 9.6\% | 1.12 |
|  | 2003 | 45,945,058 | 8,205,406 | 17.9\% | 42,706,122 | 5,307,908 | 12.4\% | 1.44 | 13.2\% | 10.6\% | 1.24 |
|  | 2004 | 43,368,430 | 5,026,571 | 11.6\% | 41,254,260 | 6,643,515 | 16.1\% | 0.72 | 12.8\% | 12.0\% | 1.06 |
|  | 2005 | 41,865,927 | 8,327,622 | 19.9\% | 37,752,156 | 7,893,798 | 20.9\% | 0.95 | 14.1\% | 13.6\% | 1.03 |
|  | 2006 | 40,589,310 | 12,617,728 | 31.1\% | 34,643,864 | 9,036,497 | 26.1\% | 1.19 | 16.5\% | 15.3\% | 1.08 |
|  | 2007 | 39,481,834 | 17,587,086 | 44.5\% | 31,861,537 | 10,053,939 | 31.6\% | 1.41 | 19.8\% | 17.0\% | 1.16 |
|  | 2008 | 38,471,868 | 23,105,271 | 60.1\% | 29,361,837 | 10,959,535 | 37.3\% | 1.61 | 23.8\% | 18.7\% | 1.27 |
|  | 2009 | 37,185,285 | 17,503,935 | 47.1\% | 27,096,854 | 11,865,287 | 43.8\% | 1.07 | 25.7\% | 20.4\% | 1.26 |
|  | 2010 | 37,426,671 | 18,162,716 | 48.5\% | 25,022,945 | 12,737,947 | 50.9\% | 0.95 | 27.4\% | 22.1\% | 1.24 |
|  | 2011 | 38,554,435 | 19,564,570 | 50.7\% | 23,099,557 | 13,447,453 | 58.2\% | 0.87 | 29.0\% | 23.8\% | 1.22 |
|  | 2012 | 37,114,827 | 27,943,876 | 75.3\% | 21,296,446 | 14,045,997 | 66.0\% | 1.14 | 31.7\% | 25.4\% | 1.25 |
|  | 2013 | 35,630,361 | 23,284,466 | 65.4\% | 19,586,699 | 14,663,829 | 74.9\% | 0.87 | 33.5\% | 27.0\% | 1.24 |
|  | 2014 | 34,329,227 | 31,145,026 | 90.7\% | 17,968,964 | 15,294,392 | 85.1\% | 1.07 | 36.1\% | 28.6\% | 1.26 |
|  | 2015 | 35,649,087 | 29,763,082 | 83.5\% | 16,440,613 | 15,918,293 | 96.8\% | 0.86 | 38.1\% | 30.2\% | 1.26 |
|  | 2016 | 34,356,233 | 32,308,665 | 94.0\% | 15,001,546 | 16,438,774 | 109.6\% | 0.86 | 40.3\% | 31.7\% | 1.27 |
| Projected Experience | 2017 | 35,674,134 | 30,375,144 | 85.1\% | 13,650,444 | 16,884,764 | 123.7\% | 0.69 | 41.9\% | 33.3\% | 1.26 |
|  | 2018 | 34,632,273 | 33,328,638 | 96.2\% | 12,385,454 | 17,245,373 | 139.2\% | 0.69 | 43.7\% | 34.7\% | 1.26 |
|  | 2019 | 32,684,546 | 36,466,696 | 111.6\% | 11,204,377 | 17,620,260 | 157.3\% | 0.71 | 45.7\% | 36.2\% | 1.26 |
|  | 2020 | 30,761,682 | 39,806,922 | 129.4\% | 10,104,781 | 18,148,647 | 179.6\% | 0.72 | 47.8\% | 37.6\% | 1.27 |
|  | 2021 | 28,864,681 | 43,299,584 | 150.0\% | 9,084,286 | 18,861,258 | 207.6\% | 0.72 | 50.1\% | 39.0\% | 1.28 |
|  | 2022 | 26,988,637 | 46,913,241 | 173.8\% | 8,140,395 | 19,741,345 | 242.5\% | 0.72 | 52.5\% | 40.4\% | 1.30 |
|  | 2023 | 25,144,057 | 50,605,770 | 201.3\% | 7,270,048 | 20,507,043 | 282.1\% | 0.71 | 55.0\% | 41.8\% | 1.32 |
|  | 2024 | 23,337,457 | 54,320,574 | 232.8\% | 6,469,940 | 21,206,992 | 327.8\% | 0.71 | 57.7\% | 43.2\% | 1.34 |
|  | 2025 | 21,581,038 | 58,016,066 | 268.8\% | 5,736,740 | 21,854,484 | 381.0\% | 0.71 | 60.5\% | 44.6\% | 1.36 |
|  | 2026 | 19,873,707 | 61,589,431 | 309.9\% | 5,067,371 | 22,464,639 | 443.3\% | 0.70 | 63.3\% | 45.9\% | 1.38 |
|  | 2027 | 18,224,755 | 64,965,624 | 356.5\% | 4,458,818 | 22,972,088 | 515.2\% | 0.69 | 66.2\% | 47.2\% | 1.40 |
|  | 2028 | 16,640,067 | 68,115,324 | 409.3\% | 3,907,651 | 23,317,404 | 596.7\% | 0.69 | 69.2\% | 48.5\% | 1.43 |
|  | 2029 | 15,124,938 | 70,978,478 | 469.3\% | 3,410,307 | 23,510,996 | 689.4\% | 0.68 | 72.1\% | 49.7\% | 1.45 |
|  | 2030 | 13,683,025 | 73,476,760 | 537.0\% | 2,963,284 | 23,511,734 | 793.4\% | 0.68 | 75.1\% | 50.9\% | 1.48 |
|  | 2031 | 12,319,639 | 75,559,697 | 613.3\% | 2,563,380 | 23,350,167 | 910.9\% | 0.67 | 78.0\% | 52.0\% | 1.50 |
|  | 2032 | 11,037,780 | 77,145,167 | 698.9\% | 2,207,488 | 22,991,770 | 1041.5\% | 0.67 | 80.9\% | 53.0\% | 1.53 |
|  | 2033 | 9,838,269 | 78,188,780 | 794.7\% | 1,892,165 | 22,487,772 | 1188.5\% | 0.67 | 83.7\% | 53.9\% | 1.55 |
|  | 2034 | 8,722,341 | 78,698,595 | 902.3\% | 1,613,870 | 21,770,004 | 1348.9\% | 0.67 | 86.5\% | 54.8\% | 1.58 |
|  | 2035 | 7,690,471 | 78,589,676 | 1021.9\% | 1,369,161 | 20,822,682 | 1520.8\% | 0.67 | 89.1\% | 55.6\% | 1.60 |
|  | 2036 | 6,742,882 | 77,845,355 | 1154.5\% | 1,154,964 | 19,719,153 | 1707.3\% | 0.68 | 91.6\% | 56.3\% | 1.63 |
|  | 2037 | 5,877,326 | 76,542,278 | 1302.3\% | 968,562 | 18,457,106 | 1905.6\% | 0.68 | 94.0\% | 56.9\% | 1.65 |
|  | 2038 | 5,090,284 | 74,610,781 | 1465.7\% | 807,330 | 17,082,795 | 2116.0\% | 0.69 | 96.2\% | 57.4\% | 1.68 |
|  | 2039 | 4,382,044 | 72,072,510 | 1644.7\% | 668,740 | 15,640,032 | 2338.7\% | 0.70 | 98.3\% | 57.9\% | 1.70 |
|  | 2040 | 3,749,038 | 69,023,180 | 1841.1\% | 550,329 | 14,189,347 | 2578.3\% | 0.71 | 100.2\% | 58.3\% | 1.72 |
|  | 2041 | 3,186,583 | 65,513,816 | 2055.9\% | 449,785 | 12,829,540 | 2852.4\% | 0.72 | 101.9\% | 58.6\% | 1.74 |
|  | 2042 | 2,691,183 | 61,676,559 | 2291.8\% | 364,932 | 11,515,038 | 3155.4\% | 0.73 | 103.5\% | 58.9\% | 1.76 |
|  | 2043 | 2,257,394 | 57,571,157 | 2550.3\% | 293,906 | 10,379,331 | 3531.5\% | 0.72 | 104.9\% | 59.2\% | 1.77 |
|  | 2044 | 1,880,462 | 53,270,404 | 2832.8\% | 235,086 | 9,288,407 | 3951.1\% | 0.72 | 106.2\% | 59.4\% | 1.79 |
|  | 2045 | 1,556,058 | 48,864,311 | 3140.3\% | 186,828 | 8,200,242 | 4389.2\% | 0.72 | 107.3\% | 59.6\% | 1.80 |
|  | 2046 | 1,278,739 | 44,444,821 | 3475.7\% | 147,565 | 7,141,149 | 4839.3\% | 0.72 | 108.2\% | 59.7\% | 1.81 |
|  | 2047 | 1,043,271 | 40,077,867 | 3841.6\% | 115,879 | 6,133,139 | 5292.7\% | 0.73 | 109.0\% | 59.8\% | 1.82 |
|  | 2048 | 844,798 | 35,822,942 | 4240.4\% | 90,517 | 5,241,568 | 5790.7\% | 0.73 | 109.8\% | 59.9\% | 1.83 |
|  | 2049 | 679,353 | 31,718,680 | 4669.0\% | 70,375 | 4,438,801 | 6307.4\% | 0.74 | 110.4\% | 60.0\% | 1.84 |
|  | 2050 | 541,928 | 27,829,204 | 5135.2\% | 54,491 | 3,710,943 | 6810.3\% | 0.75 | 110.9\% | 60.1\% | 1.85 |
|  | 2051 | 429,016 | 24,179,452 | 5636.0\% | 42,060 | 3,059,436 | 7274.1\% | 0.77 | 111.3\% | 60.1\% | 1.85 |
|  | 2052 | 337,039 | 20,800,584 | 6171.6\% | 32,394 | 2,464,050 | 7606.6\% | 0.81 | 111.6\% | 60.1\% | 1.86 |
|  | 2053 | 262,795 | 17,703,199 | 6736.5\% | 24,936 | 1,971,831 | 7907.4\% | 0.85 | 111.9\% | 60.2\% | 1.86 |
|  | 2054 | 203,212 | 14,903,181 | 7333.8\% | 19,196 | 1,577,938 | 8220.2\% | 0.89 | 112.2\% | 60.2\% | 1.86 |
|  | 2055 | 155,928 | 12,418,463 | 7964.2\% | 14,777 | 1,262,726 | 8545.4\% | 0.93 | 112.3\% | 60.2\% | 1.87 |
|  | 2056 | 118,570 | 10,231,166 | 8628.8\% | 11,375 | 1,010,472 | 8883.5\% | 0.97 | 112.5\% | 60.2\% | 1.87 |
|  | 2057 | 89,455 | 8,358,104 | 9343.4\% | 8,756 | 808,616 | 9235.1\% | 1.01 | 112.6\% | 60.2\% | 1.87 |
|  | 2058 | 67,006 | 6,763,891 | 10094.5\% | 6,740 | 647,073 | 9600.5\% | 1.05 | 112.7\% | 60.2\% | 1.87 |
|  | 2059 | 49,842 | 5,417,347 | 10869.1\% | 5,188 | 517,806 | 9980.5\% | 1.09 | 112.8\% | 60.2\% | 1.87 |
|  | 2060 | 36,796 | 4,296,230 | 11675.9\% | 3,994 | 414,362 | 10375.6\% | 1.13 | 112.8\% | 60.2\% | 1.87 |
|  | 2061 | 26,932 | 3,372,638 | 12522.6\% | 3,074 | 331,568 | 10786.0\% | 1.16 | 112.8\% | 60.2\% | 1.87 |
|  | 2062 | 19,552 | 2,616,945 | 13384.5\% | 2,366 | 265,320 | 11212.7\% | 1.19 | 112.9\% | 60.2\% | 1.87 |
|  | 2063 | 14,065 | 2,009,068 | 14283.8\% | 1,821 | 212,303 | 11656.0\% | 1.23 | 112.9\% | 60.2\% | 1.87 |
|  | 2064 | 10,031 | 1,518,993 | 15143.4\% | 1,402 | 169,880 | 12116.8\% | 1.25 | 112.9\% | 60.2\% | 1.87 |
|  | 2065 | 7,090 | 1,133,879 | 15993.2\% | 1,079 | 135,934 | 12595.9\% | 1.27 | 112.9\% | 60.2\% | 1.87 |
|  | 2066 | 4,962 | 832,144 | 16769.5\% | 831 | 108,771 | 13093.9\% | 1.28 | 112.9\% | 60.2\% | 1.87 |
|  | 2067 | 3,441 | 598,923 | 17405.4\% | 639 | 87,036 | 13611.6\% | 1.28 | 112.9\% | 60.2\% | 1.87 |
|  | 2068 | 2,357 | 425,061 | 18033.6\% | 492 | 69,644 | 14149.7\% | 1.27 | 112.9\% | 60.2\% | 1.87 |
|  | 2069 | 1,592 | 294,091 | 18476.0\% | 379 | 55,728 | 14709.2\% | 1.26 | 112.9\% | 60.2\% | 1.87 |
|  | 2070 | 1,061 | 202,745 | 19111.2\% | 292 | 44,592 | 15290.7\% | 1.25 | 112.9\% | 60.2\% | 1.87 |


| Past | 621,365,858 | 283,369,694 | 45.6\% | 447,448,833 | 170,500,315 | 38.1\% | 1.20 | 40.3\% | 31.7\% | 1.27 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Future | 436,465,583 | 2,095,400,138 | 480.1\% | 119,841,038 | 578,451,100 | 482.7\% | 0.99 | 328.6\% | 329.7\% | 1.00 |
| Lifetime | 1,057,831,441 | 2,378,769,832 | 224.9\% | 567,289,871 | 748,951,415 | 132.0\% | 1.70 | 112.9\% | 60.0\% | 1.88 |

Figures in column A are normalized to reflect the prior rate actions authorized by Maryland (15\% on August 21, 2009, 15\% on March 5, 2014 and 15\% on May 4, 2016)
rather than the prior rate action approved by other states.

- Figures in column $D$ do not reflect any rate action


# Attachment 4 

Metropolitan Life Insurance Company
Actual to Expected Lapse/Mortality Individual Business

| Lapse |  |  |  |
| :---: | :---: | :---: | :---: |
| Policy <br> Duration | Actual | Expected * | A/E\% |
| 1 | 11,005 | 12,576 | $87.51 \%$ |
| 2 | 13,869 | 10,602 | $130.82 \%$ |
| 3 | 9,584 | 8,983 | $106.70 \%$ |
| 4 | 6,951 | 7,536 | $92.24 \%$ |
| 5 | 5,557 | 4,842 | $114.76 \%$ |
| 6 | 3,703 | 3,475 | $106.57 \%$ |
| 7 | 2,683 | 2,861 | $93.79 \%$ |
| 8 | 1,960 | 2,173 | $90.20 \%$ |
| 9 | 1,470 | 1,584 | $92.81 \%$ |
| $10+$ | 2,634 | 3,386 | $77.79 \%$ |


| Mortality |  |  |  |
| :---: | :---: | :---: | :---: |
| Policy <br> Duration | Actual | Expected * | A/E\% |
| 1 | 536 | 541 | $99.05 \%$ |
| 2 | 924 | 1,129 | $81.85 \%$ |
| 3 | 1,110 | 1,317 | $84.25 \%$ |
| 4 | 1,316 | 1,663 | $79.12 \%$ |
| 5 | 1,532 | 1,922 | $79.73 \%$ |
| 6 | 1,694 | 2,194 | $77.22 \%$ |
| 7 | 1,859 | 2,446 | $75.99 \%$ |
| 8 | 2,052 | 2,691 | $76.24 \%$ |
| 9 | 2,105 | 2,872 | $73.29 \%$ |
| 10 | 2,268 | 3,000 | $75.61 \%$ |
| 11 | 2,270 | 3,049 | $74.45 \%$ |
| 12 | 2,125 | 2,668 | $79.64 \%$ |
| 13 | 1,883 | 2,201 | $85.57 \%$ |
| $14+$ | 4,505 | 4,701 | $95.82 \%$ |

* The expecteds are based on current best estimate assumptions.

Attachment 4
Metropolitan Life Insurance Company
Actual to Expected Incidence
Individual Business

| Individual Business |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Female |  |  |  |  |  | Male |  |  |  |  |  |
|  | Facility Care |  |  | Home Care |  |  | Facility Care |  |  | Home Care |  |  |
| Calendar Year | Actual <br> Claims ${ }^{1}$ | Expected Claims ${ }^{2}$ | A/E\% | Actual <br> Claims ${ }^{1}$ | Expected Claims ${ }^{2}$ | A/E\% | Actual <br> Claims ${ }^{1}$ | Expected <br> Claims ${ }^{2}$ | A/E\% | Actual <br> Claims ${ }^{1}$ | Expected <br> Claims ${ }^{2}$ | A/E\% |
| 2002 | 3 | 2 | 152\% | 1 | 1 | 78\% | 2 | 1 | 282\% | 0 | 1 | 0\% |
| 2003 | 14 | 8 | 186\% | 6 | 5 | 115\% | 4 | 3 | 133\% | 2 | 3 | 67\% |
| 2004 | 19 | 17 | 114\% | 15 | 13 | 119\% | 7 | 6 | 111\% | 5 | 7 | 71\% |
| 2005 | 33 | 27 | 121\% | 16 | 20 | 79\% | 15 | 11 | 140\% | 9 | 12 | 76\% |
| 2006 | 49 | 40 | 124\% | 33 | 31 | 106\% | 23 | 16 | 144\% | 18 | 18 | 99\% |
| 2007 | 80 | 57 | 141\% | 55 | 48 | 116\% | 34 | 25 | 138\% | 31 | 29 | 105\% |
| 2008 | 114 | 81 | 141\% | 88 | 73 | 121\% | 33 | 37 | 90\% | 43 | 47 | 92\% |
| 2009 | 110 | 105 | 105\% | 91 | 96 | 95\% | 53 | 48 | 109\% | 56 | 60 | 93\% |
| 2010 | 129 | 130 | 99\% | 99 | 115 | 86\% | 65 | 59 | 109\% | 82 | 75 | 110\% |
| 2011 | 157 | 155 | 101\% | 135 | 136 | 99\% | 68 | 74 | 92\% | 77 | 91 | 84\% |
| 2012 | 197 | 182 | 108\% | 162 | 157 | 103\% | 93 | 88 | 106\% | 120 | 109 | 110\% |
| 2013 | 209 | 214 | 98\% | 168 | 180 | 93\% | 98 | 104 | 95\% | 103 | 126 | 82\% |
| 2014 | 235 | 248 | 95\% | 201 | 204 | 99\% | 105 | 122 | 86\% | 156 | 146 | 107\% |
| 2015 | 264 | 278 | 95\% | 233 | 219 | 106\% | 124 | 141 | 88\% | 170 | 165 | 103\% |
| Total | 1,613 | 1,543 | 105\% | 1,303 | 1,297 | 100\% | 724 | 734 | 99\% | 872 | 890 | 98\% |

${ }^{1}$ Based on actual experience through 6/30/2016 including adjustments for incurred but not reported claims.
${ }^{2}$ The expected claims are based on current best estimate assumptions.

Attachment 4
Metropolitan Life Insurance Company Actual to Expected Claim Terminations All Business (excl. AARP-Pru)

| Claim Duration (Months) | Non AARP-Pru Block |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Actual Deaths | Expected <br> Deaths ${ }^{1}$ | Actual Recoveries | Expected Recoveries ${ }^{1}$ | Deaths <br> A/E\% | Recoveries A/E\% | Total A/E\% |
| 1 | 774 | 482 | 59 | 75 | 160\% | 78\% | 149\% |
| 2 | 703 | 1,197 | 156 | 233 | 59\% | 67\% | 60\% |
| 3 | 746 | 1,036 | 218 | 222 | 72\% | 98\% | 77\% |
| 4 | 834 | 1,139 | 294 | 252 | 73\% | 116\% | 81\% |
| 5 | 831 | 934 | 262 | 206 | 89\% | 127\% | 96\% |
| 6 | 726 | 816 | 196 | 179 | 89\% | 110\% | 93\% |
| 7 | 623 | 676 | 174 | 148 | 92\% | 118\% | 97\% |
| 8 | 561 | 582 | 131 | 122 | 96\% | 107\% | 98\% |
| 9 | 546 | 510 | 104 | 103 | 107\% | 101\% | 106\% |
| 10 | 465 | 459 | 114 | 88 | 101\% | 130\% | 106\% |
| 11 | 443 | 423 | 73 | 76 | 105\% | 96\% | 103\% |
| 12 | 469 | 397 | 80 | 67 | 118\% | 119\% | 118\% |
| 13+ | 11,666 | 10,750 | 1,254 | 1,365 | 109\% | 92\% | 107\% |
| Total | 19,387 | 19,402 | 3,115 | 3,137 | 100\% | 99\% | 100\% |

${ }^{1}$ The expected deaths and recoveries are based on current best estimate assumptions.

