

MILLIMAN REPORT

NCCI Proposed Workers Compensation Advisory Loss Costs, Effective 8/1/19

State of Rhode Island and Providence Plantations

Department of Business Regulation

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I. Scope and Intended Purpose

A. Background

On 11/20/18, the National Council on Compensation Insurance, Inc. (“NCCI”) filed to revise its Rhode Island workers compensation advisory loss costs to be effective 8/1/19. NCCI proposed an overall change in loss costs of -7.7% for the industrial classes and -8.3% for the Federal (“F”) classifications. For the U.S. Longshore and Harbor Workers (“USL&HW”) compensation percentage that adjusts for differences in benefits and loss-based expenses, NCCI proposed to change the current percentage from 61% to 58%.

B. Scope

Milliman, Inc. (“Milliman”) has been retained by the Department of Business Regulation (“the Department”) to provide an independent review of NCCI’s Rhode Island loss cost filing, effective 8/1/19, including the underlying assumptions, actuarial methodology, and reasonableness of the selections.

C. Intended Purpose

The intended purpose of this report is to assist the Department in evaluating NCCI’s proposed loss cost changes.

D. Limitations on Distribution

Milliman’s work is prepared solely for the use and benefit of the Department in accordance with its statutory and regulatory requirements. Milliman recognizes that materials it delivers to the Department may be public records subject to disclosure to third parties, however, Milliman does not intend to benefit and assumes no duty or liability to any third parties who receive Milliman’s work and may include disclaimer language on its work product so stating. To the extent that Milliman’s work is not subject to disclosure under applicable public records laws, the Department agrees that it shall not disclose Milliman’s work product to third parties without Milliman’s prior written consent; provided, however, that the Department may distribute Milliman’s work to (i) its professional service providers who are subject to a duty of confidentiality and who agree

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II. Summary of Milliman Findings

Table 1 summarizes the proposed changes of NCCI and Milliman.

Table 1: Summary of Proposed Changes by Party

Effective 8/1/19

	NCCI	Milliman
Industrial Classes	-7.7%	-8.1%
"F" Classifications	-8.3%	-8.7%
USL&HW %	-1.9%	-1.9%

The following is a summary of the major findings of Milliman's independent actuarial review of the filing.

- **Industrial Classes:** With the exception of the loss adjustment expense ("LAE") provision, we generally find NCCI's methodology to be within a range of reasonableness and its assumptions to be reasonably supported. Based on our review of the data and information presented in the filing, we recommend lowering the LAE provision from 20.5% to 20.1%. We estimate the overall revised indication to be -8.1% for the industrial classes. Please see Section IV for details.
- **"F" Classifications:** With the exception of the LAE provision, we generally find NCCI's methodology to be within a range of reasonableness and its assumptions to be reasonably supported. We recommend the same change as noted above for the industrial classes. We estimate the overall revised indication to be -8.7% for the "F" classifications.
- **USL&HW:** NCCI's methodology is reasonable and its assumptions are reasonably supported at this time.

III. Summary of NCCI Filing

A. Industrial Classes

Table 2 summarizes NCCI's proposed changes to its Rhode Island workers compensation advisory loss costs for the industrial classes to be effective 8/1/19.

Table 2: Proposed Changes - Industrial Classifications

Effective 8/1/19

Component	Indication
Change in Experience, Trend, and Benefits	-8.8%
Change in Loss Adjustment Expenses	+1.2%
Proposed Change in Loss Costs	-7.7%

NCCI proposed an overall change of -7.7% in loss costs of the industrial classes. This is derived from a change in experience, trend, and benefits of -8.8% and a change in the LAE provision of +1.2%.

B. "F" Classifications / USL&HW

Table 3 summarizes NCCI's proposed changes to its "F" classifications and the USL&HW percentage to be effective 8/1/19.

Table 3: Proposed Changes - Other

Effective 8/1/19

Component	Indication
"F" Classifications	-8.3%
USL&HW %	-1.9%

For the "F" classifications, NCCI proposed a loss cost change of -8.3%.

For USL&HW, NCCI proposed to change to the current 61% adjustment factor for differences in benefits and loss-based expenses to 58%.

C. Industry Group Loss Cost Level Changes

Table 4 below summarizes the distribution of the overall loss cost level change to each industry group as filed by NCCI. The overall change across all classes is designed to balance to the overall aggregate indication.

Table 4: Proposed Changes by Industry Groups

Effective 8/1/19

Industry Group	Average Change
Manufacturing	-9.3%
Contracting	-7.9%
Office and Clerical	-9.3%
Goods and Services	-7.1%
Miscellaneous	-6.7%
Overall	-7.7%

D. Experience Rating Plan Split Point

In experience rating, the split point separates losses into primary and excess components. For the twenty years prior to 2013, the split point had been \$5,000. In 2013, NCCI's analysis indicated that the split point should be increased to \$15,000 and NCCI stated that the experience rating plan becomes less responsive if the split point is not indexed for claims cost inflation. Any future changes in the split point will be based on countrywide severity changes.

NCCI increased the split point from \$5,000 to \$10,000 in the 2013 filing, to \$13,500 in the 2014 filing, to \$16,000 in the 2016 filing and to \$16,500 in the 2017 filing. In the current filing, NCCI has increased the split point to \$17,000. No party has contested this provision and we believe NCCI's implementation of incremental changes to the split point is reasonable.

IV. Milliman Analysis and Comments on NCCI Filing

A. Loss Cost Level Indication

With respect to the treatment of individual large losses, NCCI used the same ratemaking methodology as was used in recent filings of limiting individual large losses to a certain loss threshold (about \$3.5 million in this year's filing). The actual excess paid plus case loss amount greater than this amount is removed and replaced with an expected excess loss amount. This methodology is intended to stabilize the loss cost indications. According to NCCI, in the experience period used in this year's filing, there were no claims that exceeded the threshold on a paid basis. On a paid plus case basis, there was one claim that exceeded the threshold with a total of approximately \$6.6 million of paid plus case losses above the threshold.

Using this ratemaking methodology, NCCI calculated an indication of the estimated loss cost needed for the prospective year based on the loss experience of policy years 2014, 2015, and 2016 evaluated as of 12/31/17. The proposed indication was based on the following loss development methodology: 100% weight to developed paid losses using loss development factors ("LDFs") based on the average of the latest five years excluding the highest and lowest years.

We asked NCCI to calculate alternative loss cost level indications based on the same methodology as described above for the treatment of large losses, but using alternative scenarios. These alternative indications are listed below and compared in Table 5. Please note that these alternative indications reflect the overall impact of the proposed change, including the LAE provision.

- 100% weight to developed paid losses with LDFs based on the average of the latest five years ("Paid 5")
- 100% weight to developed paid losses with LDFs based on the average of the latest three years ("Paid 3")
- 100% weight to developed "paid plus case" losses with LDFs based on the average of the latest five years excluding the highest and lowest years ("Paid+Case 5 XHL")
- 100% weight to developed "paid plus case" losses with LDFs based on the average of the latest five years ("Paid+Case 5")
- 100% weight to developed "paid plus case" losses with LDFs based on the average of the latest three years ("Paid+Case 3")

- 50% weight to Paid 5 and 50% weight to Paid+Case 5
- 50% weight to Paid 3 and 50% weight to Paid+Case 3
- 50% weight to Paid 5 XHL and 50% weight to Paid+Case 5 XHL

Table 5 summarizes NCCI's original and alternative indications for the current filing. The table also shows the differential between the original and alternative indications. NCCI's selected methodology (i.e., original indication) is in a similar range compared with the alternative indications. In other words, it is not an outlier, either high or low. In addition, NCCI's selected methodology is consistent with the approved methodology in last year's filing. Based on all of this information, we believe that NCCI's selected methodology is reasonable at this time.

Table 5: Alternative Scenarios - Policy Year Basis

Effective 8/1/19

Scenario	Indication	Change
Original	-7.7%	
Paid 5 Years	-6.4%	+1.3%
Paid 3 Years	-9.4%	-1.7%
Paid+Case 5 Years XHL	-11.9%	-4.2%
Paid+Case 5 Years	-12.0%	-4.3%
Paid+Case 3 Years	-9.9%	-2.2%
50% Paid and 50% Paid+Case 5 Years	-9.1%	-1.4%
50% Paid and 50% Paid+Case 3 Years	-9.7%	-2.0%
50% Paid and 50% Paid+Case 5 Years XHL	-9.7%	-2.0%

We also asked NCCI to provide an alternative indication based on loss experience and premium for accident years 2015, 2016, and 2017, using the same loss development methodology used in the original filing. Table 6 summarizes this alternative indication. Please note that this alternative indication reflects the overall impact of the proposed change, including the LAE provision.

Table 6: Alternative Scenarios - Accident Year Basis*Effective 8/1/19*

Accident Year	Indication
2015	-1.8%
2016	-9.3%
2017	-19.2%
Total	-10.1%

In general, we believe that NCCI's selection based upon paid LDFs in the calculation of the loss cost indication is reasonable. Paid LDFs have been relied on for many years in Rhode Island and can be stable and reliable for workers compensation coverage, which typically makes periodic payments on claims.

Based on the data and information that we received from NCCI, we believe that NCCI's loss development methodology is reasonably supported.

B. Treatment of Large Losses

We believe that NCCI's ratemaking methodology with respect to the treatment of large losses is reasonable and appropriate for use in a small state like Rhode Island. It is a continuation of NCCI's program utilized in prior Rhode Island filings as well as similar to NCCI's program in other states. This methodology should help increase long-term stability in the loss cost level in Rhode Island. If one or more large losses occur in a policy year, it will not cause the loss cost level to increase as significantly in the years that follow. The large loss threshold is \$3,514,479 in this year's filing, which is slightly lower than the threshold of \$3,546,318 in the prior filing. The large loss threshold changes over time based on loss trend and development. We believe the current large loss threshold of \$3,514,479 is reasonable at this time.

C. Tail Factors

A “tail factor” is the final LDF that is applied to losses to develop them to an ultimate basis, and is selected for each of medical and indemnity losses. NCCI selects its tail factors based on historical loss information. NCCI’s selected the following tail factors:

- Indemnity “paid plus case” of 1.005
- Indemnity paid of 1.011
- Medical “paid plus case” of 1.005
- Medical paid of 1.026

The indemnity “paid plus case” tail factor is unchanged from the prior filing, and all other tail factors are lower than the prior filing.

We asked NCCI to provide an alternative indication using the prior selected tail factors along with the other assumptions of the original filing. According to NCCI, the alternative indication in this scenario is -7.4%. Please note that these alternative indications reflect the overall impact of the proposed change, including the LAE provision.

Based on the data and information that we received from NCCI, we believe that both the medical and indemnity tail factors are reasonably supported.

D. Trend Factors

NCCI used trend factors to measure expected changes in benefit costs along with expected changes in wages. Trend was determined separately for indemnity and medical benefits. NCCI estimated that the indemnity portion of the total benefit costs would be 68% and the medical portion would be 32%.

In the current filing, NCCI proposed to decrease the indemnity trend factor from -1.0% to -2.0% and to decrease the medical trend factor from -2.0% to -3.0%. NCCI’s selections are based on an analysis of Rhode Island historical loss ratios as well as economic data.

For comparison purposes, we asked NCCI to calculate alternative overall indications for each of the following alternative scenarios: (a) -1.0% for the indemnity trend factor and -2.0% for the medical trend factor (i.e., no change to the currently approved trend selections); (b) -1.5% for the indemnity trend factor and -2.5% for the medical trend

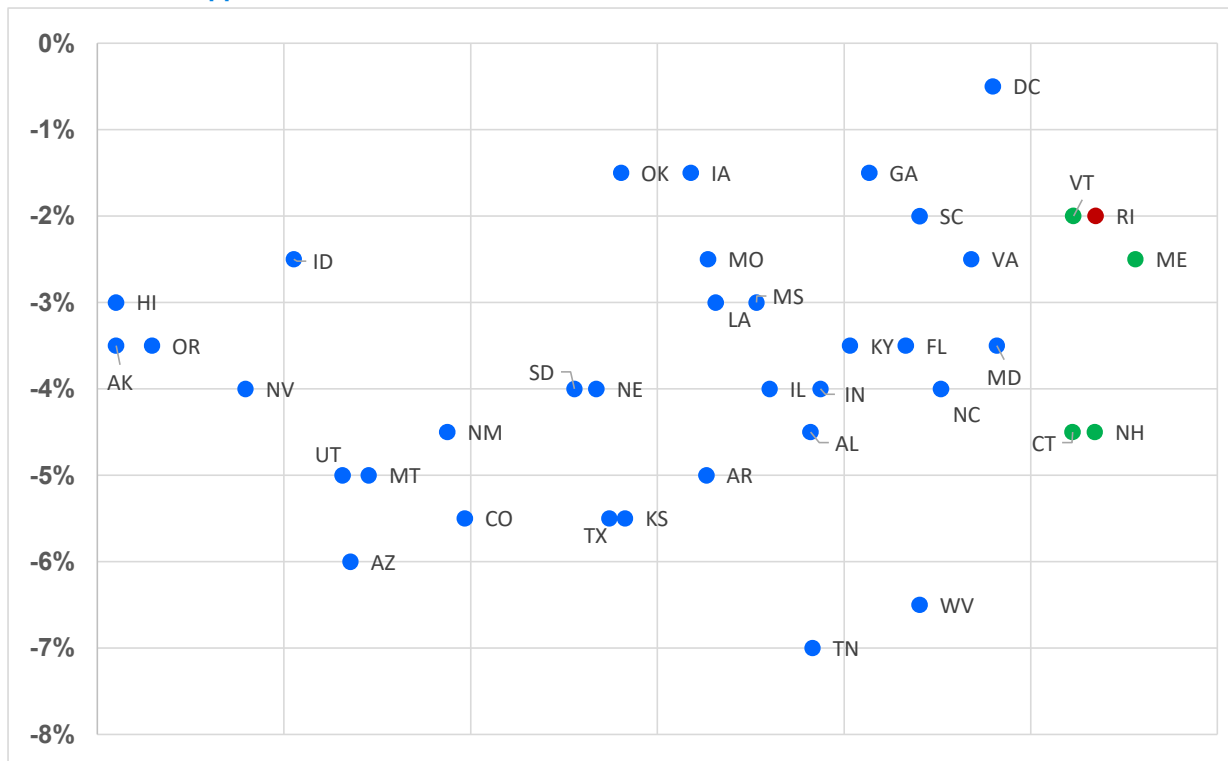
factor; (c) -0.5% for the indemnity trend factor and -1.5% for the medical trend factor; and (d) -2.5% for the indemnity trend factor and -3.5% for the medical trend factor. The overall indications are -3.3% for scenario (a), -5.6% for scenario (b), -0.9% for scenario (c), and -9.8% for scenario (d). Please note that these alternative indications reflect the overall impact of the proposed change, including the LAE provision.

NCCI also provided the currently approved indemnity and medical trend factors in other NCCI states, and the exponential trend analyses that were reviewed for Rhode Island along with the goodness-of-fit statistics, or R-squared values.

Indemnity Trend Factor

Table 7 illustrates the currently approved indemnity trend factors in states where NCCI performs a workers compensation analysis. Regarding NCCI's selected indemnity trend factor of -2.0%, we note that there are only four states that have higher approved indemnity trends than -2.0%. DC has a higher indemnity trend factor at -0.5% and GA, IA, and OK have higher indemnity trend factors at -1.5%. Two states (SC and VT) have the same indemnity trend factor of -2.0%. All other states (31) have lower indemnity trend factors than the selection for RI. The selected indemnity trend factors for the surrounding New England states are -4.5% for CT, -2.5% for ME, -4.5% for NH, and -2.0% for VT. In addition, the countrywide unweighted average is -3.7%. Although NCCI's selected indemnity trend factor of -2.0% is near the high end of the range, it is not an outlier as it was in prior filings.

Table 7: Comparison of Rhode Island Proposed Indemnity Trend Factor with Approved Trend Factors for All Other NCCI States



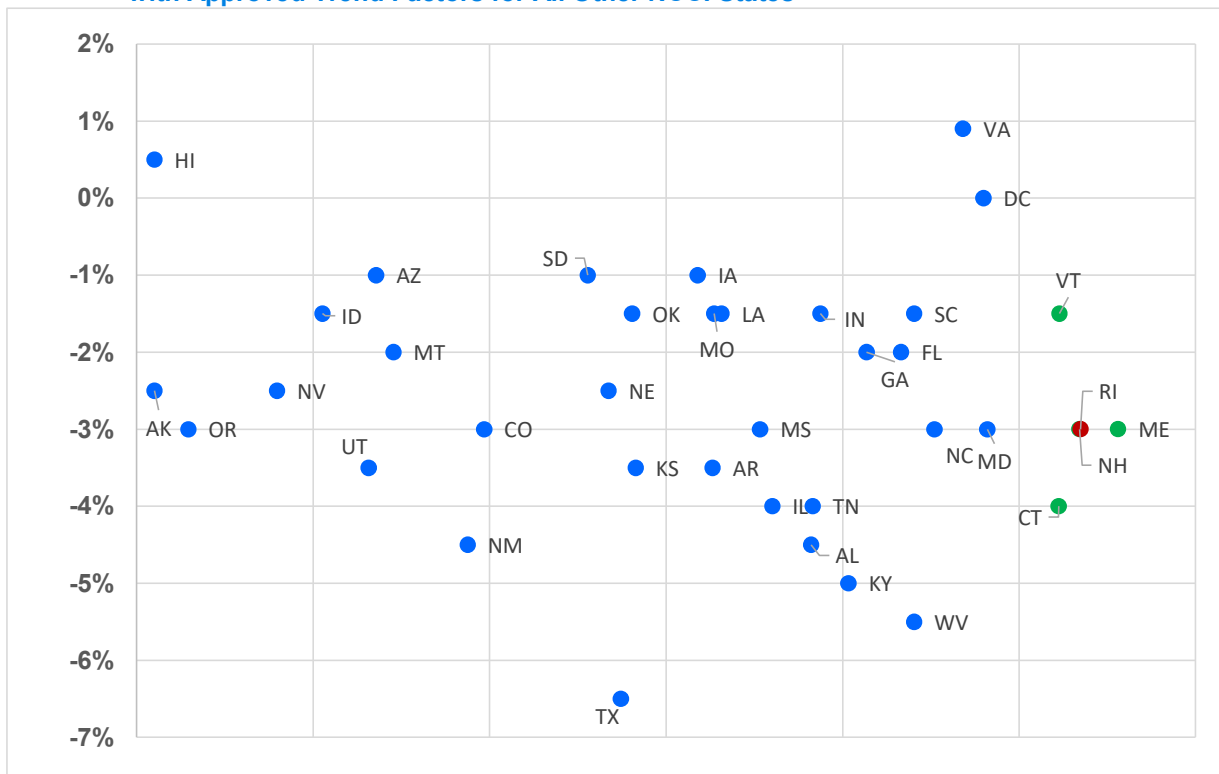
We also reviewed the 5, 6, 7, 8, 9, 10, 11, and 12-year goodness-of-fit statistics of the indemnity trend. The 9-year data fit had the highest goodness-of-fit statistic and this corresponds to an indemnity trend factor of -2.8%. Including additional years in the data fit implies a lower indemnity trend factor but it also reduces the goodness-of-fit statistic.

At this time, we agree with NCCI’s selected indemnity trend of -2.0%. We believe changes to trend factors should be a gradual process so we believe the proposed change from -1.0% to -2.0% is reasonable at this time.

Medical Trend Factor

Table 8 illustrates the currently approved medical trend factors in states where NCCI performs a workers compensation analysis. Regarding NCCI’s selected medical trend factor of -3.0%, we note that there are many states that have both higher and lower approved medical trends than RI. The selected medical trend factors for the surrounding New England states are -4.0% for CT, -3.0% for ME, -3.0% for NH, and -1.5% for VT. In addition, the countrywide unweighted average is -2.6%.

Table 8: Comparison of Rhode Island Proposed Medical Trend Factor with Approved Trend Factors for All Other NCCI States



We also reviewed the 5, 6, 7, 8, 9, 10, 11, and 12-year goodness-of-fit statistics of the medical trend. In general, the data indicates a lower medical trend factor than -3.0%. The 5-year data fit had the highest goodness-of-fit statistic and this corresponds to a medical trend factor of -6.9%. Including additional years in the data fit generally implies higher medical trend factors but it also reduces the goodness-of-fit statistic. We note that a medical trend factor of -6.9% would be an outlier compares to other states.

At this time, we agree with NCCI’s selected medical trend of -3.0%. We believe changes to trend factors should be a gradual process so we believe the proposed change from -2.0% to -3.0% is reasonable at this time.

E. Loss Adjustment Expense Provision

NCCI is proposing an increase in the LAE provision from 19.1% to 20.5%, for an estimated impact of +1.2%.

NCCI’s proposed LAE provision is determined in two steps:

Countrywide Provision

Using countrywide accident year data obtained from NCCI Call 19 for LAE, separate countrywide ratios for DCCE-to-loss and AOE-to-loss are developed to an ultimate basis based on selected development factors. NCCI selected separate loss, DCCE, and AOE development factors on both paid and paid plus case bases.

NCCI selected a five-year average for paid plus case loss, DCCE, and AOE development factors, which is consistent with its methodology used in the prior filing. According to NCCI, “longer-term averages are used because the paid plus case amounts include Incurred But Not Reported (“IBNR”), which can be somewhat volatile.”

NCCI selected a two-year average for paid DCCE, AOE, and LDFs, which is also consistent with its methodology used in the prior filing. According to NCCI, the reason for the shorter-term averages in its selection of paid factors is due to an observed historical decline in the estimated paid DCCE-to-loss ratios, which was generally attributable to a pattern of decreasing DCCE development factors and increasing LDFs.

After estimating separate ultimate DCCE-to-loss and AOE-to-loss ratios on both paid and paid plus case bases for each accident year, NCCI applied 50% weight to each of the paid and paid plus case methods. Finally, it appears that NCCI selected a two-year average of the results as its selected ultimate DCCE-to-loss and AOE-to-loss ratios. In its prior filing, these selections were based on a three-year average so it appears that NCCI has changed its methodology for these selections. This results in selected countrywide provisions of 13.2% for DCCE and 7.6% for AOE.

Rhode Island Provision

The countrywide DCCE ratio is converted to a state-specific DCCE ratio by comparing state-specific and countrywide calendar year paid DCCE-to-loss ratios and selecting a state relativity. The countrywide AOE ratio is added to the state-specific DCCE ratio to obtain the selected state-specific LAE allowance.

The selected Rhode Island DCCE relativity of 0.977 is based on a latest three-year average of Rhode Island-to-countrywide paid DCCE-to-loss ratios. Based on the selected countrywide provisions of 13.2% for DCCE and 7.6% for AOE and this state relativity of 0.977, the proposed LAE provision is 20.5%.

We asked NCCI to provide the Rhode Island DCCE relativity based on the latest two-year and five-year averages. According to NCCI, these relativities are 1.015 and 0.929, respectively, and they would result in indicated LAE provisions of 21.0% and 19.9%, respectively.

Selecting the number of years to use for the average DCCE relativity involves a tradeoff between responsiveness to new data and stability relative to the longer-term average. Based on our review of both the filing data and the supplemental information, we believe that the selected Rhode Island DCCE relativity, which is based on a latest three-year average, is reasonable at this time.

Recommendation

We recommend that the LAE provision be analyzed in each filing. We further recommend that the LAE provision remain relatively stable from one year to the next. There should not be large increases or decreases in the provision from one filing to the next. At this time, we believe that NCCI's LAE provision of 20.5% is too large of an increase in one year from its current provision of 19.1%.

We recommend that the LAE provision be reduced to 20.1%. This is based on a five-year average of the countrywide provisions for DCCE (13.2%) and AOE (7.2%) and a three-year average for the state-specific relativity (0.977). This would allow for a gradual increase in the LAE provision from 19.1% to 20.1% for a change of 0.8%.

F. Summary

With respect to the following major areas of review, we believe that NCCI's methodology in this year's filing is reasonable at this time:

- weighting of standard actuarial loss development methodologies
- selection of LDFs
- treatment of large losses
- selection of the indemnity and medical trend factors

Please note that for convenience we use the term "reasonable" in this report as equivalent to our understanding of not excessive, inadequate or unfairly discriminatory as stated in Rhode Island law and regulations.

As previously stated, we recommend that NCCI lower its proposed LAE provision from 20.5% to 20.1%.

The estimated impact of this proposed change would decrease the indication from -7.7% to -8.1% for the industrial classes, and from -8.3% to -8.7% for the “F” classes.

V. Disclosures and Limitations

A. Acknowledgement of Qualifications

John Herzfeld is a Principal of Milliman, a Fellow of the Casualty Actuarial Society, and a Member of the American Academy of Actuaries. Mary Ann McMahon is a Consulting Actuary of Milliman, a Fellow of the Casualty Actuarial Society, and a Member of the American Academy of Actuaries. John and Mary Ann each meet the qualification standards of the American Academy of Actuaries to provide the estimates in this report.

B. Data and Information

In performing this analysis, we relied on data and other information provided by NCCI. We have not audited or verified this data and information. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete. In that event, the results of our analysis may not be suitable for the intended purpose.

We performed a limited review of the data used directly in our analysis for reasonableness and consistency and have not found material defects in the data. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

C. Uncertainty

Actuarial estimates are subject to uncertainty from various sources, including changes in claim reporting patterns, claim settlement patterns, judicial decisions, legislation, and economic conditions.

In estimating the amount of loss cost change required, it is necessary to project future loss and LAE payments. Actual future losses and LAE will not develop exactly as projected and may, in fact, vary significantly from NCCI's projections. Further, the projections make no provision for future emergence of new classes or types of losses not sufficiently represented in NCCI's historical database or that are not yet quantifiable.

D. Variability of Results

NCCI's estimates are based on long term averages. Actual loss experience in any given year may differ from what is suggested by these averages.

VI. Glossary of Insurance Terms

Actuarial Central Estimate. An actuarial central estimate represents an expected value over the range of reasonably possible outcomes. As such, it is conceptually similar to an estimate of the mean. Since the range of reasonably possible outcomes may not include all conceivable outcomes, an actuarial estimate is not technically a true statistical mean. For example, the range of reasonably possible outcome may exclude conceivable extreme events whose contribution to the true statistical mean is not reliably estimable.

Adjusting and Other Expenses (“AOE”). AOE is the portion of loss adjustment expenses that covers all claims adjusting expenses, whether internal or external to an insurance company.

Case Reserves: Are the claims administrator’s estimates of future payments on individual reported claims for a particular period at a specific point in time.

Defense and Cost Containment Expenses (“DCCE”). DCCE is the portion of loss adjustment expenses that covers all defense and litigation-related expenses, whether internal or external to an insurance company.

Incurred But Not Reported (“IBNR”) Reserves. IBNR is the difference between ultimate losses and case incurred losses to date. As such, they are a provision for unreported claims, changes in incurred values on open claims, and future payments on reopened claims.

Incurred (“Paid Plus Case”) Losses. Incurred losses are the sum of all paid losses and case reserves for a particular period at a specific point in time. Incurred losses are also referred to as case incurred losses.

Loss Adjustment Expenses (“LAE”). LAE is classified as allocated loss adjustment expenses (“ALAE”) and unallocated loss adjustment expenses (“ULAE”). Generally, ALAE includes claims settlement costs directly assigned to specific claims, such as legal fees, and ULAE includes other claims administration expenses.

Loss Cost. A loss cost is the ultimate losses divided by payroll (in \$100 increments) and usually (but not always) includes LAE.

Loss Development Factors (“LDFs”). Are factors used to develop paid or “paid plus case” losses from their values at specific evaluation ages to their ultimate values; LDFs are estimated by reviewing historical experience.

Paid Losses. Paid losses for a particular period that have been paid on all known claims.

Premium On-Leveling. Is the process of estimating what historical premium levels would be, had the insurance been written today.

Tail Factor. A tail factor is a final development factor that is applied to losses (or claims) to develop to an ultimate basis. Tail factors provide for development beyond the maturities represented in the historical development triangles.

Trend Factors. Trend factors adjust historical values for inflationary effects and any other underlying trends that are expected to produce changes over time (e.g., an indemnity trend factor accounts for expected growth in indemnity benefits as compared to wages, a medical trend factor accounts for expected growth in medical costs).

Ultimate Losses. Ultimate losses are the final settlement values for all claims. Until all claims are closed with no possibility of reopening, ultimate losses can only be estimated. At any prior time, an estimate of ultimate losses is equal to the sum of paid losses, case reserves, and estimated IBNR reserves.