

MILLIMAN REPORT

NCCI Proposed Workers Compensation Advisory Loss Costs, Effective 8/1/20

State of Rhode Island and Providence Plantations

Department of Business Regulation

Cranston, RI

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I. Scope and Intended Purpose

A. Background

On 11/18/19, the National Council on Compensation Insurance, Inc. (“NCCI”) filed to revise its Rhode Island workers compensation advisory loss costs to be effective 8/1/20. NCCI proposed an overall change in loss costs of -13.0% for the industrial classes and -9.4% 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 58% to 85%.

B. Scope

Milliman, Inc. (“Milliman”) has been retained by the Rhode Island Department of Business Regulation (“the Department”) to provide an independent actuarial review of NCCI’s Rhode Island loss cost filing, effective 8/1/20, 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 to not use Milliman’s work product for any purpose other than to provide services to the Department, or (ii) any applicable regulatory or governmental agency, as required.

Any reader of this report agrees not to use Milliman's name, trademarks or service marks, or to refer to Milliman directly or indirectly in any third party communication without Milliman's prior written consent for each such use or release, which consent shall be given in Milliman's sole discretion.

II. Summary of Milliman Findings

Table 1 summarizes the proposed changes of NCCI and Milliman.

Table 1: Summary of Proposed Changes by Party

Effective 8/1/20

	NCCI	Milliman
Industrial Classes	-13.0%	-13.0%
"F" Classifications	-9.4%	-9.4%
USL&HW %	+17.1%	+17.1%

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

- **Industrial Classes:** We find NCCI's methodology to be within a range of reasonableness and its assumptions to be reasonably supported.
- **"F" Classifications:** We find NCCI's methodology to be within a range of reasonableness and its assumptions to be reasonably supported.
- **USL&HW:** We find NCCI's methodology to be within a range of reasonableness and its assumptions to be reasonably supported.

III. Summary of NCCI Filing

A. Industrial Classes

Table 2 summarizes NCCI's proposed changes by component.

Table 2: Proposed Changes - Industrial Classifications

Effective 8/1/20

Component	Indication
Change in Experience, Trend, and Benefits	-14.6%
Change in Loss Adjustment Expenses	+1.9%
Proposed Change in Loss Costs	-13.0%

NCCI proposed an overall change of -13.0% in loss costs for the industrial classes. This is derived from a change in experience, trend, and benefits of -14.6% and a change in the Loss Adjustment Expenses ("LAE") provision of +1.9%.

B. "F" Classifications / USL&HW

Table 3 summarizes NCCI's proposed changes to its "F" classifications and the USL&HW percentage to be effective 8/1/20.

Table 3: Proposed Changes - Other

Effective 8/1/20

Component	Indication
"F" Classifications	-9.4%
USL&HW %	+17.1%

For the "F" classifications, NCCI proposed a loss cost change of -9.4%. For USL&HW, NCCI proposed to change the current 58% adjustment factor for differences in benefits and loss-based expenses to 85%.

C. Industry Group Loss Cost Level Changes

Table 4 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 8/1/20*

Industry Group	Average Change
Manufacturing	-13.9%
Contracting	-14.2%
Office and Clerical	-12.1%
Goods and Services	-12.9%
Miscellaneous	-12.0%
Overall	-13.0%

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 proposed changing the split point as shown in the following table.

Table 5: Experience Rating Plan Split Point History

Year	Split Point
1993-2012	\$5,000
2013	\$10,000
2014-2015	\$13,500
2016	\$16,000
2017-2018	\$16,500
2019	\$17,000
2020	\$17,500

In the current filing, NCCI has increased the split point to \$17,500, which is an increase of \$500 compared to the prior filing. We believe NCCI's implementation of incremental changes to the split point is reasonable and the proposed split point of \$17,500 is also 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 \$3.4 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 \$6.7 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 2015, 2016, and 2017 evaluated as of 12/31/18. We note that policy year 2017 is the latest available policy year for use in the filing, which is based on 12/31/18 data. Policies written during 2017 have effective dates between 1/1/17 and 12/31/17 and are in effect for twelve months. Therefore, these policies have expiration dates between 1/1/18 and 12/31/18, respectively. Policy year 2018 is not fully earned as of 12/31/18 and it is appropriate to exclude that year from the filing.

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 6. Please note that these alternative indications reflect the overall impact of the proposed change, including the LAE provision.

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

- 100% weight to “paid plus case” losses with LDFs based on the latest five years (“Paid+Case 5”)
- 100% weight to “paid plus case” losses with LDFs based on 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 6 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, the result of the selected methodology 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 6: Alternative Scenarios - Policy Year Basis

Effective 8/1/20

Scenario	Indication	Average Change
Original	-13.0%	
Paid 5 Years	-12.5%	+0.5%
Paid 3 Years	-13.9%	-0.9%
Paid+Case 5 Years XHL	-13.0%	+0.0%
Paid+Case 5 Years	-13.3%	-0.3%
Paid+Case 3 Years	-11.4%	+1.6%
50% Paid and 50% Paid+Case 5 Years	-12.9%	+0.1%
50% Paid and 50% Paid+Case 3 Years	-12.7%	+0.3%
50% Paid and 50% Paid+Case 5 Years	-13.0%	+0.0%

We also asked NCCI to provide an alternative indication based on loss experience and premium for accident years 2016, 2017, and 2018, using the same loss development methodology used in the original filing. Table 7 summarizes this alternative indication. Please note that this alternative indication reflects the overall impact of the proposed change, including the LAE provision.

Table 7: Alternative Scenarios - Accident Year Basis*Effective 8/1/20*

Accident Year	Indication
2016	-13.9%
2017	-17.3%
2018	-15.8%
Total	-15.6%

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 \$3,403,956 in this year's filing, which is slightly lower than the threshold of \$3,514,479 in the prior filing. The large loss threshold changes over time based on loss trend and development. We believe the proposed large loss threshold of \$3,403,956 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 1.013
- Medical "paid plus case" of 1.000
- Medical paid of 1.020

The indemnity "paid plus case" tail factor is unchanged from the prior filing, the indemnity "paid" tail factor is higher than 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 -13.0%. 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 69% and the medical portion would be 31%.

In the current filing, NCCI proposed to decrease the indemnity trend factor from -2.0% to -3.0% and to decrease the medical trend factor from -3.0% to -4.0%. NCCI's selections are based on an analysis of Rhode Island historical loss ratios as well as economic data.

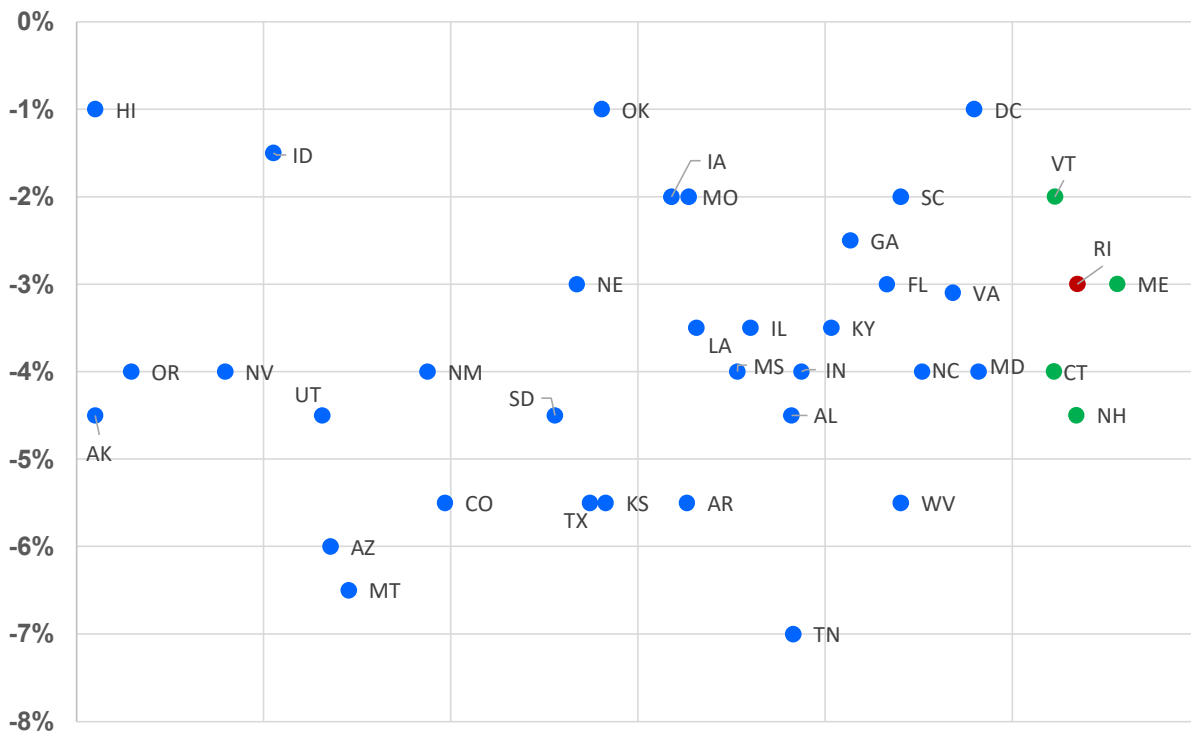
For comparison purposes, we asked NCCI to calculate alternative overall indications for each of the following alternative scenarios: (a) -2.0% for the indemnity trend factor and -3.0% for the medical trend factor (i.e., no change to the currently approved trend selections); (b) -1.0% for the indemnity trend factor and -2.0% for the medical trend factor; and (c) -4.0% for the indemnity trend factor and -5.0% for the medical trend factor. The overall indications are -8.7% for scenario (a), -4.2% for scenario (b), and -17.1% for scenario (c). 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, the annual percentage changes in the indemnity and medical loss ratios in Rhode Island, 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

Chart 1 illustrates the currently approved indemnity trend factors in states where NCCI performs a workers compensation analysis. Regarding NCCI’s selected indemnity trend factor of -3.0%, we note that there are many states that have both higher and lower approved indemnity trends than RI. The selected indemnity trend factors for the surrounding New England states are -4.0% for CT, -3.0% for ME, -4.5% for NH, and -2.0% for VT. In addition, the countrywide unweighted average is -3.7%.

Chart 1: 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

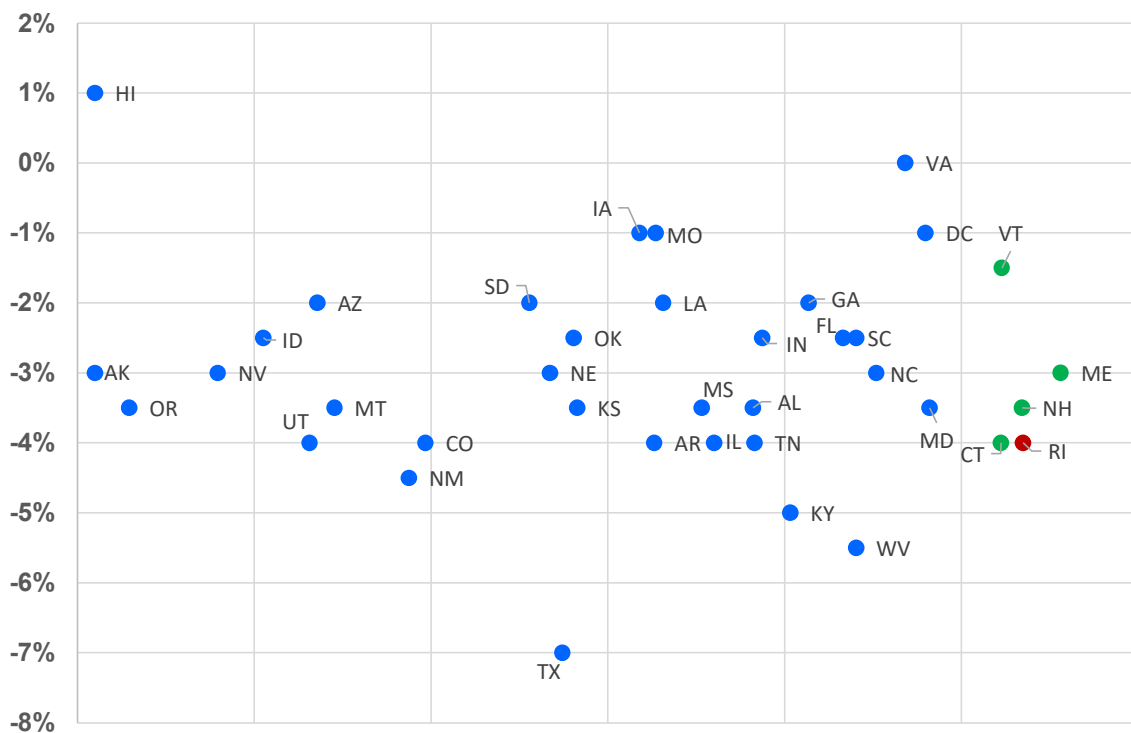
corresponds to an indemnity trend factor of -4.0%. Including additional years in the data fit implies a lower indemnity trend factor but it also reduces the goodness-of-fit statistic.

At this time, believe NCCI’s selected indemnity trend of -3.0% is reasonable. We believe that 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.

Medical Trend Factor

Chart 2 illustrates the currently approved medical trend factors in states where NCCI performs a workers compensation analysis. Regarding NCCI’s selected medical trend factor of -4.0%, we note that there are four states that have lower approved medical trends than -4.0% (KY, NM, TX, and WV), and six other states have the same medical trend factor of -4.0%. All other states (27) have greater medical trend factors than the selection for RI. The selected medical trend factors for the surrounding New England states are -4.0% for CT, -3.0% for ME, -3.5% for NH, and -1.5% for VT. In addition, the countrywide unweighted average is -3.0%.

Chart 2: 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 -4.0%. The 6-year data fit had the highest goodness-of-fit statistic and this corresponds to a medical trend factor of -8.2%. 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 -8.2% would be an outlier compares to other states.

At this time, we believe NCCI's selected medical trend of -4.0% is reasonable. We believe that changes to trend factors should be a gradual process so we believe the proposed change from -3.0% to -4.0% is reasonable at this time.

E. Loss Adjustment Expense Provision

NCCI is proposing an increase in the LAE provision from 20.1% to 22.4%, for an estimated impact of +1.9%. LAE is comprised of two components, Defense and Cost Containment Expenses ("DCCE") and Adjusting and Other Expenses ("AOE").

NCCI's has proposed a new method for determining the DCCE portion of the LAE. Previously, the DCCE portion of the LAE provision has been calculated based on a selected countrywide DCCE provision calculated from the NCCI Call for Loss Adjustment Expenses ("Financial Call #19"). This countrywide DCCE provision was then adjusted by applying a state-specific relativity derived using NAIC Annual Statement payment data.

NCCI is now proposing to calculate the DCCE provision more directly by utilizing Rhode Island-specific paid DCCE and losses, reported on the NCCI Call for Policy Year Data ("Financial Call #3"). Under the proposed methodology, the ratios of reported paid DCCE to paid losses by policy year are developed to a 19th report using DCCE ratio development factors. A 19th-to-ultimate tail factor is applied to reflect expected development beyond the 19th report. The proposed DCCE provision is selected based on the ultimate projected DCCE ratios by policy year.

For comparison purposes, we asked NCCI to provide the indicated DCCE, AOE, and LAE provisions using the new methodology applied to last year's filing. Table 8 summarizes the indicated change of the new methodology by LAE component. As shown, the new methodology appears to result in a 0.9% higher indication than the prior method. This is entirely due to the change in the DCCE methodology as the AOE methodology has not changed.

Table 8: Proposed Change in LAE Methodology

	2019 Rate Filing		Change
	Prior Method	New Method	
DCCE	12.9%	12.9%	+0.9%
AOE	7.6%	7.6%	0.0%
LAE	20.5%	20.5%	+0.9%

As loss costs have decreased in Rhode Island in each of the four most recently approved filings, it is not unreasonable for the LAE provision to increase. Expenses may not be decreasing at the same rate as of the level of losses and therefore the expense ratio (as measured by the ratio of expenses to losses) may exhibit an increase due to the smaller level of losses.

At this time, we believe that NCCI's proposed increase in the LAE provision of 1.9%, coupled with the proposed 14.6% decrease in losses, is not unreasonable at this time.

F. USL&HW Compensation Coverage Percentage

NCCI is proposing to increase in the USL&HW benefits provision from 1.50 to 1.75 based on a recently completed a study of the USL&HW factors using Unit Statistical Data. NCCI's prior study of the USL&HW factors was completed in 2003.

Although we believe changes to such factors should be a gradual process we also recognize the minimal impact of this change on the overall premium. We believe the USL&HW Coverage Percentage change from 58% to 85% is reasonable at this time.

G. 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
- selected LAE provision
- selected USL&HW Compensation Coverage Percentage

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.

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 outcomes 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: 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 reserves are 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. In this report, DCCE is equivalent to ALAE and AOE is equivalent to ULAE.

Loss Cost. A loss cost is the ultimate losses divided by payroll (in \$100 increments). In this report, LAE are excluded from the loss costs.

Loss Development Factors (“LDFs”). 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. 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, where 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 reserve.