

Mary Jean King, FCAS, CERA, MAAA  
Principal & Consulting Actuary  
118 Warfield Road  
Cherry Hill, NJ 08034  
P:856.428.5961  
mking@bynac.com

By The Numbers  
**Actuarial**   
**Consulting, Inc.**



**TECHNICAL RESPONSE & EVALUATION GUIDE**

**SECTION A: MANDATORY REQUIREMENTS.** The Respondent must address all items detailed below and provide, in sequence, the information and documentation as required (referenced with the associated item references). The Respondent must also detail the response page number for each item in the appropriate space below.

The Solicitation Coordinator will review the response to determine if the Mandatory Requirement Items are addressed as required and mark each with pass or fail. For each item that is not addressed as required, the Proposal Evaluation Team must review the response and attach a written determination. In addition to the Mandatory Requirement Items, the Solicitation Coordinator will review each response for compliance with all RFP requirements.

RESPONDENT LEGAL ENTITY NAME:			
Response Page # (Respondent completes)	Item Ref.	Section A— Mandatory Requirement Items	Pass/Fail
		The Response must be delivered to the State no later than the Response Deadline specified in the RFP Section 2, Schedule of Events.	
		The Technical Response must NOT contain cost or pricing information of any type.	
		The Technical Response must NOT contain any restrictions of the rights of the State or other qualification of the response.	
		A Respondent must NOT submit alternate responses (refer to RFP Section 3.3.).	
		A Respondent must NOT submit multiple responses in different forms (as a prime and a subcontractor) (refer to RFP Section 3.3.).	
2	A.1.	Provide the Statement of Certifications and Assurances (RFP Attachment 6.1.) completed and signed by an individual empowered to bind the Respondent to the provisions of this RFP and any resulting contract. The document must be signed without exception or qualification. <b>If the signatory is not the Respondent (if an individual) or the Respondent's company <i>President</i> or <i>Chief Executive Officer</i>, this document <u>must</u> attach evidence showing the individual's authority to bind the Respondent.</b>	
1	A.2.	Provide a statement, based upon reasonable inquiry, of whether the Respondent or any individual who shall cause to deliver goods or perform services under the contract has a possible conflict of interest (e.g., employment by the State of Tennessee) and, if so, the nature of that conflict.  NOTE: Any questions of conflict of interest shall be solely within the discretion of the State, and the State reserves the right to cancel any award.	
3	A.3.	Provide a current bank reference indicating that the Respondent's business relationship with the financial institution is in positive standing. Such reference must be written in the form of a standard business letter, signed, and dated within the past three (3) months.	
4-5	A.4.	Provide two current positive credit references from vendors with which the Respondent has done business written in the form of standard business letters, signed, and dated within the past three (3) months.	

<b>RESPONDENT LEGAL ENTITY NAME:</b>			
<b>Response Page # (Respondent completes)</b>	<b>Item Ref.</b>	<b>Section A— Mandatory Requirement Items</b>	<b>Pass/Fail</b>
<b>6-8</b>	<b>A.5.</b>	Provide an official document or letter from an accredited credit bureau, verified and dated within the last three (3) months and indicating a satisfactory credit rating for the Respondent (NOTE: A credit bureau report number without the full report is insufficient and will <u>not</u> be considered responsive.)	
<i>State Use – Solicitation Coordinator Signature, Printed Name &amp; Date:</i>			

### TECHNICAL RESPONSE & EVALUATION GUIDE

**SECTION B: GENERAL QUALIFICATIONS & EXPERIENCE.** The Respondent must address all items detailed below and provide, in sequence, the information and documentation as required (referenced with the associated item references). The Respondent must also detail the response page number for each item in the appropriate space below. Proposal Evaluation Team members will independently evaluate and assign one score for all responses to Section B— General Qualifications & Experience Items.

RESPONDENT LEGAL ENTITY NAME:		
Response Page # (Respondent completes)	Item Ref.	Section B— General Qualifications & Experience Items
9	<b>B.1.</b>	Detail the name, e-mail address, mailing address, telephone number, and facsimile number of the person the State should contact regarding the response.
9	<b>B.2.</b>	Describe the Respondent's form of business ( <i>i.e.</i> , individual, sole proprietor, corporation, non-profit corporation, partnership, limited liability company) and business location (physical location or domicile).
9	<b>B.3.</b>	Detail the number of years the Respondent has been in business.
9	<b>B.4.</b>	Briefly describe how long the Respondent has been providing the goods or services required by this RFP.
9	<b>B.5.</b>	Describe the Respondent's number of employees, client base, and location of offices.
9	<b>B.6.</b>	Provide a statement of whether there have been any mergers, acquisitions, or change of control of the Respondent within the last ten (10) years. If so, include an explanation providing relevant details.
9	<b>B.7.</b>	Provide a statement of whether the Respondent or, to the Respondent's knowledge, any of the Respondent's employees, agents, independent contractors, or subcontractors, involved in the delivery of goods or performance of services on a contract pursuant to this RFP, have been convicted of, pled guilty to, or pled <i>nolo contendere</i> to any felony. If so, include an explanation providing relevant details.
10	<b>B.8.</b>	Provide a statement of whether, in the last ten (10) years, the Respondent has filed (or had filed against it) any bankruptcy or insolvency proceeding, whether voluntary or involuntary, or undergone the appointment of a receiver, trustee, or assignee for the benefit of creditors. If so, include an explanation providing relevant details.
10	<b>B.9.</b>	Provide a statement of whether there is any material, pending litigation against the Respondent that the Respondent should reasonably believe could adversely affect its ability to meet contract requirements pursuant to this RFP or is likely to have a material adverse effect on the Respondent's financial condition. If such exists, list each separately, explain the relevant details, and attach the opinion of counsel addressing whether and to what extent it would impair the Respondent's performance in a contract pursuant to this RFP.  NOTE: All persons, agencies, firms, or other entities that provide legal opinions regarding the Respondent must be properly licensed to render such opinions. The State may require the Respondent to submit proof of license for each person or entity that renders such opinions.
10	<b>B.10.</b>	Provide a statement of whether there are any pending or in progress Securities Exchange Commission investigations involving the Respondent. If such exists, list each separately, explain the relevant details, and attach the opinion of counsel addressing whether and to what extent it will impair the Respondent's performance in a contract pursuant to this RFP.

## RFP ATTACHMENT 6.2. — SECTION B (continued)

RESPONDENT LEGAL ENTITY NAME:		
Response Page # (Respondent completes)	Item Ref.	Section B— General Qualifications & Experience Items
		NOTE: All persons, agencies, firms, or other entities that provide legal opinions regarding the Respondent must be properly licensed to render such opinions. The State may require the Respondent to submit proof of license for each person or entity that renders such opinions.
10	B.11.	Provide a brief, descriptive statement detailing evidence of the Respondent's ability to deliver the goods or services sought under this RFP (e.g., prior experience, training, certifications, resources, program and quality management systems, etc.).
10	B.12.	Provide a narrative description of the proposed project team, its members, and organizational structure along with an organizational chart identifying the key people who will be assigned to deliver the goods or services required by this RFP.
10-13	B.13.	Provide a personnel roster listing the names of key people who the Respondent will assign to meet the Respondent's requirements under this RFP along with the estimated number of hours that each individual will devote to that performance. Follow the personnel roster with a resume for each of the people listed. The resumes must detail the individual's title, education, current position with the Respondent, and employment history.
14	B.14.	Provide a statement of whether the Respondent intends to use subcontractors to meet the Respondent's requirements of any contract awarded pursuant to this RFP, and if so, detail: <ul style="list-style-type: none"> <li>(a) the names of the subcontractors along with the contact person, mailing address, telephone number, and e-mail address for each;</li> <li>(b) a description of the scope and portions of the goods each subcontractor involved in the delivery of goods or performance of the services each subcontractor will perform; <u>and</u></li> <li>(c) a statement specifying that each proposed subcontractor has expressly assented to being proposed as a subcontractor in the Respondent's response to this RFP.</li> </ul>
14	B.15.	Provide documentation of the Respondent's commitment to diversity as represented by the following: <ul style="list-style-type: none"> <li>(a) <u>Business Strategy</u>. Provide a description of the Respondent's existing programs and procedures designed to encourage and foster commerce with business enterprises owned by minorities, women, service-disabled veterans, persons with disabilities, and small business enterprises. Please also include a list of the Respondent's certifications as a diversity business, if applicable.</li> <li>(b) <u>Business Relationships</u>. Provide a listing of the Respondent's current contracts with business enterprises owned by minorities, women, service-disabled veterans, persons with disabilities, and small business enterprises. Please include the following information: <ul style="list-style-type: none"> <li>(i) contract description;</li> <li>(ii) contractor name and ownership characteristics (i.e., ethnicity, gender, service-disabled veteran-owned or persons with disabilities);</li> <li>(iii) contractor contact name and telephone number.</li> </ul> </li> <li>(c) <u>Estimated Participation</u>. Provide an estimated level of participation by business enterprises owned by minorities, women, service-disabled veterans, persons with disabilities and small business enterprises if a contract is awarded to the Respondent pursuant to this RFP. Please include the following information: <ul style="list-style-type: none"> <li>(i) a percentage (%) indicating the participation estimate. (Express the estimated participation number as a percentage of the total estimated contract value that will be dedicated to business with subcontractors and supply contractors having such ownership characteristics only and <b>DO NOT INCLUDE DOLLAR AMOUNTS</b>);</li> <li>(ii) anticipated goods or services contract descriptions;</li> <li>(iii) names and ownership characteristics (i.e., ethnicity, gender, service-disabled veterans, or disability) of anticipated subcontractors and supply contractors.</li> </ul> </li> </ul>

## RFP ATTACHMENT 6.2. — SECTION B (continued)

RESPONDENT LEGAL ENTITY NAME:		
Response Page # (Respondent completes)	Item Ref.	Section B— General Qualifications & Experience Items
		<p>NOTE: In order to claim status as a Diversity Business Enterprise under this contract, businesses must be certified by the Governor's Office of Diversity Business Enterprise (Go-DBE). Please visit the Go-DBE website at <a href="https://tn.diversitysoftware.com/FrontEnd/StartCertification.asp?TN=tn&amp;XID=9810">https://tn.diversitysoftware.com/FrontEnd/StartCertification.asp?TN=tn&amp;XID=9810</a> for more information.</p> <p>(d) <u>Workforce</u>. Provide the percentage of the Respondent's total current employees by ethnicity and gender.</p> <p>NOTE: Respondents that demonstrate a commitment to diversity will advance State efforts to expand opportunity to do business with the State as contractors and subcontractors. Response evaluations will recognize the positive qualifications and experience of a Respondent that does business with enterprises owned by minorities, women, service-disabled veterans, persons with disabilities, and small business enterprises and who offer a diverse workforce.</p>
14	<b>B.16.</b>	<p>Provide a statement of whether or not the Respondent has any current contracts with the State of Tennessee or has completed any contracts with the State of Tennessee within the previous five (5) year period. If so, provide the following information for all of the current and completed contracts:</p> <p>(a) the name, title, telephone number and e-mail address of the State contact knowledgeable about the contract;</p> <p>(b) the procuring State agency name;</p> <p>(c) a brief description of the contract's scope of services;</p> <p>(d) the contract period; and</p> <p>(e) the contract number.</p>
14-15	<b>B.17.</b>	<p>Provide customer references from individuals who are <u>not</u> current or former State employees for projects similar to the goods or services sought under this RFP and which represent:</p> <ul style="list-style-type: none"> <li>▪ two (2) accounts Respondent currently services that are similar in size to the State; <u>and</u></li> <li>▪ three (3) completed projects.</li> </ul> <p>References from at least three (3) different individuals are required to satisfy the requirements above, e.g., an individual may provide a reference about a completed project and another reference about a currently serviced account. The standard reference questionnaire, which <u>must</u> be used and completed, is provided at RFP Attachment 6.4. References that are not completed as required may be deemed non-responsive and may not be considered.</p> <p>The Respondent will be <u>solely</u> responsible for obtaining fully completed reference questionnaires and ensuring they are e-mailed to the Solicitation Coordinator. In order to obtain and submit the completed reference questionnaires follow the process below.</p> <p>(a) Add the Respondent's name to the standard reference questionnaire at RFP Attachment 6.4. and make a copy for each reference.</p> <p>(b) Either (i) send a reference questionnaire to each reference or (ii) e-mail the reference with a copy of the standard reference questionnaire.</p> <p>(c) Instruct the reference to:</p> <ol style="list-style-type: none"> <li>(i) complete the reference questionnaire;</li> <li>(ii) sign and date the completed reference questionnaire;</li> <li>(iii) e-mail the reference directly to the Solicitation Coordinator by no later than the Response Deadline date and time with the subject line of the e-mail as "[Respondent Name]" Referenced for RFP 30901-47220.</li> </ol> <p>NOTES:</p>

## RFP ATTACHMENT 6.2. — SECTION B (continued)

<b>RESPONDENT LEGAL ENTITY NAME:</b>		
<b>Response Page #</b> (Respondent completes)	<b>Item Ref.</b>	<b>Section B— General Qualifications &amp; Experience Items</b>
		<ul style="list-style-type: none"> <li>▪ The State will not accept late references or references submitted by any means other than that which is described above, and each reference questionnaire submitted must be completed as required.</li> <li>▪ The State will not review more than the number of required references indicated above.</li> <li>▪ While the State will base its reference check on the contents of the e-mails, the State reserves the right to confirm and clarify information detailed in the completed reference questionnaires and may consider clarification responses in the evaluation of references.</li> <li>▪ The State is under <u>no</u> obligation to clarify any reference information.</li> </ul>
15	<b>B.18.</b>	<p>Provide a statement and any relevant details addressing whether the Respondent is any of the following:</p> <ul style="list-style-type: none"> <li>(a) is presently debarred, suspended, proposed for debarment, or voluntarily excluded from covered transactions by any federal or state department or agency;</li> <li>(b) has within the past three (3) years, been convicted of, or had a civil judgment rendered against the contracting party from commission of fraud, or a criminal offence in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) transaction or grant under a public transaction; violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;</li> <li>(c) is presently indicted or otherwise criminally or civilly charged by a government entity (federal, state, or local) with commission of any of the offenses detailed above; and</li> <li>(d) has within a three (3) year period preceding the contract had one or more public transactions (federal, state, or local) terminated for cause or default.</li> </ul>
		<p><b>SCORE (for <u>all</u> Section B—Qualifications &amp; Experience Items above):</b> (maximum possible score = 25)</p>
State Use – Evaluator Identification:		

**RFP ATTACHMENT 6.2. — SECTION B (continued)**  
**RFP ATTACHMENT 6.2. — SECTION C**

**TECHNICAL RESPONSE & EVALUATION GUIDE**

**SECTION C: TECHNICAL QUALIFICATIONS, EXPERIENCE & APPROACH.** The Respondent must address all items (below) and provide, in sequence, the information and documentation as required (referenced with the associated item references). The Respondent must also detail the response page number for each item in the appropriate space below.

A Proposal Evaluation Team, made up of three or more State employees, will independently evaluate and score the response to each item. Each evaluator will use the following whole number, raw point scale for scoring each item:

**0 = little value      1 = poor      2 = fair      3 = satisfactory      4 = good      5 = excellent**

The Solicitation Coordinator will multiply the Item Score by the associated Evaluation Factor (indicating the relative emphasis of the item in the overall evaluation). The resulting product will be the item's Raw Weighted Score for purposes of calculating the section score as indicated.

<b>RESPONDENT LEGAL ENTITY NAME:</b>					
<b>Response Page # (Respondent completes)</b>	<b>Item Ref.</b>	<b>Section C— Technical Qualifications, Experience &amp; Approach Items</b>	<b>Item Score</b>	<b>Evaluation Factor</b>	<b>Raw Weighted Score</b>
17	<b>C.1.</b>	Provide a narrative that illustrates the Respondent's understanding of the State's requirements and project schedule.		<b>30</b>	
17-18	<b>C.2.</b>	Provide a narrative that illustrates how the Respondent will complete the scope of services, accomplish required objectives, and meet the State's project schedule.		<b>25</b>	
18	<b>C.3.</b>	Provide a narrative that illustrates how the Respondent will manage the project, ensure completion of the scope of services, and accomplish required objectives within the State's project schedule.		<b>25</b>	
18	<b>C.4.</b>	Provide a sample analysis from a similar project.		<b>20</b>	
<i>The Solicitation Coordinator will use this sum and the formula below to calculate the section score. All calculations will use and result in numbers rounded to two (2) places to the right of the decimal point.</i>				<b>Total Raw Weighted Score:</b> <i>(sum of Raw Weighted Scores above)</i>	
<b>Total Raw Weighted Score</b> <hr/> <b>Maximum Possible Raw Weighted Score</b> <i>(i.e., 5 x the sum of item weights above)</i>			<b>X 45</b> <i>(maximum possible score)</i>	<b>= SCORE:</b>	
<i>State Use – Evaluator Identification:</i>					
<i>State Use – Solicitation Coordinator Signature, Printed Name &amp; Date:</i>					

**STATE OF TENNESSEE  
TREASURY DEPARTMENT**

**PROPOSAL  
RFP # 30901-48421**

**TECHNICAL PROPOSAL & EVALUATION GUIDE  
SECTION A**

**A.1 – CERTIFICATIONS AND ASSURANCES**

Attached on page 2 is the Proposal Statement of Certifications and Assurances (RFP Attachment 6.1).

**A.2 – CONFLICT OF INTEREST**

BYNAC is not aware of any potential conflict of interest with the State.

**A.3 – BANK REFERENCE**

Attached on page 3 is a current bank reference indicating BYNAC's business relationship with Fulton Bank is in positive standing.

**A.4 – CREDIT REFERENCES**

Attached are two vendor credit references on pages 4 and 5.

**A.5 – CREDIT RATING**

Documentation of a positive credit rating with Dun and Bradstreet is shown on page 6.

**RFP # 30901-48421 STATEMENT OF CERTIFICATIONS AND ASSURANCES**

The Respondent must sign and complete the Statement of Certifications and Assurances below as required, and it must be included in the Technical Response (as required by RFP Attachment 6.2., Technical Response & Evaluation Guide, Section A, Item A.1.). An electronic or facsimile signature, as applicable, is acceptable.

**The Respondent does, hereby, expressly affirm, declare, confirm, certify, and assure ALL of the following:**

1. The Respondent will comply with all of the provisions and requirements of the RFP.
2. The Respondent will provide all services as defined in the Scope of the RFP Attachment 6.6., *Pro Forma* Contract for the total Contract Term.
3. The Respondent, except as otherwise provided in this RFP, accepts and agrees to all terms and conditions set out in the RFP Attachment 6.6., *Pro Forma* Contract.
4. The Respondent acknowledges and agrees that a contract resulting from the RFP shall incorporate, by reference, all proposal responses as a part of the Contract.
5. The Respondent will comply with:
  - (a) the laws of the State of Tennessee;
  - (b) Title VI of the federal Civil Rights Act of 1964;
  - (c) Title IX of the federal Education Amendments Act of 1972;
  - (d) the Equal Employment Opportunity Act and the regulations issued there under by the federal government; and,
  - (e) the Americans with Disabilities Act of 1990 and the regulations issued there under by the federal government.
6. To the knowledge of the undersigned, the information detailed within the response submitted to this RFP is accurate.
7. The response submitted to this RFP was independently prepared, without collusion, under penalty of perjury.
8. No amount shall be paid directly or indirectly to an employee or official of the State of Tennessee as wages, compensation, or gifts in exchange for acting as an officer, agent, employee, subcontractor, or consultant to the Respondent in connection with this RFP or any resulting contract.
9. Both the Technical Response and the Cost Proposal submitted in response to this RFP shall remain valid for at least 120 days subsequent to the date of the Cost Proposal opening and thereafter in accordance with any contract pursuant to the RFP.
10. The Respondent affirms the following statement, as required by the Iran Divestment Act Tenn. Code Ann. § 12-12-111: "By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to §12-12-106." For reference purposes, the list is currently available online at: <https://www.tn.gov/generalservices/procurement/central-procurement-office--cpo-/library-public-information-library.html>.

**By signing this Statement of Certifications and Assurances, below, the signatory also certifies legal authority to bind the proposing entity to the provisions of this RFP and any contract awarded pursuant to it. If the signatory is not the Respondent (if an individual) or the Respondent's company *President* or *Chief Executive Officer*, this document must attach evidence showing the individual's authority to bind the Respondent.**

**DO NOT SIGN THIS DOCUMENT IF YOU ARE NOT LEGALLY AUTHORIZED TO BIND THE RESPONDENT**

SIGNATURE: Mary Jean King

PRINTED NAME & TITLE: Mary Jean King, CEO

DATE: 7/6/21

RESPONDENT LEGAL ENTITY NAME: By the Numbers Actuarial Consulting, Inc.

6/09/2021

Dawn Rochelle, Solicitation Coordinator  
State of Tennessee, Treasury Department

Re: By the Numbers Actuarial Consulting, Inc.

Please be advised that, as of June 9, 2021, By the Numbers Actuarial Consulting, Inc. has a positive balance in her Business Checking Account with Fulton Bank. This information is deemed reliable as of June 8, 2021 but is not guarantee of future funds or balances.

If I can be of further assistance, please contact me at 215-579-6100. Thank you for the courtesies extended to our customer.

Sincerely,



Stuart Cheifetz  
Universal Banker  
Yardley Financial Center

**Fernando Arguello, Agent**

5111 Peter Taylor Park Drive, Ste 200  
Brentwood, TN 37027-7539  
Bus 615 377 3200 Fax 615 377 3288  
fernando@fernandoarguello.com  
www.fernandoarguello.com



June 9, 2021

To whom it may concern,

By The Numbers Acturial Consulting, Inc., has been a customer since 2003. During this time, we have provided Insurance coverage and through all these years they have paid their premiums as agreed.

Feel free to reach out if you need additional information.

Sincerely,



**Fernando Arguello, Agent**

**State Farm Insurance and Financial Services**

5111 Peter Taylor Park Dr.  
S-200

Brentwood, Tn 37027

Phone 615-377-3200

Fax 615-377-3288

[www.fernandoarguello.com](http://www.fernandoarguello.com)

Email: fernando.arguello.mvy7@statefarm.com

*YOUR PROTECTION IS OUR PASSION!!*

To Whom it may concern:

By the Numbers Actuarial Consulting has been a client of ours since 2013 and has and still remains a quality client in good standing with our agency.

Osie R. Casey, CISR

Insurance Services, LLC

**USI Insurance Services**

Telephone: 925-418-6282

Fax: 610-537-2243

[Osie.Casey@usi.com](mailto:Osie.Casey@usi.com) | [www.usi.com](http://www.usi.com)

**USI is now USI.com!**



Update your information with D-U-N-S® Manager

Report as of: 07-06-2021

Partner offer

### By The Numbers

Tradestyle(s): byac

ACTIVE HEADQUARTERS

Address: 5213 Country Club Dr, Brentwood, TN, 37027, United States

Dun & Bradstreet offer

#### SCORES AND RATINGS

<b>PAYDEX® Score</b> ⓘ  <b>NO CHANGE</b> SINCE 2020-07-31	<b>Delinquency Predictor Percentile</b> ⓘ  <b>DECLINED</b> SINCE 2021-04-12	<b>Financial Stress Percentile</b> ⓘ  <b>NO CHANGE</b> SINCE 2020-07-31	<b>Supplier Evaluation Risk Rating</b> ⓘ  <b>IMPROVED</b> SINCE 2021-01-11
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**Monitor in Real-time**  
to Gain Valuable Insights into Your Business Credit

Get alerts when changes occur and have 24/7 access to the information in your Dun & Bradstreet business credit file.

**\$39/mo ADD TO CART**

**CreditMonitor™**

Call us at 1-844-840-8170 to discuss which product is right for you.

**Monitor & Take Action**  
to Help Build Your Business Credit File

Potentially build your D&B credit file by submitting Trade References, subject to verification and acceptance,\* to Dun & Bradstreet and get alerts when changes are made to your file.

**\$149/mo ADD TO CART**

**PLUS CreditBuilder**

Call us at 1-844-840-8170 to discuss which product is right for you.

#### COMPANY PROFILE ⓘ



<b>D-U-N-S</b> 17-810-2914	<b>Mailing Address</b> United States	<b>Annual Sales</b> US\$ 950,000
<b>Business Form</b> Corporation	<b>Telephone</b> (615) 369-0753	<b>Employees ⓘ</b> 6 (4 here)
<b>Ownership</b> Not publicly traded	<b>Website</b> www.bynac.com	<b>Age (Year Started)</b> 22 (1999)

**Named Principal**

Mary Jean King, Chief Executive Officer

**Line of Business**

Management consulting services

**LEGAL EVENTS** ⓘ

Events	Open Count	Last Filed
Bankruptcies	0	-
Judgments	0	-
Liens	0	-
Suits	0	-
UCC	0	-

**TRADE PAYMENTS** ⓘ**Highest Past Due****US\$ 0**

Highest Now Owing

**US\$ 0**

Total Trade Experiences

**5**

Largest High Credit

**US\$ 750**

Average High Credit

**-****OWNERSHIP** ⓘThis company is a **Global Ultimate, Domestic Ultimate, Parent/Headquarters**.

By The Numbers

United States

D-U-N-S Number 17-810-2914

Total Members in Family Tree - 2

Subsidiaries

0

Branches

1

**FINANCIAL OVERVIEW** ⓘ

This company has not provided financial statements to D&amp;B.

**INQUIRIES** ⓘ**12 Month Summary**

Total number of Inquiries

**5** ⓘ

Unique Customers

**4**

\*Trade References will be added subject to Dun & Bradstreet verification and acceptance. Dun & Bradstreet cannot guarantee that trade references will be accepted or that accepted trade references will impact your business credit file. Please see <https://www.dandb.com/glossary/trade-references/> for eligibility, process and other information regarding Trade References.

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**STATE OF TENNESSEE  
TREASURY DEPARTMENT**

**PROPOSAL  
RFP # 30901-48421**

**TECHNICAL PROPOSAL & EVALUATION GUIDE  
SECTION B**

**B.1 – CONTACT INFORMATION**

Please contact the following individual regarding this proposal:

Mary Jean King, FCAS, CERA, MAAA

Principal and Consulting Actuary

mking@bynac.com

By the Numbers Actuarial Consulting, Inc.

118 Warfield Road

Cherry Hill, NJ 08034

(856) 428-5961

(615) 369-0754 fax

**B.2 – FORM OF BUSINESS**

By the Numbers Actuarial Consulting, Inc. (legal name) is a corporation domiciled in Tennessee.

**B.3 – YEARS IN BUSINESS**

Incorporated in 1999, BYNAC has been in business 22 years.

**B.4 – YEARS PERFORMING SERVICES**

BYNAC has provided the types of services required by this RFP since its inception or 22 years.

BYNAC's employees who will perform the services under the RFP have been performing these types of services for over 30 years.

**B.5 – ORGANIZATIONAL STRUCTURE**

BYNAC currently has six employees operating from four offices. Lisa Dennison and Katie Wilson work from the main office in Brentwood, Tennessee. The proximity of BYNAC's location to the State is ideal since BYNAC can meet with the State on a moment's notice. Mary Jean King, Elizabeth Long, Maria Mahon and Anya Hnateyko operate from satellite offices in Cherry Hill, New Jersey; Titusville, New Jersey; and Bellevue, Washington; respectively. BYNAC's client base is 200 individual and group self-insured programs in 35 states, Bermuda, and the Cayman Islands. Eighty percent of our revenue is derived from actuarial consulting for workers compensation.

**B.6 – MERGERS, ACQUISITIONS, OR SALES**

The corporation had a change in ownership effective 1/1/20. By the Numbers Actuarial Consulting redeemed the stocks of majority owner Lisa Dennison and three other minority owners leaving Mary Jean King and Elizabeth Long as the sole owners with 50% shares each. Mary Jean King is CEO and Elizabeth Long is CFO of the corporation.

**B.7 – FELONY CONVICTIONS**

Neither BYNAC nor any of its employees, agents, independent contractors, or subcontractors have been convicted of, pled guilty to, or pled nolo contendere to any felony.

**B.8 – BANKRUPTCY**

BYNAC has never filed or had filed against it any bankruptcy or insolvency proceeding, whether voluntary or involuntary, or undergone the appointment of a receiver, trustee, or assignee for the benefit of creditors.

**B.9 – PENDING LITIGATION**

There is no pending litigation against BYNAC.

**B.10 – SEC INVESTIGATIONS**

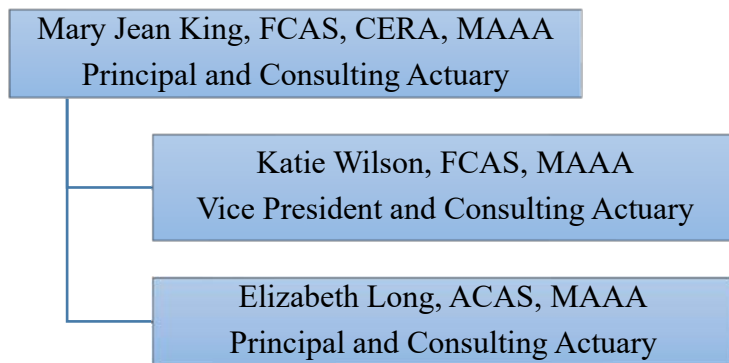
There have never been any Securities Exchange Commission investigations involving BYNAC.

**B.11 – ABILITY TO DELIVER SERVICES**

BYNAC’s team has five credentialed actuaries: four Fellows of the Casualty Actuarial Society (CAS) and one Associate of the CAS. Three of these credentialed actuaries have over 30 years’ experience with workers compensation rate-making and will provide unique insight into the NCCI loss cost filing.

**B.12 – PROJECT TEAM**

BYNAC’s proposed project team consists of Mary Jean King, FCAS, CERA, MAAA, Katie Wilson, FCAS, MAAA, and Elizabeth Long, ACAS, MAAA. Only credentialed actuaries will be assigned to the project providing the State the highest caliber of actuaries available. BYNAC’s project team organizational chart is shown below.



**B.13 – PERSONNEL ROSTER**

Shown below is the personnel roster of the people who will be assigned to perform the duties or services under the contract. Resumes are attached in pages 13 through 15.

Mary Jean King, FCAS, CERA, MAAA or Katie Wilson, FCAS, MAAA	Review and Analysis of Loss Cost Filing and Preparation of Actuarial Report	30 hours
Mary Jean King, FCAS, CERA, MAAA or Katie Wilson, FCAS, MAAA	Peer Review of Report	10 hours
Elizabeth Long, ACAS, MAAA	Peer Review and Proofing of Report	10 hours
Mary Jean King, FCAS, CERA, MAAA or Katie Wilson, FCAS, MAAA	Presentation to Advisory Council and Attending NCCI meetings	5 hours



## Mary Jean King

FCAS, CERA, MAAA  
Principal and Consulting Actuary

### Contact Information

118 Warfield Rd  
Cherry Hill, NJ 08034  
[www.bynac.com](http://www.bynac.com)

Direct: (856) 428-5961  
Fax: (856) 428-5962  
Email: [mking@bynac.com](mailto:mking@bynac.com)

### Education

Lafayette College  
A.B. Mathematics

### Certifications

Fellow of the Casualty Actuarial Society  
(FCAS)

Member of the American Academy of  
Actuaries (MAAA)

Chartered Enterprise Risk Analyst  
(CERA)

Mary Jean King joined By the Numbers Actuarial Consulting, Inc. in 2006. Ms. King became Senior Vice President in 2014 from which point she has had an active role in the management of the company. As Senior Vice President, she participated in strategic planning, supervised staff, and worked on BYNAC's marketing. In 2020 she became a principal owner of the company. As Principal she looks forward to leading BYNAC in its continued dedication to communication, professionalism, and value.

BYNAC's client-centered approach allows Ms. King to work directly with self-insured groups to meet all their actuarial needs. Her expertise includes assessing the needed loss and loss adjustment expense reserves for financial statement reporting and performing funding adequacy analysis. Her focus has been on county, public utility, and school district workers compensation and multiple line groups.

In 2015 Ms. King was awarded the Chartered Enterprise Risk Analyst (CERA) qualification after participating in the Casualty Actuarial Society's Enterprise Risk Management and Modeling seminar and passing the Enterprise Risk Management Specialist Technical exam of the Institute and Faculty of Actuaries (UK). The CERA applies both qualitative and quantitative insights to risk management and provides a 360-degree view of an organization's risk profile.

Before joining BYNAC, Ms. King worked in the individual risk rating and commercial lines pricing areas of two major property and casualty insurance companies. She gained over fifteen years' experience in the insurance company setting. In that capacity, she was active in special projects including cash flow modeling, quantifying the variability of reserve estimates, and mass tort reserve analysis, in addition to managing a team responsible for all commercial lines rating.



## Elizabeth Long

ACAS, MAAA  
Principal & Consulting Actuary

### Contact Information

9 Forrest Blend Drive  
Titusville, NJ 08560  
[www.bynac.com](http://www.bynac.com)

Direct: (609) 474-0508  
Email: [elong@bynac.com](mailto:elong@bynac.com)

### Education

Drexel University  
B.S. Mathematics

### Certifications

Associate of the Casualty Actuarial  
Society (ACAS)

Member of the American Academy of  
Actuaries (MAAA)

Liz Long joined By the Numbers Actuarial Consulting, Inc. in July 2001 and currently holds the title of Principal and Consulting Actuary for the company. Ms. Long provides actuarial support to various self-insured groups. Her work includes annual and quarterly reserve analyses as well as annual premium reports which help determine the adequacy of the premiums collected by the groups. Ms. Long assists clients with workers compensation, liability, and property coverages. Ms. Long works with a reinsurer to annually review and update the rates charged for auto liability, general liability, law enforcement liability, public official liability, and workers compensation coverages offered by the reinsurer to various county programs throughout the country. Ms. Long reviews the pricing for the higher excess layers offered by the reinsurer on an individual member basis.

Ms. Long started her actuarial career in June of 1986 as an actuarial analyst for a small reinsurance company. While there, she was responsible for pricing and reserving for the treaty reinsurance unit. Ms. Long then worked for a large insurance company providing reserve analyses for ocean marine, commercial umbrella, commercial auto, and commercial multi-peril lines of business. Ms. Long worked for the large account pricing unit of another large property and casualty insurance company. She supported various regional underwriting units in all pricing and reserving functions and managed the actuaries assigned to these regional units. Ms. Long moved to the ceded reinsurance department of the company where she was in charge of the actuarial unit that supported the ceded reinsurance functions. Her responsibilities included pricing ceded reinsurance treaties and providing catastrophe modeling support for the property ceded reinsurance unit. She was the primary actuarial contact for brokers and reinsurers during the treaty renewal process.

Ms. Long has passed two of the three remaining exams required for Fellowship in the Casualty Actuarial Society.



## Katie Wilson

FCAS, MAAA  
Vice President and Consulting  
Actuary

### Contact Information

4201 Colorado Avenue  
Nashville, TN 37209  
[www.bynac.com](http://www.bynac.com)

Direct: (615) 403-5369  
Fax: (615) 410-2113  
Email: [kwilson@bynac.com](mailto:kwilson@bynac.com)

### Education

Vanderbilt University  
B.S. Physics & Mathematics

### Certifications

Fellow of the Casualty Actuarial Society  
(FCAS)

Member of the American Academy of  
Actuaries (MAAA)

Katie Wilson is Vice President and Consulting Actuary for By the Numbers Actuarial Consulting, Inc. Ms. Wilson works directly with more than 30 self-insured entities annually to provide them with the actuarial services they require. These services include both annual and semi-annual analyses of required reserves for financial statement reporting as well as funding analyses of the adequacy of rates and premium structure. Among her clients are the workers compensation programs of a number of counties (both individuals and groups), school districts, public utilities, and transit providers. Ms. Wilson also provides analysis of other coverages including various liability and property damage exposures. She strives to communicate her findings in ways that are clearly understandable and accessible to her clients so as to facilitate their decision making process.

Ms. Wilson has been with By the Numbers Actuarial Consulting since January of 2007. In addition to her actuarial duties, she provides technological support to the company, including maintenance of BYNAC's web hosting, email, and digital archival services. In that capacity, she maintains and updates the website as needed using HTML and JavaScript.

Ms. Wilson has 15 years of experience in actuarial consulting. During that time she has succeeded in obtaining her Associateship (2013) and Fellowship (2016) in the Casualty Actuarial Society.

**B.14 – SUBCONTRACTORS**

BYNAC will not use subcontractors for this work.

**B.15 – COMMITMENT TO DIVERSITY**

BYNAC is committed to diversity as represented by its business strategy, business relationships, and workforce.

- a) Due to the nature of consulting, BYNAC has few vendors. Our vendors consist of overnight carriers, printers, and communication companies. Due to the size of these vendors (FedEx Kinko’s, AT&T, etc.) and the small amount of business we provide them, it is not practical to have programs and procedures to foster diversity in our relationship with them.
- b) BYNAC has no contracts with any of our vendors.
- c) By the Numbers Actuarial Consulting, Inc. is certified by the State of Tennessee Department of General Services Governor’s Office of Diversity Business Enterprise as a Women Business Enterprise (WBE). Attached on page 18 is a copy of our certificate (#051011-02).
  - i. As a WBE, 100% is the estimated level of participation by minorities, women, and persons with a handicap or disability and small business enterprises in a contract awarded to BYNAC.
  - ii. There are no anticipated contracts to describe.
  - iii. BYNAC will not use subcontractors.
- d) Below is a graph illustrating BYNAC’s employees by gender, ethnicity, and disability.

	<u>Caucasion</u>	<u>Other</u>	<u>Disabled</u>
Female	100%	0%	0%
Male	0%	0%	0%

**B.16 – CURRENT STATE CONTRACTS**

BYNAC is the incumbent on the expiring contract that is the subject of this RFP.

**B.17 – REFERENCES**

Five customer references have been requested: two large accounts and three completed projects. The following clients were asked to complete the reference questionnaire provided in the RFP packet and submit to Dawn Rochelle at dawn.rochelle@tn.gov. The first two are large accounts currently serviced by BYNAC and the last three are completed projects.

- 1. Mr. Bob Wormsley – Local Government Insurance Pool – client since 2012.
- 2. Dr. Phillip Wallace– Tennessee Risk Management Trust – client since 2000.

3. Mr. Johnnie Miller – Utah Counties Insurance Pool  
– client since 2003.
4. Mr. Al Gapinski – NHRMA Mutual Insurance Company  
– client since 1999.
5. Mr. Philip E. Bell – County Reinsurance, Limited  
- client since 1999.

**B.18 – SUSPENSION, CONVICTION, OR INDICTED**

**BYNAC:**

- (a) is not presently debarred, suspended, proposed for debarment, or voluntarily excluded from covered transactions by any federal or state department or agency;
- (b) has not within the past three (3) years, been convicted of, or had a civil judgment rendered against the contracting party from commission of fraud, or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) transaction or grant under a public transaction; violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (c) is not presently indicted or otherwise criminally or civilly charged by a government entity (federal, state, or local) with commission of any of the offenses detailed above;
- (d) has not within a three (3) year period preceding the contract had one or more public transactions (federal, state, or local) terminated for cause or default.



Certification Number: 051011-02

Industry: Actuarial Services

*The Governor's Office of Diversity Business Enterprise  
for the State of Tennessee, having determined that*

**By The Numbers Actuarial Consulting, Inc. DBA BYNAC**

*has successfully met the certification requirements as outlined in Tennessee Code Annotated Title 12,  
Chapter 3, Part 8, and the policies adopted thereunder; hereby grants the designation of*

**Woman Owned Business**

*and is recognized as such until the expiration of registration and certification on*

**May 10, 2022**

*In Witness Whereof, the Governor of the State of Tennessee and the Commissioner of  
General Services hereto affix our hand and the Great Seal of the State.*



*Shelia J. Simpson*

Program Director, Governor's Office of Diversity Business Enterprise

**STATE OF TENNESSEE  
TREASURY DEPARTMENT**

**PROPOSAL  
RFP # 30901-31517**

**TECHNICAL PROPOSAL & EVALUATION GUIDE  
SECTION C**

**C.1 – UNDERSTANDING OF REQUIREMENTS AND SCHEDULE**

The Advisory Council on Workers' Compensation (ACWC) requires actuarial consulting services featuring an evaluation of the annual National Council on Compensation Insurance, Inc. (NCCI) Loss Cost Rate Filing for the voluntary workers compensation insurance market.

In order to expedite the review process, BYNAC has worked with NCCI to establish a preliminary data request that is provided at the same time as the filing. BYNAC will attend the initial NCCI presentation to the ACWC either in person or virtually. BYNAC will review the filing and data used by NCCI in arriving at the proposed loss costs. The appropriateness of NCCI's methodology and selections will be evaluated including: company data included and excluded, possible sources of bias, breadth of coverage of the data, years of experience, loss development factors including tail development factors, trend factors, benefit level changes, large losses, and loss adjustment expense.

BYNAC will highlight areas of agreement and disagreement with the NCCI approaches. We will insure that any current issues and their impact on the loss cost filing are appropriately addressed including the impact of the economy and COVID-19.

BYNAC will issue a draft report to the ACWC in compliance with the State timeline usually the first week of October. BYNAC will participate in the pre-meeting teleconference where differences in actuarial opinion will be discussed in a respectful manner to arrive at as much consensus as possible prior to the meeting. During the current contract period BYNAC consistently met target dates for the draft actuarial report.

The report will be presented to the ACWC. We will provide the requested number of copies of the written report for the meeting or as otherwise directed by the ACWC. We will attend ACWC meetings at which the NCCI makes any presentation concerning the annual loss costs filing. We will make an oral presentation on a date selected by the ACWC. This presentation will review our findings. We will be available to respond to questions from members of the ACWC regarding the written or oral reports, the NCCI filing, or other related matter. The oral presentation will include handouts with tables and graphics to illustrate the key findings of our analysis.

**C.2 – PROJECT SCOPE**

Upon receipt of the filing, we will proceed with a thorough analysis of the data. We will look at the selection of the policy year or years NCCI selected as the basis of their analysis, the inclusion or exclusion of specific companies, basis of the trend factors, selection of the loss development factors, and calculation of the benefit level changes. Benefit level change factors quantify the impact of changes in the Tennessee workers compensation statutes on future claims. The loss adjustment expense will also be evaluated.

BYNAC will review the changes requested by NCCI in the past five years and see if these indications have changed based on more recent data and trends. This information will allow BYNAC to identify potential biases in the NCCI methodology and selections. In addition, BYNAC will evaluate changes to NCCI's countrywide ratemaking methodology for their appropriateness in Tennessee. Past reviews by BYNAC have included an evaluation of the change in credibility weighting and the need to incorporate paid loss development information. Emerging issues such as the COVID-19 pandemic are always considered as part of BYNAC's analysis.

Once all the data, selections, and methodologies have been reviewed, BYNAC will prepare a report summarizing our findings. The report will include each of the issues described above in addition to other issues uncovered and whether we agree or disagree with NCCI's approach. If we disagree, we will explain our difference of opinion and quantify the impact on the overall indication.

We will attend all meetings at which NCCI makes a presentation concerning the loss cost filing in addition to our oral presentation to the ACWC. We will be available to answer questions from members of the ACWC regarding the filing, report, presentation, or any other related matter.

### **C.3 – PROJECT MANAGEMENT**

Communication and experience are the keys to providing the services required under this contract. Following is how BYNAC will ensure communication:

- Prompt response to State and ACWC email and phone communications.
- Requesting feedback from client regarding issues that may arise and status of project.
- Mary Jean King or Katie Wilson will make the oral presentation to the ACWC. Through tables and graphics, we clearly communicate the results of the analysis. BYNAC has made over 300 presentations to clients. Clients often remark that they are understanding the actuarial presentation for the first time because BYNAC's presentations provide a clear understanding of the overall findings of the report, are concise, and the graphics help illustrate key points.

BYNAC will have two Fellows of the Casualty Actuarial Society (CAS) and an Associate of the CAS working on the project. Mary Jean King has over 30 years of workers compensation ratemaking experience. This will benefit the State since:

- High level actuaries have the expertise and experience to step back and review the filing in a broader context.
- A seasoned credentialed actuary gains the respect of the NCCI's team of actuaries who prepared and presented the filing.
- The three actuaries with different experience and backgrounds have a diverse basis to provide insight into the filing and ensure the reasonableness of the findings.

### **C.4 – SAMPLE ANALYSIS**

Attached is a sample of the BYNAC Tennessee filing review. Also provided are the exhibits used in the 10/16/20 ACWC meeting presentation. BYNAC has the technical capability necessary to provide the services sought under this RFP.

Mary Jean King, FCAS, CERA, MAAA  
Principal & Consulting Actuary  
118 Warfield Road  
Cherry Hill, NJ 08034  
P:856.428.5961  
mking@bynac.com



# TENNESSEE ADVISORY COUNCIL ON WORKERS' COMPENSATION

## ACTUARIAL REPORT

### Review of NCCI Loss Cost Filing Effective 3/1/21

10/14/20

By The Numbers  
Actuarial Consulting, Inc.

October 14, 2020

Mr. David H. Lillard, Jr., Tennessee State Treasurer  
Chairman, Advisory Council on Workers' Compensation  
Andrew Jackson Building, 15<sup>th</sup> Floor  
502 Deaderick Street  
Nashville, TN 37243-0248

Dear Mr. Lillard:

Enclosed is the actuarial report prepared for the Tennessee Advisory Council on Workers' Compensation. This report contains our review of the National Council on Compensation Insurance, Inc. (NCCI) filing effective 3/1/21.

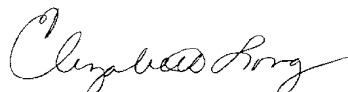
The estimates and analysis contained in this report are based on data provided by NCCI including the filing memorandum dated 8/27/20 and the answers to questions concerning the filing provided by NCCI. Any discrepancy in the completeness, interpretation, or accuracy of the information used may require a revision to this report.

If you have any questions, please contact us. It is a pleasure to be of service to the Advisory Council.

Sincerely,



Mary Jean King, FCAS, CERA, MAAA  
Principal and Consulting Actuary



Elizabeth Long, ACAS, MAAA  
Principal and Consulting Actuary

cc: Larry Scroggs, Administrator, Advisory Council on Workers' Compensation

**TENNESSEE ADVISORY COUNCIL ON WORKERS' COMPENSATION**

**ACTUARIAL REPORT**

**TABLE OF CONTENTS**

PURPOSE..... 1  
FINDINGS..... 2  
OVERVIEW OF FILING..... 3  
    SUMMARY OF PROPOSED LOSS COST CHANGES ..... 3  
    OTHER PROPOSED CHANGES ..... 3  
    DATA ..... 4  
    COVID-19 ..... 4  
STATEWIDE INDICATION ANALYSIS ..... 6  
    OVERVIEW ..... 6  
    ANALYSIS OF METHODOLOGY ..... 7  
    DEVELOPMENT ..... 9  
    TREND ..... 19  
    LOSS ADJUSTMENT EXPENSE ..... 34  
QUALIFICATIONS AND LIMITATIONS..... 36  
CONSULTATION..... 37

**APPENDICES**

BYNAC RECOMMENDATIONS..... 38  
CHANGES IN ESTIMATED ULTIMATE INCURRED LOSSES ..... 40

**TENNESSEE ADVISORY COUNCIL ON WORKERS' COMPENSATION**

**ACTUARIAL REPORT**

**PURPOSE**

By the Numbers Actuarial Consulting, Inc. (BYNAC) has been retained by the Tennessee Advisory Council on Workers' Compensation (ACWC) to prepare this actuarial report to present a professional analysis of the National Council on Compensation Insurance, Inc. (NCCI) Tennessee Workers Compensation Voluntary Loss Costs and Rating Values and Assigned Risk Rates and Rating Values filing effective 3/1/21. The basis of the analysis is the NCCI filing memorandum dated 8/27/20 and additional information provided by NCCI in support of the filing. BYNAC did not audit the premium or loss data underlying the NCCI filing, nor did we verify the accuracy of NCCI's detail calculations. An analysis of the classification changes and update to the retrospective rating plan parameters is beyond the scope of this report.

The following items will be addressed in this report:

- An analysis of NCCI's methodology in arriving at its calculation of the proposed change in loss costs and loss adjustment expense.
- An examination of the appropriateness of the methodology used by NCCI in its selection of estimates employed to arrive at ultimate loss cost for past and forecast periods.
- An analysis of NCCI's selection of trend and loss adjustment expense allowance.

## FINDINGS

Based on BYNAC's review of the NCCI filing, the proposed overall voluntary loss cost level change of -9.2% effective 3/1/21 has been reasonably calculated in accordance with actuarial standards of practice.

BYNAC reviewed paid and paid + case development and experience for policy years 2014 through 2016 in addition to the policy years underlying the filing of 2017 and 2018 in order to test the assumptions made by NCCI in selecting the data and development methods for review. Changes in estimated ultimate incurred losses based on both NCCI and BYNAC selected loss development factors are shown in Appendix B. The large decreases shown in this exhibit indicate more volatility than would normally be expected with this volume of data. It is BYNAC's opinion that this supports the need for a longer experience period for the filing indication.

BYNAC also reviewed the selection of trend. The NCCI selected trend factor is a change from 0.935 to 0.940 for indemnity. There is no change to the NCCI selected trend factor for medical of 0.955. BYNAC is in agreement with the NCCI trend selections.

BYNAC reviewed historical information for defense and cost containment expense (DCCE) and adjusting and other expense (AOE). BYNAC is in agreement with the NCCI LAE selections.

The overall indication using BYNAC's experience and trend change and LAE selection is -8.4% (Appendix A).

## OVERVIEW OF FILING

### SUMMARY OF PROPOSED LOSS COST CHANGES

NCCI is proposing a decrease in loss costs based on premium and loss experience effective 3/1/21. The breakdown of the proposed changes by industry groups is as follows:

<u>Industry Group</u>	<u>Loss Cost Change Eff 3/1/21</u>
Manufacturing	-9.7%
Contracting	-10.3%
Office & Clerical	-5.7%
Goods & Services	-8.9%
Miscellaneous	-9.6%
Overall	-9.2%

### OTHER PROPOSED CHANGES

In addition to the loss cost changes, NCCI has included in the filing an update to the retrospective rating plan parameters and various class code changes. There were no significant changes to methodology in this filing.

The statewide indication includes an increase of +0.5% to overall workers compensation system costs for the estimated impact of the medical fee schedule update that was effective 1/1/20.

BYNAC believes that these changes have been reasonably calculated in a manner similar to past filings.

## **DATA**

The data used for the statewide indication is premium and losses for policy years 2017 and 2018, evaluated as of 12/31/19. The policy years selected are the most recent available. Combined voluntary and assigned risk data are used. Assigned risk represents approximately 12.0% of the policy year 2017 market share and 12.3% of 2018. Beginning with this filing, for policies associated with TPA agreements where the AOE is not reported to NCCI, the associated losses will be excluded from the AOE analysis so that they do not impact the countrywide ultimate AOE ratios. This data does not reflect any effects of the COVID-19 pandemic.

## **COVID-19**

The effect of the COVID-19 pandemic is uncertain. Since the combined impact and direction of all direct and indirect COVID-19 related forces is unknown, NCCI has made no explicit adjustment for the pandemic in this year's analysis at an overall or individual classification level. There is no data available yet to start the needed analysis and so any adjustment would be based on modeling scenarios. As an example of possible model results, the NCCI research brief indicates that the projected impact for Tennessee first responders at a 5% infection rate and 100% compensability rate is +21%. In light of the uncertainty it may be prudent to consider capping decreases in class codes with high COVID-19 exposure. The following table illustrates the proposed changes in some of the higher risk class codes.

Class Code Description	Current Loss Cost	Proposed Loss Cost	Proposed Change
7705 Ambulance Services Companies and EMS Providers & Drivers	2.73	2.51	-8.1%
7720 Police officers & Drivers	1.45	1.38	-4.8%
8824 Retirement Living Centers: Health Care Employees	1.10	0.95	-13.6%
8826 Retirement Living Centers: All Other Employees, Salespersons & Dr	0.99	0.95	-4.0%
8832 Physician & Clerical	0.13	0.12	-7.7%
8833 Hospital: Professional Employees	0.53	0.48	-9.4%
8835 Home, Public, and Traveling Healthcare - All Employees	1.24	1.13	-8.9%
8842 Group Homes - All Employees & Salespersons, Drivers	1.22	1.14	-6.6%
8869 Child Care Center - All Employees Including Clerical, Salesprsons	0.45	0.43	-4.4%

## STATEWIDE INDICATION ANALYSIS

### OVERVIEW

The statewide indicated change is based on premium and loss data for policy years 2017 and 2018. Standard earned premium is developed to ultimate to account for payroll audits that occur after the valuation date. Premium is then brought to the level of the current loss costs based on changes in loss costs since the experience period.

Two procedures are used to estimate the ultimate incurred losses. In the first method limited indemnity and medical paid losses plus case reserves are developed to ultimate. In the second method paid losses only are developed to ultimate. NCCI selected an average of the two methods as the best estimate of ultimate losses.

An on-level factor is also applied to losses to reflect changes to statutory benefit levels (excluding state average weekly wage (SAWW) related changes) since the experience period. A separate indemnity and medical limited cost ratio is calculated. A projected cost ratio for the proposed policy period is then calculated by applying factors for trend, to adjust the losses to an unlimited basis, and for proposed changes in benefit levels. The medical and indemnity cost ratios are added to arrive at a projected cost ratio for each policy year. The average of the projected cost ratio for the two policy years is selected by NCCI.

The final component of the proposed change is the change in loss adjustment expense. The indicated change based on experience, trend, and benefits is multiplied by the effect of the proposed change in loss based expenses to calculate the proposed overall change.

Indicated Change Based on Experience, Trend, and Benefits:

Policy Year	Projected Cost Ratio		
	Indemnity	Medical	Combined
2018	0.288	0.595	0.883
2017	0.293	0.635	0.928
Selected			0.906

Change in Loss Based Expenses:

	DCCE Ratio	AOE Ratio	LAE Ratio
Current	0.110	0.080	0.190
Proposed	0.103	0.089	0.192
Change			1.002
Overall Change			-9.2%

## ANALYSIS OF METHODOLOGY

The methodology used by NCCI to calculate the statewide indication is reasonable. Both paid and paid + case loss development are used in estimating ultimate losses. These are widely used and accepted methods. Inherent in the paid + case loss development technique is the assumption that there are no changes in reserving practices. The paid loss development method provides a check to this assumption. Paid loss development assumes that there are no changes in claims settlement practices.

The use of on-level factors to bring premium to the current loss cost level is also a generally accepted technique. The use of a Tennessee specific distribution of policy effective dates increases the accuracy of the on-level factor calculation. As a matter of simplicity, the most recent distribution is used for all policy years.

In selecting trend factors, NCCI examines claim frequency and severity separately, adjusts the severity to the current statutory benefit level (excluding SAWW related changes), and removes the impact of the growth in payroll over the experience period. NCCI then combines the historical frequency with the adjusted severity to produce loss ratio trend experience. Policy year loss ratio trend is used as the basis for the selection. The selection of trend factors involves a great deal of judgment and is subject to a wide range of opinion concerning the appropriate factor.

Five accident years of countrywide LAE data are presented as the basis for the LAE allowance. Tennessee specific data is used for the DCCE provision and countrywide data is used for AOE.

The methodology to limit losses in the development and trend calculations and adjust the limited cost ratio to an unlimited basis is the same as that used in the prior filing. This methodology was implemented in 2004 to temper the impact of one large claim on the overall statewide indication. The loss limitation threshold is based on pure premium and changes from year to year. The threshold for this filing is a 13.3% decrease to \$6,043,251. The selected statewide excess ratio of 2.4% is higher than the ratio used in the prior filing of 2.0%.

A comparison of the adjustment factors in the current and prior filings is presented in the following table:

	Most Recent Policy Year			Older Policy Year		
	Eff 3/1/21	Eff 3/1/20	Eff 3/1/19	Eff 3/1/21	Eff 3/1/20	Eff 3/1/19
Premium Development Factor	1.010	1.009	1.008	1.000	1.000	1.000
Indemnity Paid Development Factor	2.264	2.280	2.258	1.429	1.436	1.450
Indemnity Limited Paid Tail Factor	1.003	1.007	1.006			
Indemnity Paid+Case Development Factor	1.187	1.210	1.240	1.086	1.098	1.111
Indemnity Limited Paid+Case Tail Factor	1.001	1.002	1.001			
Medical Paid Development Factor	1.830	1.953	2.033	1.520	1.605	1.650
Medical Limited Paid Tail Factor	1.115	1.146	1.152			
Medical Paid+Case Development Factor	1.056	1.153	1.248	1.081	1.175	1.249
Medical Limited Paid+Case Tail Factor	1.015	1.020	1.022			
Indemnity Trend (Annual)	0.940	0.935	0.930			
Medical Trend (Annual)	0.955	0.955	0.960			
Loss Adjustment Expense	0.192	0.190	0.197			
Excess Loss Loading Factor	1.025	1.020	1.013			

## DEVELOPMENT

The ultimate cost of claims incurred for a specific time period is usually not known until several years after the close of that period. Loss development factors project the additional cost expected on claims. The calculation and selection of development factors to be applied to paid + case indemnity losses are shown in Table 1, beginning with the age to age factors calculated using Tennessee's limited paid + case policy year losses excluding LAE. The historical and expected loss development patterns are graphically illustrated in Figure 1 by thick and thin lines, respectively. Paid indemnity development is shown in Table 2 and Figure 2. Medical development follows in Tables 3 and 4 and Figures 3 and 4. For both indemnity and medical losses, NCCI selected 5 year average factors for the paid + case development and 2 year averages for the paid development. The NCCI selections are reasonable. However, BYNAC believes that a 3 year paid average is preferable. The BYNAC paid + case indemnity factors are judgmentally selected based on 3 year and 5 year averages and also a 5 year mid average which is the average of the 5 most recent age to age factors excluding the high and the low. BYNAC

Table 1

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**INDEMNITY PAID + CASE DEVELOPMENT FACTORS**

**A. INDEMNITY PAID + CASE AGE TO AGE FACTORS**

Policy Year	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19-Ult
1996																			0.998
1997																	1.000	1.000	
1998																0.999	1.000	1.001	
1999															1.000	1.000	1.000	1.000	
2000														1.002	0.999	1.000	0.998	1.000	
2001													1.000	1.000	1.002	0.999	0.999		
2002												1.000	0.999	1.000	1.000	1.000			
2003											1.001	1.001	1.002	1.000	1.002				
2004										1.000	1.002	1.005	1.000	1.000					
2005									1.001	1.001	1.002	1.001	0.999						
2006								1.000	1.001	1.001	1.000	1.000							
2007							1.004	0.996	0.999	0.999	1.001								
2008						1.005	1.002	0.998	1.001	1.001									
2009					1.010	1.006	1.005	1.006	0.997										
2010				1.012	1.004	1.002	1.006	1.000											
2011			1.025	1.006	1.002	1.008	0.999												
2012		1.068	1.016	1.011	1.001	0.998													
2013	1.103	1.053	1.008	1.005	1.002														
2014	1.063	1.034	1.016	1.012															
2015	1.101	1.035	1.017																
2016	1.091	1.035																	
2017	1.108																		
5 Yr Avg	1.093	1.045	1.016	1.009	1.004	1.004	1.003	1.000	1.000	1.000	1.001	1.001	1.000	1.000	1.001	1.000	0.999	1.000	
3 Yr Avg	1.100	1.035	1.014	1.009	1.002	1.003	1.003	1.001	0.999	1.000	1.001	1.002	1.000	1.000	1.001	1.000	0.999	1.000	
5 Yr Mid	1.098	1.041	1.016	1.010	1.003	1.004	1.004	0.999	1.000	1.001	1.001	1.001	1.000	1.000	1.001	1.000	1.000	1.000	
2 Yr Avg	1.100	1.035	1.017	1.009	1.002	1.003	1.003	1.003	0.999	1.000	1.001	1.001	1.000	1.000	1.001	1.000	0.999	1.000	
NCCI Prior	1.102	1.048	1.018	1.009	1.004	1.006	1.004	1.001	1.001	1.000	1.001	1.001	1.000	1.000	1.000	1.000	1.000	1.000	1.002
NCCI Sel	1.093	1.045	1.016	1.009	1.004	1.004	1.003	1.000	1.000	1.000	1.001	1.001	1.000	1.000	1.001	1.000	0.999	1.000	1.001
BYNAC Sel	1.097	1.040	1.015	1.009	1.003	1.004	1.003	1.000	1.000	1.000	1.001	1.001	1.000	1.000	1.001	1.000	0.999	1.000	1.001

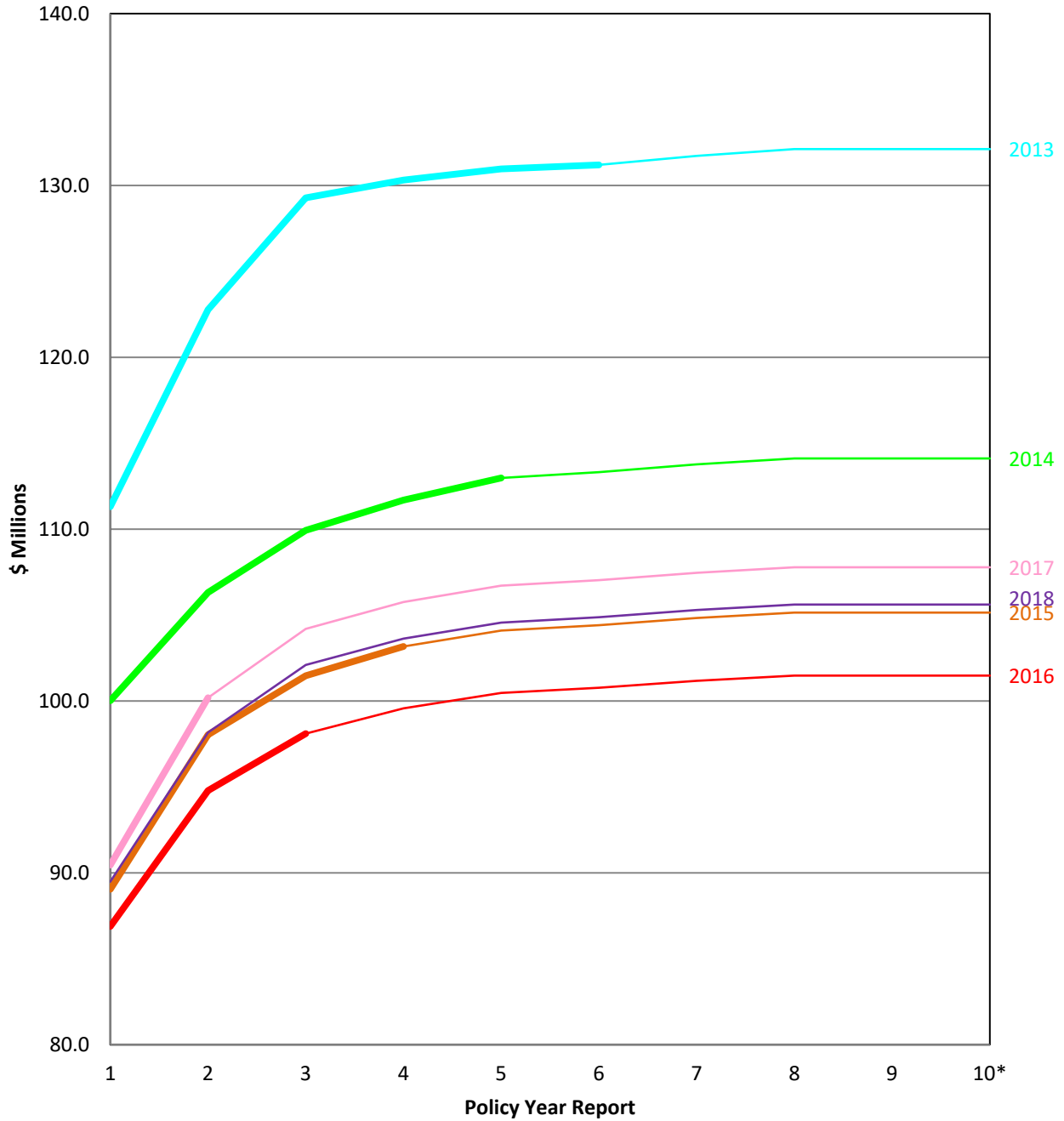
**B. INDEMNITY PAID + CASE DEVELOPMENT FACTORS**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	1.183	1.078	1.037	1.022	1.013	1.010	1.006	1.003	1.003	1.003	1.003	1.002	1.001	1.001	1.001	1.000	1.000	1.001	1.001

Figure 1

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**HISTORICAL AND EXPECTED DEVELOPMENT OF PAID + CASE LOSSES  
INDEMNITY**



\* Additional development of 0.3% is expected after 10th report.

Table 2

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**INDEMNITY PAID DEVELOPMENT FACTORS**

**A. INDEMNITY PAID AGE TO AGE FACTORS**

Policy Year	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19-Ult	
1996																			1.001	
1997																	1.001	1.001		
1998																1.000	1.000	1.000		
1999															1.001	1.000	1.000	1.000		
2000														1.001	1.001	1.001	1.001	1.001		
2001													1.001	1.001	1.001	1.001	1.001	1.001		
2002												1.003	0.999	1.001	1.000	1.001				
2003											1.001	1.001	1.000	1.000	1.002					
2004										1.003	1.004	1.003	1.001	1.001						
2005									1.004	1.002	1.003	1.003	1.001							
2006								1.004	1.003	1.003	1.000	1.001								
2007							1.011	1.003	1.003	1.002	1.001									
2008						1.013	1.009	1.006	1.006	1.004										
2009					1.025	1.016	1.010	1.003	1.004											
2010				1.038	1.019	1.017	1.006	1.007												
2011			1.104	1.043	1.024	1.021	1.010													
2012		1.215	1.081	1.043	1.027	1.013														
2013	1.640	1.216	1.078	1.037	1.022															
2014	1.529	1.170	1.085	1.050																
2015	1.584	1.185	1.088																	
2016	1.591	1.155																		
2017	1.576																			
5 Yr Avg	1.584	1.188	1.087	1.042	1.023	1.016	1.009	1.005	1.004	1.003	1.002	1.002	1.000	1.001	1.001	1.001	1.001	1.001	1.000	
3 Yr Avg	1.584	1.170	1.084	1.043	1.024	1.017	1.009	1.005	1.004	1.003	1.001	1.002	1.001	1.001	1.001	1.001	1.001	1.001	1.000	
5 Yr Mid	1.584	1.190	1.085	1.041	1.024	1.015	1.010	1.004	1.004	1.003	1.002	1.002	1.001	1.001	1.001	1.001	1.001	1.001	1.000	
2 Yr Avg	1.584	1.170	1.087	1.044	1.025	1.017	1.008	1.005	1.005	1.003	1.001	1.002	1.001	1.001	1.001	1.001	1.001	1.001	1.000	
NCCI Prior	1.588	1.178	1.082	1.040	1.026	1.019	1.008	1.005	1.005	1.003	1.002	1.003	1.001	1.000	1.001	1.001	1.001	1.001	1.000	1.007
NCCI Sel	1.584	1.170	1.087	1.044	1.025	1.017	1.008	1.005	1.005	1.003	1.001	1.002	1.001	1.001	1.001	1.001	1.001	1.001	1.000	1.003
BYNAC Sel	1.584	1.170	1.084	1.043	1.024	1.017	1.009	1.005	1.004	1.003	1.001	1.002	1.001	1.001	1.001	1.001	1.001	1.001	1.000	1.003

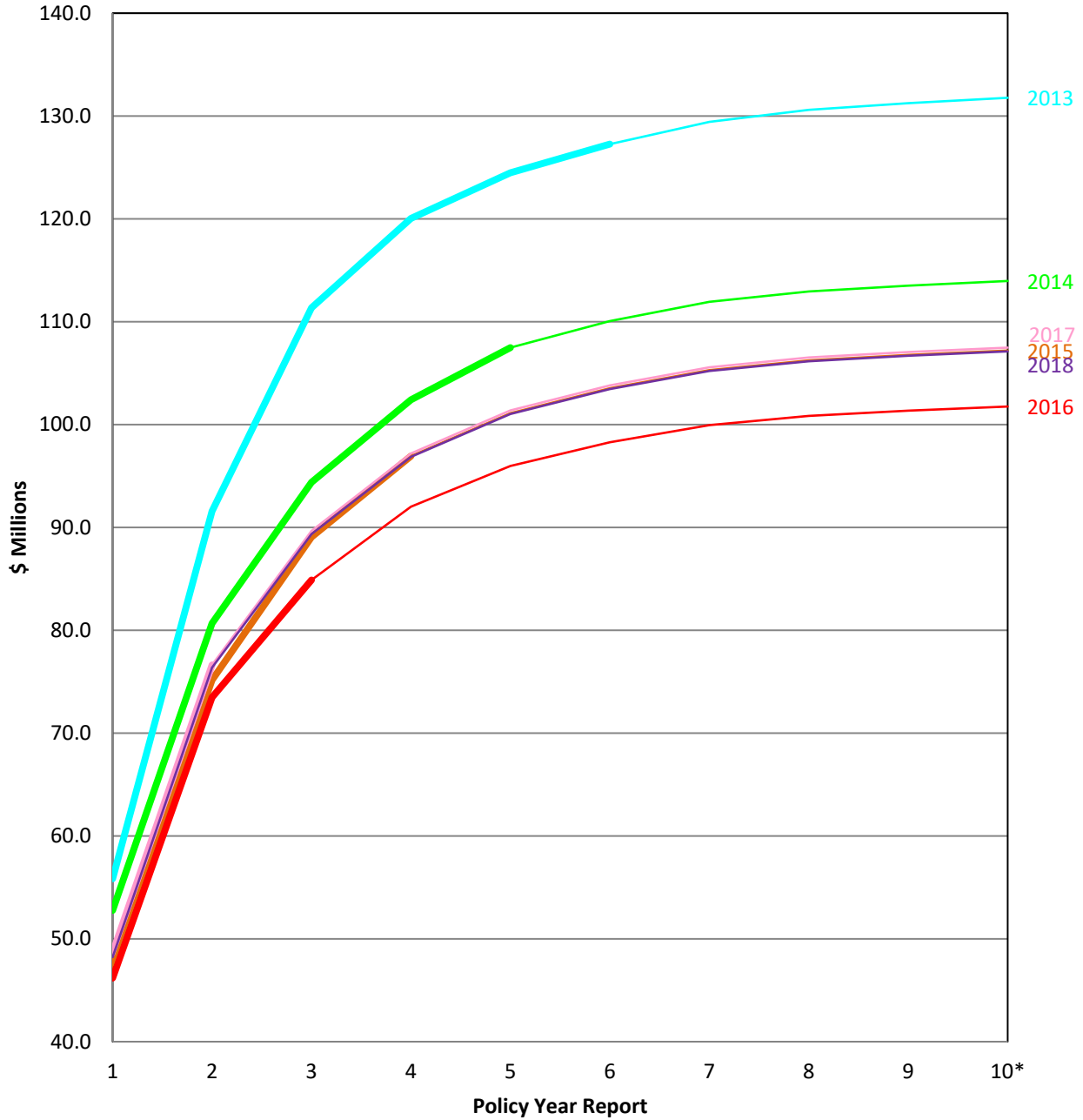
**B. INDEMNITY PAID DEVELOPMENT FACTORS**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	2.252	1.422	1.215	1.121	1.075	1.050	1.032	1.023	1.018	1.014	1.011	1.010	1.008	1.007	1.006	1.005	1.004	1.003	1.003

Figure 2

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**HISTORICAL AND EXPECTED DEVELOPMENT OF PAID LOSSES  
INDEMNITY**



\* Additional development of 1.4% is expected after 10th report.

Table 3

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**MEDICAL PAID + CASE DEVELOPMENT FACTORS**

**A. MEDICAL PAID + CASE AGE TO AGE FACTORS**

Policy Year	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - Ult
1996																			0.992
1997																	0.995	1.006	
1998																1.006	0.997	1.002	
1999															1.003	1.005	0.996	0.997	
2000														0.999	0.997	0.989	1.003	0.999	
2001													1.010	1.006	0.996	0.994	1.002		
2002												1.007	1.002	0.996	1.003	1.001			
2003											1.023	1.002	1.006	0.997	1.003				
2004										1.008	1.001	1.000	1.002	0.995					
2005									1.022	1.000	1.004	1.003	0.978						
2006								1.000	1.012	0.998	0.999	1.001							
2007							1.024	1.023	0.981	0.989	0.996								
2008						1.030	0.990	0.994	0.997	0.997									
2009					1.013	1.014	0.999	1.005	1.003										
2010				1.025	1.014	1.016	0.996	0.997											
2011			1.037	1.000	1.013	1.001	1.002												
2012		1.027	1.017	1.012	1.002	0.991													
2013	0.956	1.029	1.015	0.995	1.004														
2014	0.986	1.016	1.012	0.986															
2015	0.987	0.985	1.008																
2016	0.953	1.005																	
2017	1.001																		
5 Yr Avg	0.977	1.012	1.018	1.004	1.009	1.010	1.002	1.004	1.003	0.998	1.005	1.003	1.000	0.999	1.000	0.999	0.999	0.999	
3 Yr Avg	0.980	1.002	1.012	0.998	1.006	1.003	0.999	0.999	0.994	0.995	1.000	1.001	0.995	0.996	1.001	0.995	1.000	0.999	
5 Yr Mid	0.976	1.016	1.015	1.002	1.010	1.010	0.999	1.001	1.004	0.998	1.001	1.002	1.003	0.997	1.001	1.000	0.998	0.999	
2 Yr Avg	0.977	0.995	1.010	0.991	1.003	0.996	0.999	1.001	1.000	0.993	0.998	1.002	0.990	0.996	1.003	0.998	1.003	0.998	
NCCI Prior	0.981	1.020	1.029	1.012	1.021	1.019	1.008	1.012	1.006	1.002	1.004	1.006	1.008	1.001	1.000	0.998	0.997	1.001	1.020
NCCI Sel	0.977	1.012	1.018	1.004	1.009	1.010	1.002	1.004	1.003	0.998	1.005	1.003	1.000	0.999	1.000	0.999	0.999	0.999	1.015
BYNAC Sel	0.977	1.012	1.018	1.004	1.009	1.010	1.002	1.004	1.003	0.998	1.005	1.003	1.000	0.999	1.000	0.999	0.999	0.999	1.015

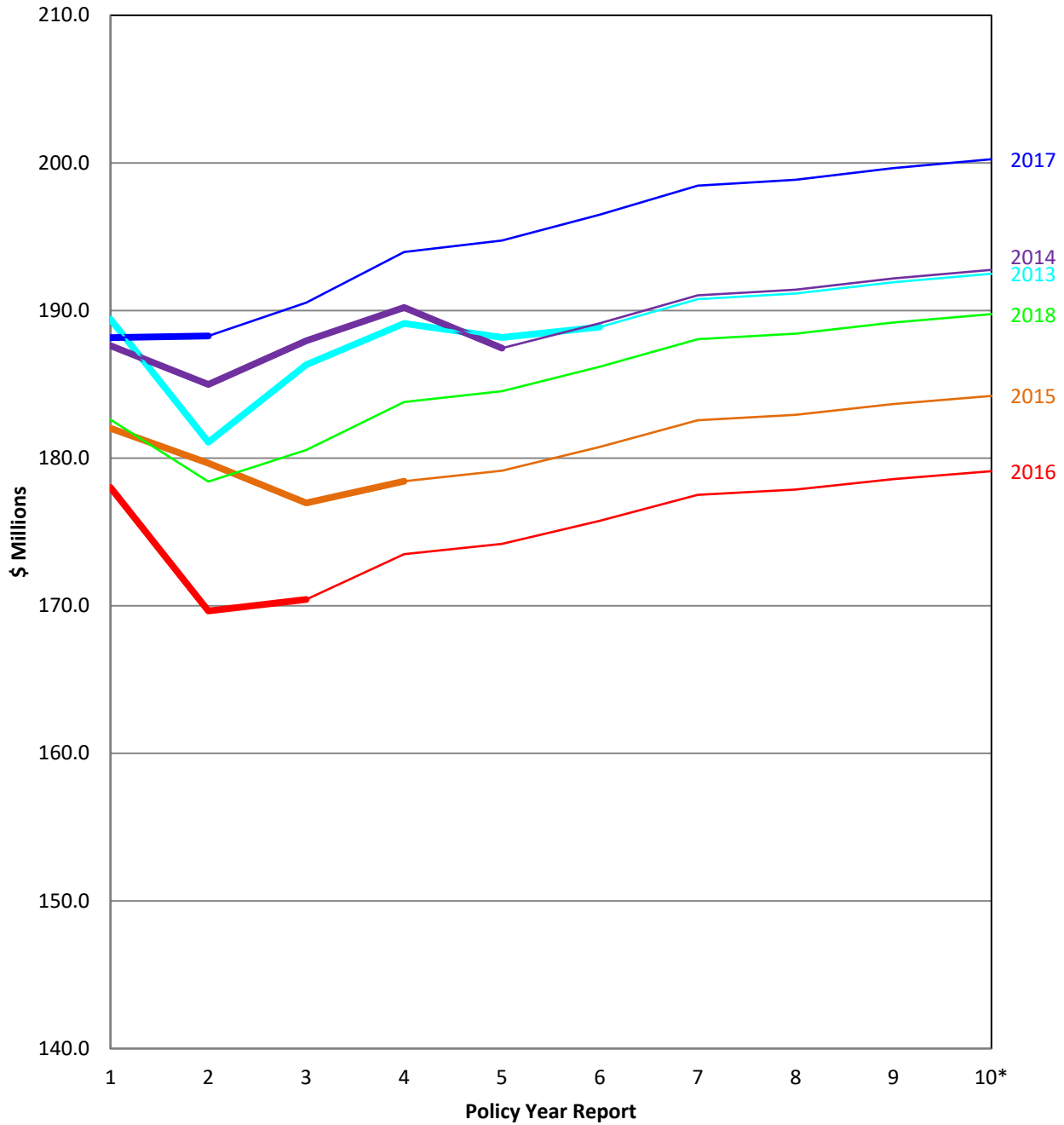
**B. MEDICAL PAID + CASE DEVELOPMENT FACTORS**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	1.056	1.081	1.068	1.049	1.045	1.036	1.026	1.024	1.020	1.017	1.019	1.014	1.011	1.011	1.012	1.012	1.013	1.014	1.015

Figure 3

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**HISTORICAL AND EXPECTED DEVELOPMENT OF PAID + CASE LOSSES  
MEDICAL**



\* Additional development of 1.7% is expected after 10th report.

Table 4

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**MEDICAL PAID DEVELOPMENT FACTORS**

**A. MEDICAL AGE TO AGE FACTORS**

Policy Year	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - Ult
1996																			1.018
1997																	1.009	1.008	
1998																1.013	1.010	1.009	
1999															1.009	1.011	1.008	1.009	
2000														1.010	1.008	1.008	1.009	1.007	
2001													1.010	1.009	1.011	1.006	1.004		
2002												1.019	1.005	1.008	1.009	1.006			
2003											1.012	1.017	1.011	1.011	1.008				
2004										1.021	1.016	1.010	1.013	1.010					
2005									1.023	1.024	1.017	1.010	1.012						
2006								1.033	1.021	1.024	1.020	1.011							
2007							1.041	1.023	1.019	1.014	1.013								
2008						1.044	1.027	1.016	1.015	1.011									
2009					1.037	1.028	1.024	1.017	1.015										
2010				1.036	1.035	1.029	1.023	1.023											
2011			1.047	1.027	1.019	1.025	1.014												
2012		1.070	1.037	1.025	1.021	1.023													
2013	1.221	1.073	1.037	1.028	1.018														
2014	1.229	1.066	1.044	1.021															
2015	1.234	1.061	1.031																
2016	1.200	1.054																	
2017	1.208																		
5 Yr Avg	1.218	1.065	1.039	1.027	1.026	1.030	1.026	1.022	1.019	1.019	1.016	1.013	1.010	1.010	1.009	1.009	1.008	1.010	
3 Yr Avg	1.214	1.060	1.037	1.025	1.019	1.026	1.020	1.019	1.016	1.016	1.017	1.010	1.012	1.010	1.009	1.007	1.007	1.008	
5 Yr Mid	1.219	1.066	1.039	1.027	1.025	1.027	1.025	1.021	1.018	1.020	1.015	1.013	1.011	1.010	1.009	1.008	1.009	1.009	
2 Yr Avg	1.204	1.058	1.038	1.025	1.020	1.024	1.019	1.020	1.015	1.013	1.017	1.011	1.013	1.011	1.009	1.006	1.007	1.008	
NCCI Prior	1.217	1.064	1.041	1.027	1.020	1.027	1.024	1.018	1.017	1.019	1.019	1.010	1.012	1.009	1.010	1.007	1.009	1.009	1.146
NCCI Sel	1.204	1.058	1.038	1.025	1.020	1.024	1.019	1.020	1.015	1.013	1.017	1.011	1.013	1.011	1.009	1.006	1.007	1.008	1.115
BYNAC Sel	1.214	1.060	1.037	1.025	1.019	1.026	1.020	1.019	1.016	1.016	1.017	1.010	1.012	1.010	1.009	1.007	1.007	1.008	1.134

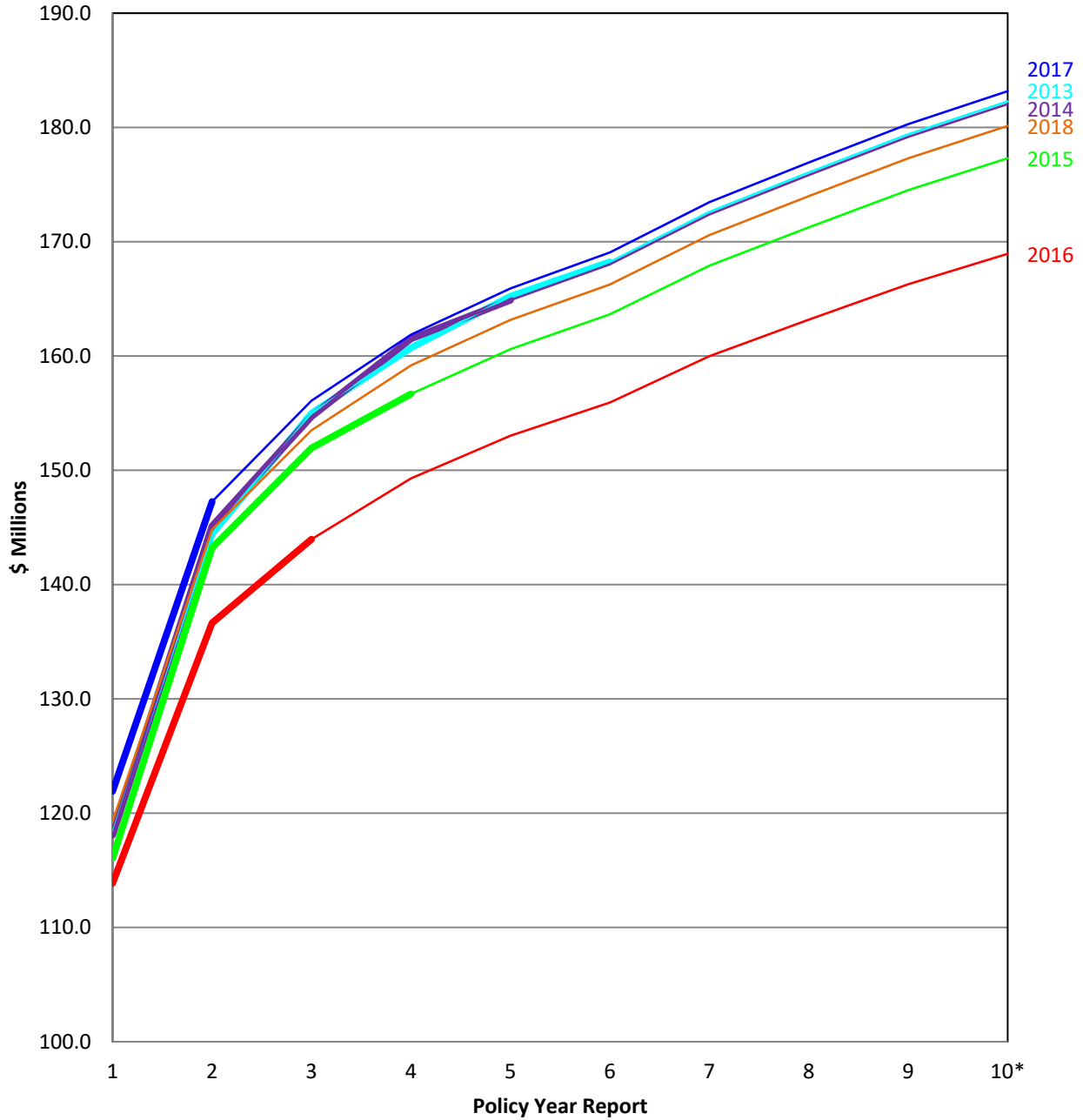
**B. MEDICAL PAID LOSS DEVELOPMENT FACTORS**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	1.884	1.552	1.464	1.412	1.378	1.352	1.318	1.292	1.268	1.248	1.228	1.207	1.195	1.181	1.169	1.159	1.151	1.143	1.134

Figure 4

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**HISTORICAL AND EXPECTED DEVELOPMENT OF PAID LOSSES  
MEDICAL**



\* Additional development of 24.8% is expected after 10th report.

paid + case medical selections are 5 year averages which equal the NCCI selections. The selections are also shown on Tables 1 through 4.

BYNAC is in agreement with the NCCI procedure for estimating the 19<sup>th</sup>-to-ultimate loss development factors but selected a different medical paid-to-paid + case ratio. The NCCI paid medical 19<sup>th</sup>-to-ultimate selection of 1.115 is significantly lower than last year's selection of 1.146 due to a decrease in the unlimited factor, a decrease in the factor to adjust to a limited basis, and an increase in the paid-to-paid + case ratio. BYNAC believes a ratio of 0.895 equal to the five-year average of 1996 to 2000 would be more appropriate resulting in a limited 19<sup>th</sup>-to-ultimate factor of 1.134 as shown below.

Policy Year	Indemnity Paid-to- Paid+Case Ratio 19th Report	Medical Paid-to- Paid+Case Ratio 19th Report
1996	0.998	0.905
1997	0.996	0.897
1998	0.999	0.872
1999	0.999	0.886
2000	0.996	0.917
Average	0.998	0.895
NCCI Selected	0.998	0.910
BYNAC Selected	0.998	0.895
Limited Paid + Case	1.001	1.015
Limited Paid	1.003	1.134

The standard earned premium also needs to be developed to ultimate to account for changes to earned premium such as payroll audits that are completed after the 1st report. Table 5 shows the

premium development with the NCCI and BYNAC selections. Age to age factors from prior filings are shown for the older policy periods. These factors are included to illustrate the range of usual factors.

Table 6 shows both NCCI's and BYNAC's estimated ultimate losses and standard earned premium. For the losses, the NCCI selections are based on an average of the indicated ultimate losses using the paid + case and paid development methods. The BYNAC selections are also based on the average of the two methods using BYNAC's selected development factors. The selections are illustrated in Figures 5 and 6.

The indicated loss cost level change for policy years 2014 through 2018 is presented in Table 7. A summary of the indications is provided in Table 8 and Figure 7. BYNAC selected the average of the 2014 through 2018 BYNAC indications. BYNAC has extended the number of years used in the selected average due to the volatility.

## **TREND**

An exponential regression model is used to project the trend and is presented in Table 9. Both BYNAC and NCCI made judgmental selections based on the frequency, severity, and loss ratio trends presented. It is important to keep in mind the change to methodology in last year's filing when making these selections. The effect of the statutory changes in indemnity benefits associated with the SAWW are now incorporated as part of trend. NCCI is no longer calculating and adjusting for these changes separately. BYNAC is in agreement with the NCCI recommendations of 0.940 for indemnity and 0.955 for medical.

Table 5

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**PREMIUM DEVELOPMENT FACTORS**

A. PREMIUM AGE TO AGE FACTORS

Policy Year	1 - 2	2 - 3	3 - 4	4 - 5	5-Ult
2010	1.008	1.000	1.000	1.000	
2011	1.014	1.000	1.000	1.000	
2012	1.006	0.999	1.000	1.000	
2013	1.005	1.000	1.000	1.000	
2014	1.011	1.000	1.000	1.000	
2015	1.009	0.999	1.000		
2016	1.009	1.000			
2017	1.012				
5 Yr Avg	1.009	1.000	1.000	1.000	
3 Yr Avg	1.010	1.000	1.000	1.000	
5 Yr Mid	1.010	1.000	1.000	1.000	
2 Yr Avg	1.011	1.000	1.000	1.000	
NCCI Prior	1.009	1.000	1.000	1.000	1.000
NCCI Sel	1.010	1.000	1.000	1.000	1.000
BYNAC Sel	1.010	1.000	1.000	1.000	1.000

B. PREMIUM LOSS DEVELOPMENT FACTORS

1	2	3	4	5
1.010	1.000	1.000	1.000	1.000

Table 6

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**DETERMINATION OF PREMIUM AND LOSSES DEVELOPED TO ULTIMATE REPORT**

<b>Section A - Policy Year 2018 Experience</b>		<b>NCCI</b>	<b>BYNAC</b>
(1)	Standard Earned Premium	\$525,809,026	\$525,809,026
(2)	Factor to Develop Premium to Ultimate	1.010	1.010
(3)	Standard Earned Premium Developed to Ultimate = (1)x(2)	\$531,067,116	\$531,067,116
(4)	Limited Indemnity Paid Losses	\$48,216,110	\$48,216,110
(5)	Limited Indemnity Paid Development Factor to Ultimate	2.264	2.252
(6)	Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	\$109,161,273	\$108,582,680
(7)	Limited Indemnity Paid+Case Losses	\$89,490,909	\$89,490,909
(8)	Limited Indemnity Paid+Case Development Factor to Ultimate	1.187	1.183
(9)	Limited Indemnity Paid+Case Losses Developed to Ultimate = (7)x(8)	\$106,225,709	\$105,867,745
(10)	Policy Year 2018 Limited Indemnity Losses Developed to Ultimate NCCI and BYNAC = [(6)+(9)]/2	\$107,693,491	\$107,225,213
(11)	Limited Medical Paid Losses	\$119,284,646	\$119,284,646
(12)	Limited Medical Paid Development Factor to Ultimate	1.830	1.884
(13)	Limited Medical Paid Losses Developed to Ultimate = (11)x(12)	\$218,290,902	\$224,732,273
(14)	Limited Medical Paid+Case Losses	\$182,611,583	\$182,611,583
(15)	Limited Medical Paid+Case Development Factor to Ultimate	1.056	1.056
(16)	Limited Medical Paid+Case Losses Developed to Ultimate = (14)x(15)	\$192,837,832	\$192,837,832
(17)	Policy Year 2018 Limited Medical Losses Developed to Ultimate NCCI and BYNAC = [(13)+(16)]/2	\$205,564,367	\$208,785,053
<b>Section B - Policy Year 2017 Experience</b>		<b>NCCI</b>	<b>BYNAC</b>
(1)	Standard Earned Premium	\$571,589,522	\$571,589,522
(2)	Factor to Develop Premium to Ultimate	1.000	1.000
(3)	Standard Earned Premium Developed to Ultimate = (1)x(2)	\$571,589,522	\$571,589,522
(4)	Limited Indemnity Paid Losses	\$76,634,989	\$76,634,989
(5)	Limited Indemnity Paid Development Factor to Ultimate	1.429	1.422
(6)	Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	\$109,511,399	\$108,974,954
(7)	Limited Indemnity Paid+Case Losses	\$100,190,326	\$100,190,326
(8)	Limited Indemnity Paid+Case Development Factor to Ultimate	1.086	1.078
(9)	Limited Indemnity Paid+Case Losses Developed to Ultimate = (7)x(8)	\$108,806,694	\$108,005,171
(10)	Policy Year 2017 Limited Indemnity Losses Developed to Ultimate NCCI and BYNAC = [(6)+(9)]/2	\$109,159,047	\$108,490,063
(11)	Limited Medical Paid Losses	\$147,256,745	\$147,256,745
(12)	Limited Medical Paid Development Factor to Ultimate	1.520	1.552
(13)	Limited Medical Paid Losses Developed to Ultimate = (11)x(12)	\$223,830,252	\$228,542,468
(14)	Limited Medical Paid+Case Losses	\$188,279,352	\$188,279,352
(15)	Limited Medical Paid+Case Development Factor to Ultimate	1.081	1.081
(16)	Limited Medical Paid+Case Losses Developed to Ultimate = (14)x(15)	\$203,529,980	\$203,529,980
(17)	Policy Year 2017 Limited Medical Losses Developed to Ultimate NCCI and BYNAC = [(13)+(16)]/2	\$213,680,116	\$216,036,224

Table 6

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**DETERMINATION OF PREMIUM AND LOSSES DEVELOPED TO ULTIMATE REPORT**

<b>Section C - Policy Year 2016 Experience</b>		<b>NCCI</b>	<b>BYNAC</b>
(1)	Standard Earned Premium	\$606,140,796	\$606,140,796
(2)	Factor to Develop Premium to Ultimate	1.000	1.000
(3)	Standard Earned Premium Developed to Ultimate = (1)x(2)	\$606,140,796	\$606,140,796
(4)	Limited Indemnity Paid Losses	\$84,889,266	\$84,889,266
(5)	Limited Indemnity Paid Development Factor to Ultimate	1.221	1.215
(6)	Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	\$103,649,794	\$103,140,458
(7)	Limited Indemnity Paid+Case Losses	\$98,106,707	\$98,106,707
(8)	Limited Indemnity Paid+Case Development Factor to Ultimate	1.039	1.037
(9)	Limited Indemnity Paid+Case Losses Developed to Ultimate = (7)x(8)	\$101,932,869	\$101,736,655
(10)	Policy Year 2016 Limited Indemnity Losses Developed to Ultimate NCCI and BYNAC = [(6)+(9)]/2	\$102,791,332	\$102,438,557
(11)	Limited Medical Paid Losses	\$143,963,697	\$143,963,697
(12)	Limited Medical Paid Development Factor to Ultimate	1.437	1.464
(13)	Limited Medical Paid Losses Developed to Ultimate = (11)x(12)	\$206,875,833	\$210,762,852
(14)	Limited Medical Paid+Case Losses	\$170,428,536	\$170,428,536
(15)	Limited Medical Paid+Case Development Factor to Ultimate	1.068	1.068
(16)	Limited Medical Paid+Case Losses Developed to Ultimate = (14)x(15)	\$182,017,676	\$182,017,676
(17)	Policy Year 2016 Limited Medical Losses Developed to Ultimate NCCI and BYNAC = [(13)+(16)]/2	\$194,446,755	\$196,390,264
<b>Section D - Policy Year 2015 Experience</b>		<b>NCCI</b>	<b>BYNAC</b>
(1)	Standard Earned Premium	\$584,379,051	\$584,379,051
(2)	Factor to Develop Premium to Ultimate	1.000	1.000
(3)	Standard Earned Premium Developed to Ultimate = (1)x(2)	\$584,379,051	\$584,379,051
(4)	Limited Indemnity Paid Losses	\$96,937,216	\$96,937,216
(5)	Limited Indemnity Paid Development Factor to Ultimate	1.123	1.121
(6)	Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	\$108,860,494	\$108,666,619
(7)	Limited Indemnity Paid+Case Losses	\$103,173,173	\$103,173,173
(8)	Limited Indemnity Paid+Case Development Factor to Ultimate	1.023	1.022
(9)	Limited Indemnity Paid+Case Losses Developed to Ultimate = (7)x(8)	\$105,546,156	\$105,442,983
(10)	Policy Year 2015 Limited Indemnity Losses Developed to Ultimate NCCI and BYNAC = [(6)+(9)]/2	\$107,203,325	\$107,054,801
(11)	Limited Medical Paid Losses	\$156,681,048	\$156,681,048
(12)	Limited Medical Paid Development Factor to Ultimate	1.384	1.412
(13)	Limited Medical Paid Losses Developed to Ultimate = (11)x(12)	\$216,846,570	\$221,233,640
(14)	Limited Medical Paid+Case Losses	\$178,436,681	\$178,436,681
(15)	Limited Medical Paid+Case Development Factor to Ultimate	1.049	1.049
(16)	Limited Medical Paid+Case Losses Developed to Ultimate = (14)x(15)	\$187,180,078	\$187,180,078
(17)	Policy Year 2015 Limited Medical Losses Developed to Ultimate NCCI and BYNAC = [(13)+(16)]/2	\$202,013,324	\$204,206,859

Table 6

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**DETERMINATION OF PREMIUM AND LOSSES DEVELOPED TO ULTIMATE REPORT**

<b>Section E - Policy Year 2014 Experience</b>	<b>NCCI</b>	<b>BYNAC</b>
(1) Standard Earned Premium	\$595,684,018	\$595,684,018
(2) Factor to Develop Premium to Ultimate	1.000	1.000
(3) Standard Earned Premium Developed to Ultimate = (1)x(2)	\$595,684,018	\$595,684,018
(4) Limited Indemnity Paid Losses	\$107,483,173	\$107,483,173
(5) Limited Indemnity Paid Development Factor to Ultimate	1.076	1.075
(6) Limited Indemnity Paid Losses Developed to Ultimate = (4)x(5)	\$115,651,894	\$115,544,411
(7) Limited Indemnity Paid+Case Losses	\$112,980,320	\$112,980,320
(8) Limited Indemnity Paid+Case Development Factor to Ultimate	1.014	1.013
(9) Limited Indemnity Paid+Case Losses Developed to Ultimate = (7)x(8)	\$114,562,044	\$114,449,064
(10) Policy Year 2014 Limited Indemnity Losses Developed to Ultimate NCCI and BYNAC = [(6)+(9)]/2	\$115,106,969	\$114,996,738
(11) Limited Medical Paid Losses	\$164,885,285	\$164,885,285
(12) Limited Medical Paid Development Factor to Ultimate	1.350	1.378
(13) Limited Medical Paid Losses Developed to Ultimate = (11)x(12)	\$222,595,135	\$227,211,923
(14) Limited Medical Paid+Case Losses	\$187,453,114	\$187,453,114
(15) Limited Medical Paid+Case Development Factor to Ultimate	1.045	1.045
(16) Limited Medical Paid+Case Losses Developed to Ultimate = (14)x(15)	\$195,888,504	\$195,888,504
(17) Policy Year 2014 Limited Medical Losses Developed to Ultimate NCCI and BYNAC = [(13)+(16)]/2	\$209,241,820	\$211,550,214

Figure 5

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**SELECTED ESTIMATED ULTIMATE INCURRED LOSSES  
INDEMNITY**

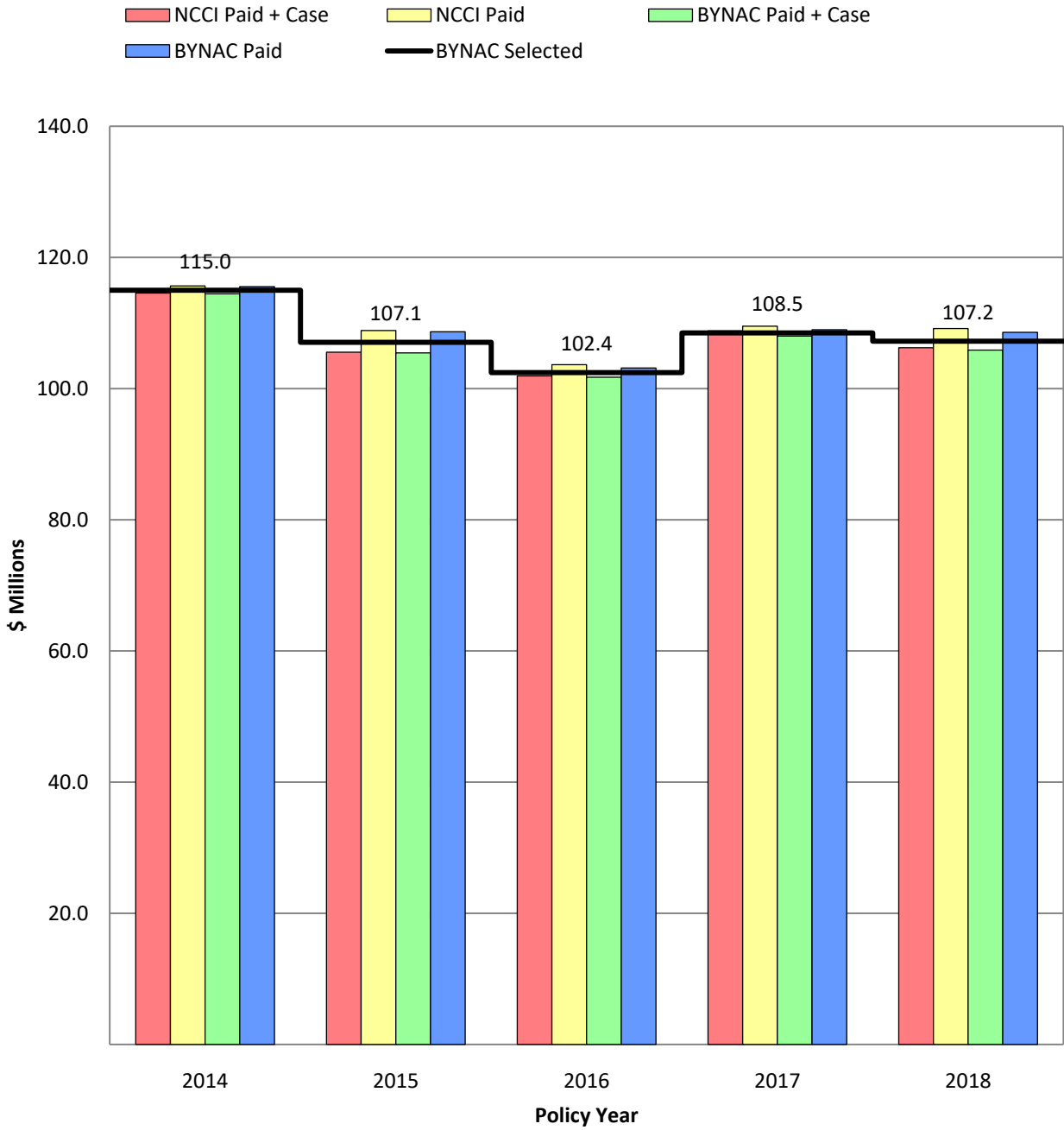


Figure 6

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**SELECTED ESTIMATED ULTIMATE INCURRED LOSSES  
MEDICAL**

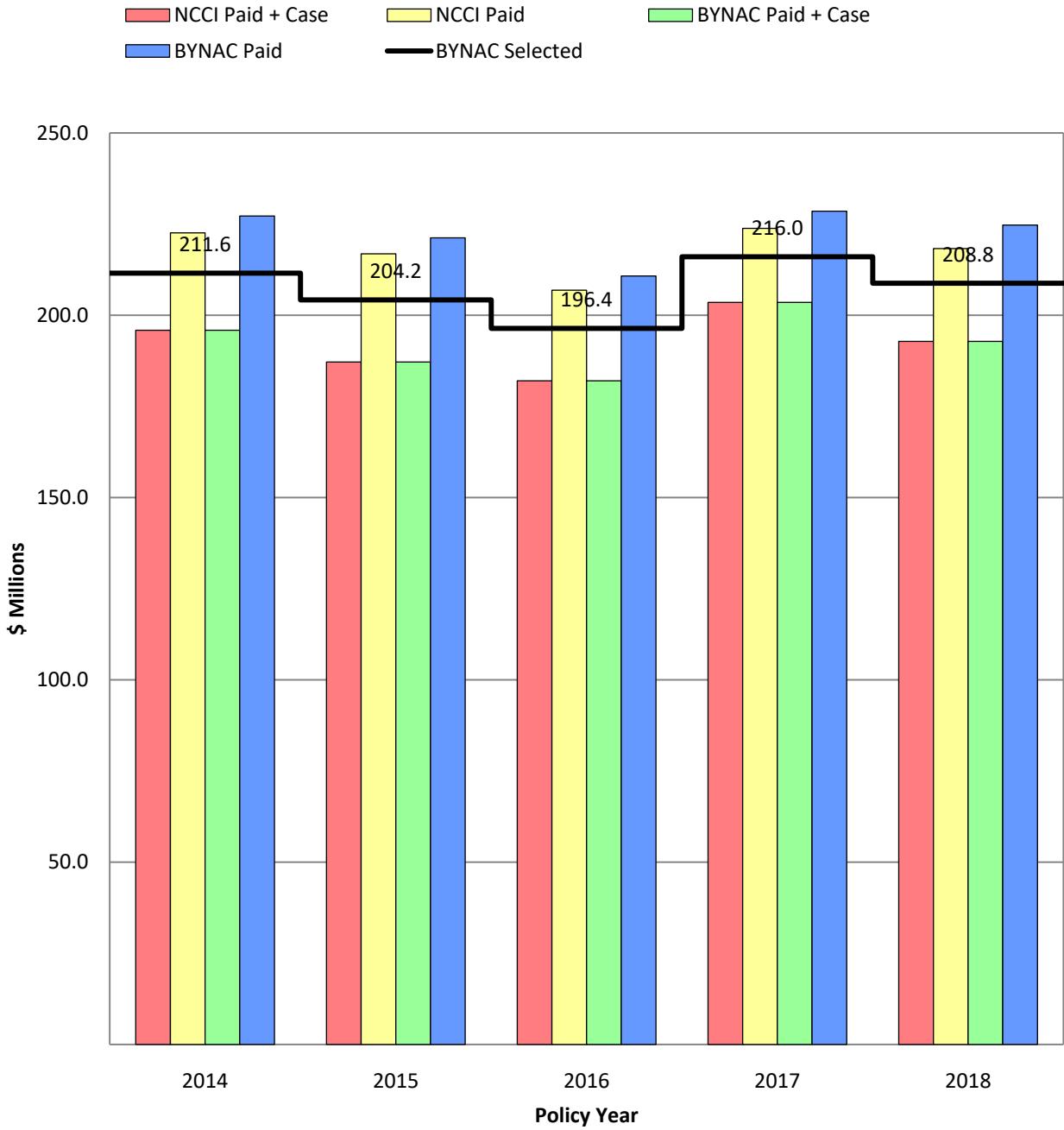


Table 7

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**DETERMINATION OF INDICATED LOSS COST LEVEL CHANGE**

<b>Section A - Policy Year 2018 Experience</b>	<b><u>NCCI</u></b>	<b><u>BYNAC</u></b>
<b>Premium:</b>		
(1) Standard Earned Premium Developed to Ultimate (Table 6)	\$531,067,116	\$531,067,116
(2) Premium On-level Factor	0.591	0.591
(3) Premium Available for Benefit Costs = (1) x (2)	\$313,860,666	\$313,860,666
<b>Indemnity Benefit Cost:</b>		
(4) Limited Indemnity Losses Developed to Ultimate (Table 6)	\$107,693,491	\$107,225,213
(5) Indemnity Loss On-level Factor	1.000	1.000
(6) Adjusted Limited Indemnity Losses = (4) x (5)	\$107,693,491	\$107,225,213
(7) Adjusted Limited Indemnity Cost Ratio excluding Trend and Benefits = (6) / (3)	0.343	0.342
(8) Factor to Reflect Indemnity Trend	0.820	0.820
(9) Projected Limited Indemnity Cost Ratio = (7) x (8)	0.281	0.280
(10) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.025	1.025
(11) Projected Indemnity Cost Ratio = (9) x (10)	0.288	0.287
(12) Factor to Reflect Proposed Changes in Indemnity Benefits	1.000	1.000
(13) Projected Indemnity Cost Ratio including Benefit Changes = (11) x (12)	0.288	0.287
<b>Medical Benefit Cost:</b>		
(14) Limited Medical Losses Developed to Ultimate (Table 6)	\$205,564,367	\$208,785,053
(15) Medical Loss On-level Factor	1.022	1.022
(16) Adjusted Limited Medical Losses = (14) x (15)	\$210,086,783	\$213,378,324
(17) Adjusted Limited Medical Cost Ratio excluding Trend and Benefits = (16) / (3)	0.669	0.680
(18) Factor to Reflect Medical Trend	0.862	0.862
(19) Projected Limited Medical Cost Ratio = (17) x (18)	0.577	0.586
(20) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.025	1.025
(21) Projected Medical Cost Ratio = (19) x (20)	0.591	0.601
(22) Factor to Reflect Proposed Changes in Medical Benefits	1.007	1.007
(23) Projected Medical Cost Ratio including Benefit Changes = (21) x (22)	0.595	0.605
<b>Total Benefit Cost:</b>		
(24) Indicated Change Based on Experience, Trend and Benefits = (13) + (23)	0.883	0.892

Table 7

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**DETERMINATION OF INDICATED LOSS COST LEVEL CHANGE**

<b>Section B - Policy Year 2017 Experience</b>	<b><u>NCCI</u></b>	<b><u>BYNAC</u></b>
<b>Premium:</b>		
(1) Standard Earned Premium Developed to Ultimate (Table 6)	\$571,589,522	\$571,589,522
(2) Premium On-level Factor	0.514	0.514
(3) Premium Available for Benefit Costs = (1) x (2)	\$293,797,014	\$293,797,014
<b>Indemnity Benefit Cost:</b>		
(4) Limited Indemnity Losses Developed to Ultimate (Table 6)	\$109,159,047	\$108,490,063
(5) Indemnity Loss On-level Factor	1.000	1.000
(6) Adjusted Limited Indemnity Losses = (4) x (5)	\$109,159,047	\$108,490,063
(7) Adjusted Limited Indemnity Cost Ratio excluding Trend and Benefits = (6) / (3)	0.372	0.369
(8) Factor to Reflect Indemnity Trend	0.770	0.770
(9) Projected Limited Indemnity Cost Ratio = (7) x (8)	0.286	0.284
(10) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.025	1.025
(11) Projected Indemnity Cost Ratio = (9) x (10)	0.293	0.291
(12) Factor to Reflect Proposed Changes in Indemnity Benefits	1.000	1.000
(13) Projected Indemnity Cost Ratio including Benefit Changes = (11) x (12)	0.293	0.291
<b>Medical Benefit Cost:</b>		
(14) Limited Medical Losses Developed to Ultimate (Table 6)	\$213,680,116	\$216,036,224
(15) Medical Loss On-level Factor	1.027	1.027
(16) Adjusted Limited Medical Losses = (14) x (15)	\$219,449,479	\$221,869,202
(17) Adjusted Limited Medical Cost Ratio excluding Trend and Benefits = (16) / (3)	0.747	0.755
(18) Factor to Reflect Medical Trend	0.824	0.824
(19) Projected Limited Medical Cost Ratio = (17) x (18)	0.616	0.622
(20) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.025	1.025
(21) Projected Medical Cost Ratio = (19) x (20)	0.631	0.638
(22) Factor to Reflect Proposed Changes in Medical Benefits	1.007	1.007
(23) Projected Medical Cost Ratio including Benefit Changes = (21) x (22)	0.635	0.642
<b>Total Benefit Cost:</b>		
(24) Indicated Change Based on Experience, Trend and Benefits = (13) + (23)	0.928	0.933

Table 7

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**DETERMINATION OF INDICATED LOSS COST LEVEL CHANGE**

<b>Section C - Policy Year 2016 Experience</b>	<b><u>NCCI</u></b>	<b><u>BYNAC</u></b>
<b>Premium:</b>		
(1) Standard Earned Premium Developed to Ultimate (Table 6)	\$606,140,796	\$606,140,796
(2) Premium On-level Factor	0.453	0.453
(3) Premium Available for Benefit Costs = (1) x (2)	\$274,581,781	\$274,581,781
<b>Indemnity Benefit Cost:</b>		
(4) Limited Indemnity Losses Developed to Ultimate (Table 6)	\$102,791,332	\$102,438,557
(5) Indemnity Loss On-level Factor	1.000	1.000
(6) Adjusted Limited Indemnity Losses = (4) x (5)	\$102,791,332	\$102,438,557
(7) Adjusted Limited Indemnity Cost Ratio excluding Trend and Benefits = (6) / (3)	0.374	0.373
(8) Factor to Reflect Indemnity Trend	0.724	0.724
(9) Projected Limited Indemnity Cost Ratio = (7) x (8)	0.271	0.270
(10) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.025	1.025
(11) Projected Indemnity Cost Ratio = (9) x (10)	0.278	0.277
(12) Factor to Reflect Proposed Changes in Indemnity Benefits	1.000	1.000
(13) Projected Indemnity Cost Ratio including Benefit Changes = (11) x (12)	0.278	0.277
<b>Medical Benefit Cost:</b>		
(14) Limited Medical Losses Developed to Ultimate (Table 6)	\$194,446,755	\$196,390,264
(15) Medical Loss On-level Factor	1.024	1.024
(16) Adjusted Limited Medical Losses = (14) x (15)	\$199,113,477	\$201,103,630
(17) Adjusted Limited Medical Cost Ratio excluding Trend and Benefits = (16) / (3)	0.725	0.732
(18) Factor to Reflect Medical Trend	0.786	0.786
(19) Projected Limited Medical Cost Ratio = (17) x (18)	0.570	0.576
(20) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.025	1.025
(21) Projected Medical Cost Ratio = (19) x (20)	0.584	0.590
(22) Factor to Reflect Proposed Changes in Medical Benefits	1.007	1.007
(23) Projected Medical Cost Ratio including Benefit Changes = (21) x (22)	0.588	0.594
<b>Total Benefit Cost:</b>		
(24) Indicated Change Based on Experience, Trend and Benefits = (13) + (23)	0.866	0.871

Table 7

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**DETERMINATION OF INDICATED LOSS COST LEVEL CHANGE**

<b>Section D - Policy Year 2015 Experience</b>	<b><u>NCCI</u></b>	<b><u>BYNAC</u></b>
<b>Premium:</b>		
(1) Standard Earned Premium Developed to Ultimate (Table 6)	\$584,379,051	\$584,379,051
(2) Premium On-level Factor	0.437	0.437
(3) Premium Available for Benefit Costs = (1) x (2)	\$255,373,645	\$255,373,645
<b>Indemnity Benefit Cost:</b>		
(4) Limited Indemnity Losses Developed to Ultimate (Table 6)	\$107,203,325	\$107,054,801
(5) Indemnity Loss On-level Factor	1.000	1.000
(6) Adjusted Limited Indemnity Losses = (4) x (5)	\$107,203,325	\$107,054,801
(7) Adjusted Limited Indemnity Cost Ratio excluding Trend and Benefits = (6) / (3)	0.420	0.419
(8) Factor to Reflect Indemnity Trend	0.681	0.681
(9) Projected Limited Indemnity Cost Ratio = (7) x (8)	0.286	0.285
(10) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.025	1.025
(11) Projected Indemnity Cost Ratio = (9) x (10)	0.293	0.292
(12) Factor to Reflect Proposed Changes in Indemnity Benefits	1.000	1.000
(13) Projected Indemnity Cost Ratio including Benefit Changes = (11) x (12)	0.293	0.292
<b>Medical Benefit Cost:</b>		
(14) Limited Medical Losses Developed to Ultimate (Table 6)	\$202,013,324	\$204,206,859
(15) Medical Loss On-level Factor	0.999	0.999
(16) Adjusted Limited Medical Losses = (14) x (15)	\$201,811,311	\$204,002,652
(17) Adjusted Limited Medical Cost Ratio excluding Trend and Benefits = (16) / (3)	0.790	0.799
(18) Factor to Reflect Medical Trend	0.751	0.751
(19) Projected Limited Medical Cost Ratio = (17) x (18)	0.593	0.600
(20) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.025	1.025
(21) Projected Medical Cost Ratio = (19) x (20)	0.608	0.615
(22) Factor to Reflect Proposed Changes in Medical Benefits	1.007	1.007
(23) Projected Medical Cost Ratio including Benefit Changes = (21) x (22)	0.612	0.619
<b>Total Benefit Cost:</b>		
(24) Indicated Change Based on Experience, Trend and Benefits = (13) + (23)	0.905	0.911

Table 7

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**DETERMINATION OF INDICATED LOSS COST LEVEL CHANGE**

<b>Section E - Policy Year 2014 Experience</b>	<b><u>NCCI</u></b>	<b><u>BYNAC</u></b>
<b>Premium:</b>		
(1) Standard Earned Premium Developed to Ultimate (Table 6)	\$595,684,018	\$595,684,018
(2) Premium On-level Factor	0.401	0.401
(3) Premium Available for Benefit Costs = (1) x (2)	\$238,869,291	\$238,869,291
<b>Indemnity Benefit Cost:</b>		
(4) Limited Indemnity Losses Developed to Ultimate (Table 6)	\$115,106,969	\$114,996,738
(5) Indemnity Loss On-level Factor	0.968	0.968
(6) Adjusted Limited Indemnity Losses = (4) x (5)	\$111,423,546	\$111,316,842
(7) Adjusted Limited Indemnity Cost Ratio excluding Trend and Benefits = (6) / (3)	0.466	0.466
(8) Factor to Reflect Indemnity Trend	0.640	0.640
(9) Projected Limited Indemnity Cost Ratio = (7) x (8)	0.298	0.298
(10) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.025	1.025
(11) Projected Indemnity Cost Ratio = (9) x (10)	0.305	0.305
(12) Factor to Reflect Proposed Changes in Indemnity Benefits	1.000	1.000
(13) Projected Indemnity Cost Ratio including Benefit Changes = (11) x (12)	0.305	0.305
<b>Medical Benefit Cost:</b>		
(14) Limited Medical Losses Developed to Ultimate (Table 6)	\$209,241,820	\$211,550,214
(15) Medical Loss On-level Factor	1.002	1.002
(16) Adjusted Limited Medical Losses = (14) x (15)	\$209,660,304	\$211,973,314
(17) Adjusted Limited Medical Cost Ratio excluding Trend and Benefits = (16) / (3)	0.878	0.887
(18) Factor to Reflect Medical Trend	0.717	0.717
(19) Projected Limited Medical Cost Ratio = (17) x (18)	0.629	0.636
(20) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.025	1.025
(21) Projected Medical Cost Ratio = (19) x (20)	0.645	0.652
(22) Factor to Reflect Proposed Changes in Medical Benefits	1.007	1.007
(23) Projected Medical Cost Ratio including Benefit Changes = (21) x (22)	0.650	0.657
<b>Total Benefit Cost:</b>		
(24) Indicated Change Based on Experience, Trend and Benefits = (13) + (23)	0.955	0.962

Table 8

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**DETERMINATION OF INDICATED LOSS COST LEVEL CHANGE**

**Indicated Change Based on Experience, Trend, and Benefits**

Policy Year	NCCI	BYNAC
2014	0.955	0.962
2015	0.905	0.911
2016	0.866	0.871
2017	0.928	0.933
2018	0.883	0.892
NCCI Selected	0.906	
BYNAC Selected		0.914

**Application of the Premium Offset and Change in Loss-based Expenses**

Indicated Loss Cost Level Change	0.906	0.914
Effect of the Change In Loss-Based Expenses	1.002	1.002
Indicated Change Modified for Expense Change	0.908	0.916
Indicated Change as Percentage	-9.2%	-8.4%

Figure 7

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**PROJECTED COST RATIO INCLUDING BENEFIT CHANGES**

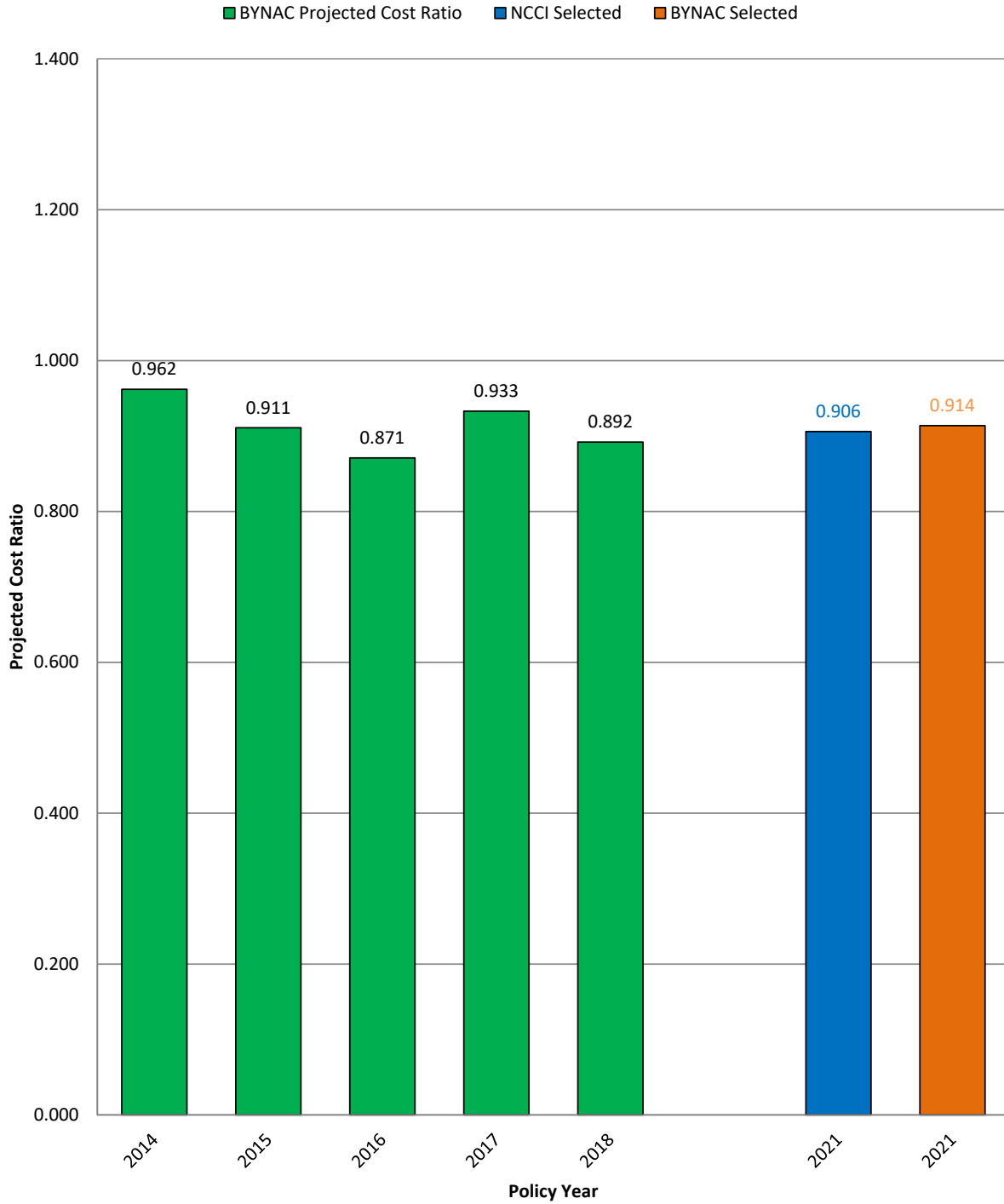


Table 9

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**TREND**

Policy Year	Lost-Time Claim Frequency	Indemnity		Medical	
		Avg Cost Per Case	Loss Ratio	Avg Cost Per Case	Loss Ratio
2004	35.927	22,767	0.817	37,248	1.343
2005	34.745	21,872	0.758	36,882	1.280
2006	34.572	23,272	0.807	37,432	1.308
2007	34.021	22,321	0.764	38,556	1.318
2008	32.477	22,005	0.712	36,872	1.198
2009	33.769	21,213	0.716	37,611	1.271
2010	36.051	19,378	0.698	32,563	1.173
2011	32.403	18,812	0.610	30,708	0.995
2012	31.623	18,297	0.579	32,359	1.024
2013	29.167	17,568	0.512	32,740	0.955
2014	27.939	16,673	0.466	31,375	0.878
2015	25.535	16,440	0.420	30,952	0.790
2016	22.796	16,437	0.374	31,853	0.725
2017	21.950	16,926	0.372	34,031	0.747
2018	20.407	16,814	0.343	32,800	0.669
5 Point Exponential	-7.5%	0.5%	-7.1%	1.9%	-5.8%
8 Point Exponential	-6.8%	-1.6%	-8.3%	0.7%	-6.1%
15 Point Exponential	-3.8%	-2.8%	-6.5%	-1.4%	-5.1%
NCCI Prior Selected			0.935		0.955
NCCI Selected			0.940		0.955
BYNAC Selected	-3.5%	-2.5%	0.940	-1.0%	0.955

## **LOSS ADJUSTMENT EXPENSE**

A summary of the LAE selections is shown in Table 10. The DCCE provision is based on Tennessee-specific policy year paid DCCE and losses. The paid DCCE to paid loss ratio is developed to ultimate using DCCE ratio development factors. AOE is calculated using countrywide information since state specific data is not available. The NCCI selections are 10.3% for DCCE and 8.9% for AOE. BYNAC is in agreement with these selections.

Table 10

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**LOSS ADJUSTMENT EXPENSE**

<u>Year</u>	<u>NCCI Tennessee PY Developed DCCE Ratio</u>	<u>NCCI Countrywide AY Developed AOE Ratio</u>	<u>NCCI Accident Year Developed LAE Ratio</u>
2014	12.4%	7.8%	20.2%
2015	10.5%	8.3%	18.8%
2016	11.1%	8.9%	20.0%
2017	10.5%	8.8%	19.3%
2018	10.1%	8.9%	19.0%
5 Year Average	10.9%	8.5%	19.5%
3 Year Average	10.6%	8.9%	19.4%
NCCI Prior Selected	11.0%	8.0%	19.0%
NCCI Selected	10.3%	8.9%	19.2%
BYNAC Selected	10.3%	8.9%	19.2%
BYNAC Proposed Change in LAE Allowance			
Current Tennessee LAE Allowance			19.0%
BYNAC Proposed LAE Allowance			19.2%
Proposed Change in LAE			0.2%

## QUALIFICATIONS AND LIMITATIONS

The estimates contained in this report depend upon the following:

- The actuarial assumptions, quantitative analysis, and professional judgment expressed in this report.
- The reliability of loss experience to serve as an indicator of future losses.
- The completeness and accuracy of data provided by NCCI.

Material changes in any of the assumptions or information upon which the findings are based will require a re-evaluation of the results of this report and a possible revision of those findings.

This report is intended for the use of the Tennessee Advisory Council on Workers'

Compensation. If the report is released to any third party, it should be released in its entirety.

Please advise BYNAC if this report is distributed to any other third party.

## CONSULTATION

The professional opinion given in this report is based on the judgment and experience of BYNAC. An analysis by another actuary may not arrive at the same conclusion. In the event that another actuary is consulted regarding the findings of this report, both actuaries should make themselves available for supplemental advice and consultation.

*TENNESSEE ADVISORY COUNCIL ON WORKERS' COMPENSATION*

**APPENDIX A**

**BYNAC RECOMMENDATIONS**

Appendix A

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**INDICATED LOSS COST LEVEL CHANGE**

**Indicated Change Based on Experience, Trend, and Benefits:**

	Policy Year		<u>NCCI</u>	<u>BYNAC</u>
	<u>2018</u>	<u>2017</u>		
Projected Indemnity Cost Ratio including Benefit Changes	0.288	0.293		
Projected Medical Cost Ratio including Benefit Changes	<u>0.595</u>	<u>0.635</u>		
Total Benefit Cost	0.883	0.928		
Selected			0.906	0.914
<b>Change in Loss Based Expenses:</b>				
Current Tennessee LAE Allowance			19.0%	19.0%
Proposed Tennessee LAE Allowance			19.2%	19.2%
Selected			1.002	1.002
<b>Overall</b>			-9.2%	-8.4%

*TENNESSEE ADVISORY COUNCIL ON WORKERS' COMPENSATION*

**APPENDIX B**

**CHANGES IN ESTIMATED ULTIMATE INCURRED LOSSES**

**STATE OF TENNESSEE  
WORKERS COMPENSATION**

**CHANGE IN ESTIMATED ULTIMATE INCURRED LOSSES**

## A. NCCI Estimates

Policy Year	3/16 Filing to 3/17 Filing		3/17 Filing to 3/18 Filing		3/18 Filing to 3/19 Filing		3/19 Filing to 3/20 Filing		3/20 Filing to 3/21 Filing		3/16 Filing to 3/21 Filing	
	Indemnity	Medical	Indemnity	Medical	Indemnity	Medical	Indemnity	Medical	Indemnity	Medical	Indemnity	Medical
2010	-0.5%	-2.1%									-0.5%	-2.1%
2011	0.9%	-1.7%	-0.7%	-5.3%							0.2%	-7.0%
2012	-0.3%	-2.0%	-1.6%	-5.6%	0.1%	-5.2%					-1.8%	-12.2%
2013	-6.0%	-6.9%	-1.0%	-4.3%	-1.4%	-5.8%	-0.2%	-3.8%			-8.5%	-19.3%
2014			-9.4%	-6.5%	-3.9%	-6.4%	0.1%	-3.7%	-0.1%	-6.4%	-12.9%	-21.1%
2015					-3.3%	-6.3%	-1.4%	-6.0%	-0.2%	-6.7%	-4.8%	-17.8%
2016							-1.2%	-7.9%	-1.9%	-7.1%	-3.1%	-14.5%
2017									-0.9%	-6.1%	-0.9%	-6.1%

## B. BYNAC Estimates

Policy Year	3/16 Filing to 3/17 Filing		3/17 Filing to 3/18 Filing		3/18 Filing to 3/19 Filing		3/19 Filing to 3/20 Filing		3/20 Filing to 3/21 Filing		3/16 Filing to 3/21 Filing	
	Indemnity	Medical	Indemnity	Medical	Indemnity	Medical	Indemnity	Medical	Indemnity	Medical	Indemnity	Medical
2010	-0.3%	-2.0%									-0.3%	-2.0%
2011	0.9%	-1.8%	-0.5%	-3.3%							0.4%	-5.0%
2012	0.0%	-2.1%	-1.4%	-3.7%	-0.1%	-5.2%					-1.5%	-10.6%
2013	-4.4%	-8.8%	-1.6%	-3.2%	-1.5%	-5.9%	-0.4%	-3.7%			-7.6%	-20.0%
2014			-11.4%	-7.1%	-3.5%	-6.4%	-0.3%	-3.5%	0.3%	-5.8%	-14.5%	-21.0%
2015					-3.9%	-4.9%	-2.1%	-5.7%	0.2%	-6.1%	-5.7%	-15.8%
2016							-1.9%	-3.2%	-2.1%	-6.7%	-4.0%	-9.7%
2017									-0.4%	-0.4%	-0.4%	-0.4%



REVIEW OF NCCI TENNESSEE  
WORKERS COMPENSATION  
LOSS COST FILING

Effective March 1, 2021

Mary Jean King, FCAS, CERA, MAAA

Principal and Consulting Actuary

## PROPOSED CHANGE IN VOLUNTARY LOSS COST LEVEL

Component	NCCI	BYNAC
<ul style="list-style-type: none"><li>• Experience</li><li>• Trend</li><li>• Benefits</li><li>• LAE</li></ul>	<ul style="list-style-type: none"><li>• -10.4%</li><li>• +0.6%</li><li>• +0.5%</li><li>• +0.2%</li></ul>	<ul style="list-style-type: none"><li>• -9.6%</li><li>• +0.6%</li><li>• +0.5%</li><li>• +0.2%</li></ul>

<b>Overall Loss Cost Change</b>	<b>-9.2%</b>	<b>-8.4%</b>
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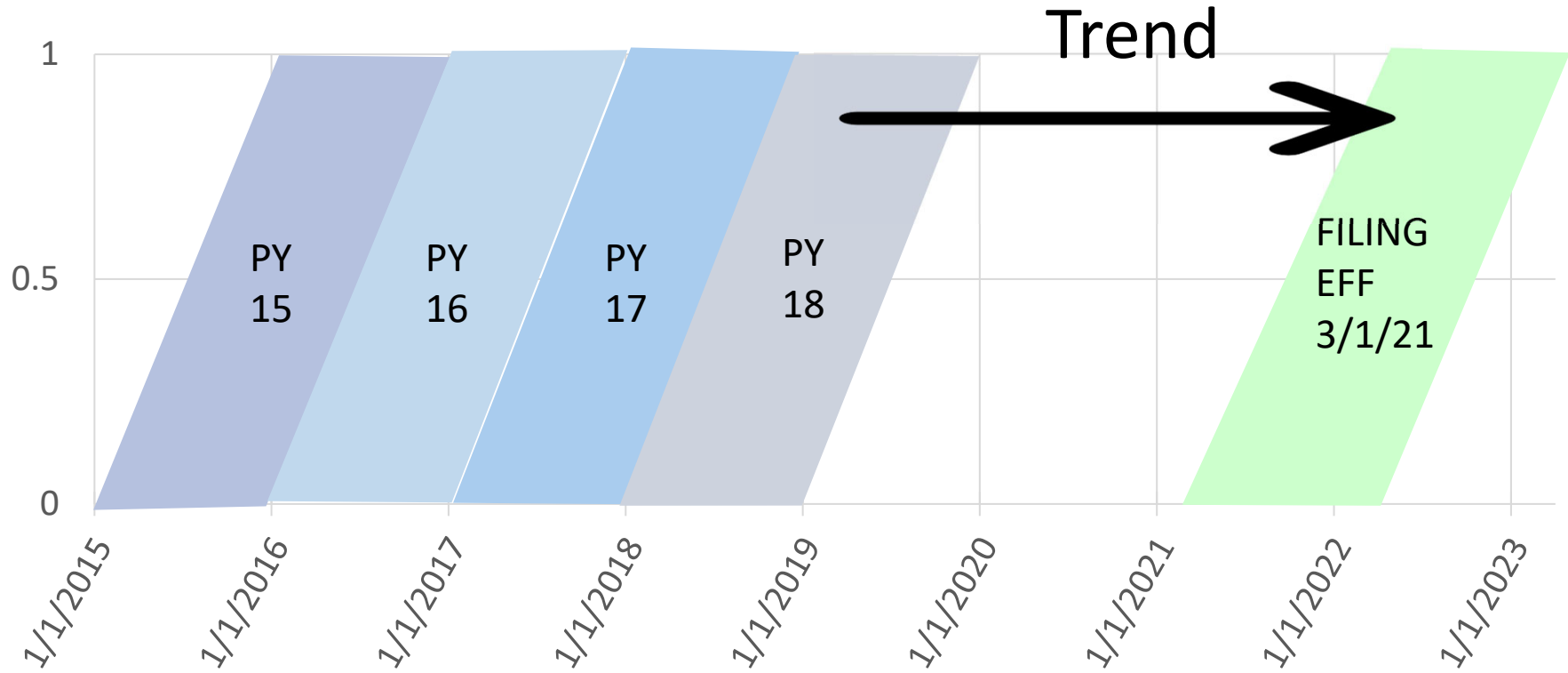
EXPERIENCE CHANGE COMPONENTS

PROJECTED LOSS RATIOS

COVID-19

FINDINGS

# POLICY YEAR DATA

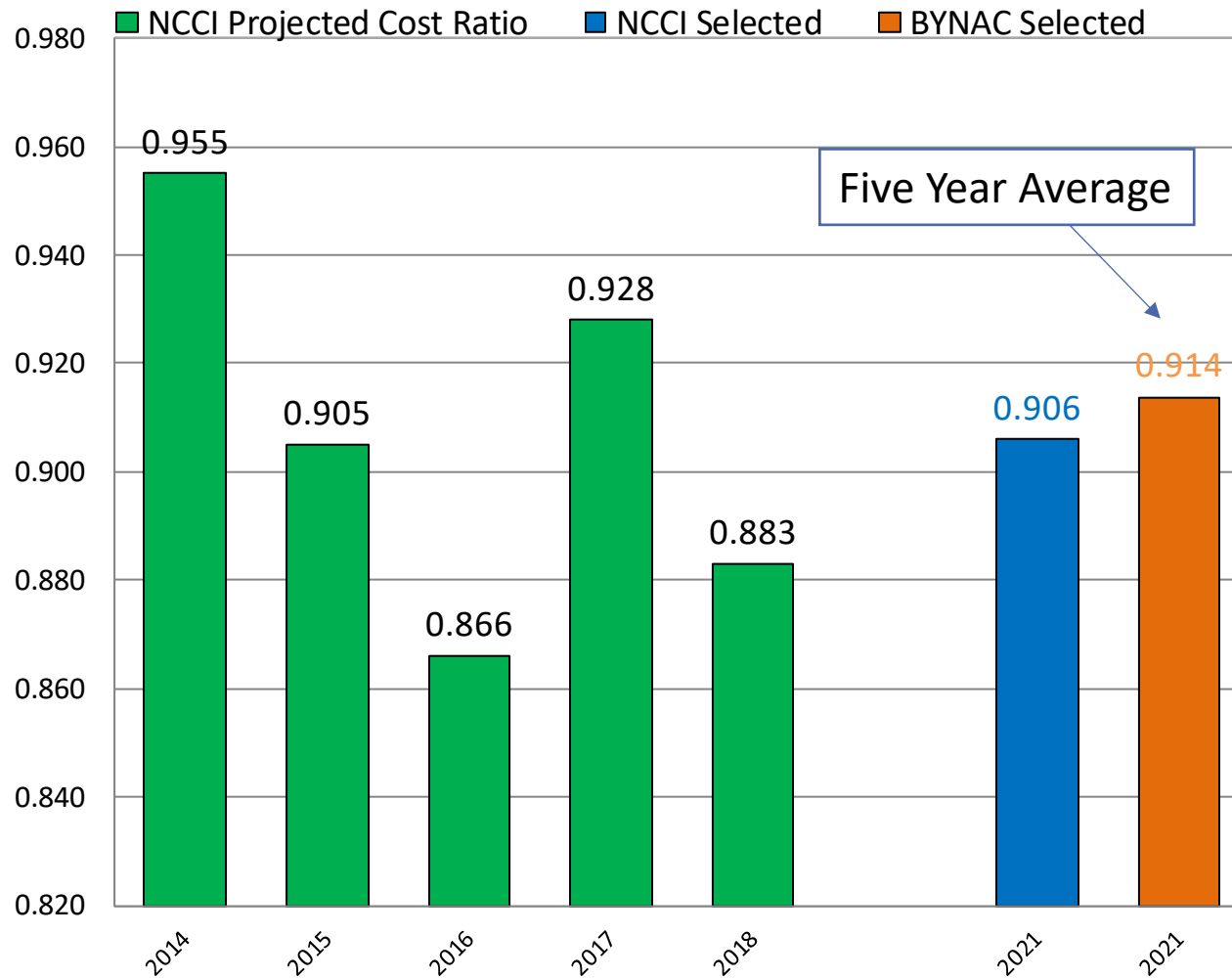


# EXPERIENCE CHANGE COMPONENTS

Change due to  
additional year of trend:  
-5.2%

Change due to PY 2016  
being replaced by PY 2018:  
+0.9%

# PROJECTED COST RATIOS



# 19th Report to Ultimate Loss Development Factor

Policy Year	Indemnity Paid-to- Paid+Case Ratio 19th Report	Medical Paid-to- Paid+Case Ratio 19th Report
1996	0.998	0.905
1997	0.996	0.897
1998	0.999	0.872
1999	0.999	0.886
2000	0.996	0.917
Average	0.998	0.895
NCCI Selected	0.998	0.910
BYNAC Selected	0.998	0.895
Limited Paid + Case	1.001	1.015
Limited Paid	1.003	1.134

NCCI Selected  
1.115

# COVID-19

The effect of the COVID-19 pandemic is uncertain.

No data is available yet.

NCCI made no adjustment for COVID-19 in this year's analysis.

# FINDINGS

The proposed change of -9.2% effective 3/1/21 has been reasonably calculated in accordance with actuarial standards of practice.

BYNAC is in agreement with the NCCI trend and LAE selections.

The BYNAC indication is -8.4%.