



ACTUARIAL STANDARDS BOARD

**Actuarial Standard
of Practice
No. 53**

**Estimating Future Costs for Prospective
Property/Casualty Risk Transfer and Risk Retention**

**Developed by the
Ratemaking Task Force of the
Casualty Committee of the
Actuarial Standards Board**

**Adopted by the
Actuarial Standards Board
December 2017**

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December 2017

TO: Members of Actuarial Organizations Governed by the Standards of Practice of the Actuarial Standards Board and Other Persons Interested in Estimating Future Costs for Prospective Property/Casualty Risk Transfer and Risk Retention

FROM: Actuarial Standards Board (ASB)

SUBJ: Actuarial Standard of Practice (ASOP) No. 53, *Estimating Future Costs for Prospective Property/Casualty Risk Transfer and Risk Retention*

This document contains ASOP No. 53, *Estimating Future Costs for Prospective Property/Casualty Risk Transfer and Risk Retention*.

Background

Estimating future costs for prospective property/casualty risk transfer and risk retention has been a fundamental part of actuarial practice since the beginning of the profession. Estimating future costs based on sound actuarial practice is essential to the integrity of the insurance and risk financing system and is key to fulfilling the promises embodied in insurance contracts. The board of directors of the Casualty Actuarial Society (CAS) adopted the *Statement of Principles Regarding Property and Casualty Ratemaking (Statement of Principles)* in May 1988 (before the ASB was established). This document featured four fundamental principles of ratemaking and also discussed additional considerations. In 2009, the CAS requested that the ASB develop an actuarial standard of practice in the area of property/casualty ratemaking. In its request, the CAS noted that the *Statement of Principles* contained considerations that might be expanded to become the basis of an ASOP.

Ratemaking has become much more complex and sophisticated since the CAS *Statement of Principles* was adopted. In crafting this ASOP and responding to comments from its initial exposures, the ASB quickly realized that there are significant differences of opinion within the profession regarding certain aspects of ratemaking, including pricing, price optimization methodologies, and rate filing requirements, that would need to be reconciled before a comprehensive standard of practice on ratemaking could be developed. Therefore, to create a standard of practice for the core aspects of ratemaking that could be issued in a reasonable amount of time, the ASB has chosen to develop this ASOP to pertain solely to the development or review of future cost estimates for prospective property/casualty risk transfer and risk retention. It should be noted, however, that upon completion of this proposed ASOP, the ASB will give consideration to the development of a standard of practice on rate filings in an attempt to address the various issues within rate regulatory discussions today (for example, price optimization, unfair discrimination, and the Principles contained in the current CAS *Statement of Principles*).

It should be noted that this ASOP incorporates all of the Considerations contained in the CAS *Statement of Principles* and addresses issues related to the estimation of costs for risk transfer

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and risk retention not currently addressed in existing ASOPs. This ASOP also references other existing ASOPs that include relevant issues related to the estimation of future costs for prospective risk transfer and risk retention.

First Exposure Draft

In September 2014, the ASB approved a first exposure draft with a comment deadline of January 31, 2015. Twenty-two comment letters were received and considered in making changes that were reflected in the second exposure draft.

Second Exposure Draft

In December 2015, the ASB approved a second exposure draft with a comment deadline of April 30, 2016. Eighteen comment letters were received and considered in making changes that were reflected in the third exposure draft.

Third Exposure Draft

In December 2016, the ASB approved a third exposure draft with a comment deadline of April 30, 2017. Thirteen comment letters were received and considered in making changes that are reflected in this ASOP. As a result of the comment letters, the ASB made changes, including the following: (1) modified the title of the ASOP to *Estimating Future Costs for Prospective Property/Casualty Risk Transfer and Risk Retention*; (2) limited the disclosure of assumptions to material assumptions; (3) clarified the guidance for the treatment of unusual events, while changing the designation to be infrequent events; and (4) clarified the guidance for intended measure. For a summary of issues contained in these comment letters, please see appendix 2. In addition, the ASB took editorial suggestions where they improved the document.

The ASB thanks everyone who took the time to contribute comments and suggestions on each of the exposure drafts.

The ASB voted in December 2017 to adopt this standard of practice.

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The Actuarial Standards Board (ASB) sets standards for appropriate actuarial practice in the United States through the development and promulgation of Actuarial Standards of Practice (ASOPs). These ASOPs describe the procedures an actuary should follow when performing actuarial services and identify what the actuary should disclose when communicating the results of those services.

ACTUARIAL STANDARD OF PRACTICE

ESTIMATING FUTURE COSTS FOR PROSPECTIVE
PROPERTY/CASUALTY RISK TRANSFER AND RISK RETENTION

STANDARD OF PRACTICE

Section 1. Purpose, Scope, Cross References, and Effective Date

- 1.1 Purpose—This actuarial standard of practice (ASOP) provides guidance to actuaries when performing actuarial services with respect to developing or reviewing future cost estimates for prospective property/casualty **risk transfer** and **risk retention**. This includes future cost estimates for insurance, reinsurance, self-insurance, loss portfolio transfers, or any other mechanisms for **risk transfer** or **risk retention**.
- 1.2 Scope—This standard applies to actuaries when performing actuarial services with respect to developing or reviewing future cost estimates (commonly known as actuarial indications) for prospective property/casualty **risk transfer** and **risk retention**. For example, this standard applies when actuaries are developing future cost estimates underlying product prices, estimating funding requirements for self-insured programs and captives, and developing reinsurance prices.

As estimates are often made for separate elements of the cost of **risk transfer** and **risk retention** (for example, loss and loss adjustment expenses, operational and administrative expenses, the cost of reinsurance, and the cost of capital) and subsequently summed to a total cost estimate, this standard applies to the separate elements as well as the total. If the actuary's role relates to any of the elements of the future cost estimate, the guidance in this standard applies only to the actuarial services related to those elements. If the actuary's actuarial services involve reviewing future cost estimates developed by another party, the actuary should use the guidance in section 3 to the extent practicable. This standard also applies to developing or reviewing the future cost estimates by class within a risk classification system.

Actuarial services involved in developing or reviewing estimates of future costs may include actuarial communications, expert testimony, regulatory activities, legislative activities, or statements concerning public policy to the extent these activities involve providing an opinion on property/casualty future cost estimates.

If the actuary departs from the guidance set forth in this standard in order to comply with applicable law (statutes, regulations, and other legally binding authority), or for any other reason the actuary deems appropriate, the actuary should refer to section 4.

- 1.3 Cross References—When this standard refers to the provisions of other documents, the reference includes the referenced documents as they may be amended or restated in the future, and any successor to them, by whatever name called. If any amended or restated

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document differs materially from the originally referenced document, the actuary should consider the guidance in the referenced standard as amended or restated to the extent it is applicable and appropriate.

- 1.4 Effective Date—This standard is effective for work performed on or after August 1, 2018.

Section 2. Definitions

The terms below are defined for use in this standard.

- 2.1 Coverage—The terms and conditions of a plan or contract, or the requirements of applicable law, that create an obligation to pay benefits, expenses, or claims associated with contingent events.
- 2.2 Exposure Base—A basic unit that is used to measure the future cost of **risk transfer** and **risk retention**. This unit can vary by element of cost.
- 2.3 Method—A systematic procedure for developing, reviewing, or revising future cost estimates or elements thereof.
- 2.4 Model—A simplified representation of relationships among real world variables, entities, or events using statistical, financial, economic, mathematical, or scientific concepts and equations.
- 2.5 Risk Retention—A risk-management and risk-control strategy for the assessment, management, or financing of retained risk associated with the specific **coverage**. Examples of **risk retention** include self-insurance and certain types of single parent captives.
- 2.6 Risk Transfer—A risk-management and risk-control strategy, involving legally binding agreements, that shifts responsibility from one party to another or indemnifies one party by another party for the financial obligations associated with the **coverage**. Examples of **risk transfer** include insurance, reinsurance, and loss portfolio transfers.

Section 3. Analysis of Issues and Recommended Practices

- 3.1 Future Cost Estimate—The actuary should determine the elements that are appropriate to include in the future cost estimate. Such elements should relate to the applicable **coverage** and include loss and loss adjustment expenses, operational and administrative expenses, the cost of reinsurance, and the cost of capital.
- 3.2 Intended Measure—The actuary should determine the intended measure of the future cost estimate based on the purpose or use of the estimate. The intended measure may vary for

each element of the future cost estimate as needed and appropriate. Intended measures will be affected by the desires or needs of the principal, legal requirements, and the regulatory environments in which the future cost estimate will be used.

Examples of intended measures include the mean, the mean plus risk margin, the high or low estimate within a range of reasonably possible outcomes, and a specified percentile of the distribution of reasonably possible outcomes. There are instances in which other measures may be appropriate based upon the purpose or use of the estimate.

- 3.3 **Organization of Data**—The actuary should determine what data are available and appropriate for estimating future costs. Based on what data are available and appropriate, the actuary should determine how the data will be organized to develop or review the future cost estimate or any element of the future cost estimate.

The actuary should consider the level of data aggregation that the actuary believes is appropriate for the types of cost estimation analyses to be undertaken. Examples of aggregation **methods** include aggregating by accident period, calendar period, policy period, and report period. The nature of the **coverage**, the element of the future cost being estimated, and the type of analysis will influence the actuary's selection of the level of data aggregation.

The actuary also should consider segmenting the data if the actuary believes it will improve the cost estimation analysis, subject to credibility considerations (see section 3.11). Examples of data segmentation include segmenting the data by **coverage**, risk class, or risk characteristic. Segmenting the data to more refined levels may be appropriate for estimating future costs within a risk classification system.

- 3.4 **Data Quality**—The actuary should refer to ASOP No. 23, *Data Quality*, for guidance in the consideration of the choice and use of data for estimating future costs.
- 3.5 **Methods, Models, and Assumptions**—The actuary should select appropriate **methods** or **models** consistent with the intended measure for each element of the future cost. The actuary should use reasonable assumptions (including parameters) appropriate to each **method** or **model**. Assumptions may be implicit or explicit and may involve interpreting available experience, projecting future experience, or adjusting for changes in conditions affecting the available experience. The actuary should use **methods** or **models**, along with reasonable assumptions, that, in the actuary's professional judgment, have no known significant bias in the aggregate relative to the intended measure. When using **models**, the actuary should refer to ASOP No. 38, *Using Models Outside the Actuary's Area of Expertise (Property and Casualty)*.
- 3.6 **Exposure Base**—If selecting a new **exposure base** or changing an existing **exposure base**, the actuary should select an **exposure base** that bears a strong relationship to the cost of **risk transfer** or **risk retention** and is practical. Characteristics of a practical **exposure base** may include that the **exposure base** is objectively measurable and easily verifiable.

Some mechanisms for implementing **risk transfer** and **risk retention** may use multiple **exposure bases**, with different **exposure bases** applying to different aspects of **coverage** provided (for example, sales revenue for general liability, amount of insurance for commercial property). In undertaking analyses for these mechanisms, it may be appropriate to select one **exposure base**, referred to as the composite **exposure base**, to act as a proxy for the more refined **coverage-by-coverage exposure bases**.

- 3.7 Risk Classification System—Risk classification systems can be an integral part of the development of future cost estimates for prospective property/casualty **risk transfer** and **risk retention**. The actuary should refer to ASOP No. 12, *Risk Classification (for All Practice Areas)*, for guidance in designing, reviewing, or changing a risk classification system.
- 3.8 Use of Historical Data—The actuary should determine the extent to which historical data (premium, exposure, loss, and loss adjustment) are available and appropriate for estimating future costs. For example, the data should be consistent with insurance policy provisions or risk-management and risk-control strategies of the applicable insurance, reinsurance, self-insurance, loss portfolio transfers, or any other mechanisms for **risk transfer** or **risk retention**.
- 3.8.1 Use of Historical Exposure and Premium Data—If the actuary is using historical exposure and premium data, the actuary should consider adjusting the data to reflect a consistent measurement of the historical exposures and rate level, if applicable. These considerations include adjusting historical data to a common exposure level and adjusting premium data for historical changes in the way premium charges are calculated, including both changes to manual rates and the impact of any individual risk rating plans, if applicable. If the actuary is adjusting historical exposure and premium data, the actuary should consider changes during and after the historical period and should select an appropriate **method** for adjustments that is consistent with the nature of the available data, the intended measure, and the purpose of the analysis.
- 3.8.2 Use of Historical Loss and Loss Adjustment Expenses—The actuary should determine the extent to which historical loss and loss adjustment expenses are available and appropriate as a basis for estimating future costs. In estimating future costs related to loss and loss adjustment expenses, the actuary should consider adjusting historical data using **methods** or **models**, along with reasonable assumptions, that, in the actuary’s professional judgment, reflect the ultimate value of the loss and loss adjustment expenses. The actuary also should consider the following:
- a. the **coverage** being evaluated;
 - b. the type of analysis (such as overall future cost level analysis or risk classification analysis); and

- c. the differences between the future period and the historical conditions under which the historical claims occurred, the claims were adjusted, and the claim reserves were set.

The actuary should consider whether the analysis of loss adjustment expense data requires different **methods, models**, or assumptions than the analysis of loss data. Additionally, the actuary should consider whether different **coverages** within a line of business may require different **methods, models**, or assumptions.

3.8.3 Trends—The actuary should consider past and prospective changes in claim costs, claim frequencies, exposures, and premiums. The actuary should refer to ASOP No. 13, *Trending Procedures in Property/Casualty Insurance*, for guidance in the selection of trends for estimating future values of costs associated with the elements that make up the future cost estimate.

3.8.4 Additional Adjustments to Historical Data—The actuary should consider whether additional adjustments to the historical data are needed to reflect the environment expected to exist in the period for which the future costs are being estimated. If the actuary makes adjustments, these adjustments should be made so that the historical data are stated and used on a consistent basis. Examples of changes that may suggest the need for adjustments include the following:

- a. judicial, legislative, or regulatory changes;
- b. mix of business changes;
- c. policy contract changes;
- d. claim practice or reserving changes;
- e. operational changes;
- f. accounting changes; and
- g. reinsurance changes.

3.9 Expenses—Some types of expenses may require different treatment for future cost estimates than other types of expenses. The actuary should refer to ASOP No. 29, *Expense Provisions in Property/Casualty Insurance Ratemaking*, and ASOP No. 13 for guidance in estimating future expenses.

3.10 New Coverages or Exposures—If the actuary is estimating the future cost for a new **coverage** or exposure, and the historical loss and loss adjustment expenses are either unavailable, limited, or not fully representative of the new **coverage** or exposure, the

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actuary should consider the following in selecting data and developing **methods, models,** or assumptions for use in estimating the future costs:

- a. data from **coverages** or exposures that are similar to the new **coverage** or exposure;
 - b. data on the phenomenon or events that are contemplated by the new **coverage** or exposure;
 - c. differences between **coverages** or exposures with available relevant data and the new **coverage** or exposure; and
 - d. appropriate adjustments to the available relevant data to reflect expected differences identified in section 3.10(c).
- 3.11 Credibility—The actuary should refer to ASOP No. 25, *Credibility Procedures*, for guidance in considering the credibility given to a particular set of data and the selection of the relevant experience used to supplement the data, which is often referred to as the complement of credibility.
- 3.12 Treatment of Catastrophes—The actuary should refer to ASOP No. 38 and ASOP No. 39, *Treatment of Catastrophe Losses in Property/Casualty Insurance Ratemaking*, for guidance in the consideration of catastrophes.
- 3.13 Treatment of Infrequent Events—The actuary should consider whether it is necessary to use **methods** that adjust for either the presence or absence of infrequent large losses in the historical data set. For example, some data sets may require using a longer experience period to calculate an appropriate provision for large losses. Similarly, when estimating expected losses in higher layers that contain infrequent losses, different **methods** may be appropriate. In some cases, the **methods** used to deal with catastrophe losses may be applicable and the actuary should refer to ASOP No. 39.
- 3.14 Reinsurance—When the cost of reinsurance is reflected in future cost estimates, the actuary should select appropriate **methods** or **models**, along with reasonable assumptions, for estimating the cost associated with reinsurance arrangements expected to apply during the period for which the future costs are being estimated. If the cost of reinsurance is treated as an expense, the actuary should refer to ASOP No. 29 for additional guidance.
- 3.15 Profit and Contingency Provisions and the Cost of Capital—The actuary should refer to ASOP No. 30, *Treatment of Profit and Contingency Provisions and the Cost of Capital in Property/Casualty Insurance Ratemaking*, for guidance in the consideration of the profit and contingency provisions and the cost of capital.
- 3.16 Additional Funding Sources—In some mechanisms for **risk transfer**, income may come from other sources, such as assessments paid by policyholders or other parties including

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insurers, a group of insurance purchasers, or taxpayers. The actuary should consider additional sources of funding and their allocation and timing when estimating future costs.

Section 4. Communications and Disclosures

- 4.1 Actuarial Communications—When issuing actuarial communications under this standard, the actuary should refer to ASOP Nos. 12, 13, 23, 25, 29, 30, 38, 39, and 41, *Actuarial Communications*. In addition, the actuary should disclose the following in an appropriate actuarial communication:
- a. the elements included in the future cost estimates (see section 3.1);
 - b. the intended measure used in developing or reviewing the future cost estimates (see section 3.2);
 - c. the **methods** or **models** used in developing or reviewing the future cost estimates (see section 3.5); and
 - d. the material assumptions made by the actuary and used in developing or reviewing the future cost estimates (see section 3.5).
- 4.2 Disclosures—The actuary should also include the following in an actuarial communication, if and when applicable:
- a. if appropriate data are available for the analysis, the actuary should disclose the data organization (level of data aggregation and, if considered, segmentation) used for each element (see section 3.3);
 - b. if the actuary selects a new **exposure base** or changes an existing **exposure base**, the actuary should disclose the new or revised **exposure base** (see section 3.6);
 - c. if the actuary uses historical data, the actuary should disclose any adjustments made to the historical data to account for expected differences between the historical data and future experience (see sections 3.8 and 3.10). For adjustments made to address issues of data quality, refer to ASOP No. 23;
 - d. if the actuary estimates future costs for a **coverage** or exposure when the historical data are unavailable, limited, or not fully representative, the actuary should disclose the data used and any appropriate adjustments made to the data (see sections 3.8.4 and 3.10);
 - e. when the cost of reinsurance is reflected in future cost estimates, the actuary should disclose the **methods** or **models**, along with the material assumptions, used in estimating the costs of reinsurance (see section 3.14);

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- f. if the actuary considers additional sources of funding, the actuary should disclose how the funding was reflected in estimating the future cost (see section 3.16);
- g. the disclosure in ASOP No. 41, section 4.2, if any material assumption or **method** was prescribed by applicable law;
- h. the disclosure in ASOP No. 41, section 4.3, if the actuary states reliance on other sources and thereby disclaims responsibility for any material assumption or **method** selected by a party other than the actuary; and
- i. the disclosure in ASOP No. 41, section 4.4, if, in the actuary's professional judgment, the actuary has otherwise deviated materially from the guidance of this ASOP.

Appendix 1

Background and Current Practices

Note: This appendix is provided for informational purposes and is not part of the standard of practice.

Background

Cost estimation, ratemaking, and risk retention have been a fundamental part of actuarial practice since the beginning of the profession. A critical piece of these professional activities is the estimation of future costs.

Ratemaking principles and standards of practice are important to protect the soundness of the system, permit economic incentives to operate, and thereby encourage widespread availability of coverage. The board of directors of the Casualty Actuarial Society (CAS) adopted the *Statement of Principles Regarding Property and Casualty Ratemaking* in May 1988. The *Statement of Principles* has served as a foundational source of information regarding future cost estimation and ratemaking, providing both principles and considerations. Several actuarial standards of practice (ASOPs) issued by the Actuarial Standards Board are also important in future cost estimation, including the following:

- ASOP No. 12, *Risk Classification (for All Practice Areas)*;
- ASOP No. 13, *Trending Procedures in Property/Casualty Insurance*;
- ASOP No. 23, *Data Quality*;
- ASOP No. 25, *Credibility Procedures*;
- ASOP No. 29, *Expense Provisions in Property/Casualty Insurance Ratemaking*;
- ASOP No. 30, *Treatment of Profit and Contingency Provisions and the Cost of Capital in Property/Casualty Insurance Ratemaking*;
- ASOP No. 38, *Using Models Outside the Actuary's Area of Expertise (Property and Casualty)*;
- ASOP No. 39, *Treatment of Catastrophe Losses in Property/Casualty Insurance Ratemaking*; and
- ASOP No. 41, *Actuarial Communications*.

Current Practices

Over the years, a multitude of methods and models for the estimation of future costs have been designed, put into use, and modified as a result of experience. Materials and publications of the CAS such as the *Syllabus of Basic Education* (formerly the *Syllabus of Examinations*), *Variance, Proceedings* (discontinued in 2014), *Foundations of Casualty Actuarial Science*, *Ratemaking and Ratemaking/Product Management Seminar* archives, and others provide discussions of current practices. While these may provide useful educational guidance to practicing actuaries, none is an actuarial standard of practice.

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Throughout our history as a profession, actuarial future cost estimates have not always been the sole basis for rates and prices in risk-transfer or risk-retention transactions. For example, other important influences may include regulatory requirements and business objectives. Such other influences may support or compete with actuarial future cost estimates in deciding upon final rates and prices.

The increased availability of data and advances in technology, tools, techniques, and learnings from other disciplines have resulted in continued evolution of methods and models for the estimation of future costs. Innovation and use of new data and technologies will continue.

Appendix 2

Comments on the Third Exposure Draft and Responses

The third exposure draft of this ASOP, *Estimating Future Costs for Prospective Property/Casualty Risk Transfer and Risk Funding* (previously *Property/Casualty Ratemaking*), was issued in December 2016 with a comment deadline of April 30, 2017. Thirteen comment letters were received, some of which were submitted on behalf of multiple commentators, such as firms or committees. For purposes of this appendix, the term “commentator” may refer to more than one person associated with a particular comment letter. The Ratemaking Task Force carefully considered all comments received, reviewed the exposure draft, and proposed changes. The Casualty Committee and the ASB reviewed the proposed changes and made modifications where appropriate.

Summarized below are the significant issues and questions contained in the comment letters and responses.

The term “reviewers” in appendix 2 includes the Ratemaking Task Force, the Casualty Committee, and the ASB. Unless otherwise noted, the section numbers and titles used in appendix 2 refer to those in the third exposure draft.

TRANSMITTAL MEMORANDUM QUESTIONS	
Question 1: Does the proposed ASOP provide sufficient and appropriate guidance to actuaries estimating future costs for prospective property/casualty risk transfer and risk funding?	
Comment	Six commentators agreed that the proposed ASOP provided sufficient guidance.
Question 2: The proposed ASOP has added reference to “intended measure” for the estimation of all future costs to eliminate any implication that the only appropriate estimate of all future costs was an expected value without any consideration of potential variability. Is it clear what is meant by “intended measure”?	
Comment	One commentator suggested that the section does not recognize the instances where elements of the future cost estimates have different intended measures, whereas other sections do (for example, section 3.5).
Response	The reviewers agree and made the suggested change.
Comment	One commentator suggested that the reference in this section to the appropriate consideration of potential variability, versus expected value, is too limiting. The commentator said that the benefit and value of the ASOP’s use of “intended measure” for actuarial cost estimates is to recognize that a number of key considerations can affect the basis for such estimates. The commentator also noted that such considerations for the intended measure might include adjustments for large infrequent losses, catastrophic losses, paucity of relevant data, data credibility issues, etc.
Response	The reviewers modified section 3.14 (now section 3.13) to provide guidance to actuaries when dealing with infrequent events and associated data issues.
Question 3: Are the definitions of “risk transfer” and “risk funding” in the proposed ASOP complete from the perspective of all activities in which an actuary is involved when estimating future costs for prospective property/casualty risk transfer and risk funding?	
Comment	Two commentators agree that the definitions are sufficient and clear.

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Comment	Several commentators suggested that the phrase “risk funding” may be confusing or misleading, and two commentators suggested replacing “risk funding” with “risk retention.”
Response	The reviewers agree that the phrase “risk funding” could be misinterpreted and changed it to “risk retention.”
Comment	One commentator suggested clarifying that the scope of the ASOP broadly includes estimating revenue/funding associated with risk transfer contracts, not just the estimation of future costs.
Response	The reviewers agree that the use of the word “funding” in the two cases may be confusing and clarified the language of the scope to “developing or reviewing future cost estimates...for prospective property/casualty risk transfer and risk retention.”
Comment	One commentator suggested deleting “contractual” from the definition of risk transfer, as this would make the definition more consistent with the definition of “coverage.”
Response	The reviewers agree and made the suggested change.
Question 4: Is it clear that this proposed ASOP provides guidance only for the estimation of future costs for prospective property/casualty risk transfer and risk funding? Is it clear that the scope does not include items such and the balancing and interaction of potentially competing objectives related to regulation, business objectives, and actuarial cost estimates?	
Comment	Four commentators stated that the scope of the proposed ASOP was clear.
Comment	One commentator said that the proposed ASOP was not completely clear with regard to not including items such as the balancing and interaction of potentially competing objectives related to regulation, business objectives, and actuarial cost estimates. The commentator suggested adding language in the appendix that clearly stated these exclusions from the scope.
Response	The reviewers believe that the scope is clear, and therefore made no change in response to this comment.
Comment	One commentator said that generally it was clear that the ASOP provides guidance for the estimation of future costs for prospective property/casualty risk transfer and risk funding, but noted that the introduction of the intended measure may address considerations underlying the other objectives.
Response	The reviewers made changes to section 3.2 to further clarify the concept.
Question 5: When the role of the actuary is reviewing the estimate of future costs developed by another actuary, is the guidance provided in the proposed ASOP sufficient and clear?	
Comment	Four commentators responded that the proposed ASOP was clear on this point.
Question 6: Is the level of disclosure required in the proposed ASOP sufficient and appropriate? If the response is no, what are the issues?	
Comment	Four commentators responded that the level of disclosure was sufficient and appropriate.
GENERAL COMMENTS	
Comment	Two commentators said that the proposed ASOP addressed many of the concerns that were present in earlier drafts. One of these commentators said that there were still a few areas that could benefit from clarification.
Response	The reviewers addressed specific comments in the relevant sections.

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SECTION 1. PURPOSE, SCOPE, CROSS REFERENCES, AND EFFECTIVE DATE	
Section 1.1, Purpose	
Comment	One commentator suggested changing the language to “future cost estimates for prospective decisions or transactions.”
Response	The reviewers consider the current language to be sufficiently clear and therefore made no change.
Comment	One commentator suggested that the second sentence be expanded to mention “risk pooling” and to add a reference to “any other risk-retention mechanisms.”
Response	The reviewers disagree regarding the addition of “risk pooling,” as it is a subset of many of the other items mentioned; however, the reviewers agree that the addition of “any other risk-retention mechanism” clarifies the language and made the suggested change.
Section 1.2, Scope	
Comment	One commentator suggested deleting the word “contract” in the phrase “developing reinsurance contract prices,” as at times it may not be a contract but rather a slip or program that the estimate is being developed for.
Response	The reviewers agree and made the suggested change.
SECTION 2. DEFINITIONS	
Section 2.2, Exposure Base	
Comment	One commentator suggested expanding the definition of exposure base to refer to the quantity of risk-transfer or risk-funding cost.
Response	The reviewers note that terms such as “measure” and “cost” are by their very nature quantitative, and made no change.
Comment	One commentator suggested that the definition of exposure base be modified to state that it is a basic unit that “may be used to measure future risk transfer and risk transfer costs” because there are several cases where this basic unit may only be used for rating and not exposure measurement.
Response	The reviewers note that when an actuary develops an estimate of the future cost, that cost typically is relative to some basis. Therefore, the phrase “is used” is more appropriate than “may be used.” The reviewers made no change.
Comment	One commentator suggested that the definition include “as a measure which is approximately proportional to the future costs.”
Response	The reviewers note that section 3.6 addresses considerations for an exposure base and that the phrase “bears a strong relationship to...cost” is more appropriate than the suggested language. Therefore, the reviewers made no change.
Section 2.4, Model	
Comment	Two commentators suggested that the definition of Model be revised to eliminate the words “a simplified presentation” because models are often quite complex. They also suggested using the definition in ASOP No. 38, <i>Using Models Outside the Actuary's Area of Expertise (Property and Casualty)</i> .
Response	The reviewers note that even complex models are always a simplified representation of all the items that impact the modeled system. The reviewers also note that ASOP No. 38 is currently being revised to pertain to catastrophe model use in all areas of practice. Therefore, the reviewers made no change.

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Section 2.5, Risk Funding (now Risk Retention)	
Comment	One commentator suggested replacing “risk funding” with “risk retention,” as the very act of creating a future cost estimate is a step toward risk funding. Once the estimate has been made, the estimate is the basis for retaining or transferring the risk.
Response	The reviewers agree and replaced “risk funding” with “risk retention.”
Comment	One commentator suggested replacing the word “loss” with “specific coverage,” as it is the coverage that gives rise to the need to estimate the future cost.
Response	The reviewers agree and made the change.
Section 2.6, Risk Transfer	
Comment	One commentator suggested that the word “loss” in this context should be replaced by “coverage,” as the risk transfer is truly defined in terms of the coverage.
Response	The reviewers agree and made the change.
Comment	One commentator suggested replacing the word “contractual” with “legally binding agreements.” The commentator also suggested adding “indemnify one party by another party,” as the agreements cannot legally shift the responsibility for risk but they can indemnify.
Response	The reviewers agree and made the changes.
SECTION 3. ANALYSIS OF ISSUES AND RECOMMENDED PRACTICES	
Section 3.1, Future Cost Estimate	
Comment	One commentator suggested expanding the list of examples of the elements of a future cost estimate to include the cost of ceded reinsurance.
Response	The reviewers understood the concern, added the cost of reinsurance as an item in this section and in section 1.2, and modified section 3.14 and 4.2(e).
Comment	One commentator suggested modifying the second sentence to include language that specifically relates the elements to the applicable coverage.
Response	The reviewers agree and made the change.
Section 3.2, Intended Measure	
Comment	Several commentators said that the section was unclear, and one commentator suggested that the section would be clearer if the language was recast in terms of the purpose or presumed use.
Response	The reviewers agree and revised the section to clarify that the intended measure is determined by the actuary based on the purpose or use of the future cost estimate.
Comment	Two commentators suggested that the “intended measure” might be better handled as a definition.
Response	The reviewers disagree and have followed the treatment of intended measure in the same manner as ASOP No. 43, <i>Property/Casualty Unpaid Claim Estimates</i> .
Comment	One commentator suggested changing the word “intent” to “intended use.”
Response	The reviewers agree that the word “intent” should be changed and have replaced it with “purpose or use of the estimate.”

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Comment	One commentator suggested that the ASOP be more specific about the measurement basis or considerations that impact the intended measure that is selected and provided suggested language.
Response	The reviewers did not add the suggested language but instead added a non-statistical (but still numeric) example in “high or low estimate within a range of reasonably possible outcomes.”
Comment	One commentator suggested that “intended measure” be changed to “intended statistical measure,” as all the examples are statistical in nature, and the phrase “intended measure” could be interpreted as having a non-statistical meaning.
Response	The reviewers note that non-statistical measures may also be used for the intended measure and have added a non-statistical example to this section.
Section 3.3, Organization of Data	
Comment	One commentator suggested adding a reference to ASOP No. 25, <i>Credibility Procedures</i> , when addressing organization of data (specifically balancing homogeneity with volume).
Response	The reviewers added a reference to section 3.11 of this ASOP, which cites ASOP No. 25.
Comment	One commentator suggested that this section more specifically state that the actuary should determine what data are available.
Response	The reviewers agree and made the change.
Comment	One commentator suggested changing the focus from “granularity” to “level of data organization” and expanding the examples of level of data to include coverage and risk classification.
Response	The reviewers agree and made changes consistent with this suggestion.
Comment	One commentator suggested adding the phrase “that the actuary believes” to highlight that this step involves judgment.
Response	The reviewers agree and made the change.
Section 3.5, Methods, Models, and Assumptions	
Comment	One commentator asked whether the fact that one of the methods, models, or assumptions may have a bias disqualifies it from being used even if the actuary offsets for that bias in the determination of the final result.
Response	The reviewers modified the language to read as follows: “have no known significant bias in the aggregate.”
Comment	One commentator suggested adding the phrase “adjusting for changes in conditions affecting the use of past data when estimating future costs.”
Response	The reviewers agree with the suggestion in part and added language regarding “adjusting for changes in conditions affecting the available experience.”
Section 3.6, Exposure Base	
Comment	One commentator suggested that this section was too limited in its applicability and suggested changing it from “if selecting a new exposure base or changing an existing exposure base” to “when using or changing ...or selecting a new exposure base.”
Response	The reviewers disagree with the suggestion to require the evaluation of existing exposure bases. Many exposure bases have long-term and widely accepted use.

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Section 3.7, Risk Classification System	
Comment	One commentator suggested changing “risk classification systems are an integral part of the development of future cost estimates” to “risk classification systems can be an integral part.”
Response	The reviewers agree and made the change.
Section 3.8, Use of Historical Data	
Comment	One commentator suggested adding a specific reference to ASOP No. 23, <i>Data Quality</i> , in this section.
Response	The reviewers note that section 3.4, <i>Data Quality</i> , refers the actuary to ASOP No. 23 in the consideration and choice of data for estimating future costs, and therefore made no change.
Comment	One commentator suggested changing the phrase “insurance policy provisions” to “coverage provisions,” as the revised language can be applied more broadly to all risk-transfer or risk-retention mechanisms without specifying self-insurance or other mechanisms.
Response	The reviewers agree with the commentator’s concern, and changed “risk management provisions” to “risk management and risk control strategies.”
Section 3.8.1, Use of Historical Exposure and Premium Data	
Comment	One commentator suggested replacing “a consistent exposure and rate level” with “a consistent measure of the historical exposures and the rates used to determine the historical premiums.”
Response	The reviewers agree in part and added the phrase “measurement of the historical exposures” but did not revise the language regarding a consistent rate level, as the reviewers believe the commentator’s suggested language could be misinterpreted.
Section 3.8.2, Use of Historical Loss and Loss Adjustment Expenses	
Comment	One commentator suggested adding a mention of the need to be consistent in adjusting the loss and loss adjustment data with how the premium data are adjusted.
Response	The reviewers agree with the suggestion and added language to section 3.8.3 (now section 3.8.4) to address the issue raised.
Comment	One commentator suggested language clarifying the relationship and differences between the historical period and future period.
Response	The reviewers agree and added clarifying language.
Section 3.8.3, Additional Adjustments to Historical Data (now section 3.8.4)	
Comment	One commentator suggested revising the first sentence to say “the actuary should consider whether additional adjustments to the historical data may be needed....”
Response	The reviewers agree and made the change.
Section 3.10, New Coverages or Exposures	
Comment	One commentator suggested changing “loss and loss adjustment expenses” to “data” to be consistent with language in the rest of this section.
Response	The reviewers disagree, as the reference to “data” in the remainder of the section refers to information that is broader than “loss and loss adjustment expenses.”

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Comment	One commentator suggested adding the word “future” so that it would read “future coverage or exposure.”
Response	The reviewers agree that clarification is needed and have modified the opening paragraph to identify the coverage as new coverage.
Section 3.12, Modeling (deleted)	
Comment	One commentator suggested that this section is redundant, as these points are already contained in section 3.5.
Response	The reviewers agree and removed this section.
Section 3.14, Treatment of Unusual Events (now section 3.13, Treatment of Infrequent Events)	
Comment	Two commentators said that the phrase “infrequent events” was more appropriate than “unusual events,” since the characteristic trait for these events is low frequency/high severity.
Response	The reviewers agree and retitled this section “Treatment of Infrequent Events.”
Comment	Two commentators suggested that the proposed ASOP does not provide guidance for treating coverages (such as Umbrella) where the frequency of losses by layer varies in such a way that it may be appropriate to use different methodologies by layer.
Response	The reviewers agree and added a reference to address estimating losses in higher layers where different methodologies may be appropriate.
Section 3.17, Additional Funding Sources (now section 3.16)	
Comment	One commentator suggested changing the title to “Additional Sources of Income.”
Response	The reviewers disagree as the change from “funding” to “income” would more narrowly define the type of funds that may be available.
Comment	One commentator suggested changing “assessments to policyholders” to “assessments paid by policyholders.”
Response	The reviewers agree and made the change.
SECTION 4. COMMUNICATIONS AND DISCLOSURES	
Section 4.1, Actuarial Communications	
Comment	Several commentators suggested that the requirement to disclose the assumptions used in developing or reviewing the future cost estimates was overly broad or burdensome. A few of these commentators suggested that the disclosure be limited to material and explicit assumptions.
Response	The reviewers modified the language to require disclosure of material assumptions.
Section 4.2, Disclosures	
Comment	One commentator suggested limiting the required disclosure to material assumptions.
Response	The reviewers modified the language to require disclosure of material assumptions.

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Comment	Two commentators said that the language is too broad and appears to encompass all adjustments made to the historical data including adjustments made to address issues of data quality. The commentator suggested that the adjustments made to address data quality should be governed by ASOP No. 23 and that clarifying language be added to this section.
Response	The reviewers agree and revised the section as follows: “if the actuary uses historical data, the actuary should disclose any adjustments made to the historical data to account for expected differences between the historical data and future experience (see sections 3.8 and 3.10). For adjustments made to address issues of data quality, refer to ASOP No. 23.”
APPENDIX	
Comment	One commentator suggested revising the last sentence in the next-to-last paragraph to “Such other influences may affect decisions about prices or premium rates, but such influences may or may not be consistent with the intended measure used for actuarial future cost estimates in deciding upon final rates and prices.”
Response	The reviewers believe the existing language is sufficiently clear and made no change.
Comment	One commentator suggested adding the following: “as innovation and the use of new data and technologies affect the environment in which actuaries operate, continuing education for actuaries will be important for the application of this ASOP.”
Response	The reviewers do not believe the suggested language is needed here as actuaries are already subject to continuing education requirements per the <i>Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States</i> .