ACTUARIAL STANDARDS BOARD

Actuarial Standard
of Practice
No. 30

Treatment of Profit and Contingency Provisions and the Cost of Capital in Property/Casualty Insurance Ratemaking

Developed by the
Task Force on Rate of Return of the
Casualty Committee of the
Actuarial Standards Board

Adopted by the
Actuarial Standards Board
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August 1997

TO: Members of Actuarial Organizations Governed by the Standards of Practice of the Actuarial Standards Board and Other Persons Interested in Profit and Contingency Provisions and the Cost of Capital in Property/Casualty Insurance Ratemaking

FROM: Actuarial Standards Board (ASB)

SUBJ: Actuarial Standard of Practice No. 30

This booklet contains the final version of Actuarial Standard of Practice (ASOP) No. 30, *Treatment of Profit and Contingency Provisions and the Cost of Capital in Property/Casualty Insurance Ratemaking*.

First and Second Exposure Drafts

The first draft of this standard was exposed for review in October 1994, with a comment deadline of March 15, 1995. Thirty-one comment letters were received. The second draft of this standard was exposed for review in August 1996, with a comment deadline of December 2, 1996. Ten comment letters were received on the second exposure draft. (For a copy of either exposure draft, please contact the ASB office.) The Task Force on Rate of Return of the ASB's Casualty Committee reviewed and carefully considered all comments received on both exposure drafts. As was the case after the first exposure, the task force revised the second exposure draft after participating in many conference calls and listening to comments made during question-and-answer sessions held at various Casualty Actuarial Society (CAS) meetings.

Substantive Issues

Following the first exposure draft, the task force received a number of comment letters regarding the discussion of rates versus prices. Although several changes were made in the second exposure draft to more clearly indicate that the proposed standard intended only to address the evaluation of costs (i.e., rates), some of the commentators' letters on the second exposure draft still expressed confusion on this point. In response, the task force further revised several sections to make clear that the standard does not address considerations such as marketing goals, competition, and legal restrictions that may affect price.

In addition to the "rates versus prices" issue, several commentators questioned whether the cost of capital is truly equivalent for stock, mutual, and other insurance organizations. After extensive discussion, the task force changed the language of the standard to focus the practitioner on assessing the cost of capital as an opportunity cost and to recognize that all risk transfers have an opportunity cost. The task force also combined section 3.8 with section 3.2 to indicate that the cost of capital may differ for various capital providers due to their differing risk characteristics, and that such differences play a role in assessing the cost of capital for a specific capital provider. (For a detailed discussion of the comments and the task force's responses to such, please see appendix 2 of this standard.)

The task force is grateful to the many individuals who contributed written comments or participated in the numerous discussions of the proposed standard at CAS meetings. The task force believes that the final standard benefitted significantly from this professional debate.

The ASB voted in July 1997 to adopt the final standard.

Task Force on Rate of Return of the Casualty Committee

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Steven G. Lehmann	

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ACTUARIAL STANDARD OF PRACTICE NO. 30

TREATMENT OF PROFIT AND CONTINGENCY PROVISIONS AND THE COST OF CAPITAL IN PROPERTY/CASUALTY INSURANCE RATEMAKING

STANDARD OF PRACTICE

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

1.1 Purpose—According to the *Statement of Principles Regarding Property and Casualty Insurance Ratemaking* (hereafter the *Statement of Principles*) of the Casualty Actuarial Society, insurance rates should provide for the cost of capital through underwriting profit and contingency provisions. This standard of practice provides guidance to actuaries in estimating the cost of capital and evaluating underwriting profit and contingency provisions.

1.2 Scope—This standard of practice applies to all property/casualty insurance coverages. This standard also applies to property/casualty risk financing systems, such as self-insurance, that provide similar coverages. References in the standard to *risk transfer* should be interpreted to include risk financing systems that provide for risk retention in lieu of risk transfer. Further, as is true of the *Statement of Principles*, this standard is limited to defining a *rate* as the estimation of future *costs* and does not address other considerations that may affect a *price*, such as marketing goals, competition, and legal restrictions.

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

1.4 Effective Date—This standard will be effective with respect to work performed after December 1, 1997.

Section 2. Definitions

The definitions below are defined for use in this actuarial standard of practice.

2.1 Capital—The funds intended to assure payment of obligations from insurance contracts, over and above those funds backing the liabilities.

2.2 Contingency Provision—A provision for the expected differences, if any, between the estimated costs and the average actual costs, that cannot be eliminated by changes in other components of the ratemaking process.

2.3 Cost of Capital—The rate of return that capital could be expected to earn in alternative investments of equivalent risk; also known as *opportunity cost*.

2.4 Insurance Cash Flows—Funds from premiums and miscellaneous (non-investment) income from insurance operations, and payments for losses, expenses, and policyholder dividends. Associated income taxes are recognized when the analysis is on a post-tax basis.

2.5 Insurance Risk—The extent to which the level or timing of actual insurance cash flows is likely to differ from expected insurance cash flows.

2.6 Investment Income—Proceeds (other than the return of principal) derived from the investment of assets, minus investment expenses. Associated income taxes are recognized when the analysis is on a post-tax basis.

2.7 Investment Income from Insurance Operations—The income associated with the investment of insurance cash flows. (This is sometimes referred to as *investment income on policyholder-supplied funds*.)

2.8 Investment Risk—The extent to which the level or timing of actual investment proceeds is likely to differ from what is expected.

2.9 Leverage—A measure of the relative amount of risk to which capital is exposed, typically expressed as the ratio of an exposure measure (such as premium or liabilities) to the capital amount.

2.10 Operating Profit—The sum of underwriting profit, miscellaneous (non-investment) income from insurance operations, and investment income from insurance operations. Associated income taxes are recognized when the analysis is on a post-tax basis.

2.11 Rate—An estimate of the expected value of future costs.

2.12 Total Return—The sum of operating profit and investment income on capital, usually after income taxes, often expressed in percentage terms.

2.13 Underwriting Expenses—All expenses except losses, loss adjustment expenses, investment expenses, policyholder dividends, and income taxes.

2.14 Underwriting Profit—Premiums less losses, loss adjustment expenses, underwriting expenses, and policyholder dividends.

2.15 Underwriting Profit Provision—The provision for underwriting profit in the actuarially developed rate, typically expressed as a percentage of the rate.

Section 3. Analysis of Issues and Recommended Practices

3.1 Estimating the Cost of Capital and the Underwriting Profit Provision—Property/casualty insurance rates should provide for all expected costs, including an appropriate cost of capital associated with the specific risk transfer. This cost of capital can be provided for by estimating that cost and translating it into an underwriting profit provision, after taking leverage and investment income into account. Alternatively, the actuary may develop an underwriting profit provision and test that profit provision for consistency with the cost of capital. The actuary may use any appropriate method, as long as such method is consistent with the considerations in this standard.

For historical and practical reasons, this standard separately discusses the underwriting profit provision, investment income from insurance operations, and investment income on capital. The actuary should keep in mind that evaluation of whether the cost of capital is appropriately recognized does not necessarily require these distinctions.

3.2 Basis for Cost of Capital Estimates—In estimating the cost of capital, the actuary should consider the relationship between risk and return. The methods used for estimating the cost of capital should reflect the risks involved in the risk transfer under consideration. These risks may include insurance, investment, inflation, and regulatory risks, as well as diversification, debt structure, leverage, reinsurance, market structure, and other appropriate aspects of the social, economic, and legal environments.

Thus, the cost of capital is likely to vary from one insurer to another. The actuary should recognize that the capital which is needed to support any risk transfer has an opportunity cost regardless of the source of capital or the structure of the insurer.

3.3 Estimates of Future Costs—Since all components of a rate should be estimates of future costs relating to the risk transfer during the prospective period of time to which the rate applies, capital costs, investment income, income taxes, cash flows, and leverage factors used in calculating the profit provision should all be based on expected future values.

3.4 Parameters of the Risk Transfer —The actuary should recognize that the cost of capital associated with an individual risk transfer may vary, based on the specific parameters of the transfer. To the extent that deductibles, dividend or return of premium plans, reinsurance, etc., affect the risk of the insurer, the cost of capital and the amount of capital needed to support the transaction may be affected.

3.5 Investment Income—There are two elements of investment income that the actuary should consider: investment income from insurance operations and investment income on capital.

The actuary should assess the investment risk, since the amount and cost of capital should reflect investment risk as well as the risk associated with the insurance cash flows. Investment risk addresses the cost of default, reinvestment risk, and other investment uncertainties. Such risks can result in a significantly different yield than the stated yield rate.

Any of several general approaches may be used by the actuary to estimate investment income, as long as the assumptions are reasonable and appropriate. The investment yield rates used should be appropriate for the cash flow patterns associated with the coverages under consideration. If historical balance sheet and cash flow data are used to project investment income, the data should be adjusted to represent future investment income from the associated coverages.

The actuary may use any of a number of methods for recognizing investment income from insurance operations. Two such approaches are as follows:

a. Methods that estimate investment income based on projected insurance cash flows. The insurance cash flows are projected for each future period, and the expected investment yield rate appropriate for each future period is applied to the insurance cash flow for that period. The investment yield rates should be appropriate for the cash flow patterns associated with the coverages under consideration.

b. Methods that apply an expected investment yield rate to assets representing the liabilities for losses, loss adjustment expenses, and unearned premium net of agents' balances and prepaid expenses. If historic liability-to-premium relationships are used, they should be adjusted to reflect expected future relationships between liabilities and premiums. The actuary should also consider, for example, the effects of growth, changes in expected loss or expense patterns, and the effect of the delayed receipt of investment income. The investment yield rate selected should represent the expected investment yield for the insurer during the period the rates are expected to be in effect.

3.6 Income Taxes—To the extent income taxes are not included in the expense provision, the actuary should use provisions for expected income taxes that are consistent with the earnings expected from the insurance transaction being evaluated.

3.7 Contingency Provision—The actuary should include a contingency provision if the assumptions used in the ratemaking process produce cost estimates that are not expected to equal average actual costs, and if this difference cannot be eliminated by changes in other components of the ratemaking process.

While the estimated costs are intended to equal the average actual costs over time, differences between the estimated and actual costs of the risk transfer are to be expected in any given year. If a difference persists, the difference should be reflected in the ratemaking calculations as a contingency provision. The contingency provision is not intended to measure the variability of results and, as such, is not expected to be earned as profit.

3.8 Use of Different Bases—The cost of capital can be expressed as a percentage of capital, a percentage of assets, a percentage of premium, or other appropriate base. The actuary may choose any such appropriate base. Actuaries may use different bases, which can be converted from one to another. Regardless of which base is used to reflect the cost of capital, the actuary should clearly identify the base used and should document the relevant assumptions.

3.9 Accounting Rules for Comparing the Cost of Capital—The accounting rules employed within any model should be internally consistent. When comparing one industry with another, the actuary should make any necessary adjustments so that costs of capital of industries with different accounting methods can be properly compared.

Section 4. Communications and Disclosures

4.1 Conflict with Law or Regulation—If a law or regulation conflicts with the provisions of this standard, the actuary should develop a rate in accordance with the law or regulation, and disclose any material difference between the rate so developed and the actuarially determined rate to the client or employer.

4.2 Documentation—The actuary should be guided by the provisions of ASOP No. 9, *Documentation and Disclosure in Property and Casualty Insurance Ratemaking, Loss Reserving, and Valuations*.

4.3 Disclosures—The actuary should include the following, as applicable, in an actuarial communication:

a. in addition to the disclosure covered in section 4.1, the disclosure in ASOP No. 41, *Actuarial Communications*, section 4.2, if any material assumption or method was prescribed by applicable law (statutes, regulations, and other legally binding authority);

b. 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

c. 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, but is not part of the standard of practice.

Background

Historical Procedures—Until the 1970s, it was common practice to include in rate calculations a standard underwriting profit and contingency provision of 2.5% for workers compensation insurance and 5% for other property/casualty lines of insurance (6% for some property lines). These provisions did not explicitly reflect investment income, since there was general agreement at the time that these standard provisions implicitly reflected investment income and insurance risk in a reasonable fashion. However, economic and structural changes in the insurance industry over time began to lead to the explicit recognition of investment income in calculating insurance rates.

Historical Issues—A number of issues have historically accompanied the development and evaluation of the underwriting profit and contingency provisions: (1) how to measure risk and reflect it in the underwriting profit provision, (2) how or whether to measure any systematic variation from expected costs and reflect it in the contingency provision, (3) which accounting rules should be used to measure insurance returns and to compare them with returns in other industries, (4) how or whether to allocate investment income and capital, and (5) how to relate underwriting profit provisions in rates to the cost of capital.

Role of Capital—Capital plays several roles in an insurance transaction, including providing the initial investment in physical plant and equipment and providing working capital. However, the primary role is to assure payment of obligations from insurance contracts, over and above those funds backing the liabilities.

Capital has a value and its use entails a cost. The cost is the expected return the capital could earn in alternative investments of equivalent risk. Judicial decisions dealing with the cost of capital and profit provisions (see, e.g., *Federal Power Commission v. Hope Natural Gas*, 320 U.S. 591 (1944)) provide background and definitions for the determination of the cost of capital in a regulatory setting.

Role of the Underwriting Profit Provision—The underwriting profit provision, together with all other cost and revenue components as defined in section 2.12, provides the risk taker with an expected total return to cover the cost of capital.

Role of the Contingency Provision—A common assumption underlying property/casualty insurance ratemaking is that the expected costs included in the rate calculations will equal the actual costs over the long run. If not, and the expected difference cannot be explicitly attributed to a specific component of the rate (and thereby eliminated), then this difference is incorporated in the ratemaking process by including a contingency provision.

Current Practices

A method commonly used to develop or test the underwriting profit provision in insurance rates is to estimate the cost of capital and translate that cost into an underwriting profit provision. Some methods currently used to estimate the cost of capital, and financial models to relate that cost to the underwriting profit provision, are described below.

Underwriting profit provisions can also be developed using models that do not directly relate the cost of capital to the underwriting profit provision. Some of these models are also described below.

Inclusion of a particular model in this appendix should not be interpreted as an endorsement, but rather a recognition that such a model is used. Some applications of these models may not be consistent with section 3 of this standard.

Estimating the Cost of Capital—Several techniques are used to estimate the cost of capital. These include, but are not limited to, the following:

1. Comparable Earnings Model—The comparable earnings model is used to analyze historical returns on equity for entities or industries of comparable risk. The cost of capital is related to the average rate of return over a historical period.

2. Discounted Cash Flow Model—One form of the discounted cash flow (DCF) model, the dividend discount model, is used to analyze the current prices and dividend levels of publicly traded securities that pay dividends. The cost of capital is calculated as the sum of the expected first-year dividend yield plus the expected annual growth rate in dividends.

3. Risk Premium Model—The risk premium model is used to analyze the spread in returns for investments of different risk. The cost of capital is estimated as the sum of the expected return on a reference investment plus a margin to reflect relative risk. One widely used form of risk premium analysis is known as the capital asset pricing model (CAPM), in which the reference security is a risk free Treasury security, and the risk margin is determined using a measure of risk known as *beta*, defined as the covariance of an investment's return with returns in capital markets as a whole.

Relating the Cost of Capital to the Underwriting Profit Provision—This section describes various models currently used regarding the relation of the cost of capital to the underwriting profit provision.

1. Models that directly develop an underwriting profit provision are as follows:

a. Net Present Value Model—The net present value (NPV) model is used to discount the estimated net cash flow to the capital provider at a rate equal to the cost of capital. For the purpose of these calculations, *net cash flow* is defined as the residual amounts of cash that flow to and from the equity account, after all policy obligations are met. The net cash flow reflects the timing of each of the individual cash flows, including the commitment and release of capital in support of the insurance transaction. The internal rate of return (IRR) model, a specific application of the general NPV model, uses an iteration technique to calculate the rate(s) of return that will set the net present value of a risk transfer's cash inflows and outflows equal to zero.

b. Other Discounting Models—Other discounting models can be used to estimate the present value of the individual cash flows from the insurance transaction. The present value of the premium and miscellaneous (non-investment) income, before profit, is set equal to the present value of the associated losses, expenses, policy-holder dividends, and income taxes. The present values are estimated using appropriate prospective investment yield rates. A margin can be added to the present value of the premium so that the margin plus the expected investment income on capital generate a post-tax return that, when divided by the required capital, equals the cost of capital.

c. Total Financial Needs Model—Total financial needs models are used to develop the underwriting profit provision such that the sum of underwriting profit, miscellaneous (non-investment) income, investment income from insurance operations, and investment income on capital, after income taxes, will equal the cost of capital. Each of these components is explicitly quantified.

2. Models that do not directly relate the cost of capital to the underwriting profit provision are as follows:

a. State X Model—The State X model (originally appearing in some Insurance Services Office, Inc. rate filings as the *State X method*) is used to estimate the investment income from insurance operations. The method does not, in itself, allow for development of the total return or of a profit provision; it is used merely to develop one component of the total rate of return—the estimated investment income from insurance operations.

b. Risk Adjusted Net Present Value Model—The risk adjusted net present value (RANPV) model is used to estimate the risk adjusted present value of the insurance cash flows. Each of the flows is analyzed for its specific risk, and the otherwise attainable prospective investment yield rate is adjusted by the risk component prior to calculating the present value. Using the RANPV model, one calculates the premium directly, so that the risk adjusted present value of the premium and miscellaneous (non-investment) income equals the risk adjusted present value of the losses, expenses, policyholder dividends, and associated income taxes. The expected underwriting profit in the premium can be derived from the RANPV model by summing all components using their undiscounted values.

c. Growth Requirement Model—The growth requirement model is used to set the level of retained earnings based on the expected future growth rate of the entity or industry.

d. Additional Models—Other models that do not directly relate the cost of capital to the underwriting profit provision include options pricing models, arbitrage pricing models, models based on ruin theory, models based on utility theory, and shareholder value models.

Developing and Evaluating a Contingency Provision—Contingency provisions have been developed in practice using methods that measure differences between expected and actual costs.

Appendix 2

Comments on the 1996 Second Exposure Draft and Task Force Responses

The second draft of this standard was exposed for review in August 1996, with a comment deadline of December 2, 1996. Ten comment letters were received and reviewed carefully by the Task Force on Rate of Return of the ASB’s Casualty Committee. Summarized below are the significant issues and questions contained in the comment letters, printed in lightface. The task force's responses appear in **boldface**.

<u>General Observations</u>

Of the ten comment letters received on the second exposure draft, most of the comments were favorable. Even those commentators who provided suggestions for changes seemed pleased with the overall direction the task force took in developing the second exposure draft. Samples of such satisfaction were found in comments such as follows: “I think this is an example of the type of standards that the profession should be developing,” “[t]his draft represents an overall improvement over the initial exposure draft,” and “the [task force] has taken great pains in carefully defining many critical concepts that our standards omit today.” Most of the suggestions for revising text were to further clarify concepts already present within the second exposure draft.

However, it was also evident from the comments that some confusion still exists surrounding the “rate versus price” issue. For example, one commentator believes that the standard should not limit actuarial practice in setting profit margins that are either explicit or implicit in actual prices in the marketplace. The commentator further raises potential legal issues were the actuarial profession to engage in limiting actuarial practice in this area. **The task force agrees with the commentator that the standard does not apply to final (market) prices— the standard is entirely focused on the evaluation of costs. In fact, the task force has consistently and consciously focused on costs (*not* on prices) in its deliberations in consideration of the legal environment and has obtained competent legal advice as appropriate.**

The commentator also questions whether a consensus on acceptable actuarial practice currently exists in this area. **The task force believes such consensus exists and is embodied in the standard. The current syllabus upon which actuarial examinations are based is one indicator that a consensus exists. The extensive presentations and discussions of the proposed standard at Casualty Actuarial Society (CAS) meetings and seminars is another indication that such a consensus exists.**

<u>Section 1. Purpose, Scope, and Effective Date</u>

Section 1.1, Purpose—One commentator thought that the use of the phrase *include the cost of capital* in the first sentence of this section implied that the *Statement of Principles Regarding*

Property and Casualty Insurance Ratemaking of the CAS requires that an explicit provision for the cost of capital be included in rates. **The task force revised the text by replacing *include* with *provide for* to more closely match its understanding of the *Statement of Principles*.**

Section 1.2, Scope—**The task force revised this section to more clearly distinguish between *rate* and *price*. In addition, the task force added language to clarify that the standard applies to property/casualty risk financing systems, such as self-insurance.**

Section 2. Definitions

Section 2.2, Contingency Provision—One commentator suggested clarifying the language in this section to note that, in addition to quantification, a contingency provision might be provided for in other ways. **The task force reworded the section, making it more consistent with section 3.7.** Another commentator questioned the definition's lack of consideration of the potential variance in results. **The task force did not expand the definition, since it believes that the profit provision more appropriately should reflect variance in results.**

Section 2.3, Cost of Capital—Two commentators suggested changes. One suggested inclusion of specific components in the definition; the second suggested that *cost of capital* be defined as the *cost of capital desired by the capital provider*. **The task force did not modify the definition, as section 3.2 references a number of influences on the cost of capital. The task force did, however, revise section 3.2 by including additional explanatory language and believes these revisions to section 3.2 address the concerns raised by the second commentator.**

Section 2.4, Insurance Cash Flows—One commentator suggested changing the title of this section to Net Insurance Cash Flows, while another suggested referencing the treatment of taxes directly rather than indirectly. **The task force modified the language to clarify that miscellaneous (non-investment) income is from insurance operations. The revised section 2.4 also presents the components of insurance cash flow as items in a list to avoid the appearance of a calculation and directly references the treatment of income taxes.**

Section 2.6, Investment Income—Two commentators suggested clarifying the language with respect to the treatment of income taxes. **The task force adopted the suggestions and also adopted consistent language in sections 2.4 and 2.10.**

Section 2.8, Investment Risk—Two commentators pointed out an inconsistency in the usage of the terms *proceeds* and *income* in other definitions. **The task force clarified the text by using the term *proceeds* consistently.**

Section 2.10, Operating Profit, and Section 2.13, Underwriting Profit (now sections 2.10, Operating Profit; 2.13, Underwriting Expenses; and 2.14, Underwriting Profit)—Three commentators questioned the usage of the terms included (or excluded) in these definitions. There also appeared to be some confusion as to which expense items were included in the term *expenses*. **After careful review and discussion of the comments, the task force made changes in these definitions and added a new section (2.13, Underwriting Expenses). The intent of**

the commentators was incorporated in the three definitions, and the task force believes the revisions achieve the clarity and consistency suggested. These definitions are consistent with the categories used in the underwriting and investment exhibit statement of income in the National Association of Insurers Commissioners (NAIC) annual statement blank for property and casualty insurers. Specifically, the definition of *underwriting profit* is consistent with the definition of *net underwriting gain (or loss)* from the NAIC statement blank.

Section 2.12, Total Return—One commentator suggested that the definition include some examples of commonly used bases of total return. **The task force did not make any changes, since it believes the definition is clear as stated.**

Section 3. Analysis of Issues and Recommended Practices

Section 3.1, Estimating the Cost of Capital and the Underwriting Profit Provision—One commentator wanted to change the beginning of the third sentence of this section from *Similarly* to *Alternatively*. **The task force made the change.**

Section 3.2, Basis for Cost of Capital Estimates—One commentator suggested that in the second sentence, the phrase *business activity* be changed to *risk transfer*. **The task force made this change.** Another commentator suggested adding *currency* to the list of risks included and noted that the list could be construed as "limiting or as a checklist of specific requirements." **The task force disagrees. Since the types of risk to consider are many and diverse, the task force believes that it is necessary to provide a reasonable set of examples. The language of the standard (i.e., *These risks may include*) clearly indicates that the list is not exhaustive.**

Another commentator suggested that the reference to the *Hope Natural Gas* case be placed in the background section, i.e., in appendix 1. **The task force agrees and moved the reference accordingly (see the section titled, Role of Capital).**

Note as well that a new paragraph was added to section 3.2 (see the discussion below regarding comments received on section 3.8).

Section 3.3, Estimates of Future Costs—Several commentators disagreed that capital costs should be based upon expected future values, since the cost is dependent on the risk or variability to which it is exposed. **The task force agrees that risk or variability is an element of capital costs. Risk or variability is appropriately considered in deriving the expected value; therefore, no change in the language used is necessary.**

Section 3.4, Risk Sharing (now titled Parameters of the Risk Transfer)—One commentator suggested that the title of this section should be changed, noting that insurance is a risk transfer device, and not a risk sharing device. This commentator also suggested alternative wording to clarify the roles of the two main parties to the insurance transaction: the insured and the insurer. **The task force agrees with the commentator and rewrote the section to indicate that the cost of capital may vary with the specific parameters of the risk transfer.**

Another commentator noted that deductibles, limits, etc., affect the *structure* of the risk transfer rather than the parties involved. **The task force agrees that these factors affect the structure of the risk transfer and believes that the revised language addresses this concern.**

Section 3.5, Investment Income—One commentator suggested a revised second sentence in paragraph two as follows: *Investment risk includes the estimated cost of default and reinvestment risk on the assets associated with the proposed transaction, since such costs can result in a significantly different yield than the stated yield rate*. **The task force agrees with the commentator and changed the text to be substantially similar to the suggested revision.**

This commentator also suggested revising paragraph (b) to add *retention of business* as a subject for the actuary's consideration. **The task force agrees that retention of business may be a consideration, but the standard is not intended to provide an exhaustive list of considerations. The phrase *for example* was added to clarify that the section does not provide a complete list.**

Section 3.6, Income Taxes—One commentator suggested adding the following sentence: *The income tax position of the risk assuming entity, such as tax loss carry forwards, and alternative minimum taxes, may also be relevant to accepting or rejecting the proposed risk transfer*. **The task force disagrees with this suggestion, because it believes this suggestion addresses considerations that are not relevant to the cash flows for the risks being transferred. Therefore, no change was made.**

Section 3.7, Contingency Provision—One commentator suggested adding a sentence which would state that the actuary need not explicitly identify the contingency provision separate from the profit provision, and that the contingency provision is not intended as a risk margin for catastrophic events. **The task force believes the definition of *contingency provision* makes it clear that it is *not* a risk margin for catastrophic events. The task force disagrees that a contingency provision can implicitly be combined with a profit provision, because the two provisions are distinctly different, both subject to explicit determination.**

Another commentator suggested that the use and meaning of a contingency provision was unclear and needed to be clarified in the standard. **The task force believes that, with the clarifying changes made to the second paragraph of this section, the standard adequately explains the use of the contingency provision as a correction factor when the ratemaking process has produced in the past, and is expected to produce in the future, cost estimates not equal to average actual costs.**

Section 3.8, Structure of Insurer—This section of the second exposure draft addressed the structure of the insurer, such as stock, mutual, etc. Several commentators expressed concern that the requirements of the capital providers should be taken into account when considering the cost of the insurance product, and that non-stock organizations might have different requirements than stock companies. One commentator specifically suggested making a greater distinction between the cost of capital and the desired return on capital. **The task force rewrote the text of this section to place greater emphasis on the economic concept of *opportunity cost*, which**

refers specifically to the value of capital in its next best alternative use. Under this definition, the proper cost of capital is the return that the capital could earn in an alternative investment of equivalent risk. The task force does not believe that this differs depending on the ownership structure (i.e., stock, mutual, or other) of the insurer per se. However, as discussed in section 3.4, the actuary's estimate of the cost of capital should reflect characteristics of the risk transfer that may arise due to ownership structure (such as, for example, the availability of policyholder dividends). Note, in addition, that the text of this section was moved to section 3.2 in order to enhance clarity.

One commentator who questioned section 3.8 also wished to add to the standard a new section, which would read as follows:

> *Several of the models used for estimating the underwriting profit provision also permit the actuary to rank potential risk transfer undertakings. An actuary should be prepared to rank the risk versus the reward (the total return, from underwriting and from investment income) for various scenarios involving the allocation of capital towards a certain line of insurance or a specific product.*

The commentator's rationale for this suggestion is that “the actuary of the future may often be called upon to estimate not only the reward (the total return from allocating capital towards a certain line of insurance or a specific product), and not only the associated risk, but also to rank several risk/reward scenarios for a client or employer.” **The task force agrees that an actuary can be asked to estimate and rank various risk/reward scenarios for a client or an employer. However, the task force thinks that while this is implicit in the role an actuary plays, the matter is beyond the scope of the standard.**

<u>Appendix 1—Background and Current Practices</u>

Role of the Underwriting Profit Provision—One commentator found the references to *all other cost and revenue components* too vague. **The task force agrees that the reference is not precise, but the next clause of the sentence refers to *total [rate of] return*, which is precisely defined in section 2.12. Hence, no change was made.**

Estimating the Cost of Capital—One commentator suggested adding a parenthetical phrase, *(generally a risk free investment),* to the description of the risk premium model (in the second sentence of item (3), after the phrase, *reference investment*). **The task force disagrees with this change. In the typical (perhaps the most common) implementation of the risk premium method, the reference security is a long-term utility bond, which is not risk free. Thus, the second sentence was left unchanged. However, the task force did modify the next sentence as follows: *One widely used form of risk premium analysis is known as the capital asset pricing model (CAPM), in which the reference security is a risk free Treasury security, and the risk margin is determined….* This correctly identifies that in the CAPM variant of risk premium analysis, the reference security is risk free.**

Relating the Cost of Capital to the Underwriting Profit Provision—One commentator expressed concern about the use of the singular *rate* in the last sentence of the section that discusses the net present value model, and another suggested alternative wording for clarity, in the definition of the IRR model. **The task force changed *rate* to *rate(s)*, and adopted the proposed wording to note that the IRR calculates the rate(s) of return by setting the net present value of a risk transfer's cash inflows and outflows equal to zero.**

The task force thanks everyone who took the time and made the effort to write comment letters. The input was helpful in developing the final standard.

ACTUARIAL STANDARDS BOARD

Repeal of Actuarial Standard of Practice No. 31

Documentation in Health Benefit Plan Ratemaking

Developed by the
Health Committee of the
Actuarial Standards Board

Repealed by the
Actuarial Standards Board
June 2009

(Doc. No. 115)

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June 2009

TO: Members of Actuarial Organizations Governed by the Standards of Practice of the Actuarial Standards Board and Other Persons Interested in Documentation in Health Benefit Plan Ratemaking

FROM: Actuarial Standards Board (ASB)

SUBJ: Repeal of Actuarial Standard of Practice (ASOP) No. 31

ASOP No. 31, *Documentation in Health Benefit Plan Ratemaking*, has been repealed by the ASB.

Background

ASOP No. 31, *Documentation in Health Benefit Plan Ratemaking*, was effective in 1998 and relied heavily on Interpretative Opinion No. 3 of the *Guides and Interpretative Opinions as to Professional Conduct* of the American Academy of Actuaries.

In 2002, the ASB repealed Interpretative Opinion 3: Professional Communications of Actuaries when the Board adopted ASOP No. 41, *Actuarial Communications,* which supersedes the guidance of Interpretative Opinion No. 3. ASOP No. 41 is applicable to all areas of actuarial practice and provides guidance with respect to written, electronic, or oral communications.

The Health Committee of the ASB has reviewed ASOP No. 31 and compared its guidance to ASOP No. 41 and other ASOPs. The committee concluded that the guidance in ASOP No. 31 is addressed in ASOP No. 41 and other ASOPs.

Exposure Draft

The exposure draft of this repeal document was issued in September 2008 with a comment deadline of December 31, 2008. Four comment letters were received. For a summary of the substantive issues and the reviewers' responses, please see appendix 2.

The Actuarial Standards Board wishes to thank all who commented on the repeal.

Action

The ASB voted in June 2009 to repeal ASOP No.31.

ASOP No. 31 is repealed for any work performed after June 30, 2009.

Health Committee of the ASB

Paul R. Fleischacker, Chairperson

Mike S. Abroe	John C. Lloyd
Robert G. Cosway	Cynthia S. Miller
James M. Gutterman	Nancy F. Nelson

Actuarial Standards Board

Stephen G. Kellison, Chairperson

Albert J. Beer	Robert G. Meilander
Alan D. Ford	James J. Murphy
Patrick J. Grannan	Godfrey Perrott
Thomas D. Levy	James F. Verlautz

The ASB establishes and improves standards of actuarial practice. These ASOPs identify what the actuary should consider, document, and disclose when performing an actuarial assignment. The ASB's goal is to set standards for appropriate practice for the U.S.

Appendix 1

Note: This appendix is prepared for informational purposes only.

The Health Committee prepared the following grid, which identifies provisions of section 3 of ASOP No. 31 cross referenced against ASOP No. 41, *Actuarial Communications*, and other ASOPs to reflect where pertinent actuarial guidance already exists.

Section 3. Analysis of Issues and Recommended Practices		
Current Section		**Cross Reference**
3.1	Introduction	ASOP No. 41 (3.1, 3.3.3)
3.2	Extent of Documentation	ASOP No. 41 (3.3.3, 3.6)
3.3	Documentation Issues Related to Risk	ASOP No. 41 (3.3.3, 3.6)
3.3.1	Reinsurance	ASOP No. 41 (3.3.3, 3.6); ASOP No. 5 (3.3.3); ASOP No. 8 (3.2.2(i)); ASOP No. 26 (3.4.1(b))
3.3.2	Operational Changes	ASOP No. 41 (3.3.3, 3.6); ASOP No. 5 (3.2.1, 3.2.3); ASOP No. 8 (3.2.3)
3.3.3	External Influences	ASOP No. 41 (3.3.3, 3.6); ASOP No. 5 (3.2.2, 3.2.5); ASOP No. 18 (3.3)
3.3.4	Risk Classification Plan	ASOP No. 41 (3.3.3, 3.6); ASOP No. 5 (3.2.4); ASOP No. 12 (3.4); ASOP No. 26 (3.4.1)
3.3.5	Ratemaking Process and Exposure Distribution	ASOP No. 41 (3.3.3, 3.6); ASOP No. 8 (3.2.2-3.2.6, 3.2.9); ASOP No. 26 (3.4.1)
3.3.6	Experience Rating Process	ASOP No. 41 (3.3.3, 3.6); ASOP No. 8 (3.2.4)
3.3.7	Investment Income	ASOP No. 41 (3.3.3, 3.6); ASOP No. 5 (3.3.1 (d)); ASOP No. 8 (3.2.2(e)); ASOP No. 18 (3.2.6)
3.3.8	Risk Provision	ASOP No. 41 (3.3.3, 3.6); ASOP No. 5 (3.3.1(c)); ASOP No. 18 (3.3)
3.3.9	Cost of Capital	ASOP No. 41 (3.3.3, 3.6)
3.4	Documentation Issues Related to Data	ASOP No. 41 (3.3.3, 3.6)
3.4.1	Experience Period	ASOP No. 41 (3.3.3, 3.6); ASOP No. 8 (3.2.4)
3.4.2	Experience Data	ASOP No. 41 (3.3.3, 3.6); ASOP No. 5 (3.3.1(b), 3.4); ASOP No. 8 (3.2.4); ASOP No. 18 (3.2.1)

3.4.3	Credibility	ASOP No. 41 (3.3.3, 3.6); ASOP No. 8 (3.2.4); ASOP No. 18 (3.2.1); ASOP No. 25 (Section 3)
3.4.4	External Data	ASOP No. 41 (3.3.3, 3.6); ASOP No. 5 (3.4); ASOP No. 18 (3.2.1)
3.5	Documentation Issues Related to Determination of Experience Period Costs	ASOP No. 41 (3.3.3, 3.6)
3.5.1	Exposure Units	ASOP No. 41 (3.3.3, 3.6); ASOP No. 8 (3.2.2-3.2.4)
3.5.2	Claim Administration Expense	ASOP No. 41 (3.3.3, 3.6)
3.5.3	Large Claims (Shock Loss Claims)	ASOP No. 41 (3.3.3, 3.6); ASOP No. 5 (3.3.4)
3.5.4	Policy and Provider Contract Provisions	ASOP No. 41 (3.3.3, 3.6); ASOP No. 5 (3.2.1, 3.2.2, 3.3.1(a), 3.3.6); ASOP No. 8 (3.2.2, 3.2.4, 3.2.5); ASOP No. 18 (3.1, 3.2.1); ASOP No. 26 (3.4.1)
3.5.5	Mix of Business	ASOP No. 41 (3.3.3, 3.6)
3.6	Documentation Issues Related to Expenses	ASOP No. 41 (3.3.3, 3.6)
3.6.1	Categorization of Expenses	ASOP No. 41 (3.3.3, 3.6); ASOP No. 8 (3.2.2(d)); ASOP No.18 (3.2.4)
3.6.2	Start-Up Costs	ASOP No. 41 (3.3.3, 3.6); ASOP No. 8 (3.2.2d); ASOP No. 18 (3.2.4)
3.7	Documentation Issues Related to Trending Procedures	ASOP No. 41 (3.3.3, 3.6)
3.7.1	Trend Measurement	ASOP No. 41 (3.3.3, 3.6); ASOP No. 8 (3.2.2, 3.2.4)
3.7.2	Claim Cost Trend Factors	ASOP No. 41 (3.3.3, 3.6); ASOP No. 8 (3.2.2, 3.2.4)
3.7.3	Other Trend Factors	ASOP No. 41 (3.3.3, 3.6); ASOP No. 8 (3.2.2, 3.2.4)
3.7.4	Trend Selection	ASOP No. 41 (3.3.3, 3.6); ASOP No. 8 (3.2.2, 3.2.4)

Appendix 2

Comments on the Exposure Draft and Responses

The exposure draft of the repeal of ASOP No. 31, *Documentation in Health Benefit Plan Ratemaking*, was issued to the membership in September 2008 with a comment deadline of December 31, 2008. Four comment letters were received. The ASB and Health Committee carefully considered all comments received. Summarized below are the significant issues and questions contained in the comments and responses to each. The term “reviewers” in appendix 2 includes the Health Committee and the ASB.

<table>
<tr><th colspan="2">GENERAL COMMENTS</th></tr>
<tr><td>Comment</td><td>The four commentators generally shared the same concerns in that they believed ASOP No. 31 should not be repealed but updated instead as to not create a void in actuarial guidance relative to ratemaking. The following is a summary of each comment letter received:

• Although ASOP No. 31 contains parts of other ASOPs that provide similar guidance, it is unique in that seven other ASOPs had to be referenced in comparison and, therefore, it should not be repealed. The commentator also noted that certain assumptions, such as credibility and trend, are referenced in ASOP No. 31, but not ASOP No. 41.

• The repeal of ASOP No. 31 “proves” that the ASOP is unnecessary as five of the eight Health ASOPs and two of the six General ASOPs were referenced. However, given the importance of ratemaking, ASOP No. 31 should not be eliminated but rather updated, and perhaps the title should be changed to Considerations in Health Benefit Plan Ratemaking.

• The current ASOP No. 31 is an excellent guide to the specific task of documenting the ratemaking process for health benefit plans and should not be repealed. The commentator believes it would be distracting and confusing to have to reference so many ASOPs whereas now all the requirements are contained in ASOP No. 31.

• Although general guidance with regard to documentation of the health actuary’s work for ratemaking is likely addressed in other ASOPs, ASOP No. 31 is used by many health actuaries not only as documentation guidance but also as a valuable checklist of elements and aspects that should be considered and addressed in ratemaking for health benefit plans. Therefore, having such reference is especially important for actuaries working on heavily regulated products, and a repeal of ASOP No. 31 would thus create a void in the actuarial guidance for health benefit plan ratemaking.</td></tr>
<tr><td>Response</td><td>The reviewers note that the cover memorandum to ASOP No. 31specifically states that, “It is not a standard on ratemaking itself, but rather on the documentation of the ratemaking process.” Also, in section 1 of the ASOP, the purpose and scope, as described, are limited to documentation of the ratemaking process. The same is true for ASOP No. 41 and, as such, does not include references to specific assumptions. Appendix 1 could have been limited to providing guidance to actuaries regarding documentation requirements on ratemaking as contained in other ASOPs. This would have reduced the references in appendix 1 primarily to ASOP No. 41.</td></tr>
</table>

	However, the reviewers believe that it would be helpful to practicing actuaries to have a more comprehensive list of cross references than those pertaining to just documentation. Thus, appendix 1 was developed to provide guidance to practicing actuaries regarding all ASOPs that can be referenced on specific issues as it relates to ratemaking, including documentation. In addition, the reviewers note there are several ratemaking and pricing sources that a practicing actuary can reference, including study notes, practice notes, and textbooks in addition to the referenced ASOPs noted in appendix 1. The reviewers further note that much of the material contained in ASOP No. 31 is also contained in ASOP No. 8. Therefore, the reviewers believe the repeal of this ASOP is appropriate.

ACTUARIAL STANDARDS BOARD

**Actuarial Standard
of Practice
No. 32**

Revised Edition

Social Insurance

**Developed by the
ASOP No. 32 Task Force of the
Actuarial Standards Board**

**Adopted by the
Actuarial Standards Board
June 2020**

Doc. No. 196

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APPENDIXES

June 2020

TO: Members of Actuarial Organizations Governed by the Standards of Practice of the Actuarial Standards Board and Other Persons Interested in Social Insurance Programs

FROM: Actuarial Standards Board (ASB)

SUBJ: Actuarial Standard of Practice (ASOP) No. 32

This document contains the revision of ASOP No. 32, *Social Insurance.*

History of the Standard

ASOP No. 32 was originally adopted in January 1998 and updated only for deviation language effective May 1, 2011. In 2016, the ASB reviewed ASOP No. 32 and appointed a task force to further review and produce an exposure draft of a revised standard.

The reasons for the review included the following:

1. some government programs covered by the standard, and some not covered by the standard, had evolved significantly since 1998;

2. standards in related practice areas had evolved significantly since 1998; and

3. the financial status of social insurance programs had become the subject of intense public scrutiny.

The task force members include actuaries practicing in each of the listed programs covered by the standard, actuaries with experience in related areas, and a non-actuary with expertise in the field of social insurance.

First Exposure Draft

The first exposure draft was issued in October 2018 with a comment deadline of February 1, 2019. Seven comment letters were received and considered in making changes that were reflected in the second exposure draft.

Second Exposure Draft

The second exposure draft was issued in December 2019 with a comment deadline of February 14, 2020. One comment letter was received and considered.

Notable Changes from the Second Exposure Draft

There were no notable changes from the second exposure draft. However, changes were made to improve readability and clarity.

Notable Changes from the Existing ASOP No. 32 Adopted January 1998

Notable changes from the existing ASOP No. 32 adopted January 1998 include the following:

1. Section 1.2, Scope, was expanded to apply to actuaries when performing actuarial services in connection with an actuarial analysis of a Social Insurance Program when the actuary's principal is not a government agency with responsibility for the valuation of a Social Insurance Program. Such actuaries should follow the guidance to the extent practicable.

2. Section 1.2, Scope, was clarified to cover situations when a program was not specifically included or excluded from the scope.

3. Section 2.9, Social Insurance Program, was modified to include the characteristics of a Social Insurance Program previously included in section 1.2, Scope.

4. Language was added to section 2.9, Social Insurance Program, which states that financing is not based directly and fully on the risk profile of individual participants.

5. Requirements were added to sections 3.5 and section 4.1(e)(4) for situations where only a short-range valuation period is used, to include an explanation for why long-range projections were unreliable or inappropriate.

6. A disclosure requirement was added to section 4.1(d)(4) to indicate whether, in the actuary's professional judgement, the assumptions, other than prescribed assumptions or methods set by law or another party, are reasonable both individually and in combination.

7. A disclosure requirement was added to section 4.1(f)(5) to indicate that the results of actuarial projections performed in the future may differ materially from the results of current projections.

The ASB thanks everyone who took the time to contribute comments and suggestions on the exposure drafts. The ASB voted in June 2020 to adopt this standard.

ASOP No. 32 Task Force

Janet M. Barr, Chairperson

Suzanne M. Codespote
Karen P. Glenn
Stephen C. Goss
Warren R. Luckner
Clare M. McFarland
Alicia H. Munnell
Jeffrey P. Petertil
Neela K. Ranade
F. Kevin Russell
Jeffery M. Rykhus
John A. Wandishin
Joan M. Weiss

Actuarial Standards Board

Kathleen A. Riley, Chairperson

Robert M. Damler
Mita D. Drazilov
Kevin M. Dyke
Darrell D. Knapp
David E. Neve
Cande J. Olsen
Barbara L. Snyder
Patrick B. Woods

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 NO. 32

SOCIAL INSURANCE

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 **Social Insurance Programs**.

1.2 Scope—This standard applies to actuaries when performing actuarial services in connection with an actuarial analysis of a **Social Insurance Program** when the actuary's principal is a government agency with responsibility for the valuation of a **Social Insurance Program**.

The standard also applies to actuaries with oversight responsibility for the actuarial services for **Social Insurance Programs** when serving as an auditor, reviewer, a member of an actuarial advisory committee, or a member of a technical panel. Such actuaries should follow the guidance to the extent practicable.

This standard applies to actuaries when performing actuarial services in connection with an actuarial analysis of a **Social Insurance Program** when the actuary's principal is not a government agency with responsibility for the valuation of a **Social Insurance Program**. Such actuaries should follow the guidance to the extent practicable.

This standard also applies to actuaries issuing an actuarial opinion related to a **Social Insurance Program** required by law or regulation and embedded in another document.

For **Social Insurance Programs** that provide protection directly to the population, *participant* or *individual* refers to a person. For **Social Insurance Programs** that provide protection through a guaranty or insurance-type arrangement, *participant* or *individual* may also refer to a plan or other entity.

This standard applies, but is not limited to, the following **Social Insurance Programs**:

- the Federal Old-Age and Survivors Insurance (OASI) program and the Federal Disability Insurance (DI) program, together known as the Social Security program;

- the Hospital Insurance (HI) and the Supplementary Medical Insurance (SMI) programs, together known as the Medicare program;
- Pension Benefit Guaranty Corporation (PBGC) programs; and
- the Railroad Retirement account program.

This standard does not apply to the following programs:

- workers' compensation programs;
- programs that primarily provide property/casualty insurance;
- the Railroad Unemployment and Sickness Insurance account programs;
- Medicaid;
- Children's Health Insurance Program;
- Health Insurance Exchanges under the Affordable Care Act;
- Supplemental Security Income Program;
- state-mandated disability income programs; and
- state-sponsored unemployment insurance programs.

This standard does not apply to actuaries performing actuarial services on behalf of private organizations that contract with the Medicare Advantage or Medicare Prescription Drug Programs.

If the actuary deviates 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 for guidance on disclosing such deviation.

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

1.4 Effective Date—This standard will be effective for any actuarial services performed on or after September 1, 2021.

Section 2. Definitions

The terms below are defined for use in this actuarial standard of practice and appear in bold throughout the ASOP.

2.1 Actuarial Status—A measure of the relative value of **Program income** and **Program assets** to **Program costs** over a specified period of time.

2.2 Financial Adequacy—A condition in which **Program costs** are projected not to exceed the sum of **Program income** and **Program assets** over a specified period of time.

2.3 Long-Range Period—A period long enough to discern the general pattern and level of future costs. For some **Programs** this means a period long enough to cover the future lifetime of essentially all **Program** participants as of the valuation date.

2.4 Program—A term used interchangeably with **Social Insurance Program**.

2.5 Program Assets—The investments held by the **trust fund** and any cash balance available to meet **Program costs**.

2.6 Program Cost—The **Program's** expenditures for benefits (sometimes referred to as "claim costs") and administrative or general expenses. The amount required to attain and maintain a target **trust fund** level may also be included in **Program cost**.

2.7 Program Income—The **Program's** earmarked tax income, investment income, premiums, general fund revenue, and any other receipts and income.

2.8 Short-Range Period—A period long enough to encompass a complete economic cycle or planning cycle, whichever is appropriate.

2.9 Social Insurance Program—A program with all of the following characteristics:

a. key features, including benefits and financing method, are prescribed by statute or regulation;

b. financing is, in whole or in part, by contributions (for example, taxes or premiums) from or on behalf of individual participants according to a formula that may take into account the wages and other income of the individual participants but that does not take into account directly and fully the risk profile of, or the amount of potential future benefits payable to, the individual participants. These contributions may be supplemented by government income from other sources. Explicit accountability of benefit payments and income usually is provided in the form of a **trust fund**;

c. participation is universally (or almost universally) compulsory for a defined population, or the contribution is set at such a subsidized level that the vast majority of the eligible population participates;

d. eligible individuals are not required to demonstrate financial need to participate. However, certain program features could vary with individual circumstances. For example, a dependency status may need to be established, benefit reductions may apply to those who continue to work while receiving a benefit, or premium increases may apply to those who exceed an income threshold;

e. benefits for any individual are not directly related to contributions made by or with respect to that individual;

f. the system is administered or at least supervised by the government; and

g. the system is not established by the government solely for its present or former employees.

2.10 Sustainability—The capacity of a **Social Insurance Program** to continuously support the benefits provided by laws applicable to the **Program**, when considering the applicable financing mechanism and the potential future demographic and economic environment in which it will operate.

2.11 Trust Fund—An account to which income is credited and from which expenditures for benefits and often administrative or general expenses are deducted for a specified **Program**.

Section 3. Analysis of Issues and Recommended Practices

3.1 Clarify the Assignment—When taking on an assignment, the actuary should work with the principal to specify in writing the following:

a. the role of the actuary and the purpose of the assignment;

b. significant financing, accounting, or investment policies applicable to the **Social Insurance Program** related to the assignment;

c. significant transition issues, if any, related to potential proposed changes to the **Social Insurance Program**; and

d. objectives, if any, related to a specific funding target, the security of benefits, a principle of equity among generations, or a pattern of contribution rates.

3.2 Coverage and Program Features—The actuary should take into account relevant **Program** features, some of which may be unique to the **Social Insurance Program** or require special treatment as they relate to social insurance risks. In particular, the actuary should consider the ongoing nature of the **Program**, based on current legislation and regulations. If legislation has consistently been enacted to address a particular issue affecting a **Social Insurance Program**, the actuary may assume that this pattern of legislated changes will continue in the future when determining the **actuarial status** of the **Program**. If it is reasonable to assume that certain **Program** features are not viable over time, the actuary may develop alternative scenarios.

3.3 Mechanisms for Setting the Level of Income or Cost—In developing the assumptions and methods, the actuary should take into account the **Program's** current or proposed mechanisms for setting the level of income or cost. The primary mechanisms are as follows:

a. Statutory—The **Program income** or the **Program costs** are specified by law for all future years and are changed only through legislative action;

b. Administrative—The **Program income** or the **Program costs** may be changed periodically through administrative action;

c. Automatic—The **Program income** is adjusted annually as specified by law to maintain **financial adequacy**; and

d. General Fund Revenues—When applicable under statute, the excess of **Program cost** over other dedicated funding sources, such as beneficiary premiums, is provided for by transfers from the general fund revenues.

3.4 Assumptions—The actuary should use assumptions that are reasonable, both individually and in combination, and take into account anticipated future events affecting the related **Social Insurance Program**. The actuary should consider the actual past experience of the **Social Insurance Program** and take into account relevant factors that may create material differences in future experience. In selecting actuarial assumptions, the actuary should be guided, to the extent appropriate, by ASOP No. 6, *Measuring Retiree Group Benefits*

Obligations and Determining Retiree Group Benefits Program Periodic Costs or Actuarially Determined Contributions, ASOP No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations,* and ASOP No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*.

In performing actuarial calculations regarding the **Program cost** or **Program income** of **Social Insurance Programs,** including the impact of proposed changes, the actuary should take into account the factors described below.

3.4.1 Demographic Assumptions—Demographic assumptions relate to the projections of the numbers and characteristics of individuals who are covered or potentially covered by the **Program**, contribute to the **Program**, or receive benefits from the **Program**. The actuary should take into account the rates of entry into and withdrawal from the covered population and the beneficiary population, evaluating whether assumed future rates are reasonable. When the numbers of covered individuals and beneficiaries are projected using current participant data only, the actuary should consider using data from the broader population in order to check for reasonableness.

3.4.2 Economic Assumptions—Economic assumptions relate to the projections of the level of income to the **Program** and the level of benefit payments by the **Program**. When the difference between two or more economic rates has a greater impact on **actuarial status** than the level of such rates, the actuary should take into account the relationship among the rates. The actuary should use assumptions that are reasonable and consistent, as discussed in ASOP No. 27.

3.4.3 Other Factors—In choosing assumptions, the actuary should consider experience related to the actual operation of the **Program,** including the following:

a. the rates of actual retirement, which may differ from the rates of receipt of the retirement benefit;

b. the effects of behavioral changes induced by the availability and level of benefits;

c. cost growth factors for health care compared to gross domestic product (GDP) per capita growth rates;

d. the administrative or general expenses for **Programs** where **Program income** finances the **Program's** administration; and

e. bankruptcy rates of employers for certain **Programs**, including the relationship of such rates to the general economy and the correlation of such rates with assumptions for asset returns and discount rates.

3.4.4 Newly Established or Substantially Changed Social Insurance Programs—Credible experience data might not exist for a newly established **Program** or a substantially changed **Social Insurance Program**. To establish actuarial assumptions in such cases, the actuary may:

a. investigate the risk characteristics of the potential covered population through surveys or other inquiries until credible data are available;

b. consider relevant external experience, such as the experience of other **Social Insurance Programs** (including the **Program** being replaced, if any) or the experience of similar programs in other countries; or

c. use reasonable proxies or default values.

If fully credible experience does not exist to develop assumptions, the actuary should disclose that the analysis has been based on insufficient experience or data not specific to the **Social Insurance Program** under consideration. The actuary should consider recommending that the analysis be performed again when actual information becomes available.

3.5 Valuation Period—The actuary should select a valuation period appropriate to the purpose of the assignment. The actuary should consider selecting, for most **Programs**, both **shortrange** and **long-range periods**.

When selecting the length of a valuation period, the actuary should consider the time horizon and economic environment in which the **Social Insurance Program** operates. For some **Programs**, the nature of the risk insured by the **Program** and significant changes in the participant base insured by the **Program** make long-range projections unreliable or inappropriate. In such instances, the actuary may use only a **short-range period** and disclose that a long-range projection is unreliable or inappropriate.

Valuation periods that extend into the infinite horizon may provide an additional indication of the financial condition of the **Program** but the results are subject to a higher degree of uncertainty. The actuary should follow the disclosure requirements in sections 4.1(e) if required to perform an infinite horizon analysis.

3.6 Actuarial Projections—The actuary should produce year-by-year projections of **Program** operations. In doing so, the actuary should take into account the following:

3.6.1 Actuarial Method—The actuary should select an actuarial method for computing and summarizing estimates of **Program cost** or **Program income** consistent with the financing mechanism. If alternative financing mechanisms are valued, the actuary should select actuarial methods that are flexible enough to permit these valuations and provide consistent comparison of the alternative financing mechanisms.

The actuary should generally use an open-group method for **Programs** financed using a pay-as-you-go or partially-funded financing mechanism. An open-group method is one that reflects all participants, including those currently participating and those who are assumed to become participants in each future year of the valuation. The actuary should generally use a closed-group method for **Programs** financed using a mechanism that is intended to fully fund **Program** benefits over the current participants' working years. A closed-group method is one where only current participants as of the valuation date are included.

The actuary should be guided, to the extent appropriate, by ASOP No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*, if the financing mechanism involves income derived from a defined benefit pension plan.

3.6.2 Inclusion of All Material Financial Operations—The actuary should include all material aspects of expected future **Program income** or **Program costs** under current law and regulation (except as noted in section 3.2), within the valuation period.

3.6.3 Summarized Values—Summarized values of the year-by-year estimates may be useful in communicating the **actuarial status** of the **Program**. When applicable, the actuary should choose a summarization method that is consistent with the **Program's** design and structure and its financing and investment structure. Summarized values in most cases are present values of the year-by-year projections.

3.6.4 Experience Analysis—The actuary should consider conducting an experience analysis, including both a comparison of actual and expected experience for the previous year and a comparison of results between the prior and the current valuation. This analysis could include a reconciliation of the financial impact of changes in actuarial assumptions and methods, changes in legislation or policy, **trust fund** investment gains or losses, changes due to the passage of time, and other components that contributed to the difference in results from one valuation to the next.

When evaluating **actuarial status**, the actuary should highlight when there is a risk that the **Program** will be unable to pay benefits when due at any time during the valuation period.

3.7 Sensitivity Testing—The actuary should consider performing an analysis of the sensitivity of **Program cost** or **Program income** under reasonable, alternative assumptions that are different from the valuation assumptions. In deciding whether to perform sensitivity testing, the actuary should consider the following:

a. the intended use of the actuarial communication;

b. the sensitivity of the **Program cost, Program income**, or **actuarial status** to the choice of the assumptions; and

c. whether data used in setting assumptions has limited credibility or applicability.

3.8 Tests of Financial Adequacy—The actuary should consider creating a test for **financial adequacy** of a **Program** that assesses whether the **Program** financing is sufficient. Tests of **financial adequacy** may be based on criteria such as the following: 1) the estimated year of **trust fund** reserve depletion, 2) required **trust fund** levels, 3) positive **trust fund** levels under pessimistic assumptions, or 4) a low probability of **trust fund** reserve depletion under a stochastic model.

When performing a test of **financial adequacy**, the actuary should consider applying such a test to both the **short-range period** and **long-range period**. For certain **Programs**, given the nature of the risk insured by the **Program** and the occurrence or possibility of significant changes over time in the participant base insured by the **Program**, the actuary may test only for the **short-range period**.

For testing **financial adequacy** over a **short-range period**, the actuary should, in valuing **Program assets**, include only those assets that are readily available for the immediate payment of benefits.

3.9 Assessment of Sustainability—The actuary should consider performing an assessment of **sustainability** of a **Social Insurance Program**. In assessing **sustainability**, the actuary may use stochastic analysis or may examine patterns of projected relevant measures. Examples of relevant measures include the following:

a. the ratios of **Program income** or ratios of **Program cost** for each future year of a **long-range period**, to either a measure of economic output, such as the GDP, or to the revenue base of the **Social Insurance Program**;

b. the ratio of **Program assets** at the beginning of a year to the **Program cost** for that year, for each future year of a **long-range period**;

c. the ratio of a **Program's** general fund revenues to total federal income taxes, for each future year of a **long-range period**; and

d. the ratio of an individual beneficiary's projected out-of-pocket medical expenses for a **Program** (including premiums and cost-sharing) to the projected income the individual beneficiary may receive from Social Security or any other **Social Insurance Program**.

The actuary should consider providing commentary to help the intended user understand the assessment of **sustainability**.

3.10 <u>Individual-Level Examples</u>—The actuary should consider providing examples that describe the level of benefits or level of guarantee provided to individuals to provide additional context. The actuary may provide a schedule of benefits or guarantees for representative individuals or ratios of benefits or guarantees to salaries or other relevant revenue bases.

3.11 <u>Reliance on Data or Other Information Supplied by Others</u>—When relying on data or other information supplied by others, the actuary should refer to ASOP No. 23, *Data Quality*, and ASOP No. 41, *Actuarial Communications*, for guidance.

3.12 <u>Documentation</u>—The actuary should consider preparing and retaining documentation to support compliance with the requirements of section 3 and the disclosure requirements of section 4. When preparing documentation, the actuary should do so in a form such that another actuary qualified in the same practice area could assess the reasonableness of the actuary's work or could assume the assignment if necessary. The degree of such documentation should be based on the professional judgment of the actuary and may vary with the complexity and purpose of the actuarial services. In addition, the actuary should refer to ASOP No. 41, section 3.8, for guidance related to the retention of file material other than that which is to be disclosed under section 4.

Section 4. Communications and Disclosures

4.1 <u>Actuarial Communications</u>—When issuing actuarial communications subject to this standard, the actuary should refer to ASOP Nos. 23 and 41. In addition, such actuarial communications should disclose the following, when practical and relevant:

a. clarification of the assignment, as discussed in section 3.1;

b. a description of the **Program** benefits, the population covered, and disclosure of any assumptions regarding the continuation into the future of a consistent pattern of legislated changes to the **Program**, as discussed in section 3.2;

c. a description of the current or proposed mechanisms for setting the level of income or cost for the **Program**, as discussed in section 3.3;

d. a detailed description of the assumptions and the basis for their determination, as discussed in section 3.4. The description should include the following, if applicable:

1. any relevant factors or historical experience that led to the choice of assumptions;

2. any assumptions that differ from recent experience because of trends, changes in the environment, or already-enacted future changes in the **Program** or its operation;

3. any assumptions that were set using input or expertise from outside sources, the sources of such information, and the reasons for reliance on them; and

4. a statement indicating whether, in the actuary's professional judgment, the assumptions (other than prescribed assumptions or methods set by law and assumptions identified in section 4.2[b]) are reasonable, individually and in combination.

e. a description of the valuation period, as discussed in section 3.5. The actuary should also disclose the following, if applicable:

1. the lengths of any selected **short-range period** and **long-range period**;

2. a statement regarding the uncertainty associated with results that extend into the infinite horizon;

3. a statement regarding any reservations about the length of the valuation period if it is selected by someone other than the actuary; and

4. a statement indicating that a long-range projection is unreliable or inappropriate if only a short-range projection is performed.

f. a description of the results of the actuarial projections performed, as discussed in section 3.6, including the following:

1. a statement highlighting when there is risk that the **Program** will be unable to pay benefits when due at any time during the valuation period, noting any significant differences between **Program income** and **Program cost**

toward the end of the valuation period and the expected impact of such differences on the future **actuarial status**;

2. a description of the actuarial method used, including whether an open group or closed group method was used;

3. a description of the summarization method used, if applicable;

4. the results of any experience analysis performed, if applicable; and

5. a statement indicating that the results of actuarial projections performed in the future may differ materially from the results of current projections.

g. a description of the results of any sensitivity testing performed as discussed in section 3.7;

h. a description of the results of any **financial adequacy** testing performed, as discussed in section 3.8, including the criteria used for the **financial adequacy** testing;

i. a description of the results of any **sustainability** assessment performed, as discussed in section 3.9, including the criteria used for the **sustainability** assessment; and

j. if applicable, examples that describe the level of benefits or level of guarantee provided to individuals, as discussed in section 3.10.

4.2 Additional Disclosures—The actuary should also include the following, as applicable, in an actuarial communication:

a. the disclosure in ASOP No. 41, section 4.2, if any material assumption or method was prescribed by applicable law (statutes, regulations, or other legally binding authority);

b. 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

c. 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 standard.

4.3 Confidential Information—Nothing in this ASOP is intended to require the actuary to disclose confidential information.

Appendix 1

Background and Current Practices

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

Background

Definition of Social Insurance Program for Purposes of ASOP No. 32

The task force surveyed educational materials that define social insurance and was guided by the definition of "social insurance" in the work done by the Committee on Social Insurance Terminology of the American Risk and Insurance Association (CSITARIA) in 1965 and 1966, which was referenced in the 2012 7th edition of *Social Insurance and Economic Security* by George E. Rejda and the 1985 3rd edition of *Social Insurance* by Robert J. Myers. There are a few differences between the CSITARIA definition and the definition in this revised standard:

- The task force added language regarding a trust fund to the item on financing. The CSITARIA definition did not include a trust fund as a defining characteristic of a social insurance program.

- The task force decided to not include a sentence from the CSITARIA definition that states, "There is a definite plan for financing the benefits that is designed to be adequate in terms of long-range considerations." The task force did not find this statement to be true for several Programs covered by the standard, for which tax rates or premiums that are set by statute are not adequate for long-term Program solvency.

- The task force added language that states that financing is not based directly and fully on the risk profile of individual participants.

The following provides information on the reasons why some programs are not covered by the standard:

- Workers' compensation programs—These programs are subject to certain ASOPs for property/casualty work. Requirements for workers' compensation benefits can be satisfied by a variety of insured and self-funded arrangements.

- Railroad Unemployment and Sickness Insurance Account programs—These programs are railroad industry substitutes for state unemployment and workers' compensation programs and, in part, for Medicare. The funding does not allow for a long-term surplus or deficit to these programs since the benefits are short-term in nature.

- State-mandated disability income programs—While actuaries have been providing professional services for these programs, the guidance in ASOP No. 32 is not relevant to perform these services since the benefits are short-term in nature.

- State-sponsored unemployment insurance programs—While actuaries have been providing professional services for these programs, the guidance in ASOP No. 32 is not relevant to perform these services since the benefits are short-term in nature.

In addition to the programs listed above, actuarial services provided on behalf of private organizations that contract with the Medicare Advantage or Medicare Prescription Drug programs are not covered by this standard.

The following list of publicly financed programs and other government-run insurance programs do not meet the definition of social insurance, and therefore this standard does not apply:

- Medicaid—Eligibility depends on need in the form of low income and/or low assets.

- Children's Health Insurance Program (CHIP)—Eligibility depends on need in the form of low income.

- Health Insurance Exchanges under the Affordable Care Act—Eligibility is not compulsory.

- Supplemental Security Income (SSI)—Eligibility depends on need in the form of low income and assets.

- Civil Service Retirement System (CSRS)—This program was established solely for government employees who were hired before 1987.

- The Federal Employees Retirement System (FERS)—This program was established solely for government employees who were hired in 1987 and later.

- Federal Employees' Group Life Insurance (FEGLI) and Service members' Group Life Insurance (SGLI)—These programs are voluntary and established for government employees.

- Veterans' benefits—These benefits are established for former employees of the government, are financed entirely from general revenues, and for some benefits require income below a certain threshold.

- Federal Deposit Insurance Corporation (FDIC) and National Credit Union Administration (NCUA)—These programs may be property and casualty insurance programs.

- Federal crop insurance—This program is a non-compulsory property and casualty insurance program.

- Federal flood insurance—This program is a non-compulsory property and casualty insurance program.

Consideration of Expansion of Scope

The ASB asked that the task force to consider whether the scope of the standard should be expanded to include Medicaid, in particular, but potentially also certain other public assistance programs. The ASB noted that actuarial work is being performed for such programs, and the guidance in this standard might be adapted to cover such work. The task force also considered whether changing the definition of a Social Insurance Program would allow Medicaid to be covered.

A group was convened that included ASB members, task force members, and other actuaries whose work includes Medicaid projects. The group considered the issue of including Medicaid in the standard from various points of view. It explored specific items from ASOP 32 to determine whether the guidance in those items should apply to actuaries whose work includes the Medicaid program. The group found that this guidance was not relevant to Medicaid work, mainly because the Medicaid program has no dedicated assets and the work that Medicaid actuaries do mainly involves estimating program expenses and liabilities.

The task force also explored whether work done by actuaries on Medicaid projects is covered by other ASOPs, including ASOP No. 5, *Incurred Health and Disability Claims*. The task force identified one topic, the trending of incurred claim costs to future periods, which may not be adequately covered by current ASOPs. This topic is more general in nature and would not normally be considered for inclusion in an ASOP that applies to social insurance programs.

The task force considered whether the broader policy community (beyond just actuaries) considers Medicaid to be a social insurance program. One task force member, who is a leader in the policy community, believed that Medicaid is often studied with social insurance programs because of its relationship to Medicare and long-term care, not because it is considered a social insurance program. Some task force members, who believed that Medicaid is not a social insurance program and that ASOP No. 32 should not be expanded to include Medicaid, suggested consideration of the development of a more specialized standard of practice for public assistance programs, which might include programs such as Medicaid, the Children's Health Insurance Program, the Veterans Health Administration, public health insurance exchanges, and SSI.

The task force ultimately reached consensus on proceeding with a first exposure draft without changing the scope materially from the current standard and agreed to solicit and encourage public comments on this issue. As a result of the comments received following the first exposure draft, the ASB expanded the scope to include any program which meets the Section 2.9 definition of Social Insurance Program in the scope of the standard except for a list of specifically excluded programs. The ASB also expanded the scope to include actuarial services for a Social Insurance Program provided to a non-governmental employer to the extent practicable.

Importance of Projecting the Costs of Social Insurance Programs

The task force discussed the following:

- the current actuarial challenges of Programs covered by the standard;
- stakeholders and users of actuarial services for such Programs;
- Program actuaries' current use of ASOP No. 32 and other ASOPs to resolve issues; and
- the main metrics currently used for communicating the status of Programs covered by the standard.

Most of the covered Programs are experiencing financial challenges and facing long-term deficits. The task force noted that while the specific metrics on current and projected financial status may vary from Program to Program, the calculation and communication of such metrics is valuable for stakeholders. The task force believes that the current standard has been a useful tool in providing guidance on calculation of metrics and that it is important to update it.

Current Practices

Tests of Financial Adequacy

Several well-established formal methods are currently being used to test the financial adequacy of Social Insurance Programs, as well as measures developed to assess the actuarial status and sustainability of these Programs over different time periods.

The frequency with which Programs assess their financial status varies. Some (OASDI, Medicare, and PBGC, for instance) evaluate their financial position each year, while others, such as the Railroad Retirement Board, may perform a valuation every third year.

The projection period used by the different Programs also varies. While OASDI and Medicare use a projection period of 75 years, PBGC considers a projection period of 10 to 20 years to be appropriate.

The major Social Insurance Programs (OASDI, Medicare HI, and PBGC) project the future year in which that Program's asset reserves are expected to become depleted under various scenarios.

Various other metrics are also used by the different Programs to measure and communicate the current and projected financial status. For example, OASDI and Medicare HI determine the current and projected trust fund ratios (beginning of year asset reserves divided by costs payable during the year) while PBGC projects the net financial position (assets less liabilities). The Railroad Retirement Board employs a metric called the Accounts Benefit Ratio (assets at the end of a year divided by benefits and expenses during the year).

In cases where a longer-term projection is not reasonable, an assessment of Program operations over the next one to five years is often performed.

Caveats

This standard does not address every circumstance that could arise because of variations in benefits, financing mechanisms, the number of Program participants, investment media and policies, measures of actuarial status, specialized actuarial assumptions relevant to the Program, dramatic changes in the participant base insured by the Program, or other relevant factors.

For Programs such as OASI and DI, benefit amounts and the incidence of claims are reasonably predictable and variances from expected values usually emerge gradually. Under PBGC's Programs, on the other hand, benefit amounts can vary widely, the incidence of claims can be highly unpredictable, and the experience of a relatively small number of pension plans can dramatically affect future projections. A sustained trend towards a smaller participant base in the PBGC's pension insurance programs may also affect actuarial results in unanticipated ways.

Appendix 2

Comment on the Second Exposure Draft and Response

The second exposure draft of the proposed revision of ASOP No. 32, *Social Insurance*, was issued in December 2019 with a comment deadline of February 14, 2020. One comment letter was received. For purposes of this appendix, the term “commentator” may refer to more than one person associated with a particular comment letter. The ASOP No. 32 Task Force and the ASB carefully considered the comment received.

Summarized below is the significant issue contained in the comment letter and the response. Minor wording or punctuation changes that are suggested but not significant are not reflected in the appendix, although they may have been adopted.

The term “reviewers” in appendix 2 includes the ASOP No. 32 Task Force and the ASB. Unless otherwise noted, the section number and title used in appendix 2 refer to those in the second exposure draft.

SECTION 4. COMMUNICATIONS AND DISCLOSURES	
Section 4.1, Actuarial Communications	
Comment	One commentator suggested that section 4.1(f)(1) should require an additional disclosure which would require a qualitative or quantitative description of the expected future pattern of changes in the current actuarial status resulting solely from the passage of time.
Response	The reviewers note that the guidance in section 4.1(f) provides for a description of the results of the actuarial projections performed during the valuation period. The reviewers also note that section 4.1(f)(1) requires the disclosure of any significant differences between Program income and Program cost toward the end of the valuation period and the expected impact of such differences on the future actuarial status. Therefore, the reviewers made no change to the disclosure requirement in section 4.1(f)(1) in response to this comment.

ACTUARIAL STANDARDS BOARD

Actuarial Standard
of Practice
No. 33

Actuarial Responsibilities with Respect to Closed Blocks in Mutual Life Insurance Company Conversions

Developed by the
Closed Block Task Force of the
Life Committee of the
Actuarial Standards Board

Adopted by the
Actuarial Standards Board
January 1999
Updated for Deviation Language Effective May 1, 2011

(Doc. No. 150)

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STANDARD OF PRACTICE

APPENDIXES

February 1999

TO: Members of Actuarial Organizations Governed by the Standards of Practice of the Actuarial Standards Board and Other Persons Interested in Mutual Life Insurance Company Conversions

FROM: Actuarial Standards Board (ASB)

SUBJ: Actuarial Standard of Practice No. 33

This booklet contains the final version of Actuarial Standard of Practice No. 33, *Actuarial Responsibilities with Respect to Closed Blocks in Mutual Life Insurance Company Conversions.*

Background

In the past decade, an increasing number of mutual life insurance companies have converted to stock life insurance companies, sometimes including the formation of a mutual holding company. Demutualizations present important actuarial issues, including the preservation of reasonable policyholder dividend expectations and, in a traditional demutualization, the allocation among eligible policyholders of the compensation due them in exchange for their membership rights (i.e., consideration).

This actuarial standard of practice (ASOP) deals with actuarial responsibilities with respect to closed blocks, which have often been used as devices to preserve reasonable policyholder dividend expectations. (This ASOP addresses situations in which a closed block is used; it does not require that a closed block be used.) Actuaries are often involved in all aspects of a closed block, including advising on the types of policies that should be included, the initial funding, and the development of the operating rules; and in reviewing actual operations once a closed block has been established.

Drafting Issues

A draft of this standard was exposed for review and comment in a document dated May 1998, with a comment deadline of September 1, 1998. Eighteen comment letters were received. The Life Committee’s Closed Block Task Force and the committee members reviewed each comment carefully and made a number of changes to the exposure draft in response (see appendix 2).

The comment that prompted the most discussion was one that objected to the approach taken in the exposure draft to setting the reinvestment rate when the investment policy of the closed block differed from that underlying the current dividend scale. The committee made two changes in response to this letter.

1. The committee added the following sentences:

   Usually, policyholders would not expect that the company's investment policy for new assets would change as a result of the establishment of the closed block. Therefore, policyholders' reasonable dividend expectations are most likely to be met if the investment policy for new assets to be purchased with the closed block's cash flows is the same as the investment policy underlying the current dividend scale.

2. The committee replaced a requirement that the actuary consider any change in investment policy with a requirement that the actuary fully disclose the effect of any non-recognition of a change in investment policy.

The Closed Block Task Force and the Life Committee thank all those who commented on the exposure draft. The ASB voted in January 1999 to adopt this standard.

Closed Block Task Force

Godfrey Perrott, Chairperson

Kenneth M. Beck	Dale S. Hagstrom
Charles Carroll	William C. Koenig
Gary Corbett	

Life Committee of the ASB

Lew H. Nathan, Chairperson

John W. Brumbach	Stephen G. Hildenbrand
Frank J. Buck	Walter N. Miller
Marc A. Cagen	Godfrey Perrott
Mark Freedman	Thomas A. Phillips
Jane L. Hamrick	Roger K. Wiard-Bauer

Actuarial Standards Board

David G. Hartman, Chairperson

Phillip N. Ben-Zvi	Roland E. King
Heidi R. Dexter	William C. Koenig
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Frank S. Irish	James R. Swenson

ACTUARIAL STANDARD OF PRACTICE NO. 33

ACTUARIAL RESPONSIBILITIES WITH RESPECT TO CLOSED BLOCKS IN MUTUAL LIFE INSURANCE COMPANY CONVERSIONS

STANDARD OF PRACTICE

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

1.1 Purpose—The purpose of this standard is to define the responsibilities of an actuary when the actuary is asked to advise on, review, or opine on a proposed or existing closed block formed in connection with a mutual life insurance company conversion.

1.2 Scope—This standard of practice applies to actuaries who perform professional services in connection with the design and operation of a closed block in conjunction with the conversion of a mutual life insurance company to a stock life insurance company, including conversion to a mutual holding company structure.

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

1.4 Effective Date—This standard will apply to any actuarial work performed or opinions issued on or after June 1, 1999.

Section 2. Definitions

The definitions below are defined for use in this actuarial standard of practice.

2.1 Applicable Law—Federal, state, and local statutes, regulations, case law, and other binding authority that may govern the conversion of the subject mutual life insurance company to a stock life insurance company, including conversion to a mutual holding company structure.

2.2 Closed Block—A mechanism to preserve (over time) the reasonable dividend expectations of policyholders with individual life, health, or annuity policies. A closed block comprises a defined, limited group of policies and a defined set of assets, and is governed by a set of operating rules. All cash flows arising from the closed block are exclusively committed to supporting the policies in the closed block as specified in the operating rules.

2.3 Individual Policy—Any policy (or contract) that is defined as an individual policy under state insurance law or by the terms of the policy. Any certificate issued under any other policy that is sold to a passive trust but is marketed to individuals is also defined as an *individual policy* for purposes of this standard.

2.4 Initial Assets—The assets allocated to a closed block at its inception. The assets of the closed block may be either of the following:

a. a distinct segment of assets (which may contain either 100% or a specified fraction of each designated asset) associated exclusively with the closed block; or

b. a defined share of a larger segment of assets. Such larger segment may also contain assets associated with participating business sold after the date of conversion. Such defined share will vary from time to time according to the methodology specified in the operating rules.

2.5 Initial Liabilities—The obligations ascribed to the closed block at its inception by the operating rules.

2.6 Operating Rules—All portions of the plan of conversion that specify the methods and procedures for setting up, maintaining, and monitoring the operations of a closed block.

2.7 Reasonable Dividend Expectations—The expectations that the current dividend scale will be maintained if the experience underlying the current scale continues, and that the dividend scale will be adjusted appropriately if the experience changes.

2.8 Reinvestment Rate—The assumed yield rate on assets to be purchased with the closed block's cash flows.

2.9 Tontine—An outcome of a closed block in which relatively few last surviving policyholders receive dividends substantially disproportionate to those previously received by other policyholders in the same closed block, particularly policyholders who had persisted for a considerable period.

Section 3. Analysis of Issues and Recommended Practices

The actuary may be requested to advise on, review, or opine on various aspects of the closed block. In doing so, the actuary should be guided by the following:

3.1 Objectives of the Closed Block—The objective in establishing the closed block is to preserve the reasonable dividend expectations of each class of policyholders. After the closed block is established, the objective is to manage aggregate dividends so as to exhaust the assets when the last policy terminates, while avoiding the creation of a tontine.

3.2 Policy Inclusion Criteria—Policies included in a closed block should be reasonably expected to generate experience-based policy dividends over which the company has significant discretion. Policies chosen for inclusion should be such that the number of policies will decrease to zero in a finite time. These policies are usually individual policies. Practical considerations may result in the inclusion of other policies.

3.3 Determination of Funding—The actuary should ensure that the initial assets, together with the anticipated revenue from the closed block business, are reasonably expected to be just sufficient to permit the closed block to pay all policy benefits, including dividends according to the current dividend scale, and other items identified in the operating rules, if the funding assumptions are realized. These assets should include all policy loans and due and deferred premiums on policies in the closed block. It is customary to assign to the closed block the due and accrued investment income on the initial assets.

The actuary should be satisfied that the methods and assumptions used to calculate the amount of the initial assets are consistent with the operating rules and the assets' characteristics. If the actuary finds that the operating rules are ambiguous, then the actuary should state, in his or her written report, the interpretation he or she used to determine the funding.

3.4 Funding Assumptions—The actuary should select assumptions consistent with the recent experience underlying the current dividend scale for the closed block policies; these assumptions are not necessarily the factors used in the dividend formula. The actuary should use his or her best estimates of cash flows from the initial assets and the reinvestment rate assumption described in section 3.4.1. The actuary should review the data relevant to an assumption. If the data are inconclusive, the actuary may include a modest provision for uncertainty that is designed to increase rather than reduce the amount of initial assets.

3.4.1 Reinvestment Rate—The actuary should choose a reinvestment rate assumption that is directly related to the company's practice for determining its current dividend scale for business to be placed in the closed block. Dividend structures commonly fall into one of three types:

a. Portfolio Rate—If the company uses a dividend scale based on a portfolio rate, then the reinvestment rate should be equal to the portfolio rate that underlies the current dividend scale.

b. Segmented Portfolio Rate—If the company uses a dividend scale based on asset segments or an investment generation method to allocate investment income among generations of policies or among different products, then multiple projection segments with different reinvestment rate assumptions are used. The reinvestment rate for each projection segment should be equal to the segment portfolio rate that underlies the current dividend scale for that generation of policies.

c. Generational Rate—If the company uses a dividend scale that credits investment returns to each policyholder based on the investment generations of that policy's cash flows, then the reinvestment rate should be equal to the investment rate that underlies the rate being credited on current cash flows.

If capital gains and losses have been reflected in some way in the investment rate underlying the current dividend scale, then the actuary should include those gains or losses in a consistent fashion in determining the reinvestment rate assumption.

If the investment rate underlying the current dividend scale reflects gains from other sources (such as group lines of business or earnings on surplus), then the actuary should not include the effect of such gains in setting the reinvestment rate assumption, unless the operating rules provide for crediting such gains to the closed block.

Usually, policyholders would not expect that the company's investment policy for new assets would change as a result of the establishment of the closed block. Therefore, policyholders' reasonable dividend expectations are most likely to be met if the investment policy for new assets to be purchased with the closed block's cash flows is the same as the investment policy underlying the current dividend scale. However, if the closed block investment policy is different from the investment policy underlying the current dividend scale, the actuary may, notwithstanding earlier provisions of this section, modify the reinvestment rate assumption to reflect the change. If the change in investment policy is not fully reflected in the reinvestment rate assumption, the actuary should disclose this fact in his or her opinion. The disclosure should include the following:

a. the extent to which this change in investment policy was not reflected in the reinvestment assumption;

b. the rationale for having not fully reflected this change; and

c. whether future dividend scales are expected to be higher or lower as a result of having not fully reflected this change.

If the plan of conversion does not specify an investment policy for new assets to be purchased for the closed block, the actuary should obtain a statement of such investment policy from company management and refer to it in the actuarial report and statement of actuarial opinion (see section 4.3).

3.4.2 Mortality and Morbidity—The actuary should select assumptions that are consistent with the experience underlying the current dividend scale for the closed block policies.

3.4.3 Lapses—The actuary should choose a lapse assumption that is consistent with company experience. Experience data antedating public knowledge that the company was considering converting are preferable to later experience data, which may have been distorted by the announcement.

3.4.4 Commissions and Expenses—The treatment of commissions and expenses should be in accordance with that detailed in the operating rules (see section 3.5.3).

3.4.5 Taxes—The treatment of taxes should be in accordance with that detailed in the operating rules (see section 3.5.4).

3.4.6 Other Factors—The actuary should take into account the company's recent experience with respect to other relevant factors, such as dividend options, nonforfeiture options, reinsurance, conversions, or riders.

3.5 Operating Rules—The operating rules are an integral part of the plan of conversion of the mutual life insurance company. Any actuary drafting or reviewing the operating rules should ensure that the operating rules cover all charges and credits to the closed block, including at least the treatment of insurance cash flows (including reinsurance, if any), investment cash flows, and the bases for charging commissions, expenses, and taxes; and that the initial assets and liabilities are defined.

3.5.1 Insurance Cash Flows—The operating rules should set forth the procedure for crediting and charging cash flows related to policy premiums and benefits to the closed block. For example, cash premiums, cash repayments of policy loans, and policy loan interest paid in cash on closed block policies would usually be credited to the closed block; death, surrender, and maturity benefits paid in cash, policy loans taken in cash, annuity and other income benefits, and dividends paid in cash would usually be charged to the closed block.

3.5.2 Investment Cash Flows—The operating rules should specify which investment earnings or cash flows should be credited or charged to the closed block. For example, cash flows related to the assets allocated to the closed block, such as dividend and interest payments, and maturities and sales of assets, would usually be credited; brokerage expenses and other expenses directly related to the acquisition, maintenance, or sale of a closed block asset would usually be charged to the closed block.

3.5.3 Commissions and Expenses—The operating rules should specify the method for calculating future commission and expense charges, if any, to the closed block.

3.5.4 Taxes —The operating rules should specify the method for calculating any future tax charges to the closed block. Because a closed block is not a separate taxable entity, allocation methods will have to be developed for some tax items.

3.5.5 Initial Liabilities—The operating rules should specify each category of liability, and its amount, that will be assigned to the closed block at its inception. The asset valuation reserve (AVR) and interest maintenance reserve (IMR) are usually excluded from the closed block because they are not cash items.

3.6 Closed Block Operation—When advising a company on the operation of an existing closed block, the actuary should recommend a dividend scale that is consistent with the goal of exhausting the assets when the last policy terminates, while avoiding the creation of a tontine. When reviewing the operation of an existing closed block, the actuary should determine whether the total amount of dividends is consistent with this goal. In either case, the actuary should be mindful of the guidance found in ASOP No. 15, *Dividend Determination and Illustration for Participating Individual Life Insurance Policies and Annuity Contracts*, with respect to the allocation of dividends among classes of policies.

Section 4. Communications and Disclosures

4.1 Reliance on Data Supplied by Others—The actuary may rely on data supplied by another. In doing so, the actuary should disclose both the fact and the extent of such reliance. The accuracy and comprehensiveness of data supplied by others are the responsibility of those who supply the data. However, when practicable, the actuary should review the data for reasonableness and consistency. For further guidance, the actuary is directed to ASOP No. 23, *Data Quality*.

4.2 Reliance on Asset Cash-Flow Projections Supplied by Others—The actuary may rely on asset cash-flow projections or other analyses of assets supplied by others—for example, projections of real estate or equity assets. In doing so, the actuary should disclose both the fact and the extent of such reliance. The accuracy and soundness of projections supplied by others are the responsibility of those who supply the projections. However, when practicable, the actuary should review the projections for reasonableness and consistency.

4.3 Actuarial Report and Statement of Actuarial Opinion—At the time of the establishment of a closed block, an actuary who advises an employer or client concerning the closed block's development or who reviews a closed block under development on behalf of an employer or client should issue a written actuarial report or statement of actuarial opinion concerning the appropriateness of the closed block arrangements, unless another actuary advising the same entity is issuing such a report or statement. Each actuarial report or statement of actuarial opinion usually should express an opinion concerning the classes of policies to be included in a closed block, the appropriateness of the operating rules of the closed block, and the sufficiency of the funding of the closed block, all in light of the objective of the closed block.

An actuary who advises an employer or client on the operation of a closed block that is already in existence, or reviews a closed block already in existence on behalf of an employer or client, should issue a written actuarial report or statement of actuarial opinion concerning the operations of the closed block, unless another actuary advising the same entity is issuing such a report or statement. Any such report or statement should address the subject described in section 3.6, and may also discuss other aspects of closed block operations.

An actuary who is testifying about a proposed or actual closed block should consult ASOP No. 17, *Expert Testimony by Actuaries,* for guidance on expert testimony.

4.4 Disclosures—The actuary should include the following, as applicable, in the actuarial report or statement of actuarial opinion:

a. the disclosure in ASOP No. 41, *Actuarial Communications*, section 4.2, if any material assumption or method was prescribed by applicable law (statutes, regulations, and other legally binding authority);

b. 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

c. 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, but is not part of the standard of practice.

Background

In the early 1980s, a few large mutual life insurance companies evinced an interest in demutualization. The Society of Actuaries (SOA) responded to this interest in 1984 by appointing a task force on mutual life insurance company conversion with the following charge: “To examine the actuarial issues involved in converting a mutual life insurance company to a stock form of ownership, and to produce a record of its examination.”

At that time there had been relatively few conversions of mutual insurance companies, and most of these had been conversions of property and casualty companies. The few mutual life insurance company conversions had involved relatively small companies or immediate acquisition by another company; many of the issues that a large, multi-line mutual life insurance company would encounter in a conversion to an independent stock life insurance company were new. To the extent that states had laws permitting such conversions, these laws had been derived from, or were identical to, laws applicable to conversions of property and casualty companies. There was relatively little actuarial literature on the subject.

The “Report of the Task Force on Mutual Life Insurance Company Conversion,” completed in July 1987 by the SOA (see *Transactions* 39 (1988): 295–391), covered what the task force considered to be the three principal actuarial aspects of a mutual life insurance company conversion: how to maintain policyholders’ reasonable dividend expectations; how to determine the aggregate amount of compensation due to policyholders in exchange for their membership rights; and how to allocate this aggregate amount of compensation among participating policyholders.

The report stated that the conversion plan should be designed to assure policyholders that their reasonable dividend expectations (i.e., that the current dividend scale would continue if current experience continued) would be met. Otherwise, policyholders would be required, when voting on the conversion plan, to weigh the compensation offered for the cancellation of their membership rights against the possibility of reduced dividends. The SOA task force considered a number of methods of maintaining policyholders’ dividend expectations and concluded that the closed block approach was the most promising for most individual coverages.

The SOA task force recognized that a closed block may not be appropriate or effective for all lines of business and, thus, that decisions must be made as to the classes of business to be included in a closed block. To the extent that these decisions are not preempted or prescribed by statute, the task force suggested the following criteria:

1. If, for a class of policies, there is an expectation of substantial policy dividends and the company has significant discretion as to whether those dividends are paid and in what amounts, the class should probably be included in the closed block.

2. If the dividend structure for a class of policies is based more on broad averaging of costs than on policy-by-policy experience rating, the class should probably be included in the closed block. Policies that are experience rated largely on an individual basis should probably not be included.

3. Classes of policies included in the closed block should be expected to diminish in size with the passage of time and, eventually, to disappear. Any class of policies not expected to diminish over time probably should not be included.

Demutualization Statutes

Many states enacted legislation governing the conditions under which life insurance companies can convert to the stock form, both before and after the task force's report. For example, the New York statute requires that the plan of conversion be "fair and equitable to the policyholders." More particularly, the New York statute requires that participating business that is in force on the effective date of the conversion must be operated by the reorganized insurer as a closed block, for policyholder dividend purposes only. Some or all classes of group policies and contracts may be excluded from the closed block.

The past few years have seen the advent of the mutual holding company form of conversion. With this form, just as with a traditional demutualization, a mutual life insurance company is converted to the stock form of ownership. Ultimately, if not immediately, the converted life insurance company may have owners other than policyholders, and the policyholders' reasonable dividend expectations will need protection.

To date, all conversions that have involved outside (non-policyholder) shareholders, whether occasioned by traditional demutualization or by conversion to a mutual holding company structure, have, with minor exceptions, resulted in the formation of a closed block. Generally, only dividend-paying participating individual policies (including some group policies that were marketed and administered as individual) have been included within the closed block. Other protective mechanisms have sometimes been used for non-dividend–paying policies that contained some form of discretionary benefit.

The Role of the Actuary

The New York statute requires that "one or more qualified and disinterested actuaries," appointed by the superintendent, certify "the reasonableness and sufficiency" of the assets initially allocated to the closed block. This certification must “be made in accordance with professional standards and practices generally accepted by the actuarial profession and such other factors as such actuary in his professional judgment believes are reasonable and appropriate.” Some states, Illinois being an example, require that an opinion of the actuary as to the sufficiency of the initial asset allocation “be based on methods of analysis deemed appropriate for those purposes by the Actuarial Standards Board.”

Actuaries are often involved in all aspects of a closed block, advising on the selection of policies to be included, the initial funding, and the operating rules, and, subsequently, reviewing the operation. Actuaries have acted in at least three roles: as the company’s own actuaries; as independent consulting actuaries who may both advise the company and provide independent opinions to management, the board of directors, policyholders, and to the state regarding certain aspects of the closed block; and as independent actuaries retained by a supervisory authority for advice and to provide one or more opinions on certain aspects of the closed block.

This ASOP reflects what is considered good practice used in the establishment of closed blocks up until this time. The unique circumstances and characteristics of each mutual company, however, make it impossible to state with confidence that the goal of protecting policyholders’ reasonable dividend expectations can be met, in all future transactions, without deviating from this standard in some way as yet unforeseen. The actuary is best qualified, of all participating professionals, to assess and analyze the particular circumstances and operating philosophies of the mutual company, as demonstrated over its history, in determining what actually constitutes “reasonable dividend expectations” and to recommend funding to that end.

Appendix 2

Comments on the Exposure Draft and Committee Responses

The exposure draft of the proposed standard was circulated for review in May 1998, with a comment deadline of September 1, 1998. Eighteen letters of comment were received. The Closed Block Task Force and the Life Committee carefully reviewed each comment and made a number of changes in response. Summarized below are the significant issues and questions contained in the comment letters, printed in roman. The committee's responses appear in **boldface**.

<u>General Comments</u>

Several comment letters did not apply to any particular part of the exposure draft. One letter approved of the proposed actuarial standard of practice (ASOP); another letter disapproved of the proposed ASOP and of the concept of closed blocks. One letter suggested that a closed block should be funded with assets equal to liabilities and profit transfers made periodically. Another letter requested guidance on how to avoid a tontine. Another letter suggested that guidance should be given on reinsurance that should be secured by the closed block to avoid mortality fluctuations. **The committee did not make any change to the ASOP as a result of these letters.**

One letter requested guidance on spreading deviations of actual from expected experience over several years. **The committee felt that this question was beyond the scope of this ASOP.**

<u>Transmittal Memorandum</u>

In the exposure draft's transmittal memorandum, the committee drew its readers' attention to three provisions in particular: section 3.4, Funding Assumptions; section 3.4.1, Reinvestment Rate Assumption; and section 3.4.5, Taxes. Please see those sections, below, for discussion of any pertinent readers' comments and committee responses.

Two commentators objected to the term *full demutualization*, which appeared elsewhere in the transmittal memorandum. **The committee changed the term to *traditional demutualization*.** Three letters suggested recognizing protection methods other than closed blocks. **The committee acknowledges that there are other valid methods, but believes them to be beyond the scope of this ASOP.**

Section 1. Purpose, Scope, and Effective Date

Section 1.3, Effective Date—One commentator suggested that section 1.3 should encourage earlier implementation of the ASOP. **The committee changed the effective date at the ASB's direction.**

Section 2. Definitions

Five commentators requested a definition of *reasonable dividend expectations*. **The committee added such a definition (see section 2.7).** One letter commented on the definition of *individual policy* used; another letter requested a definition of *group policy*; a third suggested adding a definition of *initial liabilities*. **The committee edited the definition of *individual policy* (see section 2.3) slightly; decided not to define *group policy*; and added a definition of *initial liabilities* (see section 2.5).**

Section 3. Analysis of Issues and Recommended Practices

Section 3.2, Policy Inclusion Criteria—One commentator suggested that universal life insurance policies should be included in closed blocks and that the guidance on what policies should be included should be expanded. Several letters requested more examples. **The committee did not agree that more examples would clarify the proposed standard. The committee retained section 3.2 as written.**

Section 3.3, Determination of Funding—One letter suggested including due and accrued investment income in section 3.3. **The committee edited section 3.3 to include such income.** Two letters suggested editorial changes to section 3.3. **Some of the suggested editorial changes appear in the revised text.**

Section 3.4, Funding Assumptions—In the exposure draft's transmittal memorandum, the committee asked for comment on this section as follows:

> *Section 3.4, Funding Assumptions, states that the assumptions should be consistent with the recent experience underlying the current dividend scale. An alternative position could be that the assumptions should be consistent with the experience underlying the dividend scale at the last time it was approved by the board of directors, which may have been several years ago. The Life Committee believes that the approach set forth in the exposure draft is preferable, but welcomes comments.*

No comment letters directed to this point were received and the committee believes that the approach taken by the standard is appropriate.

One letter suggested that section 3.4 specifically refer to the possible use by a closed block of a slice of a larger portfolio. **Language has been added to the definition of *initial assets* (see section 2.4) to accommodate this suggestion.**

Several letters suggested editorial changes. **The committee adopted some suggested changes to improve clarity.**

Section 3.4.1, Reinvestment Rate Assumption (now titled Reinvestment Rate)—In the exposure draft's transmittal memorandum, the committee asked a specific question about this section as follows:

> *Section 3.4.1, Reinvestment Rate Assumption, provides for an adjustment to the reinvestment rate assumption if the investment policy for assets to be purchased for the closed block is different from the investment policy underlying the current dividend scale (i.e., the dividend scale in effect immediately prior to the establishment of the closed block). This statement implies that if the closed-block's cash flows are to be invested in assets significantly different, in type or maturity pattern, from assets underlying the current dividend scale, the reinvestment rate should be modified. For example, the investment policy might state that closed-block investments are not to include a substantial common stock component that underlies the current scale, or that closed-block assets are to be invested in debt instruments of significantly shorter maturities than those underlying the current scale. Should the ASOP provide more guidance in this area?*

One comment letter objected to the approach taken in the exposure draft to setting the reinvestment rate when the investment policy of the closed block differed from that underlying the current dividend scale. **The committee made two changes in response to this letter:**

1. **The committee added the following sentences:**

   Usually, policyholders would not expect that the company's investment policy for new assets would change as a result of the establishment of the closed block. Therefore, policyholders' reasonable dividend expectations are most likely to be met if the investment policy for new assets to be purchased with the closed block's cash flows is the same as the investment policy underlying the current dividend scale.

2. **The committee replaced a requirement that the actuary consider any change in investment policy with a requirement that the actuary fully disclose the effect of any non-recognition of a change in investment policy.**

One letter suggested that where the experience had changed dramatically since the dividend scale was set, but before the closed block was funded, current experience, rather than the experience underlying the dividend scale, should be used. **The committee found this to be inconsistent with the purpose and design of a closed block and made no change.**

Section 3.4.2, Mortality and Morbidity—One letter indicated that the commentator thought that section 3.4.2 referred to the dividend mortality rather than to the mortality underlying the dividend scale. **The committee believes that the meaning is clear.**

Section 3.4.4, Commissions and Expenses—One letter suggested that expenses should always be funded by the closed block. This is contrary to current practice. **The committee made no change.**

Section 3.4.5, Taxes—The committee had explicitly asked for comment on this section in the exposure draft's transmittal memorandum as follows:

> *Section 3.4.5, Taxes, does not discuss the treatment of the IRC Section 809 so-called equity tax on mutual insurance companies. Historically, this tax (even if it is still payable) has not been charged to the closed block in the operating rules and therefore has been ignored in the funding calculations.*
>
> *Some dividend scales contain either an implicit or explicit charge to reflect the equity tax. The Life Committee considered whether the operating rules should specify making this charge to the closed block under the tax allocation procedures, provided the company was still subject to the equity tax. If the company were not subject to the equity tax, this charge would not be allocated to the closed block. Under this approach (which has not to our knowledge been followed in any transaction), the charge would be assumed in the closed-block funding calculations so that if and when the company were no longer subject to the equity tax, the closed-block policies would benefit to the extent they had been previously charged. The ASB Life Committee believes that the approach set forth in the exposure draft is preferable, but welcomes comments.*

No letters on this point were received and the committee believes that the approach taken in the ASOP is appropriate.

A number of commentators made editorial suggestions, particularly with respect to section 3.4, Funding Assumptions, and section 3.5, Operating Rules. **The committee considered all editorial suggestions and adopted a number of them.**

The Closed Block Task Force and the Life Committee of the ASB thank everyone who took the time and made the effort to submit comments.

ACTUARIAL STANDARDS BOARD

Actuarial Standard
of Practice
No. 34

Revised Edition

Actuarial Practice Concerning Retirement Plan Benefits in Domestic Relations Actions

Developed by the
Pension Committee of the
Actuarial Standards Board

Adopted by the
Actuarial Standards Board
June 2015

Doc. No. 180

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APPENDIXES

June 2015

TO: Members of Actuarial Organizations Governed by the Standards of Practice of the Actuarial Standards Board and Other Persons Interested in Actuarial Practice Concerning Retirement Plan Benefits in Domestic Relations Actions

FROM: Actuarial Standards Board (ASB)

SUBJ: Actuarial Standard of Practice (ASOP) No. 34

This document contains the final version of a revision of ASOP No. 34, *Actuarial Practice Concerning Retirement Plan Benefits in Domestic Relations Actions.*

Background

ASOP No. 34 was approved by the ASB in September 1999. The ASB is issuing this revision to address concerns that the existing disclosure requirements in the standard do not sufficiently assist users in understanding large differences in the valuation results prepared by different actuaries.

In addition, several actuarial standards of practice applicable to work with pension plans have been recently revised. In September 2013, the ASB issued a revised ASOP No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*. In December 2013, the ASB issued a revised ASOP No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*. In September 2014, the ASB issued a revised ASOP No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*. Revision of ASOP No. 34 is necessary to provide guidance consistent with the guidance in these other actuarial standards of practice.

Exposure Draft

The exposure draft of this ASOP was issued in September 2014 with a comment deadline of January 31, 2015. Five comment letters were received and considered in making changes that are reflected in this final ASOP. For a summary of issues contained in these comment letters, please see appendix 2.

Key Changes

Key changes from the version of ASOP No. 34 adopted September 1999 include the following:

1. Section 3.3.4 has been modified to indicate that each assumption selected by the actuary should be individually reasonable and consistent with the other assumptions selected by the actuary, in accordance with ASOP Nos. 27 and 35.

2. Section 3.3.4(b) has been modified to indicate that, unless another assumption is clearly warranted by the facts and circumstances, the actuary should select a mortality table with adjustments to reflect expected mortality improvement before and after the measurement date that, in the actuary's professional judgment, reasonably reflects the expected mortality experience of similarly situated individuals.

3. Section 3.3.5 has been modified to indicate that the actuary should not determine a life expectancy from the chosen mortality table and then compute the value of an annuity certain for a term equal to that life expectancy, as it may produce materially inaccurate results.

4. Section 4.4 requires disclosure of a brief description of the rationale for selection of assumptions and allocation methods.

The ASB voted in June 2015 to adopt this standard.

Pension Committee of the ASB

Mita D. Drazilov, Chairperson

Margaret S. Berger	Christopher F. Noble
Lawrence Deutsch	Alan N. Parikh
Tammy F. Dixon	Mitchell I. Serota
C. David Gustafson	Judy K. Stromback
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Actuarial Standards Board

Patricia E. Matson, Chairperson

Christopher S. Carlson	Thomas D. Levy
Maryellen J. Coggins	Barbara L. Snyder
Beth E. Fitzgerald	Frank Todisco
Darrell D. Knapp	Ross A. Winkelman

The ASB establishes and improves standards of actuarial practice. These ASOPs identify what the actuary should consider, document, and disclose when performing an actuarial assignment. The ASB's goal is to set standards for appropriate practice for the U.S.

ACTUARIAL PRACTICE CONCERNING RETIREMENT PLAN BENEFITS IN DOMESTIC RELATIONS ACTIONS

STANDARD OF PRACTICE

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

1.1 Purpose—This standard does the following:

a. provides guidance to actuaries who perform professional services concerning **retirement plan** benefits in **domestic relations actions**;

b. amplifies those provisions of Actuarial Standard of Practice (ASOP) No. 17, *Expert Testimony by Actuaries*, and ASOP No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*, that relate to actuarial practice concerning **retirement plan** benefits in **domestic relations actions**; and

c. provides information to enhance understanding of the actuary's role and responsibilities, and of the factors that may affect the measurement, allocation, or division of **retirement plan** benefits in **domestic relations actions**.

1.2 Scope—This standard applies to actuaries when performing actuarial services in connection with the measurement, allocation, or division of **retirement plan** benefits in **domestic relations actions**. This standard is not applicable to actuarial services performed in connection with other post-employment benefits, such as medical benefits, that may also be considered as part of the **domestic relations action**.

To the extent that the guidance in this standard may conflict with ASOPs of a more general nature, this standard will govern.

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

1.4 Effective Date—This standard will be effective for relevant assignments for which the actuary is first engaged on or after December 1, 2015.

Section 2. Definitions

The definitions below are defined for use in this actuarial standard of practice.

2.1 Actuarial Valuation—The determination, as of a **measurement date**, of the actuarial present value of a **retirement plan** benefit and any related benefits.

2.2 Age- or Service-Dependent Benefits—Benefits for which the amount or timing of benefit payments depends on the **covered party's** age or length of service.

2.3 Allocation Date—The date through which the **retirement plan** benefits are deemed attributable to the marriage. Generally, this is the last day of the **allocation period**.

2.4 Allocation Method—A method used to determine the portion of **retirement plan** benefits that is included in **marital property**.

2.5 Allocation of Retirement Plan Benefits—The division of **retirement plan** benefits into two or more portions: a portion that is fully considered to be **marital property** and a portion that is not **marital property**, and perhaps a portion that is determined to be partially **marital property**.

2.6 Allocation Period—The period over which the **retirement plan** benefits deemed attributable to the marriage are determined. The period typically starts from the date of marriage or, if later, the hire date or plan entry date. The period typically ends at the date of marital separation, the date of court order formally ending the marriage, or the date of separation from service or actual retirement.

2.7 Covered Party—The party in a **domestic relations action** who is covered by the **retirement plan**.

2.8 Direct User—A present or prospective client or employer who has the opportunity to select the actuary and is able to communicate directly with the actuary about the actuary's qualifications, work, or recommendations.

2.9 Domestic Relations Action—Prenuptial, postnuptial, separation, divorce, and support agreements, and other domestic relations proceedings.

2.10 Domestic Relations Law—Federal, state, and local statutes, regulations, case law, and other binding authority that may govern the **domestic relations action**, the **retirement plan** or plans, or any other aspect of the actuary's engagement.

2.11 Domestic Relations Order—A court order dividing **retirement plan** benefits between the **covered party** and **spouse**, or a proposed court order for such purpose.

2.12 Judge—The judicial officer presiding over a **domestic relations action**, or an arbitrator, mediator, or special master acting in a similar adjudicatory capacity.

2.13 Marital Property—Assets of the marital estate as determined under the laws and regulations of the applicable jurisdiction.

2.14 Measurement Date—The date as of which the actuarial present value is determined. The **measurement date** may be different from the **allocation date**.

2.15 Retirement Plan—An employment-related arrangement for determining the amount and timing of retirement benefit payments, eligibility for benefits, etc. A **retirement plan** may be a defined benefit pension plan, a defined contribution plan, or a hybrid plan with both defined benefit and defined contribution elements.

2.16 Spouse—A party to the **domestic relations action** who is not the **covered party**. Normally, the term refers to the current **spouse** or former **spouse** of the **covered party**, but may on occasion refer to a child (or children) or other party to the **domestic relations action**.

Section 3. Analysis of Issues and Recommended Practices

3.1 Overview—Section 3 provides specific guidance for actuaries who undertake one or more of the following tasks in connection with a **domestic relations action**: performing an **actuarial valuation** and preparing the related report (section 3.3); participating in adversarial proceedings (section 3.4); providing guidance on the division of **retirement plan** benefits (section 3.5); assisting in drafting a **domestic relations order** (section 3.6); and assisting in reviewing or implementing a **domestic relations order** (section 3.7).

3.2 Initial Considerations—When undertaking an assignment concerning **retirement plan** benefits in a **domestic relations action**, the actuary should do the following:

3.2.1 Identify the Client—One or more of the following parties may select the actuary and shall be deemed to be the actuary's client for purposes of this standard:

a. the **covered party** or his or her attorney;

b. the **spouse**, other interested party, or his or her attorney;

c. the **judge** presiding over the **domestic relations action**;

d. the court overseeing the **domestic relations action**; or

e. a **retirement plan** sponsor, administrator, or trustee.

3.2.2 Disclose Any Conflicts of Interest—The actuary should be alert to the possibility of a conflict of interest and should disclose any actual or potential conflict of interest to all known **direct users**. A conflict of interest exists whenever the actuary's objectivity, or duty owed to a client or employer, is impaired by competing interests. A potential conflict of interest exists whenever it reasonably appears that the actuary's objectivity, or duty owed to a client or employer, may be impaired by competing interests. For example, a potential conflict of interest exists when the **retirement plan's** actuary is retained by the **covered party**, **spouse**, **judge**, or court. Similarly, a potential conflict of interest exists when the actuary has previously performed professional services for or has a personal relationship with the opposing attorney or any other party to the **domestic relations action**. In these matters, the actuary should be guided by the *Code of Professional Conduct*, Precept 7, Conflict of Interest.

3.2.3 Determine the Nature and Scope of the Engagement—The actuary should make certain that he or she has a clear understanding of the scope of the actuary's engagement, and that the scope of the engagement is clearly communicated to the client. For example, if the **retirement plan** has retained the actuary to calculate the **covered party's** benefit amounts at various dates—as distinguished from being retained on behalf of the **covered party** or **spouse** to value the benefit—then the actuary's communication and underlying work product should so indicate. The engagement may include one or more of the following:

a. calculating the **covered party's** accrued or projected benefit at various dates;

b. selecting an **allocation method**;

c. selecting actuarial assumptions;

d. performing an **actuarial valuation** of **retirement plan** benefits;

e. participating in adversarial proceedings, including reviewing the work of another expert in the **domestic relations action**, participating in negotiations with another expert, assisting with the attorney's case preparation, and providing expert testimony as to the actuary's opinion of the value or appropriate **allocation of retirement plan benefits**;

f. providing information on the division of **retirement plan** benefits;

g. assisting in drafting a **domestic relations order** that will accomplish a division of **retirement plan** benefits, including providing sample documents; or

h. assisting the plan sponsor or administrator in reviewing or implementing a **domestic relations order**, including interpreting the provisions of the

domestic relations order or providing actuarial advice as to whether a **domestic relations order** provides for definitely determinable benefits permitted by the **retirement plan**.

3.2.4 Avoid the Unauthorized Practice of Law—The actuary should avoid the unauthorized practice of law. The actuary may rely upon the legal expertise of counsel or the court itself. The actuary should not provide advice in areas in which the actuary is not qualified.

For example, normally it would be inappropriate for the actuary to advise a non-attorney whether a **domestic relations order** meets applicable procedural requirements to be a valid **domestic relations order** in the jurisdiction. It would, however, be appropriate for the actuary to advise whether the benefits provided by the **domestic relations order** are permitted by the **retirement plan** and whether each party's benefit is definitely determinable from the **domestic relations order**.

3.2.5 Be Familiar with Domestic Relations Law—The actuary should have a general familiarity with **domestic relations law** that affects the actuary's work product or opinion. If a conflict exists between this standard and **domestic relations law**, compliance with **domestic relations law** is not considered to be a deviation from this standard.

3.3 Actuarial Valuation—An **actuarial valuation** is required to determine the value of benefits payable from a defined benefit pension plan that may be included in **marital property**. Defined contribution plans have individual account balances and usually do not require an **actuarial valuation**. However, an **actuarial valuation** may be required for a defined contribution plan if the time or form of benefit payment is restricted or the benefits are not yet fully vested. The goal of performing an **actuarial valuation** is to provide a reasonable assessment of the value of **retirement plan** benefits that are **marital property**. While an **actuarial valuation** may be used in drafting a **domestic relations order**, this section does not apply to reviewing or implementing a **domestic relations order** (see section 3.7).

To prepare an **actuarial valuation**, the actuary should do the following: identify and collect the information required to determine the **covered party**'s **retirement plan** benefits; determine the **measurement date**; if applicable, select an **allocation method**, unless prescribed; select nonprescribed actuarial assumptions; and perform the computations. Each of these steps is described in more detail below.

3.3.1 Information Requirements—The actuary is responsible for identifying and collecting the information necessary for the **actuarial valuation**. Such information will typically include the following:

a. the identity of the **retirement plan(s)** relevant to the engagement and each **retirement plan's** circumstances—such as ongoing, frozen, or terminated; qualified, nonqualified, or governmental;

b. relevant **retirement plan** provisions—including benefit formulas, eligibility for participation and for benefit entitlement, ancillary benefits, early retirement subsidies, and optional forms of payment;

c. **covered party** and **spouse** information—such as employment and plan participation status (active, terminated, vested, disabled, retired); compensation history; dates of birth, hire, plan participation, marriage, separation, or other relevant dates; accrued **retirement plan** benefits or data necessary for the calculation of accrued benefits; prior **domestic relations orders**; and any special circumstances that might materially affect the valuation results; and

d. **allocation date** and **allocation period**.

The actuary may rely on information supplied by the attorney, plan sponsor, plan administrator, **covered party**, **spouse**, or plan record keeper, but the actuary is responsible for reviewing, when practicable, the reasonableness of the applicable data.

3.3.2 Determining the Measurement Date—In many instances, the **measurement date** is prescribed. When the **measurement date** is selected by the actuary, such date should be reasonable for the purpose of the measurement.

3.3.3 Selecting an Allocation Method—When selecting an **allocation method** for an **actuarial valuation** of **retirement plan** benefits in a **domestic relations action**, the actuary should take into account limitations imposed by **domestic relations law** and the relevant facts and circumstances. The acceptability of a given **allocation method** may depend on the legal jurisdiction applicable to the parties involved in the action. The following provides the actuary additional guidance regarding the selection of an **allocation method**.

a. Direct Tracing and Fractional Rule Methods—Where not restricted by **domestic relations law**, either of the following two types of methods may be used:

1. Direct Tracing—The portion of the retirement benefit that is **marital property** is equal to the actual benefit accrued during the **allocation period**. For example, in applying direct tracing to a defined benefit pension plan, the portion of the retirement benefit included in **marital property** could be the increase from the accrued benefit, if any, at the marriage date to the accrued benefit at the **allocation date**.

2. Fractional Rule—The retirement benefit is allocated by multiplying the retirement benefit by a fraction. The numerator and denominator of the fraction may be based on compensation, contributions, benefit accrual service, plan participation, employment, or other relevant data that are used directly in the determination of the accrued benefit. The numerator is equal to the selected measure accrued during the **allocation period**. The denominator is equal to the selected measure accrued during the total period in which the benefit is earned. When the selected measure is an elapsed time period, this method is commonly referred to as the *time rule*.

Illustrations of the calculations involved in the above two methods are included in appendix 1. Variations of these basic methods exist.

b. Age- or Service-Dependent Benefits—If the **covered party** has not satisfied the applicable age or service conditions for certain benefits provided in the **retirement plan** but remains employed by the plan sponsor at the **allocation date**, the actuary should determine how to allocate the **age- or service-dependent benefit**. Unless otherwise required by **domestic relations law**, acceptable approaches include the immediate termination approach, which values the benefit as if the **covered party** terminated on the **allocation date**; and the continued employment approach, which reflects continued covered employment in accordance with selected retirement, turnover, mortality, or disability assumptions.

c. Different Results from Different Methods—Different types of **allocation methods** can produce significantly different results. An actuary working in situations where different methods might, in the actuary's professional judgment, be appropriate should inform the client as to the implications of the method used as compared to other methods, including the general financial impact of each method.

3.3.4 <u>Actuarial Assumptions</u>—When selecting assumptions for an **actuarial valuation** of **retirement plan** benefits in a **domestic relations action**, the actuary should take into account limitations imposed by **domestic relations law** and the facts and circumstances of the valuation, including each relevant **retirement plan**'s circumstances and provisions; information about the **covered party** and **spouse** (see section 3.3.1); and past experience and future expectations for the group of which the **covered party** is a member.

Each assumption selected by the actuary should be individually reasonable and consistent with the other assumptions selected by the actuary, in accordance with ASOP Nos. 27, *Selection of Economic Assumptions for Measuring Pension*

Obligations, and 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*.

The following sections (a–k) describe assumptions commonly used in valuing **retirement plan** benefits and factors that the actuary should take into account in selecting assumptions for valuing such benefits in **domestic relations actions**. This list is not intended to be all-inclusive; additional assumptions may be required depending on the provisions of the **retirement plan** being valued, specific circumstances of the **covered party** or **spouse**, and unique requirements of the jurisdiction.

a. Discount Rate—Unless another assumption is clearly warranted by the facts and circumstances, the discount rate selected for valuing **retirement plan** benefits in **domestic relations actions** should be a low-risk rate of investment return, determined as of the **measurement date** and based on the cash-flow pattern of benefits being valued (for example, the current or a recent average yield to maturity on U.S. Treasury bonds of comparable duration, or a published index reflecting yield rates for high-quality corporate bonds).

b. Mortality and Mortality Improvement Assumption—Unless another assumption is clearly warranted by the facts and circumstances, the actuary should select a mortality table with adjustments to reflect expected mortality improvement before and after the **measurement date** that, in the actuary's professional judgment, reasonably reflects the expected mortality experience of similarly situated individuals. For example, assuming a 100% probability of death at a single age and zero at all other ages is not an appropriate assumption. In some cases it may be appropriate to reflect the health of the **covered party** or **spouse** in the selection of the assumption.

c. Annuity Purchase—As an alternative to selecting a discount rate under section (a) and a mortality assumption under section (b), the actuary may assume the cost of the purchase of an immediate or deferred annuity contract with appropriate benefit features from an insurance carrier. This may be done by using an actual insurance survey or by reference to published tables that are derived from such surveys.

d. Retirement Assumption—The retirement assumption may be a single assumed retirement age or a table of retirement rates by age. The retirement assumption should reflect the applicable facts and circumstances, such as the following:

    1. the **retirement plan**'s normal retirement age;

2. the ages at which the **covered party** is first eligible to retire, to receive subsidized early **retirement plan** benefits, to receive unreduced **retirement plan** benefits, to receive Social Security benefits, and to receive Medicare benefits;

3. plan participants' average retirement age and retirement rates by age (if known to the actuary), or norms as to retirement age in the **covered party's** industry or profession;

4. the availability of medical and other postretirement plan benefits;

5. the level of total **retirement plan** benefits; or

6. the **covered party**'**s** income level, job position, and family circumstances.

Statements made by the **covered party** or **spouse** as to anticipated retirement age may also be considered, but should not be given undue weight because such statements may be self-serving and the **domestic relations action** itself may alter retirement planning decisions.

e. Cost-of-Living Adjustments—If the **retirement plan** automatically adjusts benefits for increases in the cost of living, the **actuarial valuation** should generally reflect expected future increases in benefits attributable to such cost-of-living adjustments. In some cases, it may be appropriate to make an assumption about future ad hoc cost-of-living adjustments.

f. Disability Assumption—A disability assumption is generally not applicable unless facts and circumstances clearly warrant it. A disability assumption may be used if the **retirement plan** provides special benefits upon disability and if including a disability assumption would materially affect the valuation results. A disability table that is generally accepted for use in valuing annuities or pension benefits, or a table that reflects the expected disability experience of plan participants, is generally appropriate. However, in some cases it may be appropriate to adjust the disability assumption to reflect the health of the **covered party**.

g. Turnover Assumption—An assumption as to the rate of participant termination may be required if the benefit is not yet vested or the benefit amount depends on future service. However, some jurisdictions permit only involuntary termination to be reflected when valuing **retirement plan** benefits in **domestic relations actions**. The turnover assumption should reflect the specific facts and circumstances, such as the following:

1. the actual or expected turnover experience of plan participants (if known to the actuary);

2. the **covered party's** age and service;

3. the **covered party's** job position; and

4. **retirement plan** provisions such as the age and service required to receive subsidized early **retirement plan** benefits.

h. Compensation Increase—While it is common for the **actuarial valuation** of **retirement plan** benefits in **domestic relations actions** to reflect compensation through the **allocation date** only, some methods, and some jurisdictions, require the actuary to consider future levels of compensation. The actuary should determine whether future levels of compensation are appropriate for the calculation.

i. Growth of Individual Account Balances—Some **retirement plan** benefits have components directly related to the accumulation of real or hypothetical individual account balances (including defined contribution plans, floor-offset arrangements, and cash balance pension plans). An assumption regarding the future investment return earned by the actual or hypothetical accounts may be required to value benefits under such plans. This assumed rate of investment return should equal the discount rate unless, in the actuary's professional judgment, another assumption is more appropriate.

j. Form of Payment—The actuary should take into account the degree to which particular forms of payment may be subsidized and requirements or restrictions of the **domestic relations action** as to form of payment that may be selected by the participant. The actuary may also consider statements made by the **covered party** or **spouse** as to the form of payment that will be selected.

k. Variable Conversion Factors—Valuing certain **retirement plan** benefits may require converting from one payment form to another, such as converting a projected individual account to an annuity or converting an annuity to a lump sum. If the conversion basis is variable (for example, using mortality tables and interest rates that are updated regularly), an assumption regarding future conversion rates may be required.

3.3.5 Valuation Process—When performing an **actuarial valuation**, the actuary should do the following:

a. identify the **measurement date**, the **allocation date**, the **allocation period**, potential **retirement plan** benefits, the contingencies that may affect payment of those benefits, and any special requirements of the applicable legal jurisdiction;

b. project the timing and amounts of potential benefit payments, applying the selected or prescribed **allocation method** and applicable economic assumptions, and assuming that any required contingencies are met;

c. calculate expected payments by multiplying each potential benefit payment determined in section (b) by the probability that the required contingencies are met, and applying the selected or prescribed demographic and other assumptions; and

d. discount each expected benefit payment to the **measurement date**, using the selected or prescribed discount rate.

The actuary should not determine a life expectancy from the chosen mortality table and then compute the value of an annuity certain for a term equal to that life expectancy, as it may produce materially inaccurate results.

3.3.6 Computing After-Tax Values—In some cases, the actuary may be asked for an opinion of the "after-tax" actuarial present value of **retirement plan** benefits. If the actuary has sufficient training or experience, the actuary may prepare such calculations even though the actuary may not be a credentialed tax practitioner. Responding to such requests will generally involve making a number of additional assumptions, such as the potential rate of taxation of **retirement plan** benefit payments and the tax rate applicable to investment returns.

3.3.7 Dates, Methods, and Assumptions—**Domestic relations law** may specify or restrict the **measurement date**, the **allocation date**, the **allocation method**, some or all of the actuarial assumptions, or the process the actuary should use to select the **measurement date**, **allocation date**, **allocation method**, or actuarial assumptions. In other situations, the parties to the **domestic relations action** may stipulate or request the use of alternative **measurement dates**, **allocation dates**, **allocation methods**, some or all assumptions, or the selection process. In such jurisdictions or situations, the actuary should use the prescribed **measurement date**, **allocation date**, **allocation method**, actuarial assumptions, or selection process. Each nonprescribed date, method, and assumption selected by the actuary should be reasonable and consistent with every other nonprescribed assumption selected by the actuary. The actuary may also choose to present results using dates, methods, and assumptions that, in the actuary's professional judgment, are appropriate for the given calculation, in addition to providing the results using the prescribed dates, methods, and assumptions.

3.3.8 Consistency with the Actuary's Previous Actuarial Valuations—The **actuarial valuation** should be reasonable and appropriate for the assignment. Unless the dates, methods, or assumptions are prescribed, or the facts and circumstances of the assignment dictate otherwise, the actuary should generally use the same process to select dates, methods, or assumptions for all **actuarial valuations** in the same jurisdiction. Even though the actuary may be acting as an advocate for the client in performing an **actuarial valuation**, the actuary should not select dates, methods, or assumptions outside the range of dates, methods, or assumptions that the actuary would ordinarily use solely to accommodate the litigation position of the actuary's client. If the actuary changes the selection process, the actuary should be prepared to explain the change from the actuary's previous selection process in the same jurisdiction.

3.4 Participating in Adversarial Proceedings—When participating in adversarial proceedings, the actuary's responsibilities may include the following:

3.4.1 Reviewing the Work of Another Expert—The actuary participating in adversarial actions may be asked to review the work of another expert. The actuary should conduct this review objectively, in terms of the reasonableness of the other expert's opinion, rather than solely in terms of whether it agrees with the actuary's own opinion. In reviewing another expert's work, the actuary should generally follow the steps below:

a. review the basic facts of the situation used by the other expert (see section 3.3.1);

b. review the **measurement date**, **allocation method**, and actuarial assumptions used;

c. determine whether any material computational errors have occurred;

d. summarize the findings with respect to sections (a), (b), and (c) that would have a significant impact on the valuation results; and

e. report these findings to the client, including the actuary's assessment of the reasonableness of the other expert's opinion.

The actuary should be aware that the parties may use these findings to form an opinion on whether to litigate or settle the issue of retirement values, and should therefore strive neither to minimize legitimate differences of opinion nor to magnify immaterial differences.

3.4.2 Submitting Work for Review by Another Expert—The actuary participating in adversarial actions may be asked to submit work for review by another expert. The actuary should not submit work for review without the express consent of the client or the client's authorized representative. The actuary should request guidance from the client as to the scope of material that may be disclosed. To the extent authorized, the actuary should be prepared to disclose the type of information described in section 3.4.1. Any authorized contact should be conducted in accordance with the *Code of Professional Conduct*, Precept 10, Courtesy and Cooperation.

3.4.3 Participating in Negotiations with Another Expert—The actuary may be asked to participate in negotiations with another expert to identify any differences (see section 3.4.1), and, possibly, to settle on a compromise value to which the parties can stipulate, thus avoiding litigation costs. In such case, the actuary should request guidance from the client as to the scope of the actuary's negotiating authority and the scope of material that may be disclosed. The result of such negotiation with another expert might be a suggested stipulation or a list of issues that remain unresolved.

3.4.4 Providing Expert Testimony—The actuary participating in adversarial proceedings may be asked to provide expert testimony. The actuary undertaking such an engagement should be familiar with, and comply with, all relevant actuarial standards of practice, including ASOP No. 17, *Expert Testimony by Actuaries*. Before providing expert testimony, the actuary should review data, materials, and documents that are relevant to the subject on which the actuary is expected to testify.

When testifying as to the differences between the actuary's opinion and another expert's opinion, the actuary should do so factually. For example, such testimony may take the following forms:

a. showing that data currently available call into question a key assumption, method, or conclusion of the other expert;

b. showing that the two conclusions do not conflict as much as they appear to, or that the difference is not material;

c. showing what kinds of data may become available in the future to support one or the other set of assumptions or conclusions; or

d. showing the effects of different dates, methods, or assumptions.

3.5 Providing Guidance on the Division of Retirement Plan Benefits—The actuary may be retained by an attorney or the court to provide guidance on alternative methods available for the division of **retirement plan** benefits between the **covered party** and **spouse**. In this situation, the actuary should be generally knowledgeable about (1) methods for the division of **retirement plan** benefits that are available in the jurisdiction; and (2) the types of **domestic relations orders** available for the division of **retirement plan** benefits under each **retirement plan** considered in the **domestic relations action**, and the differences between these various types of **domestic relations orders** (see appendix 1 for a discussion of the types of **domestic relations orders** available).

3.6 Assisting in Drafting a Domestic Relations Order—When **retirement plan** benefits are to be directly divided or assigned by **domestic relations order**, the actuary may be retained to assist in drafting a **domestic relations order** that will accomplish the desired division of **retirement plan** benefits. Such assistance may include providing sample documents and calculating benefits payable under different payment schemes.

The actuary assisting in drafting a **domestic relations order** should take into account early retirement subsidies and ancillary benefits available under the **retirement plan** as appropriate and should recommend that the proposed language unambiguously define the benefit amount payable to each party and that relevant contingent events, such as the **covered party's** death before retirement or the **covered party's** retirement after becoming eligible for subsidized early **retirement plan** benefits, be appropriately considered.

3.7 Assisting in Reviewing or Implementing a Domestic Relations Order—When **retirement plan** benefits are to be directly divided or assigned by **domestic relations order**, the actuary may be retained by the plan sponsor or administrator to assist in reviewing or implementing the **domestic relations order**, as described below. Services provided by the actuary may include interpreting the provisions of the **domestic relations order** or advising whether the benefits provided by the **domestic relations order** are permitted by the **retirement plan** and whether each party's benefit is definitely determinable from the **domestic relations order**.

3.7.1 Assisting in Reviewing a Domestic Relations Order—The actuary's communication of a review of a **domestic relations order** should state the scope of such review. For example, the actuary could indicate that the review is limited to an examination of the technical content of the **domestic relations order** and does not extend to the legal form of the **domestic relations order**. If the **domestic relations order** has substantive conflicts with the provisions or administrative procedures of the **retirement plan**, or the benefits are not definitely determinable, then the actuary should explain the conflicts and why the **domestic relations order** is not administratively feasible as written.

To be a qualified **domestic relations order**, a **domestic relations order** must satisfy the qualification requirements of IRC section 414(p) and ERISA section 206(d). One of the requirements is that the division of **retirement plan** benefits must be pursuant to a judgment, decree, or order under the **domestic relations law** of a state. If the **domestic relations order** being reviewed fails to meet the procedural requirements of the court, it may not be a valid **domestic relations order**. The question of whether the proposed **domestic relations order** meets the state's procedural requirements is a legal one and is beyond the qualifications of actuaries who are not also attorneys.

3.7.2 Assisting in Implementing a Domestic Relations Order—The plan sponsor or administrator responsible for implementing a **domestic relations order** may retain the actuary to determine the benefit amount payable to the **spouse** or **covered party** in the various forms of payment available under the provisions of the **retirement plan**, the **domestic relations order**, and other governing document(s). This may include determining the amount of actuarially equivalent optional forms of payment in accordance with the **retirement plan** provisions (including the **retirement plan's** definition of actuarial equivalence) and any relevant **domestic relations law**. If the terms of the **domestic relations order** or **retirement plan** are ambiguous, if the **retirement plan** is silent, or if the **domestic relations order** and **retirement plan** conflict, the actuary may provide a good faith interpretation of the **domestic relations order** in light of the provisions and administrative procedures of the **retirement plan**. Such interpretation should be disclosed, and the disclosure should include an explanation of the ambiguities or conflict.

Section 4. Communications and Disclosures

4.1 Audience—In reporting the results of the actuary's work, the actuary should take into account the background of the likely audience and should explain technical terms and concepts so that they can be understood by the likely audience. For example, a report made to an attorney experienced in the measurement, allocation, and division of **retirement plan** benefits in **domestic relations actions** might presuppose more actuarial knowledge than a report that is to be made part of the court record.

4.2 Conflict of Interest—The actuary should make full disclosure of any actual or potential conflict of interest to all known **direct users**. Such disclosure should generally occur before the actuary accepts the engagement or as soon as practicable after the date the actuary learns of the actual or potential conflict of interest, if later.

4.3 General Disclosures—Any communication of actuarial findings, conclusions, or recommendations concerning **retirement plan** benefits in **domestic relations actions** should comply with the requirements of ASOP Nos. 23, *Data Quality*, 27, 35, and 41, *Actuarial Communications*, and should include at least the following:

a. the name of the actuary responsible for the communication;

b. the identity of the client who has retained the actuary to provide services in connection with the **domestic relations action** and the identities of the parties to the **domestic relations action**;

c. a description of the actuary's role and the nature and scope of the actuary's engagement, including the scope of any statement of actuarial opinion;

d. the name of the **retirement plan** and a summary of key provisions or other relevant **retirement plan** information affecting the measurement, allocation, or division of the **retirement plan** benefit;

e. the name of the legal jurisdiction assumed to govern the **domestic relations action**, if relevant to the actuary's advice;

f. the **covered party** and **spouse** information that the actuary used when performing the services;

g. the source of any information supplied by others and the extent of the actuary's reliance on that information;

h. any data deficiencies known to the actuary that might materially affect the results, opinion, or advice being communicated;

i. a statement of the findings, conclusions, or recommendations necessary to satisfy the purpose of the communication and a summary of the actuarial determinations upon which these are based;

j. any facts known to the actuary that, if not disclosed, might reasonably be expected to lead to a materially incomplete understanding of the communication;

k. any disclosures required under section 3.7 when the actuary assists in reviewing or implementing a **domestic relations order**;

l. the disclosure in ASOP No. 41, section 4.2, if any material assumption or method was prescribed by **domestic relations law**;

m. 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

n. 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.

4.4 Actuarial Valuation Results—In addition to the items described in section 4.3, the actuary's communication of **actuarial valuation** results should include at least the following information:

a. the **measurement date**;

b. a description of the **allocation method**, including the **allocation date** and **allocation period**; a description of the benefit being allocated (for example, the vested accrued benefit, the accrued benefit, the employer-provided benefit, or projected **retirement plan** benefits); a description of the allocation procedure and the unit of measure (for example, fractional rule, based on years of employment); a description of the allocation of **age- or service-dependent benefits**; and a description of any adjustments made to reflect limits on benefit accruals or varying benefit accrual rates under the benefit formula;

a brief description of the rationale for the selection of the **allocation method** and the general effects of the method in words or numerical data as appropriate, if the actuary selects the **allocation method** or provides advice on the selection of the **allocation method**;

if applicable, a statement that the **allocation method** is not stated in the law of the jurisdiction of the parties;

c. a description of the benefits being valued (including applicable ancillary benefits) and any significant benefits of which the actuary has knowledge that are not included in the **actuarial valuation**;

d. a description of each actuarial assumption and a brief description of the rationale for the selection of each significant assumption that is not prescribed; and

e. the source of any prescribed **measurement date**, **allocation date**, **allocation method**, actuarial assumption, selection process, or other prescribed item that has a material effect upon the **actuarial valuation** results.

4.5 Confidential Information—Nothing in this standard is intended to require the actuary to disclose confidential information.

Appendix 1

Background and Current Practices

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

Measurement of Retirement Plan Benefits in Domestic Relations Actions

State statutes governing domestic relations actions generally take one of three approaches to the division of marital property:

1. Under the common-law approach, any particular asset is generally awarded to the party who contributed the asset to the marriage. In the case of retirement plan benefits, the entire retirement plan benefit is generally awarded to the covered party. Thus, there is generally no need for an actuarial valuation of the retirement plan benefit in a common-law state.

2. Under the community-property approach, all assets accumulated during the marriage are subject to division between the parties. This approach may require a monetary value to be placed on retirement plan benefits.

3. The equitable-distribution approach is a less rigid approach that gives some weight to assets contributed to the marriage and some weight to other criteria, such as the length of the marriage. This approach may require a monetary value to be placed on retirement plan benefits.

In general, allocation methods used to determine the portion of the benefit payments that is marital property may be characterized as either direct tracing methods or fractional rule methods, as described in section 3.3.3 and illustrated below. In many jurisdictions, the allocation date and method have been established by domestic relations law; in others there is no legally prescribed approach, and the allocation date or method may be an issue in the domestic relations action.

In some jurisdictions, domestic relations law prescribes the measurement date and certain actuarial assumptions, such as the discount rate, mortality table, and retirement assumption. Similarly, domestic relations law may prohibit the use of certain types of actuarial assumptions, such as a compensation scale or voluntary turnover assumption. In some jurisdictions, the process the actuary must use to select the assumptions is prescribed; for example, the actuary might be required to assume that retirement occurs at the age at which the retirement plan benefit is most valuable. In other jurisdictions, there are no legally prescribed or prohibited actuarial assumptions, measurement dates, or selection methods.

Because of the widely divergent approaches prescribed by or available in different jurisdictions, it is clear that there can be no uniform national approach to the actuarial valuation of retirement plan benefits. In many parts of the country, the law in this field is still evolving, while elsewhere there are governing statutes or a substantial body of established precedent. Where choice of method or assumption is allowed by law, a wide difference can exist between the values computed by different actuaries—a difference that may be attributable not to errors on the part of either actuary, but to legitimate differences of opinion as to the appropriate measurement date, allocation date, allocation method, or actuarial assumptions.

Division of Retirement Plan Benefits in Domestic Relations Actions

Alternative methods for the division of retirement plan benefits that are marital property may include the award of the retirement plan benefits to one party, with other marital property awarded to the other party, as well as the direct division of the retirement plan benefits of either party by an appropriate domestic relations order.

The types of domestic relations orders available may include the following:

1. a qualified domestic relations order for a retirement plan covered by ERISA;

2. a qualifying court order for a federal government retirement plan, such as the Civil Service Retirement System, the Federal Employees' Retirement System, the Federal Thrift Savings Plan, and military retirement systems;

3. a court order mandated by local law for the division of retirement plan benefits earned under a retirement plan sponsored by a state, county, municipality, school district, or other governmental entity; or

4. a court order dividing benefits earned under a nonqualified retirement plan.

For certain types of retirement plans, there may be no provision in the law to permit division or assignment by court order.

Illustrations of Allocation Methods

Basic Information

The plan provides a retirement plan benefit equal to 1% of the final year's compensation multiplied by years of service. Accrued benefits vest after 5 years of service, and participants are eligible to retire early at age 55 if they have completed 10 years of service. Normal retirement is at age 65. The covered party joined the plan at age 25, was married at age 29, and is age 40 at the allocation date. The covered party's historical service, compensation, accrued benefit, and vested accrued benefit are shown in the following table.

Age	Completed Years of Service	Prior Plan Year's Compensation	Accrued Benefit	Vested Accrued Benefit
26	1	$11,500	115	0
27	2	$12,500	250	0
28	3	$14,000	420	0
29	4	$14,500	580	0
30	5	$15,000	750	750
31	6	$15,500	930	930
32	7	$16,750	1,173	1,173
33	8	$18,000	1,440	1,440
34	9	$19,000	1,710	1,710
35	10	$20,000	2,000	2,000
36	11	$23,500	2,585	2,585
37	12	$25,000	3,000	3,000
38	13	$27,500	3,575	3,575
39	14	$29,000	4,060	4,060
40	15	$33,000	4,950	4,950

Direct Tracing Allocation Method

In the direct tracing method, the portion of the retirement plan benefit that is often considered to be marital property is equal to the actual benefit accrued during the allocation period (typically the period from the date of marriage to the allocation date). For example, in applying direct tracing to a defined benefit pension plan, the portion of the retirement plan benefit included in marital property would generally be the increase from the accrued benefit, if any, at the marriage date to the accrued benefit at the allocation date. If the direct tracing method were applied to the data given in the table above, subtracting the $580 accrued benefit at the date of marriage from the $4,950 accrued benefit at the allocation date would give the portion of the accrued benefit that is marital property: $4,370.

Alternatively, the direct tracing method could be applied to the covered party's vested accrued benefit. Under this approach, the entire $4,950 is marital property because the vested accrued benefit was $0 at the date of marriage.

Fractional Rule Allocation Method

The fractional rule method allocates the retirement plan benefit by multiplying the retirement plan benefit by a fraction. The fraction may be based on compensation, contributions, benefit accrual service, plan participation, employment, or other relevant historical data. The numerator is equal to the selected measure accrued during the allocation period (typically the period from the date of marriage to the allocation date). The denominator is equal to the selected measure accrued during the total period in which the retirement plan benefit is earned. When the selected measure is an elapsed time period, this method is commonly referred to as the "time rule."

If the fractional rule method based on benefit accrual service were applied to the data in the table above, the $4,950 accrued benefit at the allocation date would be multiplied by the fraction (11 ÷ 15) because the covered party was married for 11 of the 15 years over which the benefit was accrued. The portion of the accrued benefit that is marital property is $3,630.

If the fractional rule method were based on compensation instead, the numerator of the fraction would be compensation earned from the date of marriage to the allocation date ($242,250), and the denominator would be the covered party's total compensation earned from employment date to the allocation date ($294,750).

When the $4,950 accrued benefit is multiplied by the fraction ($242,250 ÷ $294,750), the portion of the accrued benefit that is considered to be marital property is $4,068.

Allocation Method for Age- or Service-Dependent Benefits

Under both the direct tracing and fractional rule allocation methods, the allocation of age- or service-dependent benefits needs to be defined. Age- or service-dependent benefits are benefits for which the amount or timing of benefit payments depends on the covered party's age or length of service. Subsidized early retirement plan benefits are often age- or service-dependent. For example, a retirement plan might provide that the benefit payable upon early retirement at age 55 is 100% of the accrued benefit if the participant has completed at least 25 years of service, and 50% of the accrued benefit otherwise.

If the covered party has not satisfied the eligibility requirements at the allocation date but remains employed by the plan sponsor, alternative approaches are available. One approach would exclude from marital property any age- or service-dependent benefit that is available only if the covered party remains employed after the allocation date. A second approach would include such benefits in marital property under the assumption that the covered party will remain employed by the plan sponsor until eligibility conditions for the higher benefit level are satisfied. These two approaches may produce quite different results. Under the early retirement provision described above, including the value of the 25-years-of-service subsidy in marital property could double the value of the retirement plan benefit.

As these examples illustrate, retirement plan benefits included in marital property can vary substantially depending on the allocation method used.

Appendix 2

Comments on the Exposure Draft and Responses

The exposure draft of this revision of ASOP No. 34, *Actuarial Practice Concerning Retirement Plan Benefits in Domestic Relations Actions*, was issued in September 2014 with a comment deadline of January 31, 2015. Five comment letters were received, some of which were submitted on behalf of multiple commentators, such as by 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 Pension Committee carefully considered all comments received, and the ASB reviewed (and modified, where appropriate) the proposed changes.

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

The term "reviewers" includes the Pension Committee and the ASB. Unless otherwise noted, the section numbers and titles used below refer to those in the exposure draft.

GENERAL COMMENTS	
Comment	One commentator suggested terms such as "users," "direct users," and "likely audience" need to be better explained and that, with respect to administration of a domestic relations order, the term "intended user" should be narrowly defined as the principal (generally the plan sponsor). This commentator also believed that with respect to actuarial valuations the term "intended user" should be broader.
Response	The reviewers believe the terminology in the ASOP is sufficiently clear and therefore made no change.
SECTION 2. DEFINITIONS	
Section 2.1, Actuarial Valuation	
Comment	One commentator suggested that the division of benefits under domestic relations orders should be specifically excluded from the definition of "actuarial valuation" so that the guidance applicable to actuarial valuations does not apply.
Response	The reviewers believe the guidance in the last sentence of the first paragraph of section 3.3 provides sufficient guidance regarding the application of the requirements of that section to reviewing or implementing a domestic relations order and, therefore, made no change.
Section 2.3, Allocation Date	
Comment	One commentator suggested changing the phrase "benefits earned during the marriage" to "benefits to be divided" as domestic relations orders can and often do allocate benefits that are earned outside the marriage period.
Response	The reviewers agree with the commentator's concern and modified the language to refer to "benefits deemed attributable to the marriage."

Section 2.6, Allocation Period	
Comment	One commentator suggested changing the phrase "benefits earned during the marriage" to "benefits to be divided" as domestic relations orders can and often do allocate benefits that are earned outside the marriage period.
Response	The reviewers agree with the commentator's concern and modified the language to refer to "benefits deemed attributable to the marriage."
Section 2.10, Domestic Relations Law	
Comment	One commentator suggested that prenuptial, postnuptial and other agreements may supersede domestic relations law and suggested that the phrase "other binding authority" be made more specific to encompass these agreements.
Response	The reviewers believe the existing language regarding other binding authority is sufficiently clear and therefore made no change.
SECTION 3. ANALYSIS OF ISSUES AND RECOMMENDED PRACTICES	
Section 3.1, Overview	
Comment	One commentator found the term "court order" potentially confusing as the standard defines the term "domestic relations order."
Response	The reviewers agree and modified the term "court order" to the defined term "domestic relations order" throughout the standard where appropriate.
Section 3.2.2, Disclose Any Conflicts of Interest	
Comment	One commentator suggested that the example in this section was neither appropriate nor clear and requested that it be deleted or at least modified.
Response	The reviewers agree and modified the example.
Section 3.3, Actuarial Valuation	
Comment	One commentator suggested that it is not always necessary for the actuary to select an allocation method.
Response	The reviewers agree and inserted "if applicable" before the requirement to select an allocation method.
Section 3.3.3(a), Direct Tracing and Fractional Rule Methods	
Comment	One commentator suggested that it would very often be inappropriate for an actuary to choose a method that allocated benefits based on the direct tracing approach applied to vested benefits.
Response	The reviewers agree and modified the language.
Section 3.3.4(c), Annuity Purchase	
Comment	One commentator suggested that the guidance should indicate that if an actuary were to use an annuity purchase price in the actuary's valuation, the annuity purchase price should reflect the applicable benefit features.
Response	The reviewers agree and modified the language.
Section 3.3.4(h), Compensation Scale	
Comment	One commentator suggested that the example in this section was potentially misleading and suggested it be deleted.
Response	The reviewers agree and deleted the example. In addition, language was added to indicate the actuary should determine whether future levels of compensation are appropriate for the calculation.

Section 3.3.4(i), Growth of Individual Account Balances	
Comment	One commentator suggested the requirement to use the discount rate as the assumption for future investment return unless another assumption is clearly warranted to be too prescriptive.
Response	The reviewers agree and modified the language to be less prescriptive.
Section 3.3.5, Valuation Process	
Comment	One commentator suggested deleting the last paragraph of this section. The commentator suggested that if this paragraph were not deleted, the language should be replaced to indicate that this “different result” be renamed as a false or incorrect result.
Response	The reviewers agree with the commentator’s concern and modified the language.
Section 3.3.8, Consistency with the Actuary’s Previous Actuarial Valuations	
Comment	One commentator suggested that this section be eliminated as its requirements are too restrictive. The commentator offered alternative language.
Response	The reviewers believe the existing language is not too restrictive and made no change.
Section 3.4.3, Participating in Negotiations with Another Expert	
Comment	One commentator suggested replacing the words “irreconcilable positions” with “unreconciled positions,” since the rest of the sentence in this section suggested that the positions will ultimately be resolved.
Response	The reviewers agree and modified the language.
Section 3.7, Assisting in Reviewing or Implementing a Domestic Relations Order	
Comment	One commentator suggested that this section should explicitly mention making sure the benefits are definitely determinable from the plan document and domestic relations order, and disclosing if they are not.
Response	The reviewers agree and modified the language.
SECTION 4. COMMUNICATIONS AND DISCLOSURES	
Section 4.3, General Disclosures	
Comment	One commentator suggested a summary of plan provisions should not be required to be disclosed by the actuary when the actuary is doing a benefit calculation pursuant to a domestic relations order.
Response	The reviewers disagree and made no change.
Section 4.4, Actuarial Valuation Results	
Comment	One commentator suggested that “or source of allocated benefits” be inserted after “a description of the allocation method” in section 4.4(b). Another commentator suggested adding “if any” after “a description of the allocation method.”
Response	The reviewers believe the existing language is sufficiently clear and unambiguous and, therefore, made no change.
Comment	Two commentators suggested “the rationale” be replaced by “a rationale” in section 4.4(b).
Response	The reviewers disagree and made no change.
Comment	One commentator suggested that the wording in section 4.4(d) be changed to require “a brief description of” the rationale.
Response	The reviewers agree and modified the language in section 4.4(d) to require a brief description of the rationale.

Comment	One commentator suggested that section 4.4(d) clearly indicate that rationale for assumptions need not be provided for domestic relations order calculations.
Response	The reviewers believe the guidance provided in section 3.3 is clear in this respect and made no change.

ACTUARIAL STANDARDS BOARD

Actuarial Standard
of Practice
No. 35

Revised Edition

Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations

Developed by the
Pension Committee of the
Actuarial Standards Board

Adopted by the
Actuarial Standards Board
June 2020

Doc No. 198

ASOP No. 35—Doc. No. 198—June 2020

T A B L E   O F   C O N T E N T S

APPENDIX

ASOP No. 35—Doc. No. 198—June 2020

June 2020

TO: Members of Actuarial Organizations Governed by the Standards of Practice of the Actuarial Standards Board and Other Persons Interested in the Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations

FROM: Actuarial Standards Board (ASB)

SUBJ: Actuarial Standard of Practice (ASOP) No. 35

This document contains a revision of ASOP No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*.

History of the Standard

The ASB provides guidance for measuring pension and retiree group benefit obligations through the series of ASOPs listed below.

1. ASOP No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*;

2. ASOP No. 6, *Measuring Retiree Group Benefits Obligations and Determining Retiree Group Benefits Program Periodic Costs or Actuarially Determined Contributions*;

3. ASOP No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*;

4. ASOP No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*;

5. ASOP No. 44, *Selection and Use of Asset Valuation Methods for Pension Valuations*; and

6. ASOP No. 51, *Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions*.

The last revision of ASOP No. 35 was issued in September 2014.

In response to specific requests for changes in the ASOPs and other activity related to public pension plans, in July 2014 the ASB issued a Request for Comments on the topic of ASOPs and Public Pension Plan Funding and Accounting. Over 50 comment letters were received covering a wide variety of potential ASB actions. In December 2014, the ASB formed the Pension Task Force and charged it with reviewing these comments and other relevant reports and input to develop recommendations for ASB next steps. In July 2015, the ASB held a public hearing on actuarial standards of practice applicable to actuarial work regarding public plans. The Pension Task Force provided its report to the ASB in February 2016. The report included suggestions for changes to the ASOPs that would apply to all areas of pension practice. In June 2016, the ASB directed its Pension Committee to draft appropriate modifications to the actuarial standards of practice, in accordance with ASB procedures, to implement the suggestions of the Pension Task Force. Draft revisions of ASOP Nos. 4, 27, and 35 were exposed for comment in March 2018 with a comment deadline of July 31, 2018.

First Exposure Draft

The first exposure draft was issued in March 2018 with a comment deadline of July 31, 2018. Sixteen comment letters were received and considered in making changes that were reflected in the second exposure draft.

Second Exposure Draft

The second exposure draft was issued in June 2019 with a comment deadline of September 15, 2019. Six comment letters were received and considered in making changes that are reflected in this revised ASOP.

Notable Changes from the Second Exposure Draft

Notable changes made to the second exposure draft are summarized below. Additional changes were made to improve readability, clarity, or consistency within this ASOP and ASOP No. 27.

1. Section 3.4.3, Mortality, was modified to state that the actuary should consider using actual participant mortality data, to the extent fully or partially credible, or published and generally available mortality tables. In addition, the guidance was modified for consistency with section 4.1.2.

2. Section 3.11, Documentation, was revised to remove the requirement that when preparing documentation the actuary should prepare documentation in a form such that another actuary qualified in the same practice area could assess the reasonableness of the actuary's work or could assume the assignment if necessary.

Summary of Notable Changes from the Existing ASOP No. 35 Adopted September 2014

Notable changes from the existing ASOP No. 35 adopted September 2014 are summarized below.

1. Section 1.2, Scope, was expanded to clarify the application of the standard when a demographic assumption is not selected by the actuary and whenever the actuary has an obligation to assess the reasonableness of a demographic assumption that the actuary has not selected.

2. Section 3.3.5 (now section 3.2.5), Select a Reasonable Assumption, was clarified to acknowledge that relevant historical data may not exist.

3. Section 3.5.3, Mortality and Mortality Improvement, (now section 3.4.3, Mortality, and section 3.4.4, Mortality Improvement) was clarified and expanded to provide additional guidance regarding the selection of mortality assumptions and the use of mortality tables that substantially predate the measurement date.

4. Section 3.8, Reviewing Assumptions (now section 3.7 Reviewing Assumptions Previously Selected by the Actuary), was amended to provide additional guidance regarding the reviewing of assumptions that the actuary previously selected.

5. Section 3.9, Phase-In of Changes in Assumptions, was added to provide guidance regarding the phase-in of changes in assumptions.

6. Section 3.9, Assumptions Not Selected by the Actuary (now section 3.8, Assessing Assumptions Not Selected by the Actuary), was modified to clarify the requirement that the actuary assess the reasonableness of each demographic assumption that the actuary has not selected.

7. Section 3.10.4, Combined Effect of Assumptions, was clarified to indicate that the combined effect of assumptions selected by the actuary should be expected to have no significant bias.

8. Section 3.10.6, Views of Experts, (now titled, Other Sources of Demographic Data and Analyses) was renamed and clarified to provide for use of other sources of demographic data and analyses.

9. Section 3.11, Documentation, was added to provide guidance regarding documentation.

10. Section 4.1.2, Rationale for Assumptions, was modified concerning the disclosure of the rationale for assumptions, was clarified concerning the application to planned assumption changes after the measurement date, and was clarified regarding disclosures for mortality assumptions.

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

The ASB also thanks its former Pension Committee members and, in particular, former Pension Committee Chairperson Christopher F. Noble for their contributions in the drafting of this standard.

The ASB voted in June 2020 to adopt this standard.

ASOP No. 35—Doc. No. 198—June 2020

Pension Committee of the ASB

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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.

ASOP No. 35—Doc. No. 198—June 2020

ACTUARIAL STANDARD OF PRACTICE NO. 35

SELECTION OF DEMOGRAPHIC AND OTHER NONECONOMIC ASSUMPTIONS FOR MEASURING PENSION OBLIGATIONS

STANDARD OF PRACTICE

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

1.1 Purpose—This actuarial standard of practice (ASOP or standard) does the following:

a. provides guidance to actuaries when performing actuarial services that include selecting (including giving advice on selecting) demographic and other noneconomic assumptions for measuring obligations under defined benefit pension plans;

b. supplements the guidance in ASOP No. 4, *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions,* that relates to the selection and use of demographic and other noneconomic assumptions;

c. supplements the guidance in ASOP No. 6, *Measuring Retiree Group Benefits Obligations and Determining Retiree Group Benefits Program Periodic Costs or Actuarially Determined Contributions*, that relates to the selection and use of demographic and other noneconomic assumptions; and

d. supplements the guidance in ASOP No. 34, *Actuarial Practice Concerning Retirement Plan Benefits in Domestic Relations Actions*, that relates to the selection and use of demographic and other noneconomic assumptions.

1.2 Scope—This standard applies to actuaries when performing actuarial services that include selecting demographic and all other assumptions not covered by ASOP No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations,* to measure obligations under any defined benefit pension plan that is not a social insurance program as described in section 1.2, Scope, of ASOP No. 32, *Social Insurance* (unless ASOPs on social insurance explicitly call for application of this standard). Measurements of defined benefit pension plan obligations include calculations such as funding valuations or other assignment of plan costs to time periods, liability measurements or other actuarial present value calculations, and cash flow projections or other estimates of the magnitude of future plan obligations. Measurements of pension obligations do not generally include individual benefit calculations, individual benefit statement estimates, or nondiscrimination testing.

Throughout this standard, any reference to selecting demographic and other noneconomic assumptions also includes giving advice on selecting demographic and other noneconomic assumptions. For example, the actuary may provide advice on selecting demographic and noneconomic assumptions under US GAAP or Governmental Accounting Standards even though another party is ultimately responsible for selecting these assumptions. This standard applies to the actuarial advice given in such situations, within the constraints imposed by the relevant accounting standards.

As discussed in ASOP No. 41, *Actuarial Communications*, an assumption may be selected by the actuary or selected by another party. Nothing in this standard is intended to require the actuary to select a demographic or other noneconomic assumption that has otherwise been selected by another party. When a demographic or other noneconomic assumption is not selected by the actuary, the guidance in section 3.8 and section 4 concerning assessment and disclosure applies.

If the actuary determines that the guidance in this standard conflicts with ASOP Nos. 4 or 6, ASOP Nos. 4 or 6 will govern.

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. If a conflict exists between this standard and applicable law, the actuary should comply with applicable law.

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

1.4 Effective Date—This standard is effective for any actuarial report that meets the following criteria: (a) the actuarial report is issued on or after August 1, 2021; and (b) the **measurement date** in the actuarial report is on or after August 1, 2021.

Section 2. Definitions

The terms below are defined for use in this actuarial standard of practice and appear in bold throughout the ASOP.

2.1 Assumption Format—The form in which a particular **demographic assumption** will be used or expressed. In some cases, the assumption will take the form of a table where the probability of the occurrence of a given event depends on parameters such as gender, age, service, or calendar year. In other cases, the assumption may be a point estimate, implying 100% probability of occurrence of a given event at the stated point. An example of a point estimate assumption is an assumption that 100% of the population will retire at age 62. The **assumption format** may include different tables or point estimates for different segments of the covered population.

2.2 Assumption Universe—For each **demographic assumption**, a universe consisting of the possible options that the actuary might reasonably use for the specific assumption. For example, an **assumption universe** for a mortality assumption might reasonably include relevant published or proprietary mortality tables and possible adjustments, such as projections of mortality improvement. For some pension plans, an **assumption universe** for a specific assumption might reasonably include a table or factors developed specifically for that plan.

2.3 Demographic Assumptions—Demographic and all other noneconomic assumptions (i.e., those assumptions not covered in ASOP No. 27), unless explicitly stated otherwise. Types of **demographic assumptions** may include retirement, mortality and mortality improvement, and other assumptions such as administrative expenses.

2.4 Measurement Date—The date as of which the values of the pension obligations and, if applicable, assets are determined.

2.5 Measurement Period—The period subsequent to the **measurement date** during which a particular **demographic assumption** will apply in a given measurement.

2.6 Prescribed Assumption or Method Set by Another Party—A specific assumption or method that is selected by another party, to the extent that law, regulation, or accounting standards give the other party responsibility for selecting such an assumption or method. For this purpose, an assumption or method selected by a governmental entity for a plan that such governmental entity or a political subdivision of that entity directly or indirectly sponsors is a **prescribed assumption or method set by another party**.

2.7 Prescribed Assumption or Method Set by Law—A specific assumption or method that is mandated or that is selected from a specified range or set of assumptions or methods that is deemed to be acceptable by applicable law (statutes, regulations, and other legally binding authority). For this purpose, an assumption or method selected by a governmental entity for a plan that such governmental entity or a political subdivision of that entity directly or indirectly sponsors is not a **prescribed assumption or method set by law**.

Section 3. Analysis of Issues and Recommended Practices

3.1 Overview—The actuary should use professional judgment to estimate possible future outcomes based on past experience and future expectations and select assumptions based upon application of that professional judgment. The actuary should select reasonable **demographic assumptions** in light of the particular characteristics of the defined benefit plan that is the subject of the measurement. For any given measurement, the actuary will typically be able to identify a range of reasonable assumptions for the same contingency.

3.2 Demographic Assumption Selection Process—The actuary should follow the process below, as applicable, for selecting **demographic assumptions**. The actuary need not follow this complete process at each **measurement date** for each assumption if, in the actuary's professional judgment, previously selected assumptions continue to be reasonable.

3.2.1 Identify the Types of Demographic Assumptions Used in the Measurement—The actuary should identify the types of **demographic assumptions** to use for a specific measurement. In doing so, the actuary should take into account the following:

a. the purpose of the measurement;

b. the plan provisions or benefits and factors that will affect the timing and value of any potential benefit payments;

c. the characteristics of the obligation to be measured (such as **measurement period**, pattern of plan payments over time, open or closed group, materiality, and volatility);

d. the contingencies that give rise to benefits or result in loss of benefits;

e. the materiality of the assumption to the measurement (see section 3.10.2); and

f. the characteristics of the covered group.

The types of **demographic assumptions** used to measure pension obligations may include retirement, termination of employment, mortality and mortality improvement, disability and disability recovery, election of optional forms of benefits, and other assumptions such as administrative expenses; household composition; marriage, divorce, and remarriage; open group assumptions; hours of service; transfers; and assumptions regarding missing or incomplete data.

Not every contingency requires a separate assumption. For example, for a plan that is expected to provide benefits of equal value to employees who voluntarily terminate employment or become disabled, retire, or die, the actuary may use an assumption that reflects some or all of the above contingencies in combination rather than selecting a separate assumption for each.

3.2.2 Consider the Relevant Assumption Universe—The actuary should be familiar with the **assumption universe** relevant to each type of assumption identified in section 3.2.1. The **assumption universe** may include tables or factors particular to the given plan as well as general tables, factors, and modifications to the tables that are available to the actuary. Sources of information relevant to **demographic assumptions** may include the following:

a. experience studies or published tables based on experience under uninsured plans and annuity contracts, or based on any other populations considered representative of the group at hand;

b. relevant plan or plan sponsor experience, which may include analyses of gains or losses by source;

c. studies or reports of the effects of plan design, specific events (for example, shutdown), economic conditions, or sponsor characteristics on the **demographic assumption** under consideration;

d. studies or reports of general trends relevant to the type of **demographic assumption** in question (for example, mortality improvement in the United States); and

e. relevant information from the plan sponsor or other sources about future expectations.

3.2.3 Select Assumption Formats—The actuary should select an appropriate **assumption format** for each **demographic assumption**. Factors that affect format specification may include the following:

a. the degree to which the **assumption format** may affect the results;

b. the availability of tables, data, or information relevant to the assumption being selected;

c. the degree to which the **assumption format** has the potential to model anticipated plan experience;

d. the size of the covered population; and

e. the degree to which a parameter (such as gender, age, service, or calendar year) is anticipated to affect experience.

In many situations it is appropriate for the **assumption format** to include assumptions for different segments of the covered population. For example, it may be appropriate to have different mortality tables for males and females or different turnover tables for salaried and hourly employees.

3.2.4 Select the Specific Assumptions—The actuary should select each **demographic assumption** from the appropriate **assumption universe**. In all cases, the actuary should take into account the significance of each assumption selected. The actuary should take into account factors specific to the measurement when selecting assumptions. Such factors are as follows:

a. the purpose and nature of the measurement. For example, a cash flow projection may require more refined assumptions than a liability measure;

b. any features of the plan design or change in the plan design that may influence the assumptions. For example, the introduction of an early retirement subsidy could influence the plan’s incidence of retirement or termination; under these circumstances, in order to measure the incremental cost associated with this change, the assumptions for the proposed plan provision may differ from the assumptions for the current provision;

c. appropriate experience from the specific plan and other relevant sources; and

d. relevant factors known to the actuary that may affect future experience, such as the economic conditions of the area or industry, availability of alternative employment, or the human resources practices of the employer.

Specific experience of the covered group or other groups with similar characteristics may be useful in forming a judgment about future expectations. However, the actuary should not give undue weight to experience that is not sufficiently credible. The actuary should refer to ASOP No. 25, *Credibility Procedures*, for additional guidance.

In addition, the actuary should not give undue weight to experience that may not be relevant to future expectations. For example, if recent rates of termination and retirement were largely attributable to a one-time workforce reduction, it may be unreasonable to assume that such rates will continue over the **measurement period**.

3.2.5 Select a Reasonable Assumption—The actuary should select reasonable **demographic assumptions**. For this purpose, an assumption is reasonable if it has the following characteristics:

a. it is appropriate for the purpose of the measurement;

b. it reflects the actuary's professional judgment;

c. it takes into account current and historical data that is relevant to selecting the assumption for the **measurement date**, to the extent such relevant data is reasonably available;

d. it reflects the actuary's estimate of future experience, the actuary's observation of the estimates inherent in market data (if any), or a combination thereof; and

e. it is expected to have no significant bias (i.e., it is not significantly optimistic or pessimistic), except when provisions for adverse deviation or plan provisions that are difficult to measure are included (as discussed in section 3.10.1) or when alternative assumptions are used for the assessment of risk, in accordance with ASOP No. 51, *Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions*.

3.3 Range of Reasonable Assumptions—Due to the uncertain nature of the items for which assumptions are selected, the actuary may consider several different assumptions reasonable for a given measurement. Different actuaries will apply different professional judgment and may choose different reasonable assumptions. As a result, a range of reasonable assumptions may develop, both for an individual actuary and across actuarial practice.

3.4 Specific Considerations—When performing the assumption selection process described in section 3.2, the actuary should be aware of specific considerations that may apply to the selection of individual assumptions, as discussed below.

3.4.1 Retirement—The actuary should take into account factors that may affect rates of retirement, such as the following:

a. employer-specific or job-related factors such as occupation, employment practices, work environment, unionization, hazardous conditions, and location of employment;

b. the plan design, where specific incentives may influence when participants retire;

c. the design of, and date of anticipated payment from, social insurance programs (for example, Social Security or Medicare) or other non-employer-sponsored benefit programs (for example, health insurance exchange plan); and

d. the availability of other employer-sponsored postretirement benefit programs (for example, postretirement health coverage or savings plan).

3.4.2 Termination of Employment—The actuary should take into account factors that may affect rates of termination of employment, such as the following:

a. employer-specific or job-related factors such as occupation, employment practices, work environment, unionization, hazardous conditions, and location of employment; and

b. plan provisions, such as early retirement benefits, vesting schedule, or payout options.

3.4.3 Mortality—The actuary should take into account factors that may affect rates of mortality, such as the following:

a. the characteristics of employees and retirees (for example, it may be reasonable to select different assumptions for pre and post retirement);

b. the size of the covered population (for example, for some small plans, a reasonable model for mortality may be to assume no mortality before retirement);

c. the characteristics of disabled lives, which may depend on the plan's definition of disability and how it is administered; and

d. the characteristics of different participant subgroups and beneficiaries.

The actuary should consider using actual participant mortality data, to the extent fully or partially credible, or published and generally available mortality tables. If the actuary selects a mortality assumption that is based on mortality tables that substantially predate more recently published relevant and generally available mortality tables, the actuary should disclose the rationale for the use of such tables instead of a more recently published table, in accordance with section 4.1.2.

3.4.4 Mortality Improvement—The actuary should reflect the effect of mortality improvement (which may be positive, negative, or zero) both before and after the **measurement date**. With regard to mortality improvement, the actuary should do the following:

a. adjust mortality rates to reflect an assumption as to mortality improvement before the **measurement date**. For example, if the actuary starts with a published mortality table, the mortality rates may need to be adjusted to reflect mortality improvement from the effective date of the table to the **measurement date**. Such an adjustment is not necessary if, in the actuary's professional judgment, the published mortality table reflects expected mortality rates as of the **measurement date**. This assumption should be disclosed in accordance with section 4.1.1, even if the actuary concludes that such an adjustment is not necessary; and

b. include an assumption as to expected mortality improvement after the **measurement date**. This assumption should be disclosed in accordance with section 4.1.1, even if the actuary concludes that an assumption of zero future improvement is reasonable as described in section 3.2.5. Note that the existence of uncertainty about the occurrence or magnitude of future mortality improvement does not by itself mean that an assumption of zero future improvement is a reasonable assumption.

3.4.5 Disability and Disability Recovery—The actuary should take into account factors that may affect rates of disability and disability recovery, such as the following:

a. the plan's definition of disability (for example, whether the disabled person must be eligible for Social Security disability benefits); and

b. the potential for recovery. For example, if the plan requires continued disability monitoring and if the plan's definition of disability is not highly restrictive, an assumption for rates of recovery may be appropriate. Alternatively, the probability of recovery may be reflected by assuming a lower incidence of disability than the actuary might otherwise assume.

3.4.6 Election of Optional Form of Benefit—The actuary should take into account factors that may affect rates of electing an optional form of benefit, such as the following:

a. the optional forms of benefit and benefit commencement dates available under the plan being valued;

b. the historical or expected experience of elections under the plan being valued and similar plans; and

c. the degree to which particular optional forms of benefit may be subsidized.

3.4.7 Expenses Paid from Plan Assets—The actuary should take into account expenses paid from plan assets such as investment advisory, investment management, or insurance advisory services; premiums paid to the Pension Benefit Guaranty Corporation (PBGC); accounting and auditing services; actuarial services; plan administration services; legal services; and trustee services. Formats for these assumptions may include a dollar amount, a specific percentage of assets, a reduction in the investment return assumption, a percentage of benefit obligation or normal cost, or a combination thereof.

3.5 Other Demographic Assumptions—The actuary should follow the general selection process outlined in section 3.2 when selecting other assumptions relevant to the measurement. Such assumptions may include the following:

3.5.1 Household Composition—Household composition may affect the payment of benefits, the amount of benefits, or other **demographic assumptions**. For example, some plans provide annuity death benefits to surviving children under a stated age. In that case, an assumption as to the number and ages of the potential beneficiaries may be needed.

3.5.2 Marriage, Divorce, and Remarriage—Marriage, divorce, or remarriage may affect the payment of benefits, the amount or type of benefits, or the continuation of benefit payments. An assumption regarding beneficiary ages may also be necessary.

3.5.3 Open Group—Certain assumptions, such as the number and characteristics of new entrants, are applicable in open-group measurements.

3.5.4 Hours of Service—Assumptions for hours of service are generally plan- or industry-specific. Separate assumptions may also be needed for such purposes as benefit accrual and total employer plan contributions.

3.5.5 Transfers and Return to Employment—The assumptions for transfers or return to employment are generally plan- or industry-specific. Transfers and return to employment may be one-time events or may be continual if employees are required or permitted to move among groups that are covered by the same or different plans.

3.5.6 Missing or Incomplete Data—The data provided may be incomplete due to missing elements such as birth dates or hire dates. Accordingly, assumptions for missing or incomplete data may be necessary if the actuary has determined, in accordance with ASOP No. 23, *Data Quality*, that the overall data are of sufficient quality to complete the assignment. Data actually supplied may be relevant in making such assumptions. For example, it may be appropriate to assume a missing birth date is equal to the average birth date for other participants who have complete data and who have the same service credits as the participant whose date of birth is missing.

3.6 Consistency among Assumptions Selected by the Actuary for a Particular Measurement—With respect to a particular measurement, the actuary should select **demographic assumptions** that are consistent with the other assumptions selected by the actuary, including economic assumptions, unless an assumption considered individually is not material (see section 3.10.2). For example, if an employer's business is in decline and the effect of that decline is reflected in the turnover assumption, it may be appropriate to reflect a change in the retirement assumption, and it may also be appropriate to reflect a change in the compensation increase assumption.

In addition, the actuary should evaluate the assumptions for consistency with **demographic assumptions** used for measurements of different benefit plans covering the same covered group, if that information is available to the actuary. To the extent the actuary determines that inconsistencies exist, the actuary should determine whether those inconsistencies are reasonable and make adjustments if appropriate.

The actuary is not required to select assumptions that are consistent with assumptions not selected by the actuary.

3.7 Reviewing Assumptions Previously Selected by the Actuary—At each **measurement date**, the actuary should determine whether the **demographic assumptions** selected by the actuary for a previous **measurement date** continue to be reasonable. In making this determination, the actuary should take into account changes in relevant factors known to the actuary that may affect future experience. The actuary should also review recent gain and loss analyses, if any. In addition, the actuary should consider whether an experience study should be performed; however, the actuary is not required to perform an experience study. For each previously selected assumption that the actuary determines is no longer reasonable, the actuary should select a reasonable new assumption.

3.8 Assessing Assumptions Not Selected by the Actuary—At each **measurement date**, the actuary should assess the reasonableness of each **demographic assumption** that the actuary has not selected (other than **prescribed assumptions or methods set by law** or assumptions disclosed in accordance with section 4.2[b]), using the guidance set forth in this standard to the extent practicable.

3.9 Phase-In of Changes in Assumptions—If a **demographic assumption** is being phased in over a period that includes multiple **measurement dates**, the actuary should determine the reasonableness of the **demographic assumption** and its consistency with other assumptions as of the **measurement date** at which it is applied, without regard to changes to the assumption planned for future **measurement dates**. If the actuary determines that a **demographic assumption** is not reasonable as of the **measurement date** at which it is applied, the actuary should select a reasonable new assumption.

3.10 General Considerations—The actuary should take into account the following when applicable:

3.10.1 Adverse Deviation or Plan Provisions That Are Difficult to Measure—Depending on the purpose of the measurement, the actuary may determine that it is appropriate to adjust the **demographic assumptions** to provide for adverse deviation or reflect plan provisions that are difficult to measure. The actuary should disclose any explicit adjustment made in accordance with section 4.1.1.

3.10.2 Materiality—The actuary should take into account the balance between refined **demographic assumptions** and materiality. The actuary is not required to use a particular type of **demographic assumption** or to select a more refined **demographic assumption** when in the actuary's professional judgment such use or selection is not expected to produce materially different results.

3.10.3 Cost of Using Refined Assumptions—The actuary should take into account the balance between refined **demographic assumptions** and the cost of using refined **demographic assumptions**. For example, actuaries working with small plans may prefer to emphasize the results of general research to comply with this standard.

3.10.4 Combined Effect of Assumptions—The actuary should select assumptions (both **demographic assumptions** selected in accordance with this standard and economic assumptions selected in accordance with ASOP No. 27) such that the combined effect of the assumptions selected by the actuary is expected to have no significant bias (i.e., it is not significantly optimistic or pessimistic) except when provisions for adverse deviation are included or when alternative assumptions are used for the assessment of risk, in accordance with ASOP No. 51. For example, the actuary may have decided not to make any assumption with regard to four different types of future events, each of which alone is immaterial. However, the effect of omitting assumptions for all four types of future events may be a material understatement or overstatement of the measurement results. In these circumstances, the assumptions should be revised.

3.10.5 Changes in Circumstances—The actuary should select **demographic assumptions** that reflect the actuary's knowledge as of the **measurement date**. If the actuary learns of an event occurring after the **measurement date** (for example, plan termination or death of the principal owner) that would have changed the actuary's selection of a **demographic assumption**, the actuary may reflect this change as of the **measurement date**.

3.10.6 Other Sources of Demographic Data and Analyses—When the actuary is responsible for selecting or giving advice on selecting **demographic assumptions** within the scope of this standard, the actuary may incorporate demographic data and analyses from a variety of other sources, including representatives of the plan sponsor and administrator, demographers, economists, and other professionals. However, the selection or advice should reflect the actuary's professional judgment.

3.11 Documentation—The actuary should consider preparing and retaining documentation to support compliance with the requirements of section 3 and the disclosure requirements of section 4. The degree of such documentation should be based on the professional judgment of the actuary, and may vary with the complexity and purpose of the actuarial services. In addition, the actuary should refer to ASOP No. 41for guidance related to the retention of file material other than that which is to be disclosed under section 4.

Section 4. Communications and Disclosures

4.1 Required Disclosures in an Actuarial Report—When issuing an actuarial report to which this standard applies, the actuary should refer to ASOP Nos. 4, 23, 25, 27, 41, and 51. In addition, the actuary should disclose the following in such actuarial reports:

4.1.1 Assumptions Used—The actuary should describe each significant **demographic assumption** used in the measurement and, to the extent known, whether the assumption represents an estimate of future experience, an observation of the estimates inherent in market data, or a combination thereof. The actuary should also include a disclosure of any explicit adjustment made in accordance with section 3.10.1 for adverse deviation or plan provisions that are difficult to measure. Sufficient detail should be shown to permit another qualified actuary to assess the level and pattern of each assumption (for example, by supplying the name of a published decrement table or by showing turnover rates at every fifth age for an unpublished age-based table).

The disclosure of the mortality assumption should contain sufficient detail to permit another qualified actuary to understand any adjustment to reflect mortality improvement from the effective date of the table to the **measurement date** and the provision made for future mortality improvement. If the actuary assumes zero mortality improvement after the **measurement date**, the actuary should state that no provision was made for future mortality improvement.

4.1.2 Rationale for Assumptions—For each **demographic assumption** that has a significant effect on the measurement and that the actuary has selected, the actuary should disclose the information and analysis used to support the actuary's determination that the assumption is reasonable.

For each **demographic assumption** that has a significant effect on the measurement and that the actuary has not selected (other than **prescribed assumptions or methods set by law** or assumptions disclosed in accordance with section 4.2[a] or [b]), the actuary should disclose the information and analysis used to support the actuary's determination that the assumption does not significantly conflict with what, in the actuary's professional judgment, is reasonable for the purpose of the measurement.

The disclosures should be based on the **demographic assumptions** as of the **measurement date** at which they are applied without regard to changes to the assumptions planned for future **measurement dates**. These disclosures may be brief but should be pertinent to the plan's circumstances. For example, the actuary may disclose any specific approaches used, sources of external advice, and how past experience and future expectations were considered in determining the assumption to be reasonable. If applicable, the actuary should disclose the time period of relevant plan or plan sponsor experience that was last analyzed, including the date of any experience study used in the selection process.

Additionally, if the disclosure relates to a mortality assumption that is based on mortality tables that substantially predate more recently published relevant and generally available mortality tables, the actuary should disclose the rationale for the use of such tables instead of a more recently published table.

4.1.3 Changes in Assumptions—The actuary should disclose any changes in the significant **demographic assumptions** from those previously used for the same type of measurement. The general effects of the changes should be disclosed in words or by numerical data, as appropriate. For situations in which both the **demographic assumptions** and economic assumptions have changed from those previously used for the same type of measurement, the actuary may disclose the general effects of the changes separately or combined, as appropriate. For each assumption that is neither a **prescribed assumption or method set by another party** nor a **prescribed assumption or method set by law**, the actuary should include an explanation of the information and analysis that led to the change.

The disclosure may be brief but should be pertinent to the plan's circumstances. The disclosure may reference any actuarial experience study performed, including the date of the experience study report.

4.1.4 Changes in Circumstances—The actuary should refer to ASOP No. 41 for communication and disclosure requirements regarding changes in circumstances known to the actuary that occur after the **measurement date** and that would affect **demographic assumptions** selected as of the **measurement date**.

4.2 Disclosure about Assumptions Not Selected by the Actuary—The actuary's report should state the source of any assumption that the actuary has not selected.

With respect to assumptions that the actuary has not selected, other than **prescribed assumptions or methods set by law**, the actuary's report should identify the following, if applicable:

a. any such assumption that significantly conflicts with what, in the actuary's professional judgment, is reasonable for the purpose of the measurement (section 3.8); or

b. any such assumption that the actuary is unable to assess for reasonableness for the purpose of the measurement (section 3.8).

4.3 Additional Disclosures in an Actuarial Report—The actuary should also include the following, when applicable, in an actuarial report:

a. 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 set by a party other than the actuary; and

b. 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.

4.4 Confidential Information—Nothing in this ASOP is intended to require the actuary to disclose confidential information.

Appendix

Comments on the Second Exposure Draft and Responses

The second exposure draft of the proposed revision of ASOP No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations*, was issued in June 2019 with a comment deadline of September 15, 2019. Six comment letters were received, some of which were submitted on behalf of multiple commentators, such as by 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 Pension Committee carefully considered all comments received, and the ASB reviewed (and modified, where appropriate) the changes proposed by the Pension Committee.

Summarized below are the significant issues and questions contained in the comment letters and the responses to each. Minor wording or punctuation changes that are suggested but not significant are not reflected in the appendix, although they may have been adopted.

The term "reviewers" includes the Pension Committee and the ASB. Unless otherwise noted, the section numbers and titles used below refer to those in the second exposure draft.

GENERAL COMMENTS	
Comment Response	One commentator suggested that this ASOP and ASOP No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations,* should be merged into a single ASOP on selection of assumptions for measuring pension obligations. The reviewers may consider merging the two ASOPs in the future.
Comment Response	One commentator stated there was no discussion in the ASOP regarding a noneconomic assumption that is not a demographic assumption. The reviewers disagree and note as an example that section 3.4.7 refers to expenses paid from plan assets.
Comment Response	One commentator felt the structure and order of ASOP No. 35 should be changed to be consistent with ASOP No. 27. The reviewers agree with the objective of consistency in the structure and order and may consider merging the two ASOPs in the future.
SECTION 2. DEFINITIONS	
Comment Response	One commentator felt that the ASOP should prescribe a maximum length of time (for example 5 years) between relevant demographic and other noneconomic assumption studies so that pension plans stay up to date on current understanding of costs and trends. The reviewers believe that the suggested guidance is too prescriptive and made no change in response to this comment.

SECTION 3. ANALYSIS OF ISSUES AND RECOMMENDED PRACTICES	
Section 3.2, Demographic Assumption Selection Process	
Comment	One commentator felt the reference of section 3.7 in section 3.2 was unclear with respect to the first year an actuary performs a valuation of a pension plan (after a different actuary performed the valuation the prior year).
Response	The reviewers agree and removed the reference to section 3.7 from section 3.2.
Section 3.2.2, Consider the Relevant Assumption Universe	
Comment	One commentator felt section 3.2.2 was too narrowly prescriptive.
Response	The reviewers disagree and made no change in response to this comment.
Section 3.2.4, Select the Specific Assumptions	
Comment	One commentator felt that in section 3.2.4(b) both retirement and termination assumptions should be addressed, as the introduction of an early retirement subsidy may be reasonably expected to affect both.
Response	The reviewers agree and modified the language to address this comment.
Section 3.2.5, Select a Reasonable Assumption	
Comment	One commentator questioned why section 3.2.5 came after 3.2.4.
Response	The reviewers believe that the two sections are complementary, that the guidance is sufficiently clear, and made no change in response to this comment.
Section 3.4, Specific Considerations	
Comment	One commentator felt section 3.4 was too narrowly prescriptive.
Response	The reviewers disagree and made no change in response to this comment.
Section 3.4.3, Mortality	
Comment	Two commentators felt that in addition to considering using recently published and generally available mortality tables, the actuary may consider using actual participant mortality data, to the extent fully or partially credible.
Response	The reviewers agree and modified the language in response to these comments.
Section 3.4.4, Mortality Improvement	
Comment	One commentator felt that full generational projection of mortality improvement is now commonly used and that the language in section 3.4.4 should be changed to reflect stronger expectations of actuaries' ability to reflect future mortality improvement.
Response	The reviewers believe that the suggested language is too prescriptive and made no change in response to this comment.
Section 3.4.5, Disability and Disability Recovery	
Comment	One commentator felt the phrase "for example, whether the disabled person is eligible for Social Security" should be reworded to read "e.g., whether the disabled person must be eligible for Social Security disability benefits to qualify for plan disability benefits."
Response	The reviewers agree and modified the language in response to this comment.

<table>
<tr><td colspan="2">Section 3.4.7, Expenses Paid from Plan Assets</td></tr>
<tr><td>Comment</td><td>One commentator suggested the first sentence be changed to add the following underlined phrase because not all of the expenses listed are always appropriate to the purpose of the measurement: “The actuary should take into account expenses paid from plan assets that are appropriate for the purpose of the measurement, such as investment advisory, investment management….”</td></tr>
<tr><td>Response</td><td>The reviewers disagree and made no change in response to this comment.</td></tr>
<tr><td>Comment</td><td>One commentator suggested moving coverage of this assumption from ASOP No. 35 to ASOP No. 27, as we think it is more relevant to the selection of economic assumptions than to the selection of demographic assumptions.</td></tr>
<tr><td>Response</td><td>The reviewers acknowledge this guidance could be included in either ASOP but made no change in response to this comment.</td></tr>
<tr><td colspan="2">Sections 3.5.1, Household Composition; 3.5.2, Marriage, Divorce, and Remarriage; 3.5.3, Open Group; 3.5.4, Hours of Service; and 3.5.5, Transfers and Return to Employment</td></tr>
<tr><td>Comment</td><td>One commentator felt sections 3.5.1-3.5.5 were too narrowly prescriptive.</td></tr>
<tr><td>Response</td><td>The reviewers disagree and made no change in response to this comment.</td></tr>
<tr><td colspan="2">Section 3.5.6, Missing or Incomplete Data</td></tr>
<tr><td>Comment</td><td>One commentator noted that section 3.5.6 duplicates parts of ASOP No. 23, Data Quality, and believes it is inappropriate to include wording about data quality in other ASOPs than ASOP No. 23.</td></tr>
<tr><td>Response</td><td>The reviewers believe the guidance is appropriate and made no change in response to this comment.</td></tr>
<tr><td colspan="2">Section 3.7, Reviewing Assumptions Previously Selected by the Actuary</td></tr>
<tr><td>Comment</td><td>One commentator suggested that it would be helpful if this section made clear that the actuary should also review the demographic assumptions used by the actuary who last performed the measurement before using them to ensure they remain reasonable.</td></tr>
<tr><td>Response</td><td>The reviewers disagree and believe the guidance in this ASOP is clear. Therefore, the reviewers made no change in response to this comment.</td></tr>
<tr><td colspan="2">Section 3.9, Phase-in of Changes in Assumptions</td></tr>
<tr><td>Comment</td><td>One commentator suggested that this section is not clear or necessary and was concerned this section could be read to apply to select and ultimate assumptions.</td></tr>
<tr><td>Response</td><td>The reviewers disagree and believe that the guidance “phased in over a period that includes multiple measurement dates” is sufficiently clear and made no change in response to this comment.</td></tr>
<tr><td colspan="2">Section 3.10, Other Considerations</td></tr>
<tr><td>Comment</td><td>One commentator suggested changing the title of section 3.10 to “General Considerations” and deleting “considerations” from “the actuary should take into account the following considerations…” in the first sentence for consistency with section 3.5 of ASOP No. 27.</td></tr>
<tr><td>Response</td><td>The reviewers agree and modified the language in response to this comment.</td></tr>
<tr><td colspan="2">Section 3.10.1, Adverse Deviation or Plan Provisions That Are Difficult to Measure</td></tr>
<tr><td>Comment</td><td>One commentator suggested replacing “considerations such as adverse deviation or” with “adverse deviation or reflect” in the first sentence.</td></tr>
<tr><td>Response</td><td>The reviewers agree and modified the language in response to this comment.</td></tr>
</table>

Comment Response	One commentator suggested that section 3.10.1 should be modified to be consistent with the disclosure requirements in section 4.1.1. The reviewers agree and modified the language in section 3.10.1.
Section 3.10.3, Cost of Using Refined Assumptions	
Comment Response	One commentator suggested deleting the last sentence in section 3.10.3. The reviewers agree and modified the language in response to this comment.
Section 3.10.4, Combined Effect of Assumptions	
Comment Response	One commentator suggested the reference to the combined effect of assumptions having no significant bias should carve out an exception for risk analyses under ASOP No. 51, *Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions*, as section 3.2.5(e) does. The reviewers agree and modified the language in response to this comment.
Section 3.10.6, Other Sources of Demographic Data and Analyses	
Comment Response	One commentator felt section 3.10.6 contained no component of a standard but might be useful in an appendix of presentation. The reviewers disagree and made no change in response to this comment.
Section 3.11, Documentation	
Comment Response	One commentator suggested that if section 3.11 is retained, the ASB should change “should consider” to “should.” The reviewers disagree and made no change in response to this comment.
Comment Response	One commentator felt that this section is an unnecessary addition to the ASOP and may create additional and unnecessary work for the actuary that would likely be uncompensated. The reviewers disagree and made no change in response to this comment.
SECTION 4. COMMUNICATIONS AND DISCLOSURES	
Section 4.1.1, Assumptions Used	
Comment Response	One commentator suggested that the first sentence of section 4.1.1 should be clarified to only require the disclosure that the assumption “represents an estimate of future experience, the actuary’s observation of the estimates inherent in market data, or a combination thereof” if the assumption was selected by the actuary. The reviewers disagree and made no change in response to this comment.
Section 4.1.2, Rationale for Assumptions	
Comment Response	One commentator felt that the second paragraph of 4.1.2 should allow the actuary to assess the reasonableness of a combination of assumptions (which could be both economic and demographic), without any requirement to parse the array into distinct assumptions. The reviewers disagree and made no change in response to this comment.

Comment Response	One commentator felt that the current requirement that the actuary disclose if he or she believes the assumption significantly conflicts with what would be reasonable is appropriate and sufficient, and objects to requiring the actuary to provide supporting information and analysis for an assumption that does not seem to significantly conflict. The reviewers disagree, believe the current guidance is appropriate, and made no change in response to this comment.
Comment Response	One commentator suggested that plan-specific tables can be more relevant than general tables. The reviewers agree and modified the guidance in section 3.4.3 in response to this comment.
Comment Response	One commentator suggested that the requirement to disclose justification for using an older mortality table not be applied to disabled life mortality. The reviewers disagree that the disclosure requirement not be applied to disabled life mortality but changed “justification” to “rationale” in response to this comment in this section and in section 3.4.3.
Section 4.2, Disclosure about Assumptions Not Selected by the Actuary	
Comment Response	One commentator suggested that the term “source” in section 4.2 should be clarified. The reviewers disagree and made no change in response to this comment.
Comment Response	One commentator felt it would be helpful to clarify that the disclosures in section 4.2 only apply to material assumptions (i.e., revise stem to read “source of any material assumption”). The reviewers disagree and made no change in response to this comment.

ACTUARIAL STANDARDS BOARD

Actuarial Standard
of Practice
No. 36

Statements of Actuarial Opinion Regarding Property/Casualty Loss and Loss Adjustment Expense Reserves

Revised Edition

Developed by the
Subcommittee on Reserving of the
Casualty Committee of the
Actuarial Standards Board

Adopted by the
Actuarial Standards Board
December 2010
Updated for Deviation Language Effective May 1, 2011

Doc. No. 153

T A B L E O F C O N T E N T S

APPENDIXES

December 2010

TO: Members of Actuarial Organizations Governed by the Standards of Practice of the Actuarial Standards Board and Other Persons Interested in Statements of Actuarial Opinion Regarding Property/Casualty Loss and Loss Adjustment Expense Reserves

FROM: Actuarial Standards Board (ASB)

SUBJ: Actuarial Standard of Practice (ASOP) No. 36

This document contains the final version of a revision of ASOP No. 36, *Statements of Actuarial Opinion Regarding Property/Casualty Loss and Loss Adjustment Expense Reserves.*

<u>Background</u>

In March 2000, the Actuarial Standards Board originally adopted ASOP No. 36, *Statements of Actuarial Opinion Regarding Property/Casualty Loss and Loss Adjustment Expense Reserves* (Doc. No. 069). This standard provides guidance to actuaries when issuing specific types of Statements of Actuarial Opinion.

ASOP No. 43, *Property/Casualty Unpaid Claim Estimates*, was adopted by the Actuarial Standards Board in June 2007. This standard provides guidance to actuaries regarding the estimation of unpaid claims, both when such estimates are performed to support a Statement of Actuarial Opinion covered by ASOP No. 36 and in other circumstances.

The Casualty Committee's Subcommittee on Reserving has prepared this revision to ASOP No. 36 to eliminate redundant guidance and language that exists between ASOP Nos. 36 and 43, to maintain consistency between ASOP Nos. 36 and 43, and to clarify and provide further guidance within ASOP No. 36.

<u>First Exposure Draft</u>

The first exposure draft of this revised ASOP was issued in March 2009 with a comment deadline of June 15, 2009. The Subcommittee on Reserving carefully considered the eleven comment letters received and made changes that were reflected in the second exposure draft.

<u>Second Exposure Draft</u>

The second exposure draft of this ASOP was issued in March 2010 with a comment deadline of June 30, 2010. The Subcommittee on Reserving carefully considered the six comment letters received and made changes in several sections in response.

For a summary of the issues contained in these comment letters, please see appendix 2.

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

The ASB adopted this revised standard at its December 2010 meeting.

Subcommittee on Reserving of the Casualty Committee

Raji Bhagavatula, Chairperson

Ralph S. Blanchard
Daniel K. Lyons
Kevin C. McAllister
Mary Frances Miller
Chandrakant C. Patel
David S. Powell
Jason L. Russ

Casualty Committee of the ASB

Beth Fitzgerald, Chairperson

Shawna S. Ackerman
Raji Bhagavatula
Kenneth R. Kasner
Dale F. Ogden
David J. Otto
Marc B. Pearl
Jonathan White

Actuarial Standards Board

Albert J. Beer, Chairperson

Alan D. Ford
Patrick J. Grannan
Stephen G. Kellison
Thomas D. Levy
Patricia E. Matson
Robert G. Meilander
James J. Murphy
James F. Verlautz

The ASB establishes and improves standards of actuarial practice. These ASOPs identify what the actuary should consider, document, and disclose when performing an actuarial assignment. The ASB's goal is to set standards for appropriate practice for the U.S.

ASOP No. 36—December 2010

ACTUARIAL STANDARD OF PRACTICE NO. 36

STATEMENTS OF ACTUARIAL OPINION REGARDING PROPERTY/CASUALTY LOSS AND LOSS ADJUSTMENT EXPENSE RESERVES

STANDARD OF PRACTICE

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

1.1 Purpose—The purpose of this actuarial standard of practice (ASOP) is to provide guidance to the actuary in issuing a written statement of actuarial opinion regarding property/casualty loss and loss adjustment expense reserves.

1.2 Scope—This standard applies to actuaries when providing written statements of actuarial opinion with respect to property/casualty loss and loss adjustment expense reserves of insurance or reinsurance companies and other property/casualty risk financing systems, such as self-insurance, that provide similar coverages, under one of the following circumstances:

a. the statement of actuarial opinion is prepared to comply with NAIC Property and Casualty Annual Statement Instructions, or

b. the statement of actuarial opinion is otherwise prescribed by law or regulation, or

c. the statement of actuarial opinion is represented by the actuary as being in compliance with this standard.

References in the standard to “insurance,” “reinsurance,” or “self-insurance” should be interpreted to include risk financing systems that provide for risk retention in lieu of risk transfer. This standard does not apply to statements of actuarial opinion subject to ASOP No. 22, *Statements of Opinion Based on Asset Adequacy Analysis by Actuaries for Life or Health Insurers*; ASOP No. 28, *Compliance with Statutory Statement of Actuarial Opinion Requirements for Hospital, Medical, and Dental Service or Indemnity Corporations, and for Health Maintenance Organizations*; or Actuarial Compliance Guideline No. 4, *Statutory Statements of Opinion Not Including an Asset Adequacy Analysis by Appointed Actuaries for Life or Health Insurers*.

If the actuary’s statement of actuarial opinion includes an opinion regarding amounts for items other than loss and loss adjustment expense reserves, this standard applies only to the portion of the statement of actuarial opinion that relates to loss and loss adjustment expense reserves.

If the actuary is providing a statement of actuarial opinion for discounted loss and loss adjustment expense reserves, the actuary should be guided by both this standard and ASOP No. 20, *Discounting of Property and Casualty Loss and Loss Adjustment Expense Reserves*.

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

1.4 Effective Date—This standard is effective for all statements of actuarial opinion regarding loss and loss adjustment expense reserves issued on or after May 1, 2011.

Section 2. Definitions

The terms below are defined for use in this actuarial standard of practice.

2.1 Accounting Date—The stated cutoff date for reflecting events and recording amounts as paid or unpaid in a financial statement or accounting system. The accounting date is sometimes referred to as the "as of date."

2.2 Coverage—The terms and conditions of a plan or contract, or the requirements of applicable law, that create an obligation for claim payment associated with contingent events.

2.3 Event—The incident or activity that triggers potential for claim or claim adjustment expense payment.

2.4 Explicit Risk Margin—An explicit provision for uncertainty in a reserve or unpaid claim estimate.

2.5 Loss—The cost that is associated with an event that has taken place and that is subject to coverage. It is also known as "claim amount." The term "loss" may include loss adjustment expenses as appropriate.

2.6 Loss Adjustment Expense—The costs of administering, determining coverage for, settling, or defending claims even if it is ultimately determined that the claim is invalid. It is also known as "claim adjustment expense."

2.7 Present Value—The value at a point in time of cash flows at other points in time, calculated at selected interest rates. It is also known as "discounted present value" or "discounted value."

2.8 Reserve—An amount recorded in financial statements or accounting systems in order to reflect potential obligations.

2.9 Reserve Evaluation—The process of evaluating the reasonableness of a reserve.

2.10 Review Date—The date (subsequent to the valuation date) through which material information known to the actuary is included in forming the reserve opinion.

2.11 Unpaid Claim Estimate—The actuary's estimate of the obligation for future payment resulting from claims due to past events.

2.12 Unpaid Claim Estimate Analysis—The process of developing an unpaid claim estimate.

2.13 Valuation Date—The date through which transactions are included in the data used in the unpaid claim estimate analysis.

Section 3. Analysis of Issues and Recommended Practices

3.1 Legal and Regulatory Requirements—When an actuary prepares a statement of actuarial opinion to satisfy the requirements of law or regulation, the actuary should have the necessary knowledge to comply with the specific requirements of that law or regulation. The actuary should be satisfied that the statement of actuarial opinion is consistent with relevant requirements of applicable laws and regulations.

3.2 Purpose and Users of the Statement of Actuarial Opinion—The actuary should identify the intended purpose and intended users of the statement of actuarial opinion. For example, the intended purpose may be to satisfy the requirements for such an opinion under the NAIC Annual Statement Instructions, and the intended users may be the company and its regulators.

3.3 Reserves Being Opined Upon—The actuary should identify the following regarding the reserves being opined upon:

a. the reserve amount(s);

b. the accounting date; and

c. the accounting standards applicable for the reserves, if relevant (for example, US SAP, US GAAP, IFRS, etc.).

3.4 Stated Basis of Reserve Presentation—The actuary should identify the stated basis of reserve presentation, which is a description of the nature of the reserves, usually found in the financial statement and the associated footnotes and disclosures. The stated basis often depends upon regulatory or accounting requirements. It includes, as appropriate, the following:

a. whether reserves are stated as being nominal or discounted for the time value of money and, if discounted, the items discounted (for example, tabular reserves only) and the stated basis for the interest rate (for example, risk-free rate, portfolio rate, or fixed rate of x%);

b. whether the reserves are stated to include an explicit risk margin and, if so, the stated basis for the explicit risk margin (for example, stated percentile of distribution, or stated percentage load above expected);

c. whether the reserves are gross or net of specified recoverables (for example, deductibles, ceded reinsurance, and salvage and subrogation);

d. whether the potential for uncollectible recoverables is considered in the reserves, when recoverables are involved and, if so, the categories of such uncollectible recoverables considered and whether those categories reflect currently known collectibility concerns or potential ultimate collectibility concerns. Possible categories of uncollectibles include those related to disputes and those related to counterparties in financial difficulty (credit default);

e. the types of unpaid loss adjustment expenses covered by the reserve (for example, coverage dispute costs, defense costs, and adjusting costs);

f. when the opinion is only for a portion of a reserve, the claims exposure to be covered by the opinion (for example, type of loss, line of business, year, and state); and

g. any other items that, in the actuary's professional judgment, are needed to describe the reserves sufficiently for the actuary's evaluation of the reserves.

To the extent the actuary does not know the above items, the actuary should request this information from the principal. If unable to obtain these items from the principal, the actuary should identify what the actuary assumed to be the intended basis of reserve presentation for purposes of the reserve evaluation.

3.5 Scope of the Analysis Underlying the Statement of Actuarial Opinion—The actuary should identify the scope of the analysis upon which the opinion is based. This includes the following:

a. the review date, if it differs from the date the opinion is signed;

b. if separate reserve amounts for different reserve items, such as losses and loss adjustment expenses, are disclosed in the statement of actuarial opinion, whether the actuary's opinion applies to those items in the aggregate or individually; and

c. any other items that, in the actuary's professional judgment, are needed to describe the scope of the actuary's analysis sufficiently.

3.6 <u>Materiality</u>—The actuary should evaluate materiality based on the actuary's professional judgment, any applicable materiality guidelines or standards, and the intended purpose for which the actuary is preparing the statement of actuarial opinion.

The actuary should understand which financial values are usually important to the intended users of the statement of actuarial opinion and how those financial values are likely to be affected by changes in the reserves and future payments for losses and loss adjustment expenses. For example, for a statement of actuarial opinion for an insurance company to be used for financial reporting to insurance regulators, materiality might be evaluated in terms of the company's reported reserves or statutory surplus.

3.7 <u>Reserve Evaluation</u>—The actuary should consider a reserve to be reasonable if it is within a range of estimates that could be produced by an unpaid claim estimate analysis that is, in the actuary's professional judgment, consistent with both ASOP No. 43, *Property/Casualty Unpaid Claim Estimates*, and the identified stated basis of reserve presentation.

The actuary should consider the relevant characteristics of the entity's exposures to the extent that they are likely to have a material effect on the results of the actuary's reserve evaluation. These characteristics may be influenced by the methods used to sell or provide coverages, the distribution channels from which the entity's business is obtained, the general underwriting practices and pricing philosophy of the entity, and the marketing objectives and strategies of the entity.

If the actuary makes use of other personnel within the actuary's control to carry out assignments relative to analyses supporting the opinion, the actuary should review their contributions and be satisfied that those contributions are reasonable.

The actuary may develop estimates of the unpaid claims for all or a portion of the reserve or make use of another's unpaid claims estimate analysis or opinion for all or a portion of the reserve. For purposes of this section, "another" refers to one not within the actuary's control.

3.7.1 <u>Evaluation Based on Actuary's Unpaid Claim Estimates</u>—When developing unpaid claim estimates to evaluate the reasonableness of a reserve, the actuary may develop a point estimate, a range of estimates, or both. The actuary should be guided by ASOP No. 43 for the development of these unpaid claim estimates.

3.7.2 Evaluation Based on Actuary's Use of Another's Unpaid Claims Estimate Analysis or Opinion—In the course of conducting a reserve evaluation, the actuary may make use of another's supporting analyses or opinions. The actuary should understand the intended purpose of the analyses or opinions, and assess whether the analyses or opinions are consistent with the stated basis of presentation of the reserves. (See section 4.2(f) for related disclosure requirements.)

The actuary should only make use of another's analyses or opinions when, in the actuary's professional judgment, it is reasonable to do so. In making this determination, the actuary should consider the following:

a. the amount of the reserves covered by another's analyses or opinions in comparison to the total reserves subject to the actuary's opinion;

b. the nature of the exposure and coverage;

c. the way in which reasonably likely variations in estimates covered by another's analyses or opinions may affect the actuary's opinion on the total reserves subject to the actuary's opinion; and

d. the credentials of the individual(s) that prepared the analyses or opinions.

Where, in the opinion of the actuary, the analyses or opinions of another need to be modified or expanded, the actuary should perform such analyses as necessary to issue an opinion on the total reserves.

If in using the analyses or opinions of another the actuary reaches conclusions materially different from those in the analyses or opinions used, the actuary should, when practical, contact the appropriate parties to discuss the differences. Where material differences exist, the issues underlying the differences should be understood by the actuary. Materiality in this situation should be measured relative to the actuary's opinion, not relative to the analyses or opinions used.

3.8 Prior Opinion—If the actuary prepared the most recent prior opinion, or if the actuary is able to review the prior opining actuary's work, then the actuary should determine whether the current assumptions, procedures, or methods differ from those employed in providing the most recent prior opinion prepared in accordance with this standard. If the current assumptions, procedures, or methods differ from those employed in the prior opinion, the actuary should consider whether the changes are likely to have had a material effect on the actuary's unpaid claim estimate. (See section 4.2(a) for related disclosure requirements.)

The use of assumptions, procedures, or methods for new reserve segments (for example, line of business or accident year) that differ from those used previously is not a change in assumptions, procedures, or methods within the meaning of this section. Similarly, when the determination of the reasonableness of reserves is based on the periodic updating of experience data, factors, or weights, such periodic updating is not a change in assumptions, procedures, or methods within the meaning of this section.

3.9 Adverse Deviation—The actuary should consider whether there are significant risks and uncertainties that could result in future paid amounts being materially greater than those provided for in the reserves. (See section 4.2(e) for related disclosure requirements.)

When the actuary's analysis derives separate reserve estimates for various segments or claim groupings, the actuary should consider the combined risks and uncertainties associated with the reserves that are the subject of the opinion.

3.10 Collectibility of Ceded Reinsurance—If the scope of the statement of actuarial opinion includes reserves net of ceded reinsurance and the amount of ceded reinsurance is material, the actuary should consider the collectibility of ceded reinsurance in evaluating net reserves. The actuary should solicit information from management regarding collectibility problems, significant disputes with reinsurers, and practices regarding provisions for uncollectible reinsurance. The actuary's consideration of collectibility does not imply an opinion on the financial condition of any reinsurer.

3.11 Statements of Actuarial Opinion—An actuary who is issuing a statement of actuarial opinion cannot claim reliance on another's work or opinion except as described in section 3.7.2. The statement of actuarial opinion should be one of the following types:

a. Determination of Reasonable Provision—The actuary should opine that the reserve amount makes a reasonable provision for the liabilities associated with the specified reserve when the reserve is found to be reasonable. (See section 3.7).

b. Determination of Deficient or Inadequate Provision—The actuary should opine that the reserve amount does not make a reasonable provision for the liabilities associated with the specified reserves when the reserve amount is less than the minimum amount that the actuary believes is reasonable. Furthermore, the actuary should determine the minimum amount that the actuary believes is reasonable. (See section 4.2(b) for related disclosure requirements.)

c. Determination of Redundant or Excessive Provision—The actuary should opine that the reserve amount does not make a reasonable provision for the liabilities associated with the specified reserves when the reserve amount is greater than the maximum amount that the actuary believes is reasonable. Furthermore, the actuary should determine the maximum amount that the actuary believes is reasonable. (See section 4.2(c) for related disclosure requirements.)

d. Qualified Opinion—The actuary should issue a qualified statement of actuarial opinion when, in the actuary's opinion, the reserves for a certain item or items within the scope of the opinion are in question because they cannot be reasonably estimated or the actuary is unable to issue an opinion on the reserves for those items. The actuary should determine whether the reserve amount makes a reasonable provision for the liabilities associated with the specified reserves, except for the item or items to which the qualification relates. (See section 4.2(d) for related disclosure requirements.) The actuary is not required to issue a qualified opinion if the actuary reasonably believes that the item or items in question are not likely to be material.

e. No Opinion—The actuary's ability to give an opinion is dependent upon data, analyses, assumptions, and related information that are sufficient to support a conclusion. If the actuary cannot reach a conclusion due to deficiencies or limitations in the data, analyses, assumptions, or related information, then the actuary should either issue a statement of no opinion or choose not to issue any opinion at all. A statement of no opinion should include a description of the reasons no opinion could be given.

3.12 <u>Adequacy of Assets Supporting Reserves</u>—This standard does not obligate the actuary to undertake an evaluation of the adequacy of the assets supporting the stated reserve amount except as may be needed to comply with any applicable law, regulatory requirement, or other ASOP.

3.13 <u>Documentation</u>—The actuary should consider the intended purpose of the statement of actuarial opinion when documenting work, and should refer to ASOP No. 41, *Actuarial Communications*. When the statement is provided to meet regulatory requirements, the actuary should follow the detailed requirements specified by regulators as to the form and content of supporting reports and other documentation.

Section 4. Communications and Disclosures

4.1 <u>Actuarial Communication</u>—When issuing a statement of actuarial opinion subject to this standard, the actuary should consider the intended purpose of the statement of actuarial opinion and be guided by ASOP No. 41.

In addition, consistent with the intended purpose, the actuary should disclose the following in the statement of actuarial opinion:

a. the words "statement of actuarial opinion," or alternative words with similar meaning if required by law or regulation governing the opinion, in the title of the written opinion;

b. the intended user(s) of the statement of actuarial opinion;

c. the intended purpose of the statement of actuarial opinion, as described in section 3.2;

d. the reserves being opined upon, as described in section 3.3;

e. the stated basis of reserve presentation, as described in section 3.4. In certain circumstances, referring to specific financial statement reserve figures and their specific source (for example, Statutory Annual Statement of Company ABC as filed with the Company's state of domicile) would satisfy disclosures related to section 3.4;

f. the scope of the analysis underlying the statement of actuarial opinion, as described in sections 3.5(b) and 3.5(c), and the review date (see section 3.5(a)) if different from the date the opinion is signed;

g. the type of opinion, as described in section 3.11;

h. the disclosure in ASOP No. 41, section 4.2, if any material assumption or method was prescribed by applicable law (statutes, regulations, and other legally binding authority);

i. 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

j. 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.

4.2 Additional Disclosures—In certain cases, consistent with the intended purpose, the actuary may need to make the following disclosures in addition to those in section 4.1:

a. The actuary should disclose the nature of changes in assumptions, procedures, or methods from those employed in the most recent prior opinion prepared in accordance with this standard, unless the actuary concludes the changes are not likely to have a material effect on the actuary's unpaid claim estimate. This standard does not require the actuary to quantify the impact of such changes. If the actuary is not able to review the prior opining actuary's work, then the actuary should disclose that the prior assumptions, procedures and methods are unknown. (See section 3.8.)

b. If the actuary determines that the reserve amount is deficient or inadequate, the actuary should disclose the minimum amount that the actuary believes is reasonable.

c. If the actuary determines that the reserve amount is redundant or excessive, the actuary should disclose the maximum amount that the actuary believes is reasonable.

d. If the actuary issues a qualified opinion, the actuary should disclose in the opinion the item or items to which the qualification relates, the reasons for the qualification, and the amounts for such items, if disclosed by the entity, that are included in the reserve. If the amounts for such items are not disclosed by the entity, the actuary should disclose that the reserve includes unknown amounts for such items. The actuary should also disclose whether the reserve amount makes a reasonable provision for the liabilities associated with the specified reserves, except for the item or items to which the qualification relates.

e. If the actuary reasonably believes that there are significant risks and uncertainties that could result in material adverse deviation, an explanatory paragraph should be included in the statement of actuarial opinion. (See sections 3.6 and 3.9 for guidance on evaluating materiality and adverse deviation.) The explanatory paragraph should contain the amount of adverse deviation that the actuary judges to be material with respect to the statement of actuarial opinion, and a description of the major factors or particular conditions underlying risks and uncertainties that the actuary believes could result in material adverse deviation.

   The actuary is not required to include in the explanatory paragraph general, broad statements about risks and uncertainties due to economic changes, judicial decisions, regulatory actions, political or social forces, etc., nor is the actuary required to include an exhaustive list of all potential sources of risks and uncertainties.

f. If the actuary makes use of an analysis or opinion of another not within the actuary's control for a material portion of the reserves, the actuary should disclose whether the actuary reviewed the others' underlying analysis. If a review was conducted, the actuary should disclose the extent of the review including items such as the methods and assumptions used and the underlying arithmetic calculations.

g. If the statement of actuarial opinion relies on present values and if the actuary believes that such reliance is likely to have a material effect on the results of the actuary's reserve evaluation, the actuary should disclose that present values were used in forming the opinion, the interest rate(s) used by the actuary, and the monetary amount of discount that was reflected in the reserve amount.

h. If the reserves being opined upon are net of ceded reinsurance and the amount of ceded reinsurance is material, the actuary should comment on the collectibility of that reinsurance. This standard does not require the actuary to quantify the collectibility. (See section 3.10.)

i. When the statement is provided to meet regulatory requirements, the actuary should follow the detailed requirements specified by regulators as to the form and content of the required disclosures, to the extent not addressed above.

Appendix 1
Background and Current Practices

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

Background

In 2000, the ASB issued ASOP No. 36, *Statements of Opinion Regarding Property/Casualty Loss and Loss Adjustment Expense Reserves*. At that time, there was no standard of practice concerning the underlying actuarial analyses. Guidance was provided in the *Statement of Principles Regarding Property and Casualty Loss and Loss Adjustment Expense Reserves* adopted by the Board of Directors of the Casualty Actuarial Society in May 1988.

Since the issuance of ASOP No. 36, the ASB has issued ASOP No. 43, *Property/Casualty Unpaid Claim Estimates* in 2007. ASOP No. 43 provides guidance to actuaries concerning the actuarial analyses typically underlying the opinions subject to ASOP No. 36. Certain material is duplicated in these two ASOPs. This revision eliminates the duplications and brings consistency in language with ASOP No. 43.

Current Practices

Actuaries are guided by ASOP No. 43, *Property/Casualty Unpaid Claim Estimates*. Other ASOPs issued by the Actuarial Standards Board pertaining to unpaid loss and loss adjustment expense estimates include ASOP No. 20, *Discounting of Property and Casualty Loss and Loss Adjustment Expense Reserves*; ASOP No. 23, *Data Quality*; and ASOP No. 41, *Actuarial Communications.* Guidance is also provided by the *Statement of Principles Regarding Property and Casualty Loss and Loss Adjustment Expense Reserves* of the Casualty Actuarial Society, which is currently under review.

In addition, since 1993, the Casualty Practice Council of the American Academy of Actuaries has published practice notes addressing current National Association of Insurance Commissioners' requirements for the statement of actuarial opinion required for the Statutory Annual Statement. The practice notes describe some current practices and show illustrative wording for handling issues and problems. While these practice notes (and future practice notes issued after the effective date of this standard) can be updated to react in a timely manner to new concerns or requirements, they are not binding, and they have not gone through the exposure and adoption process of the standards of practice promulgated by the Actuarial Standards Board.

Numerous educational papers are in the public domain that are relevant to the topic of reserves and reserve evaluations, including those published by the Casualty Actuarial Society. While these may provide useful educational guidance to practicing actuaries, these are not actuarial standards and are not binding.

Appendix 2

Comments on the Exposure Draft and Responses

The exposure draft of this ASOP, *Statements of Actuarial Opinion Regarding Property/Casualty Loss and Loss Adjustment Expense Reserves*, was issued in March 2010 with a comment deadline of June 30, 2010. Six comment letters were received, some of which were submitted on behalf of multiple commentators, such as by 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 Subcommittee on Reserving carefully considered all comments received, and the Casualty Committee and ASB reviewed (and modified, where appropriate) the proposed changes.

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

The term "reviewers" in appendix 2 includes the subcommittee, the Casualty Committee, and the ASB. Also, unless otherwise noted, the section numbers and titles used in appendix 2 refer to those in this final version.

GENERAL COMMENTS	
Comment	One commentator thought the use of the word "loss" was confusing and recommended it be eliminated from the standard and replaced by "claim" with a note that the term "loss" is often used in practice.
Response	The reviewers retained the references to "loss reserves" as in the title of the standard, as such use is common and understood. The definition of "loss" states that it is also known as "claim amount."
SECTION 1. PURPOSE, SCOPE, CROSS REFERENCES, AND EFFECTIVE DATE	
Section 1.2, Scope	
Comment	One commentator suggested the scope be changed to include the actuarial opinion summary and supporting reports.
Response	The reviewers disagree and made no change. The actuarial opinion summary and supporting reports are subject to ASOP Nos. 9, *Documentation and Disclosure in Property and Casualty Insurance Ratemaking, Loss Reserving, and Valuations*; 41, *Actuarial Communications*; and 43, *Property/Casualty Unpaid Claim Estimates;* but 36 is intended to apply solely to the statement of actuarial opinion.
SECTION 2. DEFINITIONS	
Section 2.1, Accounting Date	
Comment	One commentator felt the reference to "as of" date was unclear.
Response	The reviewers think the reference helps clarify the definition for some and have left it unchanged.
Comment	One commentator suggested deleting the phrase "as paid."
Response	The reviewers modified the definition to refer to both "paid" and "unpaid."
Comment	One commentator suggested changing to "the date on which an accounting period ends"
Response	The reviewers do not believe this adds clarity and made no change.

2.6, Loss Adjustment Expense	
Comment Response	One commentator thought this definition should be clarified as to whether it includes both unallocated and allocated claim adjustment expenses, thinking the language of the definition implies only "allocated" (i.e., "defense and cost containment" in Annual Statement vernacular) because it leaves out "adjusting and other" (Annual Statement vernacular for unallocated) as examples of types of costs. The reviewers note the definition does include "administration" and "determining coverage for" which would be Adjusting and Other expenses. Thus, no change was made to the definition.
Section 2.13, Valuation Date	
Comment Response	One commentator suggested changing to "the date as of which the actuary's estimate applies to the opinion." The reviewers disagree with this definition, as it is possible for a valuation date to differ from the date at which the estimate applies. For example, if an actuary used data through December 31, 2008 to opine on the reasonableness of a reserve booked at December 31, 2007, the valuation date in this case would be December 31, 2008, while the accounting date would be December 31, 2007.
SECTION 3. ANALYSIS OF ISSUES AND RECOMMENDED PRACTICES	
Comment Response	Two commentators suggested the removal of the section on Risk Transfer Requirements be mentioned in the transmittal memorandum. The reviewers do not believe this is necessary and made no change. The reason for its removal, as noted in the appendix of the second exposure draft, was that the reviewers decided this is an accounting issue outside the scope of this ASOP. The deletion of this section does not in any way imply the actuary is obligated to opine that the reserves are established in accordance with regulatory or accounting requirements regarding risk transfer in reinsurance contracts.
Section 3.3, Reserves Being Opined On	
Comment Response	One commentator questioned the need to identify the reserve amount and accounting date, stating they should be simply disclosed. The commentator further noted the accounting date is not mentioned in the disclosures. The reviewers note it is reasonable to first identify something before disclosing it. Furthermore, the reviewers note the disclosure in 4.1(d) does include both the reserve amount and the accounting date.
Comment Response	One commentator suggested changing language to state "if there are specific accounting standards applicable to the stated basis (per section 3.4) of the reserves (for example, US SAP, US GAAP, IFRS, etc.), then the actuary should reflect such stated basis in developing their opinion." The reviewers have modified the language by adding the words "if relevant."
Section 3.4, Stated Basis of Reserve Presentation	
Comment Response	One commentator suggested the last word in this section be changed from "reserve evaluation" to "opinion." The reviewers believe "reserve evaluation" is appropriate.

Section 3.5, Scope of the Analysis Underlying the Statement of Actuarial Opinion	
Comment Response	One commentator suggested revising section 3.5(a) to read “the review date of the actuary’s unpaid claim estimate analysis….” The reviewers disagree, as it is the review date of the opinion that should be disclosed in the opinion, which may differ from the review date of an underlying unpaid claim estimate analysis. The language in section 3.5 and the definition in section 2.10 were modified to clarify this.
Section 3.7, Reserve Evaluation	
Comment Response	One commentator suggested changing the word “producers” in section 3.7.2 to “authors.” The reviewers decided to change the word to “appropriate parties.”
Comment Response	One commentator stated the second paragraph of this section was educational in nature and therefore inappropriate for a standard of practice. While the reviewers agree the second sentence of that paragraph is partly educational, the reviewers believe it adds clarity and have retained it.
Comment Response	One commentator suggested that the paragraph beginning, “If the actuary makes use of other personnel within...” be moved to section 3.7.1., as the commentator believes an actuary making use of other personnel within the actuary’s control to carry out assignments is essentially developing his/her own estimates, so section 3.7.2 would not apply. The reviewers did not make the change, as it is possible for an actuary to make use of personnel within the actuary’s control in the process of making use of another’s analysis or opinion per section 3.7.2.
Comment Response	Multiple commentators disagreed with the removal of the references to “review opinion” and suggested changes to allow for a more limited review in certain cases. The reviewers disagreed, believing that all opinions subject to the standard should be held to the same requirements. The reviewers note that when conducting a “review opinion” the actuary may decide to make use of data accumulations, methods, assumptions and calculations performed by another actuary, so long as, in the actuary’s professional judgment, it is reasonable to do so, as discussed in section 3.7.2. Additional language was added to section 4.2(f) regarding the disclosure of the extent of the actuary’s review of the underlying analysis.
Comment Response	Some commentators thought the final sentence in the first paragraph of section 3.7.2 was long and could be clarified. The reviewers edited this sentence, using an outline form, to clarify.
Comment Response	Some commentators thought the actuary should be required to disclose issues underlying material differences between the actuary’s conclusions and those of an actuary whose work is reviewed. The reviewers do not believe such disclosure is relevant to the opinion on the reserves.
Comment Response	One commentator suggested adding language stating the actuary should consider the reasonableness of the unpaid claims estimate. The reviewers note this is not necessary, as the standard refers to ASOP No. 43, and ASOP No. 43 addresses the topic of reasonableness.
Section 3.8 , Prior Opinion	
Comment Response	One commentator suggested adding a reference to section 4.2(a). The reviewers agreed and made the addition.

Section 3.10, Collectibility of Ceded Reinsurance	
Comment Response	One commentator suggested adding a sentence, “This standard does not obligate the actuary to quantify uncollectible reinsurance recoveries in cases where the applicable accounting standard does not require it.” The reviewers believe the instruction to “consider” to be appropriate, and did not make any change.
Section 3.11, Statements of Actuarial Opinion	
Comment Response	One commentator suggested switching the order of the last two sentences in section 3.11(d). The reviewers agreed and made the change.
SECTION 4. COMMUNICATIONS AND DISCLOSURES	
Section 4.1, Actuarial Communication	
Comment Response	One commentator thought the requirement of identifying the intended user of the SAO should be removed, stating they are generally addressed to and paid for by the Board of Directors but there is also clearly an intended use for regulators, and that this is confusing and will lead to criticisms about independence and conflicts of interest. The reviewers disagree with the suggested change, as the disclosure should add clarity. An example of intended users has been added to section 3.2.
Comment Response	Some commentators suggested expanding 4.1(f) to include disclosure of the valuation date. One commentator believed this would help provide clarity when an unpaid claim estimate analysis is performed prior to the accounting date with a subsequent roll-forward to the accounting date. The reviewers believe this disclosure is more appropriate in the underlying report than in the opinion, and have deleted the reference to valuation date in section 3.5. The preparation of the underlying report is covered by ASOP No. 43, which states the actuary should disclose the valuation date.
Comment Response	One commentator suggested that the requirement in section 4.1(h) of the second exposure draft to make a statement to the effect that the actuary does not reasonably believe that there are significant risks and uncertainties that could result in material adverse deviation is inappropriate. The commentator indicated that while this is the current standard for US statutory statements of actuarial opinions, extending this requirement to other opinions could lead to instances of misinterpretation by less sophisticated audiences, especially in cases where the perception of materiality could differ among the various audiences (for example, a state workers’ compensation loss certification for a self-insured employer). The reviewers agreed and have deleted section 4.1(h) and modified section 4.2(e). The reviewers note that for US statutory statements of actuarial opinion, the actuary would still be required to make such disclosures per the NAIC annual statement instructions.
Comment Response	One commentator stated the disclosure requirements in section 4.1(e) were burdensome and inappropriate for an opinion. The reviewers do not believe the requirement to be burdensome, as in many cases it could be satisfied through referring to specific items in financial statements. The standard does not require an exhaustive list of disclosures as suggested by the commentator.
Comment Response	Two commentators noted the references to ASOP No. 41 correspond to an exposure draft rather than the standard in place. This final version refers to the final version of ASOP No. 41 effective April 1, 2011.

Section 4.2, Additional Disclosures	
Comment Response	One commentator suggested editing section 4.2(a) to read, “If the actuary is not able to review the prior opining actuary’s work….” The reviewers agreed and made the change.
Comment Response	One commentator suggested limiting the disclosure in section 4.2(e) to only those cases where the material adverse deviation would be within the actuary’s range of unpaid claim estimates. The reviewers did not make this change. First, the reviewers believe material adverse deviation that goes beyond the actuary’s range of unpaid claim estimates can be a very useful thing to disclose. The range of reasonably possible outcomes is generally much wider than the range of reasonable unpaid claim estimates, and to the extent there are significant risks and uncertainties that could lead to an outcome that would result in a material adverse deviation, it is useful to disclose such information, even if such outcomes are outside the actuary’s range of estimates. Second, there is no requirement for an actuary to determine a range of unpaid claim estimates, which would be needed in order to modify the standard as the commentator suggested. The commentator used the phrase “significant risk of material adverse deviation.” The reviewers note the language in the standard is “significant risks and uncertainties that could result in a material adverse deviation,” not “significant risk of material adverse deviation.”

ACTUARIAL STANDARDS BOARD

Actuarial Standard
of Practice
No. 37

Allocation of Policyholder Consideration in Mutual Life Insurance Company Demutualizations

Developed by the
Task Force on Allocation of Policyholder Equity of the
Life Committee of the
Actuarial Standards Board

Adopted by the
Actuarial Standards Board
June 2000
Updated for Deviation Language Effective May 1, 2011

(Doc. No. 154)

ASOP No. 37—June 2000

T A B L E   O F   C O N T E N T S

STANDARD OF PRACTICE

APPENDIXES

ASOP No. 37—June 2000

June 2000

TO: Members of Actuarial Organizations Governed by the Standards of Practice of the Actuarial Standards Board and Other Persons Interested in the Allocation of Policyholder Consideration in Mutual Life Insurance Company Demutualizations

FROM: Actuarial Standards Board (ASB)

SUBJ: Actuarial Standard of Practice (ASOP) No. 37

This booklet contains the final version of ASOP No. 37, *Allocation of Policyholder Consideration in Mutual Life Insurance Company Demutualizations*.

Background

In the past decade, an increasing number of mutual life insurance companies have converted to stock life insurance companies, sometimes including the formation of a mutual holding company. Demutualizations present important actuarial issues, including the preservation of reasonable policyholder dividend expectations, and the allocation among eligible policyholders of the consideration that may be due them in exchange for their membership rights.

This ASOP deals with actuarial responsibilities with respect to the allocation of policyholder consideration. Actuaries are often involved in many aspects of such allocation, including advising on the actuarial aspects of eligibility of policies for consideration, as well as the allocation of consideration to eligible policyholders.

Exposure Draft

The first exposure draft (published in May 1999) received eighteen comment letters. These comments and the Task Force on Allocation of Policyholder Equity responses were summarized in appendix 2 of the second exposure draft published in December 1999. Eight comment letters were received on the second exposure draft. For a summary of the substantive issues contained in these eight comment letters and the task force’s responses, please see appendix 2.

The key change from the second exposure draft was additional clarification regarding the treatment of reinsurance in calculating the actuarial contribution (section 3.2.4(g)).

The Task Force on Allocation of Policyholder Equity and the Life Committee thank all those who commented on the first and second exposure drafts.

The ASB voted in June 2000 to adopt this final standard.

ASOP No. 37—June 2000

Task Force on Allocation of Policyholder Equity

Godfrey Perrott, Chairperson

Kenneth M. Beck	Dale S. Hagstrom
Charles Carroll	William C. Koenig
Sue Collins	

Life Committee of the ASB

Lew H. Nathan, Chairperson

John W. Brumbach	Godfrey Perrott
Marc A. Cagen	Thomas A. Phillips
Mark J. Freedman	Barry L. Shemin
Stephen G. Hildenbrand	Timothy J. Tongson

Actuarial Standards Board

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ASOP No. 37—June 2000

ACTUARIAL STANDARD OF PRACTICE NO. 37

ALLOCATION OF POLICYHOLDER CONSIDERATION IN MUTUAL LIFE INSURANCE COMPANY DEMUTUALIZATIONS

STANDARD OF PRACTICE

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

1.1 Purpose—The purpose of this standard is to give actuaries guidance in determining the allocation of policyholder consideration when a mutual life insurance company or mutual holding company demutualizes, or in reviewing, advising on, or opining on the actuarial aspects of a proposed allocation; such aspects may include policyholder eligibility.

1.2 Scope—This standard of practice applies to actuaries who are determining, reviewing, advising on, or opining on the allocation of policyholder consideration during the demutualization of a U.S.-domiciled mutual company. The standard also applies to actuaries performing this work in the demutualization of a non-U.S. mutual company with respect to the U.S. operations of that company in the absence of authoritative guidance in the company's country of domicile.

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

1.4 Effective Date—This standard will apply to any actuarial work performed or opinions issued on or after December 15, 2000.

Section 2. Definitions

The terms below are defined for use in this actuarial standard of practice.

2.1 Actuarial Contribution—The contribution a particular policy or class of similar eligible policies has made to the company's statutory surplus and the asset valuation reserve, plus the present value of contributions that the same policy or class of similar eligible policies is expected to make in the future.

2.2 Consideration—The consideration a policyholder receives in a demutualization in exchange for relinquishing membership rights (sometimes referred to as *policyholder consideration*).

2.3 Demutualization—The conversion of a mutual company to a stock company.

2.4 Eligibility Date—Date (or dates) as of which a policy must be deemed in force, according to the plan of conversion, for the policyholder to be eligible to receive consideration.

2.5 Eligible Policyholder—The owner of one or more policies eligible to receive consideration under the plan of conversion.

2.6 Historical Contribution—The contribution a particular policy or class of similar eligible policies has made to the company's statutory surplus and asset valuation reserve in a given year.

2.7 Membership Rights—Any rights a member of a mutual company has by virtue of ownership of an insurance policy, other than the contractual insurance rights under the policy. Typical membership rights include voting rights and the rights, if any, the member has upon liquidation of the company.

2.8 Mutual Company—A mutual life insurance company, or a mutual holding company formed in conjunction with the demutualization of a mutual life insurance company.

2.9 Plan of Conversion—The plan under which a mutual company converts to a stock company.

2.10 Policy—Unless otherwise specified, the term *policy* (and its plural form, *policies*) in this standard includes both an insurance policy and an annuity contract. In some demutualizations it may also include supplementary contracts.

2.11 Voting Rights—The right to elect members of the board of directors of the mutual company and the right to vote on any proposed reorganization (including demutualization).

Section 3. Analysis of Issues and Recommended Practices

The actuary may be requested to determine the allocation of policyholder consideration, or to review, advise on, or opine on the actuarial aspects of policyholder consideration in a demutualization. In doing so, the actuary should be guided by the following:

3.1 Policyholder Eligibility—Generally, eligible policyholders receive consideration in exchange for relinquishing membership rights. The plan of conversion will define which policies are eligible (which might include policies in subsidiaries under certain circumstances). The actuary may be involved in drafting this aspect of the plan of conversion. Sections 3.1.1–3.1.2 present issues the actuary should consider in determining, reviewing, advising on, or opining on the actuarial aspects of policyholder eligibility.

3.1.1 Components of Consideration—Plans of conversion generally express consideration as the combination of a fixed component and a variable component. A policyholder may be eligible for a fixed component, a variable component, or both. Although eligibility for the fixed component may be related to eligibility to vote in some plans, the fixed component is not necessarily allocated in proportion to voting power. Although eligibility for the variable component may be related to eligibility for dividends or for a distribution upon liquidation in some plans, the variable component is generally not allocated in proportion to dividends or to what would be paid upon liquidation.

3.1.2 Reinsurance—With regard to how reinsurance affects eligibility, the actuary should note, in particular, the following:

a. Policies transferred to another company through assumption reinsurance prior to the eligibility date generally are not eligible for any consideration unless particular facts and circumstances indicate otherwise (for example, if commitments were made to the policyholders or to regulators as part of the assumption reinsurance transaction).

b. Policies transferred to the demutualizing company from another company through assumption reinsurance or as part of a merger prior to the eligibility date generally are eligible to receive consideration unless particular facts and circumstances indicate otherwise.

c. Indemnity reinsurance, assumed or ceded, does not affect eligibility.

3.2 Basis of Allocation—The actuary is usually responsible for determining that eligible policyholders are treated appropriately in the allocation of consideration. The share of the fixed and variable components of consideration that any one policyholder receives should reflect both equity and practicality. Equity requires that actuarial contributions of policies be adequately recognized. Practicality requires that the proposed allocation take into account both administrative feasibility and imperfections in available data. The actuary should consider the following sections concerning the basis of allocation.

3.2.1 Basis for Allocating the Fixed Component—The fixed component of consideration should be allocated on a basis that produces a reasonable result in view of the specific circumstances of the converting company. Among other factors, the actuary may consider the company's voting policy. This may entail the following: a review of the voting provisions contained in the company's bylaws, charter, or domiciliary state's law; the way the company has managed voting in practice; and the communications that have been made to policyholders. These factors usually mean that the fixed component is allocated based on each eligible policy (regardless of the size of the policy) or each eligible policyholder (regardless of the number of policies or size of policies).

3.2.2 Amount Allocated as the Fixed Component—The actuary should ascertain whether the amount allocated as the fixed component has been determined in a reasonable manner. The determination of the amount to be allocated as the fixed component is a matter in which judgment and practical considerations play a significant role. The actuary should consider whether the total amount to be allocated as the variable component (which is determined as the total amount of consideration less the total amount allocated as the fixed component) is reasonable in relation to the total actuarial contribution for eligible policies. The actuary may also consider the percentages of total consideration that were distributed as fixed consideration and the specific dollar values of fixed consideration allocated to each policy or policyholder in prior demutualizations.

The following approaches to determining the fixed component would usually produce a result that would be consistent with these concepts:

a. determining the aggregate dollar value to be allocated as the fixed component so that the variable component approximates the value of the total actuarial contribution for eligible policies; or

b. determining the aggregate dollar value to be allocated as the fixed component so that it approximates the value of the total actuarial contribution for policies not eligible for consideration, including terminated policies.

3.2.3 Basis for Allocating the Variable Component—The variable component of consideration should be allocated on the basis of the actuarial contribution. For this purpose, actuarial contributions may be calculated on an individual policy basis or for classes of similar eligible policies. When actuarial contributions are calculated for classes of similar eligible policies, they should be allocated to individual policies within classes using parameters that are reasonably obtainable and that tend to drive the primary sources of contribution, such as face amount, reserves, premium, or policy count.

When actuarial contributions are calculated for classes of similar eligible policies, professional actuarial judgment is required in defining the classes. In this regard, the company's financial management practices should be given appropriate weight. The actuary should consider the following in deciding whether to group policies into one class:

a. Policies that have been priced and managed together should be grouped into one class. For example, it may be appropriate to group all policies within a given premium rate, dividend era, or valuation basis.

b. Policies that are priced on a contract-by-contract basis, such as group contracts whose terms are individually negotiated between the insurance company and the policyholder, should not be grouped with other policies.

3.2.4 Calculating the Actuarial Contribution—The actuary should design a practical methodology for calculating the actuarial contribution that makes use of available historical and current data. In most cases, there will be periods for which historical studies or data are no longer available. The actuary will have to use approximations for these periods. The actuary should consider what approximations will be needed and the effect of such approximations on the calculated actuarial contribution in designing an appropriate methodology.

The actuary should consider the following in calculating the actuarial contribution:

a. Historical Contributions—The actuary should accumulate the historical contributions with the historical after-tax investment returns on surplus consistent with the way the company managed the assets corresponding to surplus generated by each line of business.

b. Discount Rate—The actuary should calculate the value of future contributions using an appropriate discount rate. The actuary may use the net investment income rate on surplus (net of default cost, investment expenses, and taxes), consistent with projections of future contributions to surplus, or a risk-adjusted discount rate appropriate for the line of business or type of policy involved. The actuary should explain in the actuarial report or opinion the basis for selecting the rate.

c. Non-Par Lines—The actuary should consider the treatment of earnings on non-par lines in the calculation of contributions made by par policies. One factor to consider is the extent to which dividends on such par policies reflect the earnings on non-par lines.

d. Individual Equity—The actuary should be mindful that the objective of the calculation of the actuarial contribution is to address individual equity, much like what is done in the determination of premiums and dividends. This means that the actuary should consider techniques such as interpolation within classes of business. It also means that all eligible policies should be included.

e. Prior Mergers—If the mutual company that is demutualizing is itself the result of a prior merger of two (or more) mutual companies, the actuary should recognize the pre-merger contributions by current policyholders to the prior merger partners. In deciding whether to recognize the relative surplus positions of the prior companies at the time of merger, the actuary should consider any relevant provisions in the merger agreement, the length of time since merger, the amount and nature of new business since merger, and the practice of the company as to commingling the interests of policyholders of the predecessor companies.

f. Acquisition Price—Where blocks of business have been acquired through assumption reinsurance, the actuary should consider the acquisition cost of the block (as a negative contribution) when determining the actuarial contribution.

g. Reinsurance—The characteristics of each reinsurance program should be considered in light of the purpose of the program and the long-term economic impact on a block of business and the company as a whole. Reinsurance is usually reflected in the calculation of the actuarial contribution if it is risk reinsurance. However, reinsurance whose primary purpose is surplus relief is usually ignored.

3.2.5 <u>Treatment of Negatives</u>—Actuarial contributions may be positive or negative. The actuary should consider the following:

a. Where the actuarial contribution for a policy is negative, it is set to zero before performing the allocation so that the policy does not receive a variable component of consideration. Where the actuarial contribution of the policy is calculated in separate pieces (such as base policy and rider), the pieces may be combined algebraically and any negative sum set to zero, or negatives may be individually set to zero. The company's practices as to calculating dividends in pieces or in combination should guide this choice.

b. Where two or more policies are linked for experience-rating purposes, either prospective or retrospective, they are usually linked for allocation purposes. Where one or more of such policies has terminated, the actuary should be careful to determine the actuarial contribution of the remaining policy since cross-subsidies usually will not have been recorded.

c. Where the total actuarial contribution for a line of business is negative (before any adjustments described in section 3.2.5(a)), different practices have been used. Most prior demutualizations have left any positive actuarial contributions in that line unchanged (so those policies received a variable component of consideration), but in certain circumstances no variable consideration has been given to any policy in that line. In deciding which approach to use, the actuary should consider the company's financial management of the line and the pooling of risks across years. (*Line of business* is used here to reflect the way the company has categorized its business for management purposes, as opposed to those lines of business shown in the annual statement.)

3.3 Experience Factors—In calculating actuarial contributions, the actuary may use experience factors determined for various classes of eligible policies. These experience factors fall into two distinct categories: experience factors related to past experience, which would be used to calculate historical contributions; and experience factors related to anticipated future experience, which would be used to calculate prospective contributions to surplus.

The actuary should bear in mind the guidance given by ASOP No. 23, *Data Quality*, when performing this work. Establishing the appropriate historical experience may raise issues that are not considered in ASOP No. 23. In these cases the actuary should obtain appropriate data reasonably available under the circumstances.

3.3.1 Experience Factors Related to Past Experience—In selecting experience factors related to past experience, the actuary should take into account the company's past practices with respect to determining the actual experience that served as the basis for dividend allocations, or to determine other nonguaranteed elements. The actuary should review available historical records of experience studies, actuarial analyses, and other reliable information. The historical experience factors should represent the actual experience of the company, without any implicit or explicit margins for conservatism.

To the extent that reliable company data or the experience of a policy or block of policies are not available, the actuary may have to refer to indirect sources of data for guidance in the selection of historical experience factors. These might include historical annual statements, reserve valuation tabulations, contemporaneous pricing assumptions, or industry-wide experience studies. It is appropriate to reflect the pooling of experience data across various classes of policies (such as mortality experience data) in determining historical experience factors, particularly if such pooling was used historically in the dividend allocation process.

Generally, expenses, investment income, and federal income tax are allocated items rather than items directly charged to lines of business. The actuary should understand how the allocation was performed at different times in the past. The actuary should generally accept the allocation to the annual statement line shown in the annual statement, although in particular circumstances there may be reasons to modify it. However, the actuary will still have to perform allocations within a line. The actuary should try to determine how the company previously approached allocation and use that approach within a line, unless there is reason to modify it.

3.3.2 Experience Factors Related to Anticipated Future Experience—The considerations the actuary should use to select experience factors related to anticipated future experience may differ between policies included in a closed block and policies not included in a closed block, as noted below.

a. Experience factors for classes of policies included in a closed block should be consistent with the assumptions used to calculate the funding of the closed block (see ASOP No. 33, *Actuarial Responsibilities with Respect to Closed Blocks in Mutual Life Insurance Company Conversions*). Actual experience will almost certainly be different from that assumed in funding the closed block.

To the extent that such differences accrue to the closed block policyholders (because of the closed block mechanism), the funding assumptions should be used without change for the actuarial contribution assumptions. Examples of these assumptions include anticipated future mortality, morbidity, termination, investment income rates, and policyholder dividends.

To the extent that such differences do not accrue to the closed block policyholders, best-estimate assumptions should be used for the actuarial contribution assumptions. An example is expenses, because actual expenses are often not charged to the closed block. Income tax is an assumption that might fall into either category depending on how the closed block was constructed.

b. For policies not included in a closed block, the actuary should generally select experience factors that are best-estimate assumptions for anticipated future experience. (For a discussion of the meaning of *best-estimate assumptions*, see ASOP No. 10, *Methods and Assumptions for Use in Life Insurance Company Financial Statements Prepared in Accordance with GAAP*.) Where applicable, anticipated future experience should be based on recent experience and expected trends in experience in the company that is demutualizing (or in the industry in general, if the company's own experience is not credible).

For lines of business that exhibit cyclical trends in experience, the anticipated future experience should reflect past results over at least one complete experience cycle. The calculation of the value of future contributions to surplus should take into account any material restrictions on future profits or margins imposed as part of the plan of conversion or otherwise.

3.3.3 Other Approaches—In some circumstances, the actuary may calculate the present value of historical or future contributions to surplus directly, using a formula for calculating annual or cumulative contributions to surplus that reflects the company's approach to assessing risk or profit charges in its pricing or dividend allocation methodology.

Such an approach might be appropriate, for example, in the case of a class of large group policies where explicit risk or profit charges have been made at the individual contract experience fund level. In such circumstances it will not be necessary for the actuary to select specific experience factors other than those needed prospectively to project the persistence and growth of such charges. However, the actuary should consider whether the company has used credible and realistic experience data to reflect the actual cost of claims and expenses in determining policyholder experience funds.

3.4 Continuity Issues—When addressing eligibility and calculating actuarial contributions, the actuary should take into account the effect of status changes for any policy that has changed status since its original issue date. Some companies effect these changes in status by amending a policy, and others by terminating one policy and issuing a new policy. Subject to the limits of practicality and the availability of data, the actuary should consider the following:

a. the current status (for example, participating or nonparticipating) and the prior status;

b. the circumstances of any company-sponsored program allowing or encouraging policyholders to change or replace their policies;

c. the issue date of the original policy and the issue date of the new policy, as appropriate;

d. charges or assumptions specific to the type of policy change (for example, term conversion costs or provisions for adverse mortality in the case of conversions, as appropriate);

e. whether the new policy was issued at market price or reflected gains or losses in the old policy; and

f. changes in coverage (for example, changes in death benefit, mandated changes to individual health policies, or termination of part of a group contract).

Section 4. Communications and Disclosures

4.1 Reliance on Data Supplied by Others—The actuary may rely on data supplied by another. In doing so, the actuary should disclose both the fact and the extent of such reliance. The accuracy and comprehensiveness of data supplied by others are the responsibility of those who supply the data. However, the actuary should review the data for reasonableness and consistency to the extent practicable. For further guidance, the actuary is directed to ASOP No. 23.

4.2 Reliance on Asset Cash-Flow Projections Supplied by Others—The actuary may rely on cash-flow projections or other analyses of assets supplied by others—for example, projections of real estate or equity assets. In doing so, the actuary should disclose both the fact and the extent of such reliance. The accuracy and soundness of projections supplied by others are the responsibility of those who supply the projections. However, the actuary should review the projections for reasonableness and consistency to the extent practicable.

4.3 Actuarial Report or Statement of Actuarial Opinion—An actuary who performs professional services subject to this standard should issue a written actuarial report or statement of actuarial opinion to the employer or client concerning the allocation of policyholder consideration, unless another actuary advising the same entity is issuing such a report or statement. This actuarial report or statement of actuarial opinion should express an opinion on the appropriateness of the allocation, and may express an opinion concerning the classes of policies deemed eligible to receive consideration in light of the provisions of this standard.

4.4 Disclosures—The actuary should include the following, as applicable, in the actuarial report or statement of actuarial opinion:

a. the disclosure in ASOP No. 41, *Actuarial Communications*, section 4.2, if any material assumption or method was prescribed by applicable law (statutes, regulations, and other legally binding authority);

b. 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

c. 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, but is not part of the standard of practice.

Background

When a mutual life insurance company demutualizes fully (rather than converting to a mutual holding company structure), or when a mutual holding company demutualizes, the value of the mutual entity, generally in its entirety and before any external investment, is distributed in some form to the eligible policyholders or members of that entity. The Society of Actuaries Task Force on Conversion of Mutual Life Insurance Companies identified the allocation of policyholder consideration as an actuarial matter in its 1987 report, "Report of the Task Force on Mutual Life Insurance Company Conversion" (Society of Actuaries, *Transactions* 39 (1988): 295–391) (hereafter referred to as the *Garber Committee Report*). The Garber Committee Report considered the determination of the aggregate *amount* of policyholder consideration to be a nonactuarial matter. A number of U.S. life insurance companies have demutualized fully to date, and several more have announced their intent to do so. In almost all of these demutualizations, an actuary has been responsible for the allocation of policyholder consideration and has provided an opinion that the allocation is fair.

This actuarial standard of practice (ASOP) reflects what is considered good practice used in the allocation of policyholder consideration up until this time. The unique circumstances and characteristics of each mutual company, however, make it impossible to state with confidence that the goal of determining an equitable allocation can be met in all future transactions without deviating from this standard in some way as yet unforeseen. The actuary is best qualified, of all participating professionals, to assess and analyze the particular circumstances and operating philosophies of the mutual company, as demonstrated over its history, in determining what actually constitutes adequate recognition of a policy's contribution to company value and to recommend an allocation with due recognition of all pertinent facts.

Current Practices

<u>Actuarial Contribution</u>—Some early demutualizations calculated the actuarial contribution on a historical basis only; most recent demutualizations have used the historical plus prospective basis for the actuarial contribution.

<u>Eligibility</u>—To be eligible to receive any policyholder consideration, a policy must be in force on a specific date (or dates) or be in force within a specific range of dates. The date or dates will

be defined in the plan of conversion and may be influenced by any applicable state statute. Typical examples of eligibility dates include the following:

1. The policy must be in force on the date that the board of directors adopts the plan of conversion.

2. The policy must be in force on the effective date of conversion.

3. The policy must be in force on both the date that the board of directors adopts the plan and on the effective date of conversion.

4. The policy must be in force on the date that the board of directors adopts the plan or must have been in force on any prior date within a fixed period (for example, two years).

Unless the eligibility date is defined in a manner similar to that in (4) above, terminated policies do not usually qualify as eligible.

<u>Amount Allocated as the Fixed Component</u>—Virtually all past demutualizations in the U.S. have featured an allocation of policyholder equity in part based on a fixed amount per policy or per policyholder. The fixed or per capita component of consideration in past demutualizations has had values ranging from approximately $25 to over $1,000 per policy or per policyholder. The total value of the portion of consideration allocated as a fixed component has represented from about 10% to about 25% of the total value of the consideration in these same demutualizations. The fixed component of consideration has often been considered to be compensation for the loss of the policyholders' right to vote for directors and to vote on other important matters, such as a merger with another mutual company. The Garber Committee Report noted that "these values [i.e., membership values] might reflect some compensation for the cancellation of the less tangible attributes of membership, the right to vote for directors, and so on." In mentioning compensation for less tangible membership rights, the Garber Committee Report clearly referred to the concept of the fixed component. Nevertheless, there has not always been an exact proportional relationship between a policyholder's voting power and the amount of fixed component he or she receives. Moreover, eligibility for the fixed component may not be directly related to eligibility to vote in some plans.

<u>Amount Allocated as the Variable Component</u>—The variable component of consideration has often been considered to be compensation for policyholder rights, other than voting rights, that are relinquished in a demutualization. This would include the right to receive a share of the net value of the company in the event of a liquidation. Probably the most significant right that participating policyholders have is the right to receive dividends as declared by the board of directors. This right is generally contractual and is not canceled as the result of a demutualization.

Legitimacy of Historical Practice—The calculation of the actuarial contribution by dividend class is often accomplished by calculation of historical asset share accumulations. These calculations typically have been made for pivotal issue years and issue ages. Until recently, these calculations have not differentiated between such factors as gender, smoking status, or premium band, on the implicit assumption that the contribution principle would tend to equalize profit results over time for the various dividend classes. Generally, an existing dividend class has not been split for the purposes of calculating the actuarial contribution in the context of demutualization to recognize factors that have not been recognized historically by the company in determining dividends.

Even though asset shares calculated to set dividend scales for individual participating business normally reflect lapses and other terminations in all years, the effects of past lapses generally have been ignored or removed from the calculation of actuarial contributions for all lines of business. This follows from a general feeling among practitioners who have worked with demutualizations that survivorship gains and losses from the past should not accrue to a particular policy, but rather should be spread over all eligible policies. Some other considerations that led to deciding not to recognize past lapses in such calculations include the following:

1. the unavailability of accurate and detailed historical lapse studies;

2. the anomalous pattern of actuarial contributions by issue age, issue year, plan, and rate book that would result; and

3. the precision and uniformity, over time, of class delineations, the lack of which might result in significant variations between adjacent cells.

Converted Policies, Replacements, and Policy Exchanges—In calculating actuarial contributions, actuaries have generally considered some or all of the following aspects of converted policies, replacements, and exchanges:

1. the nature of the current policy;

2. charges assessed by the company in connection with the conversion, replacement, or exchange; and

3. any differences in experience (for example, mortality or morbidity) that are observed or expected as a result of the conversion, replacement, or policy exchange.

If the current policy has been promised dividends and related treatment accorded an otherwise similar policy that did not result from a conversion, replacement, or exchange, the actuarial contribution generally will have reflected only (1) above, and not (2) or (3).

Supplemental Contracts and Settlement Options—In calculating actuarial contributions, actuaries have generally considered the status of the current policy (participating or nonparticipating) and the date the current policy was issued. If no new policy was issued when the supplemental contract or settlement option was purchased, actuaries have sometimes considered the appropriateness of using a basis that considers the original policy.

Change in Policy Conditions Due to Update Programs—In calculating actuarial contributions, actuaries have generally considered the changes to policy conditions as a result of update programs and, where practicable, reflected them, as appropriate, in the actuarial contribution calculations.

Non-Par Coverages Associated with Terminated Group Contracts—In calculating actuarial contributions, actuaries have generally considered the status of the original group contract, the owner of the contract, the company's approach for calculating actuarial contributions for current group contracts, and the beneficiary of the actuarial contribution associated with current group contracts. In some cases, actuaries have decided that no actuarial contribution should be calculated with respect to run-off coverages on terminated group contracts.

Data Problems—Some of the particular data problems that actuaries have encountered include the following:

1. Group annuity policies may have been in force for fifty years or more, but detailed records in some cases have not been available back to the issue date of the older policies. Actuaries have had to determine some equitable method of estimating actuarial contributions for periods before individual policy records were available.

2. The problem of unavailable records in some cases has been extensive with group term and health insurance, where it is not necessary to keep a long-term history of asset fund build-ups. Although group insurance policies will usually have an experience fund (if the policy is dividendable), companies may not have retained the history of this fund for more than five to ten years.

3. In some cases, the experience studies to support mortality and pricing philosophy have been difficult to find.

Appendix 2

Comments on the Second Exposure Draft and Task Force Responses

The second exposure draft of the proposed standard was circulated for review in December 1999, with a comment deadline of May 1, 2000. Eight letters of comment (two from the same person) were received. The Task Force on Allocation of Policyholder Equity carefully reviewed each comment letter. Summarized below are the significant issues or questions contained in the comment letters, printed in roman type. The task force's responses appear in **boldface.**

General Comments

One commentator took issue with the statement in appendix 1, which was quoted from the Garber Committee Report, that the determination of the aggregate amount of policyholder consideration is a nonactuarial matter. **The task force notes that the aggregate amount of policyholder consideration in most demutualizations has been set by the marketplace. In any event, the task force believes that the determination of the aggregate value to be distributed to policyholders is beyond the scope of this standard.**

One commentator suggested that the ASB is not qualified to determine whether a method of allocation is "fair and equitable." **The task force believes that actuaries are the appropriate professionals to form and state an opinion as to whether a plan of conversion is appropriate from an actuarial perspective, and the ASB is the proper body to set standards for actuaries performing this role.**

Transmittal Memorandum

One commentator questioned the use of the word "reasonable" in the context of "reasonable dividend expectations." **The task force believes that the term "reasonable dividend expectations" is generally well understood as defined in ASOP No. 33.**

Section 2. Definitions

Section 2.1, Actuarial Contribution—One commentator questioned whether the phrase "contribution…to the company's surplus" should be clarified to indicate that this is the amount remaining in the current surplus account and is, thus, net of all previous policyholder dividends paid or apportioned. **The task force agrees that this is the proper meaning, but did not believe that further clarification was necessary.**

Section 3. Analysis of Issues and Recommended Practices

Section 3.1, Policyholder Eligibility—One commentator noted that the proposed standard did not include any discussion of the fact that some policyholders may purchase a policy from a mutual company that has announced its intention to demutualize solely or primarily to receive consideration. Noting that such activity could have the impact of diluting the value of the consideration paid to other policyholders, this commentator suggested that this would be inequitable and that the proposed standard might be revised to specify that the actuary should consider this in setting the allocation basis. Specifically, the commentator suggested that only policies issued prior to the announcement of the company's intent to demutualize would be eligible for a fixed component. **The task force recognizes that the question of which policyowners are eligible to receive consideration is frequently addressed in the demutualization statutes of the states. Such statutes often specify particular eligibility dates. If policies are in force on these dates, they are eligible to receive consideration. The task force notes that policyholders receive consideration in exchange for relinquishing their membership rights and that newly issued policies generally have membership rights similar to policies that have been in force for longer periods of time. Moreover, as the commentator acknowledges, it would not be appropriate to attempt to classify policyholders by their intent in purchasing their policies, even if it were feasible. The task force believed that the standard should not be amended to address the situation pointed out by the commentator.**

Section 3.2.3, Basis for Allocating the Variable Component—One commentator recommended that the proposed standard require the actuary to obtain an opinion of counsel as to whether the actuarial contribution method as defined in the proposed standard violates applicable law. In particular, this commentator focused on the fact that the definition of actuarial contribution in the proposed standard includes both a historical and a prospective component. **The task force is aware that there has been controversy over the correct interpretation of certain state statutes with respect to whether or not it is appropriate to take future expected profits into account in the allocation of consideration. In cases where such controversy could potentially arise, the task force expects that the actuary would act with appropriate professional discretion to assure that the methodology used complied with applicable law. A number of state statutes are quite clear about the issue, and there is substantial precedent in certain states sanctioning the methodology set forth in the standard. Therefore, the task force does not believe that a blanket requirement for the actuary to obtain opinion of counsel on this issue is necessary. Furthermore, the task force notes that section 1.2, Scope, provides that "if a conflict exists between this standard and applicable law or regulation, compliance with applicable law or regulation is not considered a deviation from this standard." Thus, the actuary is not required to apply the methodology in section 3.2.3 when, in the actuary's professional judgment, this method conflicts with applicable law or regulation.**

Three commentators offered the opinion that the inclusion of a prospective component in the definition of actuarial contribution *per se* violated the contractual rights of mutual company policyholders. One of the bases cited for this opinion was the belief that mutual insurers operated on a basis in which insurance is provided “at cost” and, therefore, over their entire life, mutual company policies do not make a permanent contribution to surplus. If this was the case, the actuarial contribution, including both prospective and retrospective components, would be zero, and thus there would be no basis for the allocation of variable shares. These commentators point out that if the actuarial contribution were calculated with reference only to the historical component, on the other hand, there would presumably be a non-zero result for the typical company with positive surplus. One of these commentators expressed the opinion that use of both historical and prospective components in the calculation of the actuarial contribution defeats the expectation that the mutual policyholder will obtain insurance at cost.

The task force believes that the definition of actuarial contribution contained in the standard is appropriate. The standard takes no position on whether the “entity capital” model, where policies make permanent contributions to surplus, or the “revolving fund” model, where all contributions to surplus are returned over a policy’s life, is preferable as a philosophy for setting dividends for a mutual company. The task force does note, however, that different opinions on this issue have been expressed in actuarial literature over the years. (See, for example, “Some Actuarial Considerations for Mutual Companies,” *TSA*, XXXI (1979) by Robin B. Leckie.) The rationale for the definition of actuarial contribution as including both a historical and a prospective component is not based on adherence to one or the other of these theoretical models. It is predicated, rather, on the concept that the allocation of consideration should be based, in part, on the relative economic value of the policy to the company. The task force believes that actuarial contribution, as defined in the standard, represents a fair estimate of this economic value and is preferable to an alternative definition that ignores the value of future expected contributions to surplus. The task force notes that the definition of actuarial contribution in the standard has resulted in positive actuarial contributions over a broad range of policies in the several actual demutualizations where it has been applied. The task force also notes that the adoption of such a definition of actuarial contribution has no impact on a mutual company’s dividend-setting practices or pricing philosophy, either before or after demutualization (and thus does not affect the expectation that the mutual policyholder may obtain insurance at cost).

Section 3.2.4(g), Reinsurance—One commentator, while agreeing in general with the distinction between risk and surplus relief reinsurance, noted that the complexity of some agreements will require consideration of both their structure and purpose. **The task force agreed, and added a sentence to that effect.**

Section 4. Communications and Disclosures

Section 4.1, Reliance on Data Supplied by Others, and section 4.2, Reliance on Asset Cash-Flow Projections Supplied by Others—One commentator opined that the actuary should be required to review data and projections of others, and that the modifying phrase “when practicable” in sections 4.1 and 4.2 was unduly lenient. **The task force notes that practical limitations do exist as to what can be reviewed. Nevertheless, the language in both sections was modified to make it clear that the actuary should perform this review “to the extent” practicable.**

Prior Commentary and Responses from the First Exposure Draft

One commentator repeated the earlier suggestion that there should be a statement of policy or policies that will guide the demutualization, similar to that required by ASOP No. 1, *The Redetermination (or Determination) of Non-Guaranteed Charges and/or Benefits for Life Insurance and Annuity Contracts*, for redetermination of nonguaranteed elements. **In contrast to determination of nonguaranteed elements, the allocation of policyholder consideration occurs at a point in time and does not involve the ongoing application of consistent policies over a period of time. Observers are thus able to assess the appropriateness of the single result of the allocation process without reference to some additional statement of principles put forth by the converting company. In any case, the standard does not prevent a converting company from putting forth such principles. The task force still does not believe that a requirement for a statement of principles of allocation is necessary.**

ACTUARIAL STANDARDS BOARD

Actuarial Standard
of Practice
No. 38

Revised Edition

Catastrophe Modeling
(for All Practice Areas)

Developed by the
Catastrophe Modeling Task Force of the
General Committee of the
Actuarial Standards Board

Adopted by the
Actuarial Standards Board
July 2021

Doc. No. 201

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APPENDIXES

<u>ASOP No. 38—Doc. No. 201</u>

July 2021

TO: Members of Actuarial Organizations Governed by the Standards of Practice of the Actuarial Standards Board and Other Persons Interested in Catastrophe Modeling (for All Practice Areas)

FROM: Actuarial Standards Board (ASB)

SUBJ: Actuarial Standard of Practice (ASOP) No. 38

This document contains the revision of ASOP No. 38, *Catastrophe Modeling (for All Practice Areas)*.

<u>History of the Standard</u>

The ASB first began work on a standard for modeling in the late 1990s. Motivated primarily to address the role catastrophe modeling of earthquakes and hurricanes played in casualty ratemaking, this work was focused on the use of specialized models where the actuary would have to rely on a model that was developed by professionals other than actuaries. As a result of this work, the ASB approved ASOP No. 38, *Using Models Outside the Actuary's Area of Expertise*, in June 2000 with the scope of the standard limited to the Property/Casualty area of practice. At the time, this was the only ASOP that specifically addresses modeling.

Over the ensuing years, the number and importance of modeling applications in actuarial science has increased, with the results of actuarial models often entering financial statements directly. Recognizing this trend, the ASB asked the Life Committee in 2010 to begin work on an ASOP focused on modeling. The Life Committee formed a task force to address this issue and, in February 2012, a discussion draft titled *Modeling in Life Insurance and Annuities* was released. Nineteen comment letters were received.

Based upon this feedback and numerous other discussions on the topic of modeling, in December 2012 the ASB created two multidisciplinary task forces under the direction of the General Committee: i) a general Modeling Task Force, charged with developing an ASOP to address modeling applications in all practice areas, and ii) a Task Force to consider expanding ASOP No. 38 to all practice areas while focusing exclusively on using catastrophe models.

An exposure draft titled *Modeling* was released in June 2013 with a scope that provides guidance to actuaries when selecting, designing, building, modifying, developing, or using models when performing actuarial services. ASOP No. 56, *Modeling*, was adopted by the ASB in December 2019. Changes have been made to this exposure draft of ASOP No. 38 to be consistent with ASOP No. 56 and other recent ASOPs.

The exposure draft of this revision of ASOP No. 38 was the work of the Catastrophe Modeling Task Force, whose membership has experience in life insurance, health insurance, property/casualty insurance, and enterprise risk management.

At the direction of the ASB, this standard was developed to apply to all practice areas and all forms of catastrophe models, including natural catastrophes such as hurricanes, earthquakes, and severe convective storms, and other catastrophes such as terrorist acts and pandemics.

Exposure Draft

The exposure draft was approved in September 2020 with a comment deadline of January 15, 2021. Four comment letters were received and considered in making changes that were reflected in the final ASOP.

Notable Changes from the Exposure Draft

Notable changes made to the exposure draft are summarized below. Additional changes were made to improve readability, clarity, or consistency.

1. Section 1.2, Scope, was revised to provide additional guidance to actuaries whose actuarial services involve reviewing or evaluating models.

2. In section 2, Definitions, the definition of "catastrophe model" was expanded to include a definition of model.

3. Section 3.2, Appropriate Reliance on Experts (now titled Catastrophe Models Developed by Experts), was revised to adopt language from ASOP No. 56, section 3.5(b).

4. An existing ASOP No. 38 example regarding validation to evaluate results derived from other models was reinserted into section 3.5.

5. A disclosure requirement for the extent of reliance on experts was added to section 4.1(b) and (c).

Notable Changes from the Existing ASOP

A cumulative summary of the notable changes from the existing ASOP are summarized below. Notable changes do not include additional changes made to improve readability, clarity, or consistency.

1. The ASOP was revised to apply to catastrophe models only and to all practice areas.

2. The scope was expanded to include the activities "selecting, reviewing, and evaluating" models in addition to the existing activity of "using" a model when performing actuarial services.

3. The scope was expanded to clarify that if the actuary determines that the guidance in the ASOP conflicts with the guidance in ASOP No. 56, the guidance of this ASOP will govern.

4. A new section specifically addressing reliance on data or other information supplied by others (section 3.8) was added.

5. The guidance on documentation (section 3.9) was updated and expanded to be consistent with current ASOPs.

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

The ASB would like to posthumously thank Martin M. Simons for his contribution to the ASOP No. 38 task force.

The ASB voted in July 2021 to adopt this standard.

ASOP No. 38—Doc. No. 201

Catastrophe Modeling Task Force

Shawna S. Ackerman, Chairperson

David A. Brentlinger	Bradley J. Davis

General Committee of the ASB

Susan E. Pantely, Chairperson

Geoff Bridges	Brian J. Mullen
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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.

<u>ASOP No. 38—Doc. No. 201</u>

ACTUARIAL STANDARD OF PRACTICE NO. 38

CATASTROPHE MODELING (FOR ALL PRACTICE AREAS)

STANDARD OF PRACTICE

<u>Section 1. Purpose, Scope, Cross References, and Effective Date</u>

1.1 <u>Purpose</u>—This actuarial standard of practice (ASOP or standard) provides guidance to actuaries when performing actuarial services with respect to selecting, using, reviewing, or evaluating **catastrophe models**.

1.2 <u>Scope</u>—This ASOP applies to actuaries in any practice area when performing actuarial services with respect to selecting, using, reviewing, or evaluating **catastrophe models** to assess risk, including but not limited to **models** of hurricanes, earthquakes, severe convective storms, terrorist acts, and pandemics. This standard applies to the selection, use, review, or evaluation of **catastrophe models**, whether or not they are proprietary in nature.

If the actuary's actuarial services involve reviewing or evaluating **catastrophe models**, the reviewing or evaluating actuary should apply the guidance in this standard to the extent practicable within the scope of the actuary's assignment.

In addition to this standard, the actuary should follow the guidance in ASOP No. 56, *Modeling*, when selecting, using, reviewing, or evaluating **catastrophe models**. If the actuary determines that the guidance in this ASOP conflicts with the guidance in ASOP No. 56, the guidance of this ASOP will govern.

This standard does not apply to **models** of operational risks. This standard also does not apply to **models** of economic risks that deal with instances of extreme events such as hyper-inflation or a stock market collapse.

This standard also does not apply when the actuary is only designing, developing, or modifying a **catastrophe model** (or a portion of a **catastrophe model**).

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

1.3 Cross References—When this ASOP 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 document differs materially from the originally referenced document, the actuary should consider the guidance in this ASOP to the extent it is applicable and appropriate.

1.4 Effective Date—This standard is effective for work performed on or after December 1, 2021.

Section 2. Definitions

The terms below are defined for use in this actuarial standard of practice and appear in bold throughout the ASOP.

2.1 Assumption—A type of explicit **input** to a **catastrophe model** that is derived from **data**, represents possibilities based on professional judgment, or may be prescribed by law or others. When derived from **data**, an **assumption** may be statistical, financial, economic, mathematical, or scientific in nature, and may be described as a **parameter**.

2.2 Catastrophe Model—A **model** of low-frequency events with high-severity or widespread potential effects. **Catastrophe models** may be used to explain a system, to study effects of different components, or to derive estimates.

2.3 Data—Facts or information that are either direct **input** to a **catastrophe model** or inform the selection of **input. Data** may be collected from sources such as records, experience, experiments, surveys, observations, benefit plan or policy provisions, or **output** from other **models**.

2.4 Expert—One who is qualified by knowledge, skill, experience, training, or education to render an opinion concerning the matter at hand.

2.5 Input—**Data** or **assumptions** used in a **catastrophe model** to produce **output**.

2.6 Intended Purpose—The goal or question, whether generalized or specific, addressed by the **catastrophe model** within the context of the assignment.

2.7 Model—A simplified representation of relationships among real world variables, entities, or events using statistical, financial, economic, mathematical, non-quantitative, or scientific concepts and equations. A **model** consists of three components: an information **input** component, which delivers **data** and **assumptions** to the **model**; a processing component, which transforms **input** into **output**; and a results component, which translates the **output** into useful business information.

2.8 Output—The results of the **catastrophe model** including, but not limited to, point estimates, likely or possible ranges, and **data** or **assumptions** (as **input** for other **models**), behavioral expectations, or qualitative criteria on which decisions could be based.

2.9 Parameter—A type of statistical, financial, economic, mathematical, or scientific value that is used as **input** to **catastrophe models**. Examples of **parameters** include expected values in probability distributions and coefficients of formula variables.

Section 3. Analysis of Issues and Recommended Practices

3.1 Introduction—In performing actuarial services, the actuary may find it appropriate to select, use, review, or evaluate **catastrophe models**. When selecting, using, reviewing or evaluating a **catastrophe model**, the actuary should do the following:

a. determine the appropriate level of reliance on **experts**;

b. have a basic understanding of the **catastrophe model**;

c. evaluate whether the **catastrophe model** is appropriate for the **intended purpose**;

d. determine that appropriate validation of the **catastrophe model** and **output** has occurred; and

e. determine the appropriate use of the **catastrophe model** and **output**.

The actuary's level of effort in understanding and evaluating a **catastrophe model** should be consistent with the **intended purpose** and the **catastrophe model output's** materiality to the results of the actuarial analysis.

3.2 Catastrophe Models Developed by Experts—When selecting, using, reviewing, or evaluating a **catastrophe model** developed by **experts**, the actuary should take into account the following:

a. whether the individual or individuals who developed the **catastrophe model** are **experts** in the applicable field;

b. the extent to which the **catastrophe model** has been reviewed or validated by **experts** in the applicable field, including known differences of opinion among

experts concerning aspects of the **catastrophe model** that could be material to the actuary's use of the **catastrophe model**; and

c. whether there are industry or regulatory standards that apply to the **catastrophe model** or to the testing or validation of the **catastrophe model**, and whether the **catastrophe model** has been certified as having met such standards.

The actuary may rely on **experts** in the applicable field in the evaluation of items in section 3.2(a)-(c) and should disclose the extent of such reliance.

3.3 Understanding of the Catastrophe Model—The actuary should be familiar with the basic components of the **catastrophe model** and understand both the user **input** and the **catastrophe model output**, as discussed below.

3.3.1 Catastrophe Model Components—The actuary should be familiar with the basic components of the **catastrophe model** and have an understanding of how such components interrelate within the **catastrophe model**. In addition, the actuary should identify which fields of expertise were used in developing or updating the **catastrophe model** and should make a reasonable effort to determine if the **catastrophe model** is based on generally accepted practices within the applicable fields of expertise. The actuary should also be familiar with how the **catastrophe model** was tested or validated and the level of independent **expert** review and testing.

3.3.2 User Input—The actuary should take reasonable steps to confirm that the precision and accuracy of the user **input** are consistent with the **intended purpose** and should refer, as applicable, to ASOP No. 23, *Data Quality*, when selecting, using, or evaluating **data** used in the **catastrophe model**. Certain user **input** may be required to produce **catastrophe model output** for the specific application. User **input** can include **assumptions** or **data**. If the **catastrophe model** requires user **input**, the actuary should evaluate the reasonableness of the user **input** and should have an understanding of the relationship between the user **input** and **catastrophe model output**.

3.3.3 Catastrophe Model Output—The actuary should determine that the **catastrophe model output** is consistent with the **intended purpose**.

3.4 Appropriateness of the Catastrophe Model for the Intended Purpose—The actuary should evaluate whether the **catastrophe model** is appropriate for the **intended purpose** and take into account the following:

3.4.1. Applicability of Historical Data—To the extent historical **data** are used in the development of the **catastrophe model** or the establishment of **catastrophe model parameters**, the actuary should take into account the adequacy of the historical **data** in representing the range of reasonably expected outcomes consistent with current knowledge about the phenomena being analyzed.

3.4.2. Developments in Relevant Fields—The actuary should make a reasonable effort to be aware of significant developments in relevant fields of expertise that are likely to materially affect the **catastrophe model**.

3.5 Output Validation— The actuary should validate that the **output** reasonably represents that which is being modeled. Depending on the **intended purpose**, **output** validation may include the following:

a. comparing **output** to those of an alternative **model(s)**, where appropriate;

b. comparing the **output** produced by the **catastrophe model** with historical observations, if applicable;

c. comparing the consistency and reasonableness of relationships within the **output**; and

d. evaluating the reasonableness of changes in the **output** due to variations in the user **input**.

3.6 Appropriate Use of the Catastrophe Model and Output—The actuary should evaluate the reasonableness of the **catastrophe model output**, considering the **input** and the **intended purpose**. The actuary should take into account the limitations of the **catastrophe model** and use professional judgment to determine whether it is appropriate to use the **catastrophe model output**. The actuary should also use professional judgment to determine whether any adjustments to the **catastrophe model output** are needed to meet the **intended purpose**. The actuary should disclose any such adjustments in accordance with section 4.1.

3.7 Reliance on Another Actuary—The actuary may rely on another actuary who has selected, used, reviewed, or evaluated the **catastrophe model**. However, the relying actuary should be reasonably satisfied that the other actuary is qualified to select, use, review, or evaluate the **catastrophe model** in accordance with applicable ASOPs, and the **catastrophe model** is appropriate for the **intended purpose**. The actuary should disclose the extent of any such reliance.

3.8 Reliance on Data or Other Information Supplied by Others—When relying on **data** or other information supplied by others, the actuary should refer to ASOP No. 23 and ASOP No. 41, *Actuarial Communications*, for guidance.

3.9 Documentation—The actuary should consider preparing and retaining documentation to support compliance with the requirements of section 3 and the disclosure requirements of section 4. If preparing documentation, the actuary should prepare such documentation in a form such that another actuary qualified in the same practice area could assess the reasonableness of the actuary's work and should document the steps taken to comply with this standard in light of proprietary aspects of the **catastrophe model**, if any. The degree of such documentation should be based on the professional judgment of the actuary and may vary with the complexity and purpose of the actuarial services. In addition, the actuary should refer to ASOP No. 41 for guidance related to the retention of file material other than that which is to be disclosed under section 4.

Section 4. Communications and Disclosures

4.1 Required Disclosures in an Actuarial Report—When issuing an actuarial report to which this standard applies, the actuary should refer to ASOP Nos. 23, 41, and 56. In addition, the actuary should disclose the following in such actuarial reports, as appropriate:

a. the **catastrophe model** used and the **intended purpose**;

b. the methodology used to validate the **catastrophe model** developed by **experts** (see section 3.2);

c. the extent of reliance on **experts** (see section 3.2);

d. a description of the user **input** that was incorporated into the **catastrophe model** (see section 3.3.2);

e. a description of adjustments made to the **catastrophe model output** (see section 3.6); and

f. the extent of any reliance placed upon the work of another actuary (see section 3.7).

4.2 Additional Disclosures in an Actuarial Report—The actuary also should include disclosures in accordance with ASOP No. 41 in an actuarial report for the following circumstances:

a. if any material **assumption** or method was prescribed by applicable law;

b. 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

c. if in the actuary's professional judgment, the actuary has deviated materially from the guidance of this ASOP.

4.3 Confidential Information—Nothing in this ASOP is intended to require the actuary to disclose confidential information.

Appendix 1

Background and Current Practices

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

Background

Hurricane Andrew in 1992 and the Northridge Earthquake in 1994 led actuaries involved in evaluating hurricane and earthquake exposures to recognize the severe inadequacy of the traditional, empirical actuarial methods used for ratemaking for these exposures. Recognizing the need to replace these methods, many actuaries began using stochastic computer simulation models for their actuarial analysis of hurricane and earthquake exposure. Computer simulation models had been commonly used for some time by actuaries and others for the purpose of evaluating probable maximum loss but had not been widely used for ratemaking.

Over time, the output from catastrophe models became commonly used by property/casualty actuaries in developing rates for catastrophic perils as well as many other risk management purposes.

Current Practices

Catastrophe models are now widely used by actuaries in all practice areas for risk management analyses and calculating expected losses due to hurricanes, earthquakes, and terrorist acts. More recently, catastrophe models have also been developed to simulate wildfires, severe convective storms, tsunamis, and pandemics.

In addition, due to changes in regulations and financial reporting requirements, the number and importance of modeling applications in actuarial science has increased, with the results of actuarial models often entering financial statements directly.

Lastly, due to the evolution of enterprise risk management (ERM) practices and regulations, there has been increased use of catastrophe modeling as part of insurer stress testing and risk management across all practice areas. This trend is likely to continue to evolve and heighten in light of the emergence of the novel coronavirus and the COVID-19 pandemic.

Appendix 2

Comments on the Exposure Draft and Responses

The exposure draft of the proposed revision of ASOP No. 38, *Catastrophe Modeling (for All Practice Areas),* was issued in September 2020 with a comment deadline of January 15, 2021. Four comment letters were received, some of which were submitted on behalf of multiple commentators, such as by 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 ASOP No. 38 Task Force carefully considered all comments received, and the ASB reviewed (and modified, where appropriate) the changes proposed by the ASOP No. 38 Task Force and the ASB General Committee.

Summarized below are the significant issues and questions contained in the comment letters and the responses. Minor wording or punctuation changes that were suggested but not significant are not reflected in the appendix, although they may have been adopted.

The term "reviewers" in appendix 2 includes the ASOP No. 38 Task Force, the ASB General Committee, and the ASB. Also, the section numbers and titles used in appendix 2 refer to those in the exposure draft, which are then cross referenced with those in the final ASOP.

SECTION 1. PURPOSE, SCOPE, CROSS REFERENCES, AND EFFECTIVE DATE	
Section 1.2, Scope	
Comment	One commentator requested a clearer definition of what is excluded from the scope of ASOP No. 38, noting that catastrophe models can be used to infer economic impacts beyond direct claims and that novel catastrophic perils may fall into a gray area in which ASOP No. 38 may or may not apply.
Response	The reviewers believe the guidance is appropriate and made no change in response to this comment. The reviewers note that section 1.2 does not limit the reason why a catastrophe model is used to perform actuarial services or whether the catastrophe model is a mature or novel catastrophe model.
Comment	One commentator suggested that section 1.2 should state that the guidance in the standard applies to the extent practicable within the scope of the actuary's assignment when the actuary is reviewing or evaluating a catastrophe model.
Response	The reviewers agree and made the change.
Comment	One commentator suggested that "review or evaluation" be removed from the scope of the standard or alternatively that the scope be changed to exclude an actuary performing a regulatory review.
Response	The reviewers believe the revised guidance is appropriate and made no change in response to this comment.

Comment Response	One commentator recommended that section 1.2 should state that the application of the standard be based on the actuary's professional judgement as to the materiality of the model output for the intended user. The reviewers believe the guidance is appropriate and made no change in response to this comment. The reviewers note that section 3.1 addresses materiality.
Comment Response	One commentator recommended that section 1.2 should state that the guidance in the standard applies only to the extent of the actuary's responsibilities and adopt the language from ASOP No. 56 section 1.2. The reviewers believe the guidance is appropriate and made no change in response to this comment.
Comment Response	One commentator suggested that the scope of the standard be expanded to include elements similar to ASOP No. 56. The reviewers believe the revised guidance is appropriate and made no change in response to this comment.
Comment Response	Several commentators questioned what constituted a conflict between ASOP No. 38 and ASOP No. 56 versus what constituted a difference and asked how potential conflicts are meant to be resolved. The reviewers believe the revised guidance is appropriate and made no change in response to this comment. The reviewers note that ASOP No. 1, *Introductory Standard of Practice*, section 4.4, states, "When an actuary believes that multiple ASOPs have conflicting provisions when applied to a specific situation and none provide explicit guidance concerning which governs, the actuary should apply professional judgment and may wish to contact the ABCD for confidential guidance on appropriate practice."
SECTION 2. DEFINITIONS	
Section 2.2, Catastrophe Model	
Comment Response	Two commentators suggested clarifying the definition of catastrophe model. The reviewers agree and made changes similar to those suggested by the commentators to improve clarity.
Comment Response	One commentator suggested a definition for "model" be added to ASOP No. 38. The reviewers agree and made the change.
SECTION 3. ANALYSIS OF ISSUES AND RECOMMENDED PRACTICES	
Section 3.1, Introduction	
Comment Response	One commentator suggested that the use of the term "validation" used in sections 3.1(d) and 3.5 be clarified to distinguish if the terms are being used differently. The reviewers believe the guidance is appropriate and made no change in response to this comment. The reviewers note section 3.1 introduces validation and section 3.5 provides details on the validation of catastrophe model output.

Section 3.2, Appropriate Reliance on Experts (now titled Catastrophe Models Developed by Experts)	
Comment Response	One commentator recommended changing "should consider" to "may consider" regarding the appropriate level of reliance on experts to be consistent with the corresponding language in ASOP No. 56, section 3.5. The reviewers believe the guidance is appropriate and made no change in response to this comment.
Comment Response	One commentator recommended changing the language in section 3.2(b) to mirror ASOP No. 56, section 3.5(b). The reviewers agree and made the change.
Comment Response	One commentator noted that this section, does not include the language of ASOP No. 56, section 3.5(d), which considers whether the science underlying the expertise is likely to produce useful models for the intended purpose. The reviewers believe the guidance is appropriate and made no change in response to this comment.
Comment Response	One commentator recommended that ASOP No. 38 be expanded to require disclosure of reliance on experts. The reviewers agree and made the change.
Comment Response	One commentator suggested that the ASOP be expanded to explicitly allow reliance on an expert to select, use, review, or evaluate the catastrophe model. The reviewers believe the guidance is appropriate and consistent with the suggestion, and made no change in response to this comment.
Section 3.5, Appropriate Validation (now titled Output Validation)	
Comment Response	One commentator requested that results derived from alternate models or methods, where available and appropriate, which is part of current ASOP No. 38, be added. The reviewers partially agree and modified the language.
Section 3.7, Reliance on Another Actuary	
Comment Response	One commentator suggested that ASOP No. 56 be added to the requirements for reliance on another actuary. The reviewers believe the revised guidance is appropriate and made no change in response to this comment.

ACTUARIAL STANDARDS BOARD

Actuarial Standard
of Practice
No. 39

Treatment of Catastrophe Losses in Property/Casualty Insurance Ratemaking

Developed by the
Subcommittee on Ratemaking of the
Casualty Committee of the
Actuarial Standards Board

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<u>ASOP No. 39—June 2000</u>

T A B L E O F C O N T E N T S

June 2000

TO: Members of Actuarial Organizations Governed by the Standards of Practice of the Actuarial Standards Board and Other Persons Interested in the Treatment of Catastrophe Losses in Property/Casualty Insurance Ratemaking

FROM: Actuarial Standards Board (ASB)

SUBJ: Actuarial Standard of Practice (ASOP) No. 39

This booklet contains the final version of Actuarial Standard of Practice No. 39, *Treatment of Catastrophe Losses in Property/Casualty Insurance Ratemaking*.

Background

Many property/casualty insurance products are, by their nature, subject to large aggregate losses resulting from relatively infrequent events or natural phenomena, i.e., from catastrophes. These losses can cause extreme volatility in historical insurance data and generally require separate and different treatment from other losses in ratemaking methodologies. Historically, the most common method was to calculate the ratio of actual catastrophe losses to noncatastrophe losses over a longer experience period, and apply that ratio to expected noncatastrophe losses in the ratemaking formula.

In 1992 and 1994, two events occurred that changed the actuarial profession's view of catastrophe losses. The Hurricane Andrew and Northridge Earthquake catastrophes clearly demonstrated the limitations of relying exclusively on historical insurance data in estimating the financial impact of potential future events. In addition, property/casualty insurers (including self-insurers) and their actuaries began to focus on the impact that large individual events or sequences of events could have on the insurers' solvency, cash flow, and earnings.

This actuarial standard of practice is intended to provide guidance to actuaries in evaluating catastrophe exposure and in determining a provision for catastrophe losses and loss adjustment expenses in property/casualty insurance ratemaking.

Exposure Draft

This standard was exposed for review in February 1999, with a comment deadline of June 15, 1999. Fourteen comment letters were received. The Subcommittee on Ratemaking reviewed all the comments carefully, and many of the suggestions were incorporated in the final standard. In particular, the subcommittee did the following: (1) revised the title and the scope of the standard to more explicitly recognize that the standard applied to ratemaking; (2) revised the text to indicate that the actuary was estimating a catastrophe provision not estimating actual catastrophe losses; and (3) more explicitly recognized that, in the end, the procedure that the actuary uses must reflect the expected frequency and severity distribution of catastrophes, as well as the anticipated class, coverage, geographic and other relevant exposure distributions. For a summary of the substantive issues contained in these fourteen comment letters and the task force's responses, please see appendix 2.

The subcommitee and Casualty Committee thank all those who commented on the exposure draft.

The subcommittee also thanks former member Robert W. Gossrow for his contributions during the development of this proposed ASOP.

The ASB voted in June 2000 to adopt this standard.

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ACTUARIAL STANDARD OF PRACTICE NO. 39

TREATMENT OF CATASTROPHE LOSSES IN PROPERTY/CASUALTY INSURANCE RATEMAKING

STANDARD OF PRACTICE

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

1.1 Purpose—The *Statement of Principles Regarding Property and Casualty Insurance Ratemaking* of the Casualty Actuarial Society states that consideration should be given to the impact of catastrophes and that procedures should be developed to include an allowance for catastrophe exposure in the rate. The purpose of this actuarial standard of practice (ASOP) is to provide guidance to actuaries in evaluating catastrophe exposure and in determining a provision for catastrophe losses and loss adjustment expenses in property/casualty insurance ratemaking.

1.2 Scope—This standard provides guidance to actuaries when performing professional services in connection with ratemaking for property/casualty insurance coverages including property/casualty risk financing systems, such as self-insurance or securitization products, which provide similar coverage.

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 document as it may be amended or restated in the future, and any successor to it, by whatever name called. If the amended or restated document differs materially from the originally referenced document, the actuary should consider the guidance in this standard to the extent it is applicable and appropriate.

1.4 Effective Date—This standard will be effective for work performed on or after December 15, 2000.

Section 2. Definitions

The definitions below are defined for use in this actuarial standard of practice.

2.1 Catastrophe—A relatively infrequent event or phenomenon that produces unusually large aggregate losses.

2.2 Catastrophe Ratemaking Procedures—Ratemaking procedures that adjust for the impact of catastrophe losses in the experience data and determine a provision for catastrophe losses and loss adjustment expenses.

2.3 Contagion—A lack of independence between the occurrence of losses among different entities.

2.4 Demand Surge—A sudden and usually temporary increase in the cost of materials, services, and labor due to the increased demand for them following a catastrophe.

Section 3. Analysis of Issues and Recommended Practices

In evaluating catastrophe exposure and in determining a provision for catastrophe losses and loss adjustment expenses in property/casualty insurance ratemaking, the actuary should be guided by the following sections.

3.1 Identification of Catastrophe Perils or Events—The actuary should take reasonable steps to identify the perils or events that have the potential to generate catastrophe losses that differ materially from the expected aggregate losses or the expected distribution of losses. These perils or events have at least one of the following characteristics:

a. The Potential to Display Contagion—Examples of perils that display contagion include windstorms, earth movement, and freezing.

b. Infrequent Occurrence—Some events that occur infrequently have the potential to produce losses that can significantly distort the historical experience. An example of such an event is an explosion that results in the release of toxic material. If the experience data contain such events, using this experience data without adjustment may overstate the catastrophe provision in the rates. If the experience data do not contain such events, using this experience data without adjustment may understate the catastrophe provision in the rates.

3.2 Identification of Catastrophe Losses—The actuary should identify, where practicable, the catastrophe losses in the historical insurance data. In doing so, the actuary should consider how accurately the catastrophe losses can be identified, and the extent to which they may have a material impact on the results of the analysis.

3.3 The Use of Data in Determining a Provision for Catastrophe Losses—The actuary may use historical insurance data and noninsurance data, as described in sections 3.3.1 and 3.3.2 below.

3.3.1 Use of Historical Insurance Data—The actuary should consider the following when using data available from insurance sources:

a. Evaluating Historical Insurance Data—The actuary should consider comparing historical insurance data to noninsurance data to determine the extent to which the available historical insurance data are fully representative of the long-term frequency and severity of the perils or events identified in section 3.1 that produced the catastrophe losses. Thus, in determining a provision for catastrophe losses, the actuary should consider the sensitivity of the provision to changes in the historical insurance data relating to the following: (1) the frequency of catastrophes; (2) the severity of catastrophes; and (3) the geographic location of catastrophes.

b. The Applicability of Historical Insurance Data—The actuary should consider the applicability of historical insurance data for the insured coverage. This includes determining (1) whether catastrophe losses are likely to differ significantly among elements of the rate structure, such as construction type and location; (2) whether such differences should be reflected in the ratemaking procedures; and (3) how to reflect such differences, taking into account both homogeneity and the volume of data. In addition, the actuary should consider whether there is a sufficient number of years of comparable, compatible historical insurance data.

c. Adjustments to Historical Insurance Data to Reflect Future Conditions—The actuary should consider making adjustments to the historical insurance data to reflect conditions likely to prevail during the period in which the rate will be in effect. Such adjustments should take into account the impact of changes in the exposure to loss, including coverage differences, the underlying portfolio of insured risks, building codes and the enforcement of these codes, and building practices; population shifts; costs; and demand surge during both the historical period and the period for which the rate will be in effect. These considerations become more important when a longer experience period is used because they can have a greater effect over longer time periods.

d. Stability of Outcomes Based on Historical Insurance Data—The actuary should consider the extent to which the provision for catastrophe losses would change if the catastrophe ratemaking procedure were to be carried out using different historical experience periods. If, in the actuary's judgment, the procedure is too sensitive to the inclusion or exclusion of an individual catastrophe or sets of years, the actuary should consider modifying the procedure to reduce the sensitivity.

e. Differing Trends in Loss Data—Historical insurance data used to determine a provision for catastrophe losses will often extend over much longer time periods than data used in most other ratemaking procedures; thus, the effect of small differences in annual trend rates will be magnified. The actuary should consider the potential for catastrophe losses to trend at a rate materially different than the noncatastrophe losses and reflect such differences in the ratemaking process as appropriate.

f. Consistent Definition of a Catastrophe—In utilizing a catastrophe ratemaking procedure, the actuary often uses two sets of historical insurance data. The first set may be comprised of data from the ratemaking experience period from which the catastrophe losses have been removed. The second set may contain longer term experience for catastrophe losses. Collecting a greater volume of data for this second data set may be accomplished in various ways, such as by using a greater number of relevant years or by using relevant data for a broader segment of business.

The actuary should consider the catastrophe definition pertaining to, and the catastrophe potential in, both of these data sets to ensure that the definitions are not materially inconsistent. Specific areas to consider are consistency of the thresholds used to determine catastrophe losses and consistency in identifying specific catastrophes.

3.3.2 <u>Use of Noninsurance Data and Models</u>—If, after considering the items contained in section 3.3.1(a–f), the actuary believes that the available historical insurance data do not sufficiently represent the exposure to catastrophe losses, the actuary should consider doing one of the following:

1. use noninsurance data to adjust the historical insurance data;

2. use noninsurance data (including models based thereon) as input to ratemaking procedures; or

3. use models based on a combination of historical insurance data and noninsurance data.

The actuary should be satisfied that the resulting ratemaking procedures appropriately reflect the expected frequency and severity distribution of catastrophes, as well as anticipated class, coverage, geographic, and other relevant exposure distributions.

3.4 Using a Provision for Catastrophe Losses—In ratemaking, actuaries generally use historical data or modeled losses to form the basis for determining future cost estimates. The presence or absence of catastrophes in any historical data used to form future cost estimates can create biases that diminish the appropriateness of using that data as the basis for future cost estimates. The actuary should address such biases by adjusting the historical data used to form future cost estimates and determining a provision for catastrophe losses (after consideration of the issues and practices found in sections 3.1–3.3).

The actuary may employ other considerations and methods to adjust for catastrophes associated with casualty coverages. For example, such adjustments may include limiting losses in the underlying data and using increased limits factors or excess loss factors based on industry data or other sources, or adjusting for legislative changes, legal decisions, changes in the distribution of policy limits, and coverage provisions. In addition, other adjustments, such as supplementing state-specific data with countrywide data or company-specific data with industry information, may be appropriate.

3.5 Loss Adjustment Expenses—The actuary should be aware that the relationship of loss adjustment expense to incurred loss can be significantly different for catastrophe losses and for noncatastrophe losses. In some cases, the historical relationships of overall loss adjustment expense to overall incurred losses may produce inappropriate loss adjustment expense estimates for catastrophe losses. Similarly, the historical relationship of overall loss adjustment expense to overall incurred losses may produce inappropriate loss adjustment expense estimates for noncatastrophe losses if the historical period was impacted by catastrophe losses. The actuary should modify the loss adjustment expense procedure where necessary to develop a reasonable estimate of prospective loss adjustment expense for both catastrophe and non-catastrophe losses.

Section 4. Communications and Disclosures

4.1 Conflict with Law or Regulation—If a law or regulation conflicts with the provisions of this standard, the actuary should develop a rate in accordance with the law or regulation, and disclose any material difference between the rate so developed and the actuarially-determined rate to the client or employer.

4.2 Documentation and Disclosure—The actuary should be guided by the provisions of ASOP No. 9, *Documentation and Disclosure in Property and Casualty Insurance Ratemaking, Loss Reserving, and Valuations*. If the actuarial work product includes mathematical modeling developed by someone other than the actuary, the documentation should include the source of the model and how the model was used in the analysis. In addition, if the model is outside the actuary's area of expertise, the actuary should be guided by the documentation and disclosure requirements of ASOP No. 38, *Using Models Outside the Actuary's Area of Expertise*.

4.3 Disclosures—The actuary should include the following, as applicable, in an actuarial communication:

a. in addition to the disclosure covered in section 4.1, the disclosure in ASOP No. 41, *Actuarial Communications*, section 4.2, if any material assumption or method was prescribed by applicable law (statutes, regulations, and other legally binding authority);

b. 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

c. 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, but is not part of the standard of practice.

Background

Historical Procedures—Prior to Hurricanes Hugo and Andrew, the predominant ratemaking procedures used to determine a catastrophe provision involved calculating the long-term ratio of such losses to noncatastrophe losses over a twenty- to thirty-year span. Catastrophes were identified either by some industry-dollar or loss-ratio threshold, and typically represented weather-related perils such as hurricanes, tornadoes, or snow storms. Other physical catastrophes such as floods and earthquakes were usually covered by separate policies designed to specifically include such perils. A provision for casualty-related catastrophes was typically not included separately in the rates, but was implicitly included with the contingency provision.

Issues—In the late 1980s and early 1990s, catastrophes produced record levels of damage, and it became evident that adjustments to historical ratemaking procedures were necessary. Hurricanes Hugo, Andrew, and Iniki produced aggregate losses exceeding previously expected possibilities. These huge losses brought to light other issues such as population shifts, non-adherence to building codes, and exposure concentration, none of which had been addressed previously. In addition, the occurrence of earthquakes in both San Francisco and Northridge, and a major flood in the Midwest during this period heightened the need for development of improved ratemaking procedures for these perils. Finally, catastrophes that had not been contemplated previously, such as the World Trade Center bombing and the Oakland Hills fires, raised other questions concerning how to provide for such losses in the rate.

In addressing these issues, catastrophe models, which previously were used by companies to determine their probable maximum loss under various scenarios, were adjusted for use in ratemaking. However, since these models were often multidisciplinary in nature or proprietary, it was often difficult to (1) ascertain the underlying assumptions of the model, and (2) obtain regulatory approval of rates based on these models.

Other issues have also emerged, making assessment of catastrophe exposure even more difficult. Examples of such issues include coverage changes, such as the greater use of guaranteed replacement cost on homeowner policies or the use of separate wind deductibles; the emergence of state-run catastrophe funds; and the availability of catastrophe options.

Current Practices

Subsequent to Hurricanes Hugo and Andrew, numerous enhancements and alternatives have been developed that improve on the traditional, long-term catastrophe ratemaking procedure.

One procedure uses the traditional excess wind approach but supplements or replaces the historical insurance data with hypothetical losses from an infrequent event (for example, a fifty-year event) as calculated by a catastrophe simulation model. Historical events of greater severity than the modeled fifty-year event are eliminated. Separate excess factors are calculated from the historical insurance data and for a hypothetical year constructed to include the modeled fifty-year event. The excess factor is calculated as a weighted average of those two separate factors.

A second procedure involves loading catastrophe reinsurance costs into the rate calculation. With this procedure, the rates are initially calculated using losses net of the catastrophe reinsurance. The company's overall catastrophe reinsurance costs are allocated to state and line, and those allocated costs are added to the calculated rate net of reinsurance.

A third procedure separates catastrophes into hurricane and nonhurricane components and treats each separately. This enables the actuary to focus on the particular difficulties, low frequency and high severity, in estimating hurricane losses. One specific procedure that is used for nonhurricane catastrophes is to relate catastrophe losses to amount of insurance years. A long-term ratio of catastrophe losses to amount of insurance years is calculated and used to load the ratemaking experience period for expected catastrophe losses. This procedure has also been used for hurricanes, using noninsurance data such as long-term hurricane frequencies to adjust the historical insurance data.

A fourth procedure that has been used for nonhurricane catastrophes is based on frequency. With this procedure, daily frequencies are calculated over a long period and each day is ranked using that frequency. A set percentage of days with the highest frequencies is considered excess. The losses incurred on those excess days are compared to the losses incurred on all other days in order to calculate an excess factor.

In considering earthquakes and hurricanes, the predominant approach currently used to calculate expected catastrophe losses is computer simulation models. These models make extensive use of noninsurance data to estimate the overall frequency of these events, as well as the frequency of the key defining characteristics of these events. Based on these estimated frequencies, a large number of catastrophes are simulated across a broad geographic area. For each simulated catastrophe, the model translates the event or phenomenon into a specific "hazard" parameter, such as wind speed or ground shaking, at all locations impacted by the event. Based on engineering analysis and prior catastrophe losses, the hazard parameter is translated into a damage ratio, i.e., ratio of losses to amount of insurance. These damage ratios are applied to the current or projected amounts of insurance and, when adjusted by the estimated frequencies of the specific catastrophes, produce the expected catastrophe losses.

Since our knowledge of catastrophes is not complete and is still evolving, computer simulation models are also evolving. The expected catastrophe losses calculated from these models can be subject to significant variation, since different models (i.e., both models from different developers and different versions of models from the same developer) will obviously provide different answers.

All of these procedures may or may not be supplemented with a risk load calculated in accordance with ASOP No. 30, *Treatment of Profit and Contingency Provisions and the Cost of Capital in Property/Casualty Insurance Ratemaking*.

Appendix 2

Comments on the 1999 Exposure Draft and Subcommittee Responses

The exposure draft of this actuarial standard of practice (ASOP)—formerly titled *Treatment of Catastrophe Losses in Property/Casualty Insurance*—was issued in February 1999, with a comment deadline of June 15, 1999. Fourteen comment letters were received. The Subcommittee on Ratemaking carefully considered all comments received. Summarized below are the significant issues and questions contained in the comment letters, printed in roman type. The subcommittee's responses are printed in **boldface**.

General Comments

One commentator notes that, in the end, the definition of a catastrophe is driven by frequency. High frequency loss processes should produce credible estimates of future losses without adjustment. Low frequency events do not provide these estimates and adjustments are needed. **The subcommittee disagrees and believes that the most important facts are that the event or phenomenon not only should be relatively infrequent but should also produce unusually large aggregate losses.**

Two commentators suggested that the title of the standard should be *Treatment of Catastrophe Losses in Property/Casualty Insurance Ratemaking*. **The subcommittee agreed and changed the title.**

Two commentators believed that the standard too often specified what the actuary *should* do, suggesting the use of *may* as more appropriate. **The subcommittee disagrees, since the standard generally is specifying what the actuary needs to consider. The standard does not say the actuary needs to do something after the consideration if the item has no material impact on the results. In performing this work, the actuary needs to consider all items that may materially impact or bias the results.**

One commentator noted that the standard permits the actuary to rely on the work of nonactuaries without proper review and disclosure, particularly as it pertains to models developed by others. **The subcommittee disagrees that an actuary can rely on the work of a nonactuary without review and disclosure. The subcommittee prepared this standard fully aware of ASOP No. 38, *Using Models Outside the Actuary's Area of Expertise (Property and Casualty)*, which was being exposed concurrently.**

One commentator suggested that the definitions and explanations should be phrased more in statistical terms whenever possible. **The subcommittee believes that, given the wide variation in available methodologies, a statistically-based definition would too narrowly restrict current acceptable practices.**

Another commentator suggested that the term *procedures* should be replaced by *models*. **The subcommittee believes that *procedures* is appropriate, particularly since *models*, in this case, could be too narrowly read to mean computer models.**

One commentator stated that the standard does nothing to help an actuary who uses a computer model to develop estimated catastrophe losses and is challenged by individuals who refuse to accept the validity of these models. **The subcommittee disagrees. The standard provides the analytical steps that the actuary should follow in examining the available data. Based on the analysis, the actuary can determine and demonstrate to others whether the data need to be supplemented by additional data or, alternatively, whether models that consider various sources of data should be used.**

Transmittal Memorandum

The transmittal memorandum of the exposure draft asked readers to address several key questions. One question asked, "Is the application of the standard to casualty (i.e., nonproperty) insurance appropriate, and has the subject been addressed adequately?" One commentator stated that catastrophes should be limited to first party coverages, particularly since the considerations listed in 3.3.1 and 3.3.2 were property related in nature. The commentator also noted that the methodologies referenced were predominantly for property coverages. The commentator did suggest, that if the standard were to apply to casualty coverages, it would need to include considerations such as limiting losses to basic limits; using excess loss factors; adjusting for changes in limits, coverages, or reinsurance; and supplementing state data with countrywide data. **The subcommittee intends that the requirements of this ASOP should also apply to casualty catastrophe losses when such a catastrophe is identified. The subcommittee has included the suggested language for casualty catastrophes in section 3.4.**

The subcommittee also drew its readers' attention to several provisions in particular: section 2.1, Catastrophe; section 3.1, Identification of Catastrophe Perils or Events; section 3.3.2, Use of Noninsurance Data; and section 4.1, Conflict with Law or Regulation. Please see those sections below for discussion of any pertinent readers' comments and subcommittee responses.

Section 1. Purpose, Scope, and Effective Date

Section 1.1, Purpose—One commentator stated that no guidance has been given regarding a unique or separate loss adjustment expense for catastrophe. The commentator suggested that the standard delete reference to loss adjustment expenses or provide explicit guidance on this aspect. **The subcommittee agreed and added section 3.5, Loss Adjustment Expenses, to address the issues surrounding loss adjustment expenses.**

Section 1.2, Scope—One commentator noted that the purpose section specifically makes reference to insurance ratemaking, but the scope section says that the standard applies to many more professional services. The commentator asked, "Does this standard apply to those entities cited in the scope section, only when they are related to property/casualty ratemaking?" **The**

standard has been retitled to specify that it applies to property/casualty insurance ratemaking. The services referred to for risk financing systems, such as self-insurance and securitization products, are considered to be ratemaking when estimates for future costs are being determined.

Section 2. Definitions

Section 2.1, Catastrophe—One commentator believed that the definition of catastrophe should relate to how the event or phenomenon violated the general insurance ratemaking model assumption of independent events. **The subcommittee believes that the use of a qualitative definition is more broadly applicable and useful in terms of current accepted practices.**

Another commentator believed that the phrase "or natural phenomenon"should be removed, as the phrase "relatively infrequent events" included natural and manmade phenomena. **The subcommittee agreed and deleted the word "natural" from the definition.**

Another commentator believed that "relatively" should modify high amounts, instead of infrequent events. **The subcommittee believes that it is more important to emphasize the frequency aspects of the definition as opposed to the amount of loss dollars.**

Another commentator stated that serious damage to a very large risk would be considered a catastrophe according to the definition. In the commentator's view, this did not seem appropriate since a large number of claims might not have resulted. **The subcommittee does not believe that the event needs to produce a large number of claims in order for it to be defined as a catastrophe.**

One commentator believed that the definition need not include the adjective "insured" to modify losses. **The subcommittee agrees and removed it.**

Another commentator suggested the definition eliminate the phrase, "the potential to" produce, as an event either is or is not a catastrophe. **The subcommittee agreed and eliminated the phrase "the potential to" in the definition.**

Section 2.2, Catastrophe Ratemaking Procedures—One commentator believed that the use of the term "adjust" was defensive in nature and that the definition should be something like "to provide a better expected value estimate than could be developed with the limited actual history." **The subcommittee believes that the original definition is more descriptive of the actual practices in use, while still being consistent with the more theoretical expression of the commentator.**

Another commentator expressed the concern that the current use of the word "adjust" would limit the ability of the actuary to consider any method that includes supplementing or credibility-weighting the losses. **The subcommittee believes that the current wording does not limit the ability of the actuary to use any techniques that, in the opinion of the actuary, produce appropriate estimates of catastrophes losses.**

Two commentators suggested editorial changes in the definition to clarify the timing of the catastrophe losses. **The subcommittee agreed with the suggestions and revised the definition.**

Section 2.3, Contagion—One commentator expressed the concern that some casualty catastrophes may result in claims against a single entity. **The subcommittee is aware of this issue and believes that the standard addresses the issue by providing guidance in section 3.4.**

Section 2.4, Demand Surge—Several commentators suggested editorial changes to sharpen the definition. **The subcommittee changed the definition to reflect the fact that demand surge is a sudden and temporary increase, not only in material and labor but also in services.**

Section 3. Analysis of Issues and Recommended Practices

Section 3.1, Identification of Catastrophe Perils or Events—Several commentators expressed concern about the original language, which seemed to require the actuary to identify all perils or events that might have the potential to generate insured catastrophe losses. **The subcommittee agreed and revised the language to include the idea that the actuary should take reasonable steps to identify the perils or events that would generate material losses.** Another commentator believed that it was appropriate to add a condition of suddenness, either in the discovery or occurrence of loss to the list of characteristics. **The subcommittee did not think that any additional characteristics were needed.**

Some commentators suggested clarifications to section 3.1(b). One commentator suggested replacing the last two sentences with the phrase "the presence or absence of such events in the experience period may result in materially different perceptions of future loss estimates." **While the subcommittee agrees that the original two sentences were awkward, the revision retains the parallel treatment because the subcommittee believes that a more explicit explanation of the impacts is appropriate.** Another commentator suggested that *infrequent occurrence* should be defined in terms like the frequency of the event over a longer time period than the experience period. **The subcommittee concluded that it was important for the actuary to be able to evaluate the materiality of the loss and frequency of events relative to the long term in the context of the methodology being used.**

Section 3.2, Identification of Catastrophe Losses—Two commentators suggested that the language should be clarified to indicate that the actuary may not be able to identify the catastrophe losses in all the historical data used. **The subcommittee agreed and modified this section to reflect such a possible limitation.** Another commentator believed that the standard provided no guidance to the actuary as to how to identify catastrophe losses in the historical insurance data. **The subcommittee believes that the perils insured and the events covered provide sufficient guidance for the identification of catastrophe losses.**

Section 3.3, The Use of Data in Determining a Provision for Catastrophe Losses—The subcommittee made an editorial revision to the order of the items (a), (b), (c) and (d). Item (d) was placed first and relabeled as (a) to emphasize the importance of the frequency component of historical data in making use of the historical data in determining a provision for catastrophe losses. One commentator noted that computer simulations are not data. **The subcommittee agreed and revised this section.** Another commentator believed that sections 3.3.1(b) and 3.3.1(a), and 3.3.1(c) and 3.3.1(e), could be combined. **The subcommittee notes that 3.3.1(b) refers to a comparison over time within the set of insurance data, whereas 3.3.1(a) addresses a comparison of the insurance data to external sources. With regard to 3.3.1(c) and 3.3.1(e), the subcommittee believes that 3.3.1(c) refers to the distribution of the exposure to loss in the experience period, compared to the prospective period, whereas 3.3.1(e) refers to possible differing trends in the costs by peril over the available period.**

Two commentators noted that the language in section 3.3.1(a) created an obligation that may not be possible to satisfy in all cases. **The subcommittee agreed and revised this section to say that the actuary should consider comparing historical insurance data to noninsurance data.** Another commentator noted that this section implies that one uses historical data only if the data give comparable results to modeling, since use of modeling will give the full spectrum of loss distribution. **The subcommittee notes that this section is alerting the actuary to be sure that he or she believes that the data underlying his or her procedure sufficiently reflect the long-term frequency and severity of events producing insured catastrophe losses. If the actuary does not believe that the data are sufficient, section 3.3.2 states that the actuary should consider using a modeling procedure.**

In section 3.3.1(b), one commentator suggested changing the language to say "whether catastrophe losses are likely to differ significantly among elements." **The subcommittee agreed and made the change.**

In section 3.3.1(c), one commentator suggested the use of a bullet-point list to highlight the importance of each element, particularly items related to coverage, such as limits, co-insurance, deductibles, etc. **The subcommittee agrees that it is important to highlight aspects of coverage and has explicitly mentioned changes in coverage as a consideration.**

In section 3.3.1(d), one commentator believed that if the indicated rate change is sensitive to the number of years in the historical experience period, then one should not use the historical period at all. The commentator believed that this section implies one would modify the current procedure, not switch to using computer simulation. **The subcommittee disagrees. In fact, the subcommittee views modifying procedures to include adopting computer simulation models.**

In section 3.3.1(e), one commentator noted that the section should be revised to say "when noncatastrophe losses are expected to change at a rate materially different from that for catastrophe losses." **The subcommittee agreed with this and revised the text to cover the potential aspects as referring to past and future time periods.**

Another commentator stated that the phrase "most catastrophe ratemaking procedures" should be revised to "traditional catastrophe ratemaking procedures," since generally the standard is referring to procedures that have existed in the past. **The subcommittee revised this section to remove the reference to any specific type of procedure.**

One commentator suggested several editorial changes for section 3.3.1(f) that generalized the section as well as broadened the suggested conditions for increasing the amount of data in the second set. **The subcommittee agreed with this comment and revised the text.**

Two commentators suggested that the term “consistent” be replaced by “not materially inconsistent.” **The subcommittee agreed with this suggestion and made the revision.** Another commentator suggested that the last sentence should be revised to remove the word “dollar” and changing the “or” to “and.” **The subcommittee agreed and revised the text.**

Section 3.3.2, Use of Noninsurance Data—One commentator suggested that the standard is giving the false impression that one should adjust past insurance data for all catastrophe perils. This commentator suggests that the adjustments are impossible to do adequately, giving false hope that meaningful results can be obtained. The commentator suggested that the standard be restructured to separate the treatment of catastrophes, such as hurricanes and earthquakes, from all others. **The subcommittee disagrees with these comments. The standard provides the actuary with a framework for evaluating the usability of the available data and developing appropriate catastrophe treatments. The standard identifies the issues for the actuary and gives sufficient freedom for the actuary to demonstrate the appropriateness of the resolution of the issues.**

The exposure draft contained sections 3.3.2(a) and (b). The revisions made as a result of comments received combined parts (a) and (b). All responses to comments received in this section refer to the original section references.

In section 3.3.2(a), one commentator suggested the addition of the phrase “and other relevant.” **The subcommittee agreed with this suggestion**. The same commentator suggested that the section be modified to say “expected” frequency and catastrophes “for the current or prospective periods.” **The subcommittee disagreed as the expected frequency and severity of catastrophes was felt to be sufficiently descriptive.**

In section 3.3.2(b), two commentators believed the section implied that the actuary was capable of making decisions on when the historical insurance data best capture the range of frequency and severity of catastrophes. **The subcommittee recognizes that an actuary may not know these facts without consultation with outside experts. The subcommittee believes that the actuary could become aware of the issues by referring to such experts, and make intelligent decisions about the representativeness of the data.**

One commentator suggested that in section 3.3.2(b) the phrase “if the results of the simulation” was inappropriate. The commentator’s point was that the process—not the results—was most important here. **The subcommittee agreed and has deleted any reference to results of the simulation and has focused the actuary on addressing the appropriateness of the procedures used.**

Section 3.4, Using a Provision for Estimated Catastrophe Losses—One commentator believed that the section demanded that the actuary *always* replace the actual data with estimated data, and suggested that the phrase “should adjust” be changed to “may consider adjusting.” **The subcommittee disagrees and believes that if the actuary has biased data, the actuary needs to estimate what the values should be excluding the bias.**

Section 4. Communications and Disclosures

Section 4.1, Conflict with Law or Regulation—Several commentators felt that the requirement that the actuary disclose material differences between the rate developed in accordance with law or regulation and the actuarially-determined rate was unnecessarily burdensome. One commentator suggested that this disclosure burden was unique among all ASOPs. **The subcommittee believes that the potential range of differences could be so large that disclosing the difference to the client or employer would be necessary. The subcommittee also notes that this same requirement exists in ASOP No. 30, *Treatment of Profit and Contingency Provisions and the Cost of Capital in Property/Casualty Insurance Ratemaking*.**