ACTUARIAL STANDARDS BOARD

Actuarial Standard of Practice No. 4

Measuring Pension Obligations and Determining Pension Plan Costs or Contributions

Revised Edition

Developed by the Pension Committee of the Actuarial Standards Board

Adopted by the Actuarial Standards Board September 2007

(Doc. No. 107)

ASOP No. 4 – September 2007

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

<u>ASOP No. 4 – September 2007</u>

September 2007

TO: Members of Actuarial Organizations Governed by the Standards of Practice of the Actuarial Standards Board and Other Persons Interested in Measuring Pension Obligations and Determining Pension Plan Costs or Contributions

FROM: Actuarial Standards Board (ASB)

SUBJ: Actuarial Standard of Practice (ASOP) No. 4

This document contains the final version of the revision of ASOP No. 4, now titled *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*.

<u>Background</u>

Pension Plan Recommendations A, B, and C were adopted and amended by the American Academy of Actuaries (Academy) during the period 1976 to 1983. In 1988, *Recommendations for Measuring Pension Obligations* was promulgated as an ASOP by the Interim Actuarial Standards Board and the Board of Directors of the American Academy of Actuaries. In 1990, the ASB republished that standard as ASOP No. 4, *Recommendations for Measuring Pension Obligations*. In October 1993, ASOP No. 4 was reformatted and published in the uniform format adopted by the ASB, with a title change, *Measuring Pension Obligations*.

The original ASOP No. 4 contained general recommendations for selecting economic and noneconomic assumptions, the actuarial cost method, and the asset valuation method—all key elements in the valuation of pension obligations. The evolution of actuarial practice in this area and the adoption of related ASOPs since ASOP No. 4 was adopted have made it necessary to update the guidance contained in ASOP No. 4.

The ASB has provided coordinated guidance through a series of ASOPs for measuring pension obligations and determining pension plan costs or contributions:

1. This revision of ASOP No. 4, which ties together the standards below, provides guidance on actuarial cost methods, and addresses overall considerations for measuring pension obligations and determining plan costs or contributions;

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

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

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

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ASOP Nos. 27 and 35 originally contained statements to the effect that, in case of a conflict between the guidance in those standards and ASOP No. 4, those standards would govern. At the same time that it adopted this standard, the ASB adopted revisions of those standards to make it clear that in case of conflicts ASOP No. 4 will govern.

This ASOP is intended to accommodate the concepts of financial economics as well as traditional actuarial practice.

First Exposure Draft

The first exposure draft of this revision was issued in December 2002, with a comment deadline of June 15, 2003. Twenty-two comment letters were received and considered in developing the second exposure draft**.**

Second Exposure Draft

The second exposure draft of this revision was issued in March 2005 with a comment deadline of October 31, 2005. Eighteen comment letters were received and considered in developing the third exposure draft.

Third Exposure Draft

The third exposure draft of this revision was issued in August 2006 with a comment deadline of March 1, 2007. The Pension Committee carefully considered the seven comment letters received. The key changes made to the final standard in response to these comment letters are as follows:

1. Sections 2.1, Actuarial Accrued Liability, and 2.13, Normal Cost, were revised to indicate that under certain actuarial cost methods, the actuarial accrued liability and normal cost depend upon the actuarial value of assets.

2. Section 3.2.2, Inability to Evaluate Prescribed Assumption or Method, was revised. Instead of considering the actuary's expertise, the section exempts an actuary from evaluating a prescribed assumption or method selected by the plan sponsor if the actuary is unable to do so without performing a substantial amount of additional work beyond the scope of the assignment.

3. Section 3.5.1, Adopted Plan Changes, was revised to better describe generally accepted practice among actuaries who practice in the public-plan sector as well as those who work with corporate pension plans.

4. Section 3.9, Interrelationship Among Procedures, Assumptions, and Plan Provisions, was revised to clarify the intent.

5. Section 4.2, Disclosure About Prescribed Assumptions or Methods, was revised for consistency with the changes in section 3.2.2. The section does not require the actuary to disclose the reason for any inability to evaluate a prescribed assumption or method selected by the plan sponsor.

In addition, a number of clarifying changes were made to the text. Please see appendix 2 for a detailed discussion of the comments received and the reviewers' responses.

Note that the section on Prescribed Statement of Actuarial Opinion (formerly section 4.3) has been deleted due to the amended *Qualifications Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States* promulgated by the American Academy of Actuaries.

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

The Pension Committee thanks former committee members Thomas P. Adams, Arthur J. Assantes, David L. Driscoll, Bruce C. Gaffney, Lawrence A. Golden, Marilyn F. Janzen, Daniel G. Laline Jr., John F. Langhans, Michael B. Preston, William A. Reimert, Phillip A. Romello, and Ruth F. Williams for their assistance with drafting this ASOP.

The ASB voted in September 2007 to adopt this standard.

Pension Committee of the ASB

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ACTUARIAL STANDARD OF PRACTICE NO. 4

MEASURING PENSION OBLIGATIONS AND DETERMINING PENSION PLAN COSTS OR CONTRIBUTIONS

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 professional services with respect to measuring pension obligations and determining plan costs or contributions. Throughout this standard, the term *plan* refers to a defined benefit pension plan. Other actuarial standards of practice address actuarial assumptions and asset valuation methods. This standard addresses actuarial cost methods and provides guidance for coordinating and integrating all of these elements of an actuarial valuation of a plan.

1.2 Scope—This standard applies to actuaries when performing professional services with respect to the following tasks:

a. measurement of pension obligations. Examples include determinations of funded status, assessments of solvency upon plan termination, and measurements for use in cost or contribution determinations;

b. assignment of the value of plan obligations to time periods. Examples include contributions, accounting costs, and cost or contribution estimates for potential plan changes;

c. development of a cost allocation procedure used to determine costs for a plan;

d. development of a contribution allocation procedure used to determine contributions for a plan;

e. determination as to the types and levels of benefits supportable by specified cost or contribution levels; and

f. projection of pension obligations, plan costs or contributions, and other related measurements. Examples include cash flow projections and projections of a plan's funded status.

Throughout this standard, any reference to selecting actuarial assumptions, actuarial cost methods, asset valuation methods, and amortization methods also includes giving advice on selecting actuarial assumptions, actuarial cost methods, asset valuation methods, and amortization methods. In addition, any reference to developing or modifying a cost or contribution allocation procedure includes giving advice on developing or modifying a cost or contribution allocation procedure.

The actuary should comply with this standard except to the extent it may conflict with applicable law (statutes, regulations, and other legally binding authority). If compliance with applicable law requires the actuary to depart from the guidance set forth in this standard, the actuary should refer to section 4 regarding deviation.

This standard does not apply to actuaries when performing professional services with respect to individual benefit calculations, individual benefit statement estimates, annuity pricing, nondiscrimination testing, and social insurance programs as described in section 1.2, Scope, of ASOP No. 32, *Social Insurance* (unless an ASOP on social insurance explicitly calls for application of this standard).

This standard does not require the actuary to evaluate the ability of the plan sponsor or other contributing entity to make contributions to the plan when due.

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 valuation with a measurement date on or after March 15, 2008.

Section 2. Definitions

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

2.1 Actuarial Accrued Liability—The portion of the actuarial present value of projected benefits (and expenses, if applicable), as determined under a particular actuarial cost method, which is not provided for by future normal costs. Under certain actuarial cost methods, the actuarial accrued liability is dependent upon the actuarial value of assets.

2.2 Actuarial Cost Method—A procedure for allocating the actuarial present value of projected benefits (and expenses, if applicable) to time periods, usually in the form of a normal cost and an actuarial accrued liability (sometimes referred to as a *funding method*).

2.3 Actuarial Present Value—The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of actuarial assumptions.

2.4 Actuarial Present Value of Projected Benefits—The actuarial present value of benefits that are expected to be paid in the future, taking into account the effect of such items as future service, advancement in age, and anticipated future compensation (sometimes referred to as the *present value of future benefits*).

2.5 Actuarial Valuation—The measurement of relevant pension obligations and, when applicable, the determination of periodic costs or contributions.

2.6 Amortization Method—A method under a contribution or cost allocation procedure for determining the amount, timing, and pattern of recognition of the difference between the actuarial accrued liability and the actuarial value of assets.

2.7 Contribution—A potential payment to the plan determined by the actuary. It may or may not be the amount actually paid by the plan sponsor or other contributing entity.

2.8 Contribution Allocation Procedure—A procedure for determining the periodic contribution for a plan. It may produce a single value, such as normal cost plus twenty-year amortization of the unfunded actuarial accrued liability, or a range of values, such as that from the ERISA minimum required contribution to the maximum tax-deductible amount.

2.9 Cost—The portion of plan obligations assigned to a period for purposes other than funding.

2.10 Cost Allocation Procedure—A procedure for determining the periodic cost for a plan (for example, the procedure to determine the net periodic pension cost under Statement of Financial Accounting Standards (SFAS) No. 87, *Employers' Accounting for Pensions*).

2.11 Expenses—Administrative or investment expenses expected to be borne by the plan.

2.12 Measurement Date—The date as of which the values of the pension obligations and, if applicable, assets are determined (sometimes referred to as the *valuation date*).

2.13 Normal Cost—The portion of the actuarial present value of projected benefits (and expenses, if applicable) that is allocated to a period, typically twelve months, under the actuarial cost method. Under certain actuarial cost methods, the normal cost is dependent upon the actuarial value of assets.

2.14 Participant—An individual who satisfies the requirements for participation in the plan.

2.15 Plan Provisions—(a) Relevant terms of the plan document; and (b) relevant administrative practices known to the actuary.

2.16 Prescribed Assumption or Method—A specific assumption or method that is mandated or that is selected from a specified range that is deemed to be acceptable by law, regulation, or other binding authority. For purposes of this standard, the plan sponsor would be considered a binding authority to the extent that law, regulation, or accounting standards give the plan sponsor responsibility for selecting such an assumption or method.

Section 3. Analysis of Issues and Recommended Practices

3.1 Overview—Measuring pension obligations and determining plan costs or contributions are processes in which the actuary may be required to make judgments or recommendations on the choice of actuarial assumptions, actuarial cost methods, asset valuation methods, and amortization methods.

The actuary may have the responsibility and authority to select some or all actuarial assumptions, actuarial cost methods, asset valuation methods, and amortization methods. In other circumstances, the actuary may be asked to advise the individuals who have that responsibility and authority. In yet other circumstances, the actuary may perform actuarial calculations using assumptions or methods prescribed by applicable law or selected by others.

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*, provide guidance concerning actuarial assumptions. ASOP No. 44, *Selection and Use of Asset Valuation Methods for Pension Valuations*, provides guidance concerning asset valuation methods. ASOP No. 4 addresses actuarial cost methods and provides guidance for coordinating and integrating all of these elements of an actuarial valuation of a plan. In the event of a conflict between the guidance provided in ASOP No. 4 and the guidance in any of the aforementioned ASOPs, ASOP No. 4 would govern.

3.2 Prescribed Assumption or Method Selected by the Plan Sponsor—The actuary should evaluate whether a prescribed assumption or method selected by the plan sponsor is reasonable for the purpose of the measurement, except as provided in section 3.2.2. The actuary should be guided by Precept 8 of the *Code of Professional Conduct*, which states, “An Actuary who performs Actuarial Services shall take reasonable steps to ensure that such services are not used to mislead other parties.” For purposes of this evaluation, reasonable assumptions or methods are not necessarily limited to those the actuary would have selected for the measurement.

3.2.1 Evaluating Prescribed Assumption or Method—When evaluating a prescribed assumption or method selected by the plan sponsor, the actuary should consider whether the prescribed assumption or method significantly conflicts with what, in the actuary’s professional judgment, would be reasonable for the purpose of the measurement. If, in the actuary’s professional judgment, there is a significant conflict, the actuary should disclose this conflict in accordance with section 4.2(a).

3.2.2 Inability to Evaluate Prescribed Assumption or Method—If the actuary is unable to evaluate a prescribed assumption or method selected by the plan sponsor without performing a substantial amount of additional work beyond the scope of the assignment, the actuary should disclose this in accordance with section 4.2(b).

3.3 General Procedures—When measuring pension obligations and determining plan costs or contributions, the actuary should perform the following:

a. identify the purpose and nature of the measurement;

b. identify the measurement date (section 3.4);

c. identify plan provisions applicable to the measurement (section 3.5);

d. gather data necessary for the measurement (section 3.6);

e. select actuarial assumptions pertinent to the measurement, if applicable (section 3.7);

f. select an asset valuation method, if applicable (section 3.8);

g. consider the interrelationship among procedures, assumptions, and plan provisions (section 3.9);

h. consider the relationship between procedures used for measuring assets and obligations (section 3.10);

i. apply an actuarial cost method to produce a normal cost and actuarial accrued liability, if applicable (section 3.11);

j. apply a procedure to allocate costs or contributions to past and future periods, if applicable (section 3.12); and

k. consider whether the actuarial cost method and amortization method are significantly inconsistent with the plan accumulating adequate assets to make benefit payments when due, if applicable (section 3.13).

3.4 Measurement Date Considerations—When measuring pension obligations and determining plan costs or contributions as of a measurement date, the actuary should consider the following:

3.4.1 Information as of a Different Date—The actuary may estimate asset and participant information at the measurement date on the basis of information furnished as of another date. In these circumstances, the actuary should make appropriate adjustments to the data. Alternatively, the actuary may calculate the obligations on the date as of which the data were furnished and then adjust the obligations to the measurement date (see section 3.16 for additional guidance). The actuary should conclude that any such adjustments are reasonable in the actuary's professional judgment, given the purpose and nature of the measurement.

3.4.2 Events after the Measurement Date—The treatment of events known to the actuary that occur subsequent to the measurement date and prior to the date of the actuarial communication should be appropriate for the purpose of the measurement. Unless the purpose of the measurement requires the inclusion of such events, they need not be reflected in the measurement.

3.5 Plan Provisions—When measuring pension obligations and determining plan costs or contributions, the actuary should take into account plan provisions as appropriate for the purpose and nature of the measurement.

3.5.1 Adopted Plan Changes—The actuary should take into account adopted plan provisions consistent with the following when determining costs or contributions for a period, unless contrary to applicable law:

a. Provisions adopted on or before the measurement date should be reflected for at least the portion of the period during which the provisions are in effect.

b. Provisions adopted after the measurement date may, but need not, be reflected.

3.5.2 Proposed Plan Changes—The actuary should reflect proposed plan changes as appropriate for the purpose and nature of the measurement.

3.6 Data—With respect to the data used for measurements, including data supplied by others, the actuary should refer to ASOP No. 23, *Data Quality*, for guidance. In addition, the actuary should consider the following:

3.6.1 Participants—The actuary should include in the measurement all participants reported to the actuary, except in appropriate circumstances where the actuary may exclude persons such as those below a minimum age/service level. When appropriate, the actuary may include employees who might become participants in the future.

3.6.2 Hypothetical Data—When appropriate, the actuary may prepare measurements based on the assumed demographic characteristics of individuals not yet in covered employment.

3.7 Actuarial Assumptions—With respect to the selection of actuarial assumptions, the actuary should also refer to ASOP Nos. 27 and 35 for guidance.

3.8 Asset Valuation—The actuary should also refer to ASOP No. 44 for guidance on the selection and use of an asset valuation method.

3.9 Interrelationship Among Procedures, Assumptions, and Plan Provisions—Some plan provisions may create pension obligations that are difficult to measure using deterministic procedures and assumptions selected in accordance with ASOP Nos. 27 and 35. In such circumstances, the actuary may consider using alternative procedures, such as stochastic modeling or option-pricing techniques, or alternative assumptions that include adjustments to reflect the plan provisions that were not explicitly valued.

If, in the actuary's professional judgment, such plan provisions are significant and have not been reflected in the measurement, the actuary should so disclose in accordance with section 4.1(d).

An example of such a plan provision is one that provides future benefits based on the actual experience of the plan that will vary asymmetrically relative to the estimated projected benefits based on a particular set of actuarial assumptions, such as the following:

a. the use of favorable investment returns to provide cost-of-living increases automatically to retirees; or

b. floor-offset provisions that provide a minimum defined benefit in the event a participant's account balance in a separate plan falls below some threshold.

3.10 Relationship Between Procedures Used for Measuring Assets and Obligations—The actuary should measure assets and obligations on a consistent basis as of the measurement date. Following are some examples of such consistency:

a. if a participant was due a lump sum before the measurement date, but such lump sum had not been paid from plan assets as of the measurement date, the actuary should either include the participant's benefit due in obligations, or exclude it from the asset value, used in the measurement;

b. if a plan has a dedicated portfolio of non-callable bonds specifically designed so that emerging interest and principal payments meet specific emerging benefit payments, the actuary could value the bond portfolio at market value and value the specific emerging benefit payments using an interest rate equal to the internal rate of return of the bonds on a market value basis. Alternatively, the actuary could determine a composite valuation interest rate that reflects a weighted average of the internal rate of return of the bonds on a market value basis and the expected return on the remainder of the assets; and

c. if the actuary values bonds at amortized cost, as permitted under ASOP No. 44 when the plan's investment policy provides that such bonds are expected to be held to maturity and holding such bonds to maturity is not inconsistent with the plan's investment practice and expected cash flow needs, the actuary could value an appropriate portion of the pension obligation using an interest rate equal to the internal rate of return of the bonds on an amortized cost basis. Alternatively, the actuary could determine a composite valuation interest rate that reflects a weighted average of the internal rate of return of the bonds on an amortized cost basis and the expected return on the remainder of the assets.

3.11 Actuarial Cost Method—When assigning costs or contributions to time periods in advance of the time benefit payments are due, the actuary should select an actuarial cost method that meets the following criteria:

a. The period over which normal costs are allocated for a participant should begin no earlier than the date of employment and should not extend beyond the last assumed retirement age. The period may be applied to each individual participant or to groups of participants on an aggregate basis.

When a plan has no active participants and no participants are accruing benefits, a reasonable actuarial cost method will not produce a normal cost for benefits. For purposes of this standard, an employee does not cease to be an active participant merely because he or she is no longer accruing benefits under the plan.

b. The attribution of normal costs should bear a reasonable relationship to some element of the plan's benefit formula or the participants' compensation or service. The attribution basis may be applied on an individual or group basis (for example, the actuarial present value of projected benefits for each participant may be allocated by that participant's own compensation or may be allocated by the aggregated compensation for a group of participants).

c. Expenses should be considered when assigning costs or contributions to time periods. For example, the expenses for a period may be added to the normal cost for benefits or expenses may be reflected as an adjustment to the investment return assumption or the discount rate. As another example, expenses may be reflected as a percentage of pension obligation or normal cost.

d. The sum of the actuarial accrued liability and the actuarial present value of future normal costs should equal the actuarial present value of projected benefits and expenses, to the extent expenses are included in the liability and normal cost. For purposes of this criterion, under an actuarial cost method that does not directly calculate an actuarial accrued liability, the sum of the actuarial value of assets and the unfunded actuarial liability, if any, shall be considered to be the actuarial accrued liability.

3.12 Cost or Contribution Allocation Procedure—The cost or contribution allocation procedure typically combines the normal cost under an actuarial cost method and an amortization method to determine the cost or contribution for the period. When selecting an actuarial cost method or an amortization method, the actuary should consider factors such as the timing and duration of expected benefit payments and the nature and frequency of plan amendments. In addition, the actuary should consider relevant input received from the principal, such as a desire for stable or predictable costs or contributions, or a desire to achieve a target funding level within a specified time frame.

3.13 Consistency Between Contribution Allocation Procedure and the Payment of Benefits—In some circumstances, a contribution allocation procedure selected in accordance with section 3.12 may not necessarily produce adequate assets to make benefit payments when they are due even if the actuary uses a combination of assumptions selected in accordance with ASOP Nos. 27 and 35, an actuarial cost method selected in accordance with section 3.11 of this standard, and an asset valuation method selected in accordance with ASOP No. 44.

Examples of such circumstances include the following:

a. a plan covering a sole proprietor with funding that continues past an expected retirement date with payment due in a lump sum;

b. using the aggregate funding method for a plan covering three employees, in which the principal is near retirement and the other employees are relatively young; and

c. a plan amendment with an amortization period so long that overall plan contributions would be scheduled to occur too late to make plan benefit payments when due.

3.13.1 Actuary Selects Actuarial Cost Method or Amortization Method—When performing professional services with respect to contributions for a plan, the actuary should not select an actuarial cost method or amortization method that, in the actuary's professional judgment, is significantly inconsistent with the plan accumulating adequate assets to make benefit payments when due, assuming that all actuarial assumptions will be realized and that the plan sponsor or other contributing entity will make contributions when due.

3.13.2 Actuary Does Not Select Actuarial Cost Method or Amortization Method—In some circumstances, the actuary's role is to determine the contribution, or range of contributions, using an actuarial cost method or amortization method prescribed by applicable law or selected by others. If, in the actuary's professional judgment, such an actuarial cost method or amortization method is significantly inconsistent with the plan accumulating adequate assets to make benefit payments when due, assuming that all actuarial assumptions will be realized and that the plan sponsor or other contributing entity will make contributions when due, the actuary should disclose this in accordance with section 4.1(j).

This standard does not require the actuary to evaluate the ability of the plan sponsor or other contributing entity to make contributions to the plan when due.

3.14 Measuring the Value of Accrued or Vested Benefits—Depending on the scope of the assignment, the actuary may measure the value of accrued or vested benefits as of a measurement date. The actuary should consider the following when making such measurements:

a. relevant plan provisions and applicable law;

b. the status of the plan (for example, whether the plan is assumed to continue to exist or be terminated);

c. the contingencies upon which benefits become payable, which may differ for ongoing- and termination-basis measurements;

d. the extent to which participants have satisfied relevant eligibility requirements for accrued or vested benefits and the extent to which future service or advancement in age may satisfy those requirements;

e. whether or the extent to which death, disability, or other ancillary benefits are accrued or vested;

f. whether the plan provisions regarding accrued benefits provide an appropriate attribution pattern for the purpose of the measurement (for example, it may not be appropriate if the plan's benefit accruals are severely backloaded); and

g. if the measurement reflects the impact of a special event (such as a plant shutdown or plan termination), the actuary should consider factors such as the following:

    1. the effect of the special event on continued employment;

    2. the impact of the special event on employee behavior due to factors such as subsidized payment options;

    3. expenses associated with a potential plan termination, including transaction costs to liquidate plan assets; and

    4. changes in investment policy.

3.15 Volatility—If the scope of the actuary's assignment includes an analysis of the potential range of future pension obligations, costs, contributions, or funded status, the actuary should consider sources of volatility that, in the actuary's professional judgment, are significant. Examples of potential sources of volatility include the following:

a. plan experience differing from that anticipated by the economic or demographic assumptions, as well as the effect of new entrants;

b. changes in economic or demographic assumptions;

c. the effect of discontinuities in applicable cost or funding regulations, such as full funding limitations, the end of amortization periods, or liability recognition triggers;

d. the delayed effect of smoothing techniques, such as the pending recognition of prior experience losses; and

e. patterns of rising or falling cost expected when using a particular actuarial cost method for the plan population.

In analyzing potential variations in economic and demographic experience or assumptions, the actuary should exercise professional judgment in selecting a range of variation in these factors and in selecting a methodology by which to analyze them, consistent with the scope of the assignment.

3.16 Adjustment of Prior Measurement—The actuary may adjust the results from a prior measurement in lieu of performing a new detailed measurement if, in the actuary's professional judgment, such an adjustment would produce an appropriate result for purposes of the measurement. To determine whether adjustment is appropriate, the actuary should consider items such as the following, if known to the actuary:

a. changes in the number of participants or the demographic characteristics of that group;

b. length of time since the prior measurement;

c. differences between actual and expected contributions, benefit payments, expenses, and investment performance; and

d. changes in economic and demographic expectations.

For example, when adjusting obligations from a prior measurement date, the actuary should consider whether the interest rate or other assumptions used to determine the obligations should be revised.

3.17 Approximations and Estimates—The actuary should use professional judgment to establish a balance between the degree of refinement of methodology and materiality. The actuary may use approximations and estimates where circumstances warrant. Following are some examples of such circumstances:

a. situations in which the actuary reasonably expects the results to be substantially the same as the results of detailed calculations;

b. situations in which the actuary's assignment requires informal or rough estimates; and

c. situations in which the actuary reasonably expects the benefits being valued to represent only a minor part of the overall pension obligation, cost, or contribution.

3.18 Reliance on Data, Plan Provisions, or Other Information Supplied by Others—When relying on data, plan provisions, or other information supplied by others, the actuary should refer to ASOP No. 23 for guidance.

3.19 Documentation—The actuary should prepare and retain documentation in compliance with the requirements of ASOP No. 41, *Actuarial Communications*. The actuary should also prepare and retain documentation to demonstrate compliance with the disclosure requirements of section 4.1.

Section 4. Communications and Disclosures

4.1 Communication Requirements—Any actuarial communication prepared to communicate the results of work subject to this standard must comply with the requirements of ASOP Nos. 23, 27, 35, 41, and 44. In addition, such communication should contain the following elements, where relevant and material:

a. a statement of the intended purpose of the measurement and a statement to the effect that the measurement may not be applicable for other purposes;

b. the measurement date;

c. a description of adjustments made for events after the measurement date under section 3.4.2;

d. an outline or summary of the benefits included in the actuarial valuation and of any significant benefits not included in the actuarial valuation;

e. the date(s) as of which the participant and financial information were compiled;

f. a summary of the participant information;

g. if hypothetical data are used, a description of the data;

h. a description of the actuarial cost method and the manner in which normal costs are allocated, in sufficient detail to permit another actuary qualified in the same practice area to assess the material characteristics of the method (for example, how the actuarial cost method is applied to multiple benefit formulas, compound benefit formulas, or benefit formula changes, where such plan provisions are significant);

i. a description of the cost or contribution allocation procedure, including a description of amortization methods and any pay-as-you-go component (i.e., the intended payment by the plan sponsor of some or all benefits when due);

j. if applicable in accordance with section 3.13.2, a statement indicating that the actuarial cost method or amortization method is significantly inconsistent with the plan accumulating adequate assets to make benefit payments when due;

k. if the actuary measured the value of accrued or vested benefits, a description of the types of benefits regarded as vested and accrued and, to the extent the attribution pattern of accrued benefits differs from or is not described by the plan provisions, a description of the attribution pattern;

l. a statement, appropriate for the intended audience (as defined in ASOP No. 41), indicating that future measurements (for example, of pension obligations, costs, contributions, or funded status as applicable) may differ significantly from the current measurement. For example, a statement such as the following could be applicable: "Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law."

   In addition, the actuarial communication should include one of the following:

   1. if the scope of the actuary's assignment included an analysis of the range of such future measurements, disclosure of the results of such analysis together with a description of the factors considered in determining such range; or

   2. a statement indicating that, due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements;

m. a description of known changes in assumptions and methods from those used in the immediately preceding measurement prepared for a similar purpose;

n. a description of adjustments of prior measurements used under section 3.16; and

o. if, in the actuary's professional judgment, the actuary's use of approximations or estimates could result in a significant margin for error relative to the results if a detailed calculation had been done, a statement to this effect.

An actuarial communication can comply with some, or all, of the specific requirements of this section by making reference to information contained in other actuarial communications available to the intended audience (as defined in ASOP No. 41), such as an annual actuarial valuation report.

4.2 Disclosure About Prescribed Assumptions or Methods—The actuary's communication should state the source of any prescribed assumptions or methods. In addition, with respect to prescribed assumptions or methods selected by the plan sponsor, the actuary's communication should identify the following, if applicable:

a. any prescribed assumption or method that significantly conflicts with what, in the actuary's professional judgment, would be reasonable for the purpose of the measurement (section 3.2.1); or

b. any prescribed assumption or method that the actuary is unable to evaluate for reasonableness for the purpose of the measurement (section 3.2.2).

4.3 Deviation—If, in the actuary's professional judgment, the actuary has deviated materially from the guidance set forth elsewhere in this standard, the actuary can still comply with this standard by applying the following sections as appropriate:

4.3.1 Material Deviations to Comply with Applicable Law—If compliance with applicable law requires the actuary to deviate materially from the guidance set forth in this standard, the actuary should disclose that the assignment was prepared in compliance with applicable law, and the actuary should disclose the specific purpose of the assignment and indicate that the work product may not be appropriate for other purposes. The actuary should use professional judgment to determine whether additional disclosure would be appropriate in light of the purpose of the assignment and the intended users of the actuarial communication.

4.3.2 Other Material Deviations—The actuary's communication should disclose any other material deviation from the guidance set forth in this standard. The actuary should consider whether, in the actuary's professional judgment, it would be appropriate and practical to provide the reasons for, or to quantify the expected impact of, such deviation. The actuary should be prepared to explain the deviation to a principal, another actuary, or other intended users of the actuary's communication. The actuary should also be prepared to justify the deviation to the actuarial profession's disciplinary bodies.

Appendix 1

Background and Current Practices

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

Background

Actuarial standard of practice (ASOP) No. 4, *Recommendations for Measuring Pension Obligations*, was first adopted by the Interim Actuarial Standards Board in January 1988. This standard superseded *Pension Plan Recommendations A, B, and C*, which the American Academy of Actuaries adopted in the period 1976 to 1983. The Interpretations of those Recommendations were incorporated as appendices in the standard. The ASB adopted a reformatted version of ASOP No. 4, renamed *Measuring Pension Obligations* and incorporating several clarifying revisions, in October 1993 (prior ASOP No. 4).

Since the prior ASOP No. 4 was adopted, the ASB has adopted the following standards that provide more detailed guidance regarding specific elements of the process of measuring pension obligations:

1. ASOP No. 23, *Data Quality*;

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

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

4. ASOP No. 41, *Actuarial Communications*; and

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

The prior ASOP No. 4 contained general recommendations for selecting economic and noneconomic assumptions, actuarial cost methods, and asset valuation method—all key elements in the measurement of pension obligations. The ASB decided to revise ASOP No. 4 to create an "umbrella" standard to tie together these existing and proposed standards and address overall considerations for the actuary when measuring pension obligations. In addition, because the prior ASOP No. 4 and this revision cover the determination of plan costs or contributions, the name of the standard was changed to *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*.

Because the prior ASOP No. 4 contained guidance that is now covered in other standards, ASOP No. 4 has been revised to remove any guidance that is now contained in those standards and to add references to those standards. Some of the material in the prior ASOP No. 4 was educational rather than guidance on actuarial practice and consequently was not included in this revised standard.

The revision of ASOP No. 4 has been written to reflect that at times the actuary may have the responsibility and authority to select actuarial assumptions, actuarial cost methods, asset valuation methods, and amortization methods, but in other circumstances the actuary may only advise, or may not even have an opportunity to advise, the individuals who have that responsibility and authority. For instance, the actuary may advise the plan administrator or plan sponsor on selecting an actuarial cost method for purposes of determining minimum funding requirements under ERISA, but the plan administrator or plan sponsor is ultimately responsible for selecting the method.

Current Practices

This standard and the related standards listed above cover actuarial practices that are central to the work regularly performed by actuaries in the pension field. The actuarial tasks covered by the standards are performed for a number of purposes, examples of which are discussed below:

1. Cost, Contribution, and Benefit Recommendations—Calculations may be performed for purposes of determining actuarial cost, contribution, and benefit recommendations and related information. Examples are calculations related to the following:

    a. recommendations as to the assignment of costs or contributions to time periods for defined benefit plans;

    b. recommendations as to the type and levels of benefits for specified cost or contribution levels;

    c. contributions required under minimum funding standards imposed by statute or regulations;

    d. maximum contributions deductible for tax purposes;

    e. information required with respect to plan design; and

    f. determination of progress towards a defined financial goal, such as funding of vested or accrued benefits.

2. Evaluations of Current Funding Status—Calculations may be performed for purposes of comparing available assets to the actuarial present value of benefits specified by the plan. Examples are calculations related to the following:

    a. actuarial present value of accrued benefits;

    b. actuarial present value of vested benefits;

c. actuarial present value of benefits payable in the event of plan termination; and

d. information required with respect to plan mergers, acquisitions, spin-offs, and business discontinuances.

3. Comparison of Actuarial Present Values—Calculations may be performed to compare the actuarial present values of different pension obligations, such as optional benefit forms or commencement dates.

Appendix 2

Comments on the Third Exposure Draft and Responses

The third exposure draft of this proposed ASOP was issued in August 2006 with a comment deadline of March 1, 2007. Seven 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 third exposure draft.

GENERAL COMMENTS	
Comment	Several commentators suggested various editorial changes in addition to those addressed specifically below.
Response	The reviewers implemented such changes if they enhanced clarity and did not alter the intent of the section.
SECTION 1. PURPOSE, SCOPE, CROSS REFERENCES, AND EFFECTIVE DATE	
Section 1.4, Effective Date	
Comment	One commentator believed the effective date should be extended until regulations are issued under the Pension Protection Act of 2006.
Response	The reviewers disagree and made no change. Section 1.2 addresses how to reconcile any discrepancies between applicable law and this standard.
SECTION 2. DEFINITIONS	
Section 2.1, Actuarial Accrued Liability, and 2.13, Normal Cost	
Comment	One commentator pointed out that the definition of normal cost was misleading for actuarial cost methods in which the normal cost varies with the funded status of the plan.
Response	The reviewers agree and revised the definition to indicate that under certain actuarial cost methods, the normal cost depends upon the actuarial value of plan assets. The reviewers made a corresponding change to the definition of actuarial accrued liability.

SECTION 3. ANALYSIS OF ISSUES AND RECOMMENDED PRACTICES	
Section 3.2, Prescribed Assumption or Method Selected by the Plan Sponsor	
Comment Response	Two commentators opposed the requirement that the actuary consider whether a prescribed assumption or method selected by the plan sponsor significantly conflicts with what, in the actuary's professional judgment, would be reasonable for the purpose of the measurement. They felt that the section represented an inappropriate expansion of the role of the actuary. Two commentators supported the general requirement of this section. The reviewers believe that this guidance is appropriate, but edited the section for clarity.
Comment Response	Three commentators wrote that instead of requiring the actuary to evaluate a prescribed assumption or method, the standard should require disclosure concerning the actuary's role regarding those prescribed assumptions or methods. Two commentators suggested that the actuary be required to disclose the actuary's role, if any, in selecting the prescribed assumptions or methods. The third commentator recommended that the actuary be required to disclose, when appropriate, that the actuary did not review the prescribed assumptions or methods and expresses no opinion concerning their reasonableness. The reviewers believe these concerns have been addressed with the revision of section 3.2.2, Inability to Evaluate Prescribed Assumption or Method.
Section 3.2.2, Inability to Evaluate Prescribed Assumption or Method	
Comment Response	Two commentators expressed concern that exempting an actuary from evaluating a prescribed assumption or method if the actuary does not possess the necessary expertise might lead some plan sponsors to seek less-qualified actuaries and punish actuaries who develop additional expertise. One commentator wrote that this section would create different requirements for different actuaries, depending on their skills, for performing the same assignment. The reviewers agree and revised this section. Instead of considering the actuary's expertise, the section exempts an actuary from evaluating a prescribed assumption or method if the actuary is unable to do so without performing a substantial amount of additional work beyond the scope of the assignment. Consistent with the changes in this section, the reviewers removed from section 4.2 the requirement that the actuary disclose the reason for any inability to evaluate a prescribed assumption or method selected by the plan sponsor.
Comment Response	One commentator suggested that the standard exempt an actuary from evaluating a prescribed assumption or method if the actuary relies on the work of another expert retained by the plan sponsor to select the assumption or method, so long as the actuary makes appropriate disclosure. With the revision of this section, the reviewers do not believe such an exemption is necessary.
Section 3.5.1, Adopted Plan Changes	
Comment Response	One commentator wrote that the phrase "adopted plan provisions" was not clear. The reviewers believe that the actuary should exercise professional judgment when considering which plan provisions are appropriate to take into account for the purpose and nature of the measurement and made no change. However, while reviewing this section the reviewers learned that its guidance was inconsistent with generally accepted practice among actuaries who practice in the public-plan sector. As a result, the reviewers revised this section to describe practice among actuaries in both the private and public sectors.

Section 3.9, Interrelationship Among Procedures, Assumptions, and Plan Provisions	
Comment	One commentator believed this section was overly broad and suggested that it can be argued that all pension provisions create contingent pension obligations that are difficult to measure using deterministic assumptions. The commentator also noted that the term “deterministic assumptions” is not defined.
Response	The reviewers revised this section to clarify the intent.
Section 3.13, Ability to Pay Benefits When Due (now Consistency Between Contribution Allocation Procedure and the Payment of Benefits)	
Comment	One commentator expressed concern that this section placed the responsibility for a plan’s solvency on the actuary and would require actuaries to perform cash flow testing. The commentator recommended that the section be deleted; if it was retained, the commentator suggested that it be limited to assignments in which the scope explicitly included an assessment of future solvency.
Response	The reviewers believe that this section neither places the responsibility for a plan’s solvency on the actuary nor requires the actuary to perform cash flow testing. However, the reviewers renamed the section to be more consistent with its content, and re-arranged the text to clarify its intent.
Section 3.15, Volatility	
Comment	One commentator, concerned about the possibility of after-the-fact litigation, suggested adding a statement that the standard does not presume that the scope of actuarial services includes considerations of volatility unless specifically included in the actuary’s assignment.
Response	The reviewers believe the section as written is sufficiently clear that analyses about volatility depend upon the scope of the assignment and made no change.
SECTION 4. COMMUNICATIONS AND DISCLOSURES	
Section 4.1, Communication Requirements	
Comment	One commentator wrote that the phrase “funded in whole or in part on a pay-as-you-go basis” in paragraph (k) was not clear.
Response	The reviewers revised the phrase and added a clarifying parenthetical comment. The reviewers also moved this disclosure requirement to paragraph (i), where they believe it is more appropriate.
Comment	One commentator suggested that the disclosure regarding variability of future measurements in paragraph (m) (now paragraph (l)) could apply to all areas of actuarial practice and might be more appropriate in ASOP No. 41, *Actuarial Communications*, than in a pension standard.
Response	The reviewers believe it is appropriate for ASOP No. 4, which ties together the other pension standards, to require this disclosure and made no change. The comment has been passed on to the General Committee for its review of ASOP No. 41.
Comment	One commentator wrote that the disclosure in paragraph (m) (now paragraph (l)) might not be necessary in all circumstances and suggested that the actuary should consider the audience in determining whether such disclosure is necessary.
Response	The reviewers agree and changed the wording accordingly.