



SOCIETY OF ACTUARIES

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# Capital projects could be new area for actuaries

by James W. Ylvisaker

In his inaugural address last October, President Walter Rugland used the theme, "Ask an Actuary." The implication was that actuaries could and should become a resource in a wide variety of fields.

We live in a world in which the pace of change accelerates each year. Such change rarely brings simplification, particularly in financial affairs.

However, the actuarial profession's expertise can bring order to complex questions. Through our training and practice, we have become well versed in applying the concepts of compound interest and probability theory to complex problems. These techniques can be easily applied to many issues outside the insurance industry, particularly where financial matters and forward planning are involved. We can build on the good reputation we have developed in the insurance industry to expand our area of practice.

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**We could be on the leading edge of a trend that may run for the next 25 to 50 years.**

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Actuaries have developed complex computer models that can project the future development of multi-billion dollar insurance funds. We have gained substantial experience in the reliability of such projections.

The Society of Actuaries is encouraging exploration into how these skills might be applied in new areas. To do so would benefit a broad segment of the public, as well as contribute to the development of the actuarial profession.

## SOA task force to study capital projects

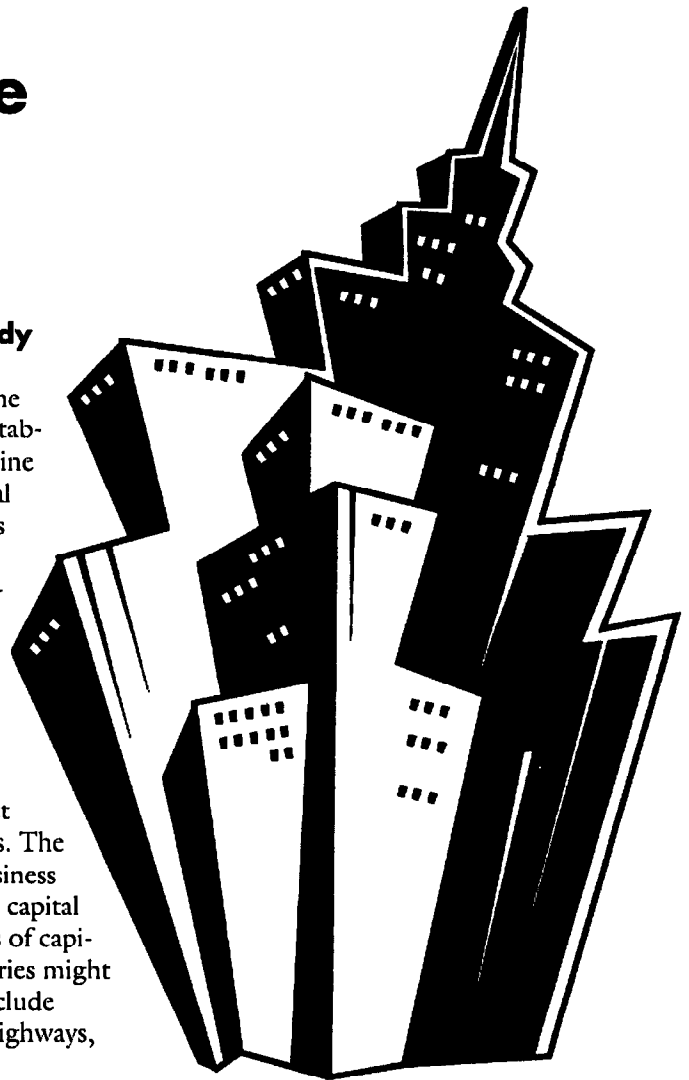
Among other initiatives, the Society of Actuaries has established a task force to examine "capital projects." A capital project can be described as one that involves the investment of resources — human, physical, or financial — that would result in a long-term rather than an immediate return. The planting of trees is more likely to be considered a capital project than is the sowing of seeds. The purchase or transfer of business also could be considered a capital project. Practical examples of capital projects in which actuaries might become involved could include projects such as bridges, highways, airports, and skyscrapers.

Actuarial skills that are relevant to assessing capital projects include:

- Probability techniques
- Discounted cash-flow techniques
- Sensitivity and risk analysis
- Application of mathematical techniques
- Long-term view, including experience in the choice of financial assumptions
- Optimization techniques
- Modern portfolio theory
- Ability to present complex calculations simply.

### Inadequate models

Many believe that good models of the economic impact of such big capital ventures currently are not available. Some form of superior model is needed that will link the financial plan to the physical construction model and



allow planners to examine all the interrelationships before making decisions (a virtual project).

Assessments of returns for backers are needed, either in the form of social benefits or financial returns. Projects of this scope will have a variety of constituencies, each with a different perspective. For example, a complex but necessary exercise for a governmental body is measuring the total return, allowing for social benefits. An equity investor is concerned primarily with the risk/reward relationship but also must consider taxes. A banker would be more concerned with preserving capital than maximizing returns.

If President Clinton is serious about rebuilding the infrastructure, we could

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## Capital projects (continued)

be entering a period of renewal in the United States. This may be a particularly opportune time to develop practices, methodologies, and skills to better understand the economic impact and benefit of such structures over their lifetime, or at least a substantial time horizon. Actuaries may be able to help allocate resources and establish better priorities. We could be on the leading edge of a trend that may run for the next 25 to 50 years.

### U.K. at work on issue for a year

We are not alone in this effort. Actuaries in the United Kingdom already have begun work. Under their "wider fields" initiative, a working party of six members has met bi-monthly since September 1992. Its charge was "to consider how members of the actuarial profession can, by virtue of their professional training or experience, contribute usefully to the appraisal of proposed capital projects in the U.K. or abroad and, if so, to make recommendations on how the profession should carry the matter forward with a view to insuring that the specific contribution which actuaries could make is drawn to the attention of those who could benefit from their services."

One of their first initiatives was to hold a top-level conference to promote the profession's potential contribution in appraising capital projects. The conference in London on May 25, 1993, was attended by 200-300 people and was well received and widely covered in the press.

The conference coincided with the government's new "fall initiative" on private financing for public projects. The following day (May 26), a conference sponsored by the Confederation

of British Industry addressed the British government's desire to get the private sector involved in almost every conceivable public project from leasing kidney dialysis machines to hospitals, to building prisons, schools and roads. The government hopes to kick off with a high profile, trailblazing project such as the Channel tunnel rail link.

The U.K. working party produced an interim report in July, concluding that the actuarial profession could make useful contributions in the following areas:

- Financial model building
- Choice of appropriate and consistent financial assumptions
- Risk assessment, including the use of simulation techniques where practical
- Design of financing packages.

The working party concluded that the best marketing tool would be successful involvement in early tasks. The best way to proceed might be through consulting firms, which already have contacts with potential clients through their work on employee benefit plans. The Institute of Actuaries would establish a learning structure to assist the consulting actuaries in developing new practices and methodologies. With credibility established, normal business development could proceed.

The working party's final conclusion, however, was that the project would require much effort, and that it was uncertain how much demand there would be for their services.

### SOA task force's work begins

The Society of Actuaries Task Force on Capital Projects will research the current models and methods of evaluating capital projects. We will try to discover who makes these decisions

now and what information they use to arrive at their decisions. We then will try to determine whether there is a meaningful role for actuaries and what methodologies or standards of practice might be established to guide future practitioners.

Capital projects will require multidisciplinary teams including economists, accountants, MBAs, management consultants, engineers, and property consultants. Actuaries would seek to cooperate with these professionals, not to supplant them.

The task force intends to produce periodic reports to stimulate discussion throughout the Society. We also will coordinate our discussion with the discussions being carried on simultaneously in the United Kingdom. By spring 1994, the SOA task force plans to make a recommendation on whether there seems enough promise in this venture to proceed.

We are a small group and can use all the help we can get. Volunteers can help in many ways — by serving on the task force or on a subcommittee or by commenting on our work product. Anyone interested may contact me at 40 Prides Crossing, New Canaan, CT 06840; telephone: 203/966-5154.

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