

GASB 34 is only one reason to capitalize your transportation infrastructure

CAPITALIZING infrastructure assets like roads and bridges—that is, assigning a dollar value to them—may be useful beyond complying with GASB 34. For example, in addition to providing information that can be useful to infrastructure asset managers and decision makers, capitalizing transportation infrastructure may be helpful in garnering public and governmental support for transportation infrastructure funding.

Roads and bridges are intended to last for decades; therefore, failure to maintain their value saddles future generations with a deficiency they'll have to pay. The argument that adequate monies must be spent today to maintain the value of infrastructure assets for the next generation has proved to be a powerful and effective one. This stewardship argument has been used with great success by public agencies in other countries (e.g., Australia and New

Zealand) to garner increases in funding for their roads and bridges, even when faced with the tough political circumstance of a recession.

Capitalizing roads and bridges allows the public to understand the stewardship issue more clearly. Expressing streets' value in dollar terms is generally more meaningful to people than expressing their value in engineering measures of "condition" or "performance" (e.g., inches of roughness per mile, condition indices, or other measures). This is especially true when year-by-year comparisons are made; the declining dollar value of a city's streets is generally more meaningful to the public than, for example, a reduction in the streets' condition index from 5 to 4. By tracking the dollar value of assets like roads and bridges, an agency may clearly demonstrate whether infrastructure is declining in value faster than new investments or reinvestments are being made. •

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The example in Table 1 uses 1980 as a base year (as does GASB 34) and 100 million dollars as the base value of all transportation infrastructure assets (streets) in a mock Iowa municipality of 50,000 residents (based on Andrew Lemer's study of typical infrastructure investments). Capital investments, expressed in constant dollars, are allocated during each subsequent fiscal year; Barbara Fraumeni's average depreciation rate for transportation infrastructure assets, 0.0202, is used. To simplify our example, we assume no growth in the highway and street network.

Note that in our example the lower annual capital outlays in the mid to late 1980s result in a decline in the value of capital stock that continues through the next decade, although the decline is arrested through a large increase in capital spending.

Note also that a total capital investment of over 35 million dollars over 19 years is required to maintain the value of existing infrastructure assets at a level somewhat close to the value of those assets in 1980.

CalTrans's approach to valuing infrastructure

Although employing systems for managing assets, like bridge management systems, will generally fulfill GASB 34's modified approach requirements for reporting capital assets, such systems do not provide a method for capitalizing infrastructure assets. CalTrans uses information from its bridge management system to derive the bridge infrastructure values required by GASB 34.

CalTrans manages its bridge network using Pontis (a bridge management system distributed by the American Association of State Highway and Transportation Officials). With Pontis, bridge

inspectors regularly inspect and rate the condition of the various elements in each bridge in their network. CalTrans has developed a formula for converting the condition ratings for all the elements in a bridge into an overall dollar value for the bridge.

Typically, using Pontis, inspectors rate each element of a bridge according to five conditions: protected, exposed, attacked, damaged, or failed. CalTrans assigns weights, or factors, to these conditions according to their severity, from 1 (protected) to 0 (failed), and determines the cost of failure (replacement cost) for each unit (meter, square meter, etc.) of an element.

CalTrans then uses the following equation to determine the value of each bridge element. The formula incorporates both the severity factor and the unit failure cost:

Current element value = quantity in condition state x WF x FC,

where WF = severity weighting factor

FC = failure cost of the element (cost to rehabilitate or replace a unit of an element if it fails)

Note that a condition factor of 0 (failed) will always result in a 0 value for that element.

In Table 2, the formula is applied to determine the current value of each element of a bridge. The values of all elements are summed to calculate an estimated value for the entire bridge. Note that the steel girder has 61 meters rated 1 (protected), 34 meters rated 0.75 (exposed), and 5 meters rated 0.5 (attacked). At a replacement value of 3,500 dollars per meter, the total current value of the girder is 311,500 dollars. To obtain a current, network-level

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