

preservation, preventive maintenance,
reactive maintenance, rehabilitation and

investments. However, such a short-term move would not translate into higher stock prices because investors could see that the long-term viability of the company was sacrificed. The condition of track, locomotives, switches, dispatching computers and radios are key components of rail's reliability. Without high reliability tracks, the railroad would lose market share to trucking or other competitors. In short, the adequacy of capital investment to ensure their long-term viability is a key

that allow them to balance competing interests and to “chose a happy medium” between competing objectives.

Measures such as the ASI and its related ratios would have private sector analogies within a Balanced Scorecard approach. Four major areas of performance are reviewed and considered within a Balance Scorecard including financial performance, internal process performance, learning and growth, and customer satisfaction. An organization would need to balance performance within all four areas, and not just one or two of them to be successful

Such reporting provides transparency as to the long-term sustainability of each government's assets, including highway assets. Also, an annual report as to the implementation of the plans is required.^[iv]



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Asset Value of Bundaberg Australia

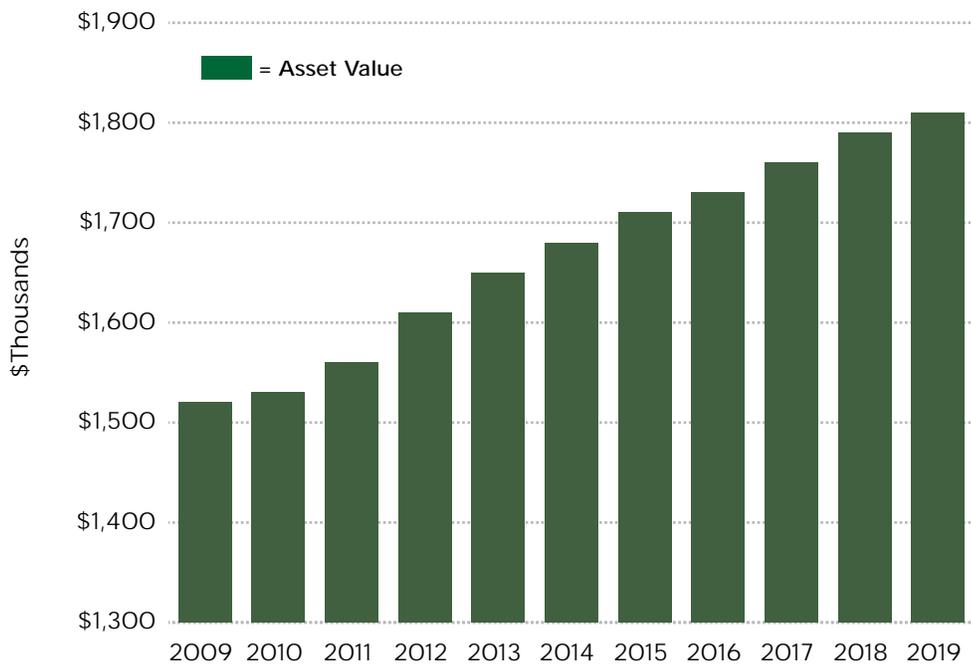


Figure 4. The Australian city of Bundaberg provides taxpayers this forecast of the value of its physical assets. These

Level 2 highways, the number of poor-condition miles rise from 155 in 2012, to 1063 by 2020 and 2527 by 2030.

From this data, UDOT can produce a pavement sustainability ratio as seen in Figure 6. It illustrates with the tan bars the amount of needed investment to meet target for all the networks. The green bars represent the amount of available budget, with the red showing the investment gap.

can understand more than a decade in advance

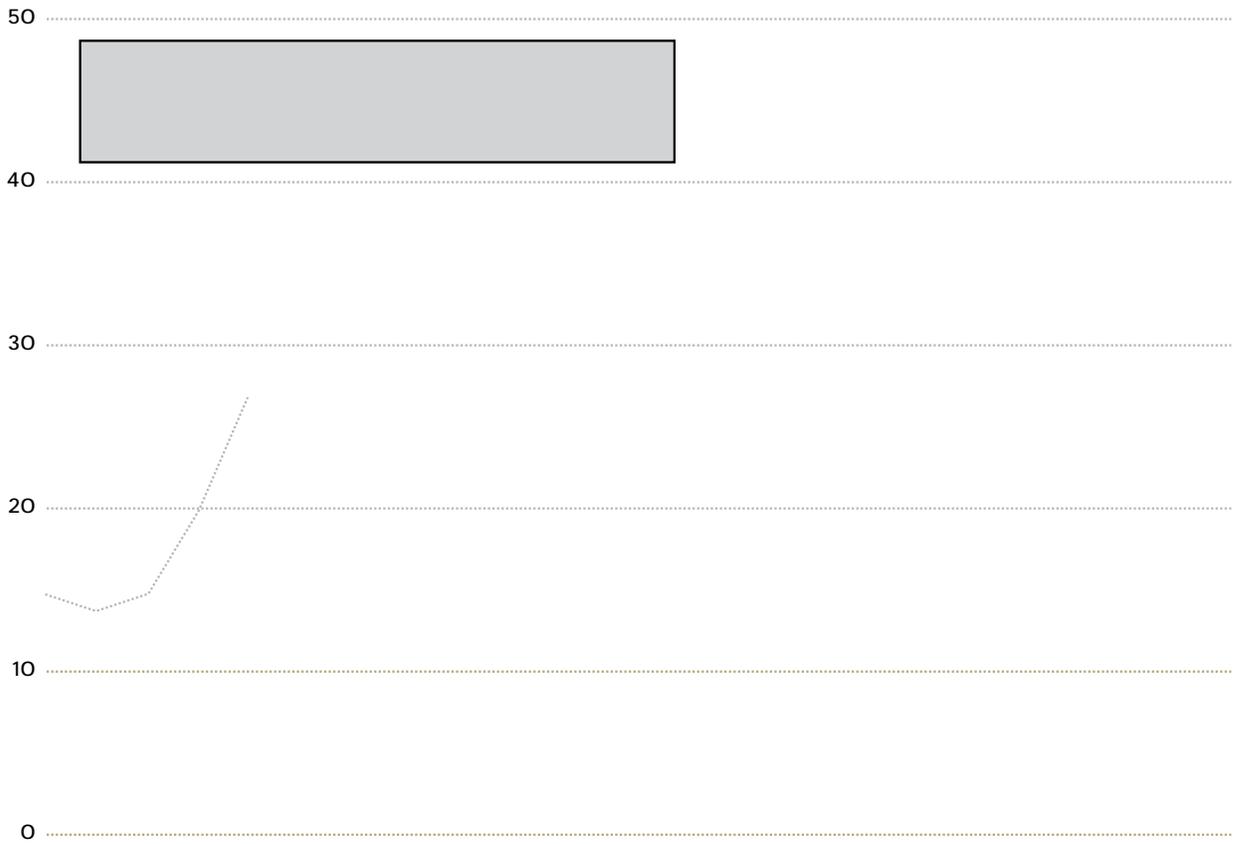


Figure 7. This illustrates how budget allocations were shifted between ODOT districts to achieve specific, targeted bridge conditions.

Figure 8. NCDOT predicted a steady decline in network-wide bridge conditions if investment levels remained static.

activities as well as for reactive repairs. The Department has an active Bridge Preservation Program that consists of minor, low-cost treatments performed on bridges that are in relatively good condition. These activities include painting structural steel, cleaning bearings, repairing and replacing expansion joints, applying materials to slow

a localized sample. Also, localized weather events such as floods can quickly affect maintenance conditions. Therefore, the ability to “drill down” into localized or asset-specific maintenance component ratios may be more limited than for the less variable bridge and pavement assets.

When data are examined over a longer timeframe and larger geographic area, the short-term or site-specific fluctuations in asset conditions tend to normalize and become more representative of long-term trends.

North Carolina Maintenance Analysis

The North Carolina Department of Transportation (NCDOT) uses its Maintenance Management Systems to forecast detailed estimates of the levels of capital and labor necessary to sustain its roadway maintenance conditions. With these estimates, it produces forecasts that are similar to Maintenance Sustainability Ratios and which illustrate the neces

Utah Maintenance Analysis

UDOT has worked for several years to continually refine its maintenance management system to produce accurate estimates of both conditions and necessary level of effort to achieve maintenance condition targets. To work towards a common goal for performance of maintenance activities, state-wide targets are set for each maintenance activity. Targets are expressed as letter grades A, B, C, D, or F. The targets at the 96 18ces are su.genseveualle F. s the 96 18cehe targetlsolle F. Tre ece 9ditalyset for eahe 9ditort to

affected year-to-year by weather and other events, the examples show that over time the

series forecast allows it to be a leading measure predicting the outcome of current investment decisions.

Combining the Sustainability Index with Asset Valuation Analysis

The Asset Sustainability Index and its related ratios are considered in this report as evolutionary next steps to further enhance the reporting of transportation asset management needs and issues. The practice of asset management has steadily evolved from the mid-1990s in the United States and has at several points of its development intersected with other important reporting frameworks. One such intersection is with the Governmental Accounting Standards Board Statement 34 (GASB 34.) GASB 34 went into effect in 2001 and represented a major change in government accounting for infrastructure.

The Asset Sustainability Ratio represents a complementary mirror image of the GASB 34 reporting process. While the ASI is for

repaired, it would create a long-term liability that should be disclosed in annual financial reports. GASB34 also emphasizes Asset Valuation, or the assignment of monetary value to infrastructure assets. The concept is that if roadway elements are described as public assets and valued in monetary terms, the public imperative to preserve them in sound condition is enhanced.

The 1999 standards added a new requirement for

ENDNOTES

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