

## Breaking barriers. Connecting engineering and finance in Tasmanian state roads' asset valuation.

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**ABSTRACT:** In 2016, State Roads Division of Tasmania's Department of State Growth found itself at a crossroad involving two important strategic issues. The first was a review of road asset valuation and depreciation methodologies, and the second was a much needed review of asset data management. These activities coincided with Austroads' Asset Componentisation project and the National Transport Commission modelling trials using a Forward Looking Cost Based methodology, in which State Roads took an active part. Both projects had a significant impact on the path the agency chose, turning a crossroad into a junction by connecting the road asset valuation and depreciation methodology review with its reconsideration of asset data management, aiming at more connected and transparent asset management (AM) practice within State Roads. Asset componentisation serves as a bridge between engineering and financial functions in AM that facilitates asset data and information exchange. The better that bridge, the more benefits for asset management it provides.

**KEYWORDS:** asset management, roads asset valuation, componentisation, financial and engineering data, infrastructure decision making (IDM), evidence based decisions, sustainable road network

### Introduction

Knowledge of the value of assets is a vital component of infrastructure asset management (AM) planning. Asset valuations provide important information for forecasting and financial planning to meet expected levels of service.

It is essential that finance and asset management practitioners work closely together to deliver the agreed level of service at the optimal life-cycle cost and to attain the reporting accuracy on the achievement of those outcomes in service performance and in financial terms.

The new road asset valuation methodology has been adopted in order to improve transparency of valuation procedures and better alignment of engineering assessment and financial valuation to inform Tasmanian State Roads decisions on capital investment and maintenance. This new methodology also required the review of applied rates and the duration of useful lives.

This approach enables State Roads to gradually build its asset information, level of asset analysis and overall confidence in its AM decisions over time.

### Structure of the presentation

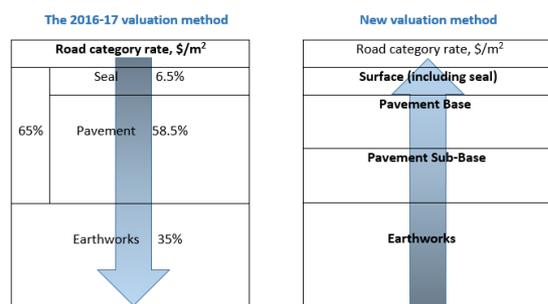
The presentation will cover the following topics:

- *Where were we?* The starting point: top-down valuation, what data was available, how did we structure our road assets? As management guru Peter Drucker states: "*What gets measured gets managed*".
- *Where do we want to go?* Bottom-up approach: building the value of an asset from its components; using structure from the updated 2018 Austroads *Minimum Levels of Componentisation Guideline*; improving data collection, storage and use, providing the basis for an expert judgement for infrastructure decision making; moving from reactive to proactive AM and facilitating digital transformation.
- *How are we getting there?* Transition period, modelling components and their rates, incorporating new asset componentisation into our processes and systems. Relationship building.
- *Our challenges.* Managing the process, participation by other parts of the organisation, early involvement and engagement of stakeholders. Asset revaluation as a driver of organisational change.

### How the new approach is different?

The previous approach to road asset valuation was top-down (Figure 1). This means that an asset value was applied to the whole asset and then proportionately distributed over the implied components. This approach made no

provision for varying the proportion of components to cater for engineering differences in road category, or for differing environmental circumstances, such as terrain.



**Figure 1:** Comparison of 2016-17 valuation with new valuation approach

Although providing information on the total value of road assets for annual Asset Valuation Reports, this approach led to distortions on a component level and for that reason was disconnected from AM decision-making.

To overcome this gap, the new methodology utilises a bottom-up approach for valuation, where values of individual components build up the total value of a road. The new State Roads valuation model currently includes the following components: surface, pavement base, pavement sub-base and earthworks.

Each of these four components is defined based on physical attributes related to asset performance and consumption (useful life), and each component has an independent defined value (unit rate) based on the cost that is currently required to replace the service capacity of an asset according to its road category relative standards.

These four components reflect data availability and are based on the extent of existing asset registers. As asset registers become more detailed to include more road components (wire rope safety barriers, drainage, etc.), there will be an opportunity for more components to be defined and valued based on their individual unit rates.

### Data translation as the main valuation challenge.

Valuation is not just a task for financial analysts or accountants. It involves asset managers. It involves engineers. It involves decision makers. Assets that are worth billions of dollars require millions in our annual budgets for operations and maintenance. Valuation undoubtedly has impact on funding (including Federal Government maintenance

contributions). Delivering value for money requires knowledge of exactly what the valuation is comprised of. Road asset valuation can therefore serve as:

- an important asset management tool,
- a financial planning tool,
- a communication tool between different teams, for management, for the public and a range of regulating authorities.

For valuation to fulfil all these roles it requires input from engineering and finance experts, as well as from the public. State Roads, with this new methodology, has started by bridging engineering and finance data. The next stage needs to be connecting valuation with a level of service requirements.

### Data as an asset.

What business are we in? What assets are we managing - physical or digital? What do we produce as an agency? State Road's construction and maintenance work is outsourced to a wide range of contractors and consultants. The only thing that is left in most of the cases is managing data on road assets and transport (supervising contractors is 90% data management of various kinds). State Roads AM has transformed into orchestrating asset management decisions based on data and available information. Data is a centrepiece of any road agency and must be treated accordingly. When we start putting value on our data, we'll get to understand it better, we'll manage it better and be able to get more benefits in the AM space, ultimately delivering more value for the public.

### Conclusions and recommendations

The new State Roads valuation methodology was created with new AM information practices in mind and leads to a better understanding and management of the road assets, contributing to optimised renewal decision making and enabling more accurate lifecycle cost analysis. It will also cater for a more efficient response to data requests from stakeholders, including Federal agencies.

Overall, the new asset valuation methodology is setting State Roads on the path to a strategic evidence-based approach to asset management, which contributes to State Roads becoming a data-driven and forward-thinking organisation, committed to national best practice.