

## Which Practice to practise?

Across various industries including ours, there has been much emphasis over the past decade or so on “best practice”. But in real terms today, what is Best Practice? This article attempts to differentiate two aspects of ‘best practice’ and the confidence levels they provide, in relation to network data collection.

This article is not about precision and bias, as all equipment talked about here has an internal correlation greater than 0.95. What we are really talking about is the degree of confidence you can place in the predictive outcomes that your PMS system will provide from the data collected. The old adage of garbage in garbage out still applies but in our modern age of increasing sophistication and continued pressure on commercial outcomes, a Road Maintenance Manager must trade off the price of his data collection against reducing the risk of failure and budget blowouts.

In order to be confident in the survey data you receive, aside from the competency of the survey team and the methodology, you need to ensure the *right* information is collected to suit your needs - whether you decide to collect to best appropriate practice or best commercial practice. The drive from best appropriate to best commercial is occurring as organisations seek to make profits in a highly competitive industry. For some of our clients a 1mm reduction in asphalt overlay can result in a million dollars saving in maintenance costs. To make these savings you must have a full and complete understanding of the health of your network now and the likely future outcomes. This is achieved by increased vigilance and support systems that see regular high quality data collected and analysed at both the network and project level. There is no point collecting data for data's sake, you must have a clear commercial focus and objective that you wish to achieve.

This migration from best appropriate to best commercial practice is also being driven by financial institutions who don't want to see their long term investment “mined” by the Road Maintenance Agency. This is particularly evidenced by the growing interest and reliance on structural testing to determine the remaining residual life under current and future traffic models.

In looking at the three main surveys; laser profilometry, visual condition assessment and structural capacity, we believe this is best represented as minimum acceptable, best appropriate and best commercial practices. Given the variables and ‘uncontrollables’ that exist with any forecasting and planning, we have to be realistic...no amount of data is going to give you 100% confidence in the future outcomes, as such the table below lists a maximum confidence level of 90%. However, in the hands of a competent Road Asset Manager backed by a responsive maintenance team using these methods, the residual risk can be mitigated through planning.

If we start by looking at laser profilometry you will see that for Major Arterial/Rural roads in order to achieve a level of confidence of 90% (Best Commercial Practice), roughness, rutting *and* texture depth need to be collected. However, for Close Urban roads, collecting all three will give you an 85% level of confidence for Best Commercial Practice. This is owing to surveys constraints of trying to work in heavily congested and narrow streets which do not allow for full and precise coverage.

Confidence Levels		Laser Profilometry			Visual Condition Assessment			Structural Capacity		
Federal Highway Major Arterial / Rural	Urban									
Close Urban										
		Minimum Acceptable Practice	Best Appropriate Practice	Best Commercial Practice	Minimum Acceptable Practice	Best Appropriate Practice	Best Commercial Practice	Minimum Acceptable Practice	Best Appropriate Practice	

For visual condition assessment cracking is a good guide but for a full understanding of the safety, serviceability and sustainability of the network, we must assess the network for potholes, patches, structural cracking, environmental cracking, edge break, edge drop off, bleeding/flushing and loss of surface aggregates. For it is through all these parameters that full leverage of the HDM4 deterioration models can be explored. The confidence level will then move from 85% to 90% with video recording of the visual surface conditions because it allows a Road Maintenance Engineer to review, display and assess for him/herself the actual prevailing surface conditions especially in relation to non pavement impacts like vegetation, pavement configuration, slope etc.

Structural assessment and structural cracking gives a road network owner and operator the best possible understanding of what the future condition of the network will be. Structural testing via the Falling Weight Deflectometer has all but replaced the Benkelman Beam and Deflectograph in this task. With the ability to adequately stress the pavement and measure the load impacts of the vehicle spectrum we are able to make a better assessment on when to intervene and what treatment will best meet the requirements of a maintenance section. Increased confidence occurs with the increasing number of test points per maintenance section, with best appropriate practice seeing a minimum of five points per maintenance section; best commercial practice takes the structural information from the network survey and drops the spacing to ten meters so that the most effective maintenance or rehabilitation treatment can be designed.

Whilst as an organisation we strive for technical excellence as demanded by our commercial clients, the quality of the information achieved at best appropriate practice is continually advancing. There is no doubt that the quality and quantity of information available to even the smallest Network Manager is improving. On all levels there is increased confidence that all our hard work and planning now will deliver the road networks we require for the future.