

## State Highway Levels of Service Development

### Abstract -

*This paper describes the author's involvement in the development of the NZ Transport Agency's technical performance measures and Visual Intervention Guideline within the new Network Outcomes Contract (NOC). The NOC is a performance based contract with varying levels of service required across the different state highway classifications. To ensure the state highways are maintained effectively and consistently according to classification across the country, the performance measures within the contract needed to be realistic and robust. The paper will describe some of the process behind the development of the measures and the testing undertaken to ensure their appropriateness.*

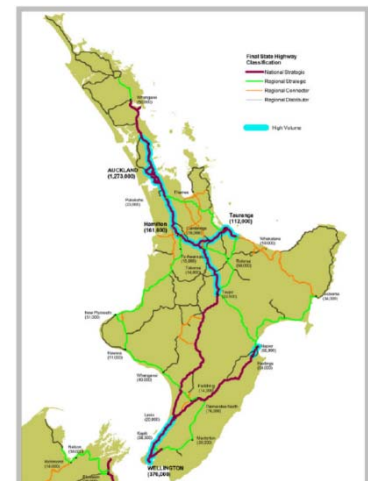
### Introduction –

In mid-2011 the government established a Road Maintenance Task Force with the goal to drive value for money and seek opportunities to reduce costs for roading authorities around the country in the road maintenance, operations and renewals area, with the primary objective being to save the government \$160M from the roading budgets. This task force identified four general areas for improvement to achieve the savings –

1. Adopting business models that utilise greater collaboration;
2. Improving procurement practices, to standardise documentation and clarify risk allocation;
3. Utilising more sophisticated prioritisation methods in decision-making through level of service differentiation;
4. And, advancing asset management planning that optimise the long term effectiveness and efficiency of work programmes.

### State Highway Classifications –

To achieve point 3, the level of service differentiation, the Transport Agency developed and rollout of the state highway classifications. All of the state highways, from Auckland's motorways to low volume unsealed roads like SH38, were given one of five classifications ranging from National Strategic High Volume Highways to Regional Distributor Highways. These new classifications, based on AADT, freight volume, tourism value, etc. were developed to improve level of service consistency (within the classifications) across the country, reducing regional influence, through the delivery of a demand based level of service standard. In the near future motorists can expect to see a nationally consistent maintenance standard across the road classifications.



### Network Outcomes Contract –

The above work led onto the Transport Agency's decision to roll out a standard contract document (the NOC) across the regions (see point 2 above). This was a bold move as historically there has been a mix of traditional, hybrid and PSMC contracts in use across the country. The NOC is a performance based, fence-to-fence contract with one primary supplier covering all maintenance and renewal activities on the region's highways. There is also a professional service component to the contract. Under the NOC, 10% of the network is audited every month against a range of operational performance measures. The results of this auditing represent the current state of the network and, therefore, the performance of the primary supplier. The primary supplier can be financially penalised based on the results through the 'bucket' system, however a certain amount of 'failure' is allowed before these are incurred.

### Level of Service Development –

For the NOC to work, a level of service framework with operational performance measures and targets needed to be developed, this is where I came in. Initially, the Transport Agency developed eight key customer objectives they wanted to deliver on. These were based around;

1. Connectivity,
2. Accessibility,
3. Travel Time and it's Reliability,
4. Safety,
5. Amenity/Comfort,
6. Environmental,
7. Assurance, and
8. Empathy.

Aside from these overarching goals at the top, the LOS framework and performance measures within it was built from the bottom up. It started with the sourcing and review of existing performance measures from various contract models around NZ and overseas. Next, the wide range of assets, activities and defects to be managed under NOC were identified, allowing a first cut of measures to be developed and submitted to the Transport Agency for review and confirmation.

Setting the right level of service was vital, an increase from what is currently being delivered would result in a massive cost increase when multiplied across the country so the measures were then fine-tuned through a range of testing. The initial checks were completed through the use of existing RAMM data and network expertise, utilising various highway network management team's knowledge of the highways in their regions. This indicated regionally what impact the draft measures and respective targets would have on level of services currently being delivered, ensuring the change in level of service due to the measures was correct.

The next step was field testing/validation. Four networks were audited in the field; with Transport Agency staff doing the Auckland and Northland highway networks while I looked at the Hawke's Bay and Wellington networks. This involved auditing a representative sample of each of the classifications within the networks against the performance measures and targets. The compiled results and recommendations were submitted to the Transport Agency for the final changes to be made before the measures were brought through into the NOC document.

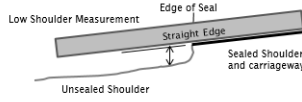
**Visual Intervention Guide –**

Ensuring consistent interpretation and auditing of the measures in the field was important to the Transport Agency. Being a performance based contract the auditing of performance measures can determine its success or failure, so they tasked us to develop a visual guideline. The Visual Intervention Guide, which forms part of the NOC appendices, shows through words, diagrams and photos how the performance measures, or the defect descriptions within them, are to be interpreted and measured.

**Summary –**

Similar changes are about to be rolled out to the TLA's through the One Network Road Classification, which we are assisting the Road Efficiency Group and Rationale with. In my opinion, one of the keys for local authorities' to get through this is really understanding the level of service being delivered on your roading network. Until you know this, you won't be able to accurately assess the impact of proposed changes. The testing of proposed input performance measures is also hugely important; if these aren't set appropriately it could have quite significant consequences for the state of the network (and the cost to maintain it!).

These are challenging times for those within the roading industry, with changes imminent and current strategies and practices being tested. It is also a great time to gain experience. As the old saying goes; "Progress is impossible without change, and those who cannot change their minds cannot change anything" - *George Bernard Shaw*

OMC SECTION 6.1.1 - ROUTINE SEALED PAVEMENT MAINTENANCE	
OPM GROUP 6.1.8	SHOULDER MAINTENANCE
OPM NUMBER	37 - 39
Defect	> 10m of continuous low shoulder or edge rutting, > 50mm on a straight Low shoulder or edge rutting, > 50mm on a bend Low shoulder or edge rutting, > 100mm.
Example Defects	Drop off from sealed surface onto adjacent unsealed shoulder.
Assessment	Initial assessment by vehicle observer. If necessary, a 2m straight edge is to be laid across the carriageway and sealed shoulder and a rule or tape measure is to be used to determine the height of the drop off from line of seal to level of unsealed shoulder.
Guideline	
Photographic Example of Assessment	