

Treatment length management

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INTRODUCTION

This overview document is intended to provide high level support and direction to better understand the criticality of treatment lengths, and how to management them.

Any relevant current industry guidance and case studies have been referenced where they provide more detailed assistance.

WHAT ARE TREATMENT LENGTHS?

A treatment length is a uniformly performing contiguous section of road, and performing differently from the adjacent sections. These are the sections which will be treated.

To get to uniformly performing sections we need to account for changing pavement and surface condition.

Treatment lengths for unsealed roads are normally generated based on carriageway starts and ends. Segmentation of unsealed treatment lengths are not covered by this document.

WHY ARE TREATMENT LENGTHS IMPORTANT TO ME?

Treatment lengths are interconnected with the majority of network management decisions. They bring the control of network maintenance management down to a project level. It therefore becomes particularly important to consider the practical implication of defined treatment lengths on short and long-term goals and objectives for the network.

WHAT ARE THEY USED FOR?

Treatment lengths are the base section of roads used in the Road Assessment and Management (RAMM) system in New Zealand and therefore a fundamental part of the network management regime. Below are the primary uses of these:

- Forward works programme development
- Running the Treatment Selection Algorithm (TSA)
- Pavement deterioration modelling (i.e. dTIMS)
- Asset performance analysis
- Visual RAMM road condition rating section generation
- Condition trend reporting
- Asset valuations
- Allocation of maintenance intervention strategies
- Intervention effectiveness reporting
- Reporting internally and externally including funders

KEY POINTS

Treatment length management:

- ✓ Should segment the network into uniformly performing contiguous sections of road that are performing differently from the adjacent sections
- ✓ Is the basis for how the road network will be managed and treated
- ✓ Is a key input into forward works programme development
- ✓ Needs to consider appropriate section lengths for effective and efficient programming
- ✓ Needs to be maintained when performance is found not to be uniform
- ✓ Needs to be updated after renewal works
- ✓ Does not split sectioning at features along a road such as speed humps



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INITIAL TREATMENT LENGTH SEGMENTATION

Treatment lengths for sealed pavements are generated initially based on the major top surfaces within each road. These can then be split at changes in:

- Traffic volume or loading (or pavement use)
- Number of lanes (seal width)
- Pavement construction
- Pavement type (thin surfaced flexible, structural asphaltic concrete, bridge, concrete)
- Urban/Rural flag
- ONRC category
- Terrain (flat, rolling, mountainous)

Treatment lengths do not need to be split at 'features' along a road where there is no change in performance of the adjacent sections. These features are typically on the urban network and include traffic calming devices (i.e. speed humps), narrow strips of interlocking blocks/concrete etc. which are less than 10 metres in length.

WHEN SHOULD I MAINTAIN THE TREATMENT LENGTH SEGMENTATION?

Treatment length segmentation needs to be maintained. Below are situations where segmentation may require reviewing and updating:

- **When it becomes obvious that a treatment length is not performing in a uniform manner.** This is currently the case when renewals are applied to a portion of a treatment length, reflecting the performance disparity. This situation should be minimal if treatment lengths are created and updated properly. In other words, treatment lengths need to be revised when inconsistency in performance is observed. The renewal treatments can then be applied to the new treatment lengths.
- **When treatment lengths are required to be revised due to changes to any of the configuration criteria such as road widening, significant change in traffic etc.** The new treatment length must perform uniformly over its length with all other configuration criteria remaining consistent.

WHAT IS THE CONSEQUENCE IF THEY ARE WRONG?

As mentioned, treatment lengths are the basis on which pavement and surfacing assets are maintained. If treatment lengths are not segmented into uniformly performing sections it will reduce the quality of outputs and decisions made.

RAMM summarises data from other RAMM tables into the treatment length table. This function summarises spatial data such as surfacing data, traffic, manual rating data and high-speed survey data into a single value for the treatment length, such as a single surface date, traffic volume and loading, average texture depth, average SCRIM value etc. With the aggregation of data to treatment level through the summarise process there is a risk the performance of an individual treatment length is not correctly reflected if the section is not uniform.

CONCLUSION

Good treatment length segmentation into uniformly performing sections is a key input to allow the effective and efficient management of pavement and surfacing assets.

The consequences of poor segmentation are significant with a reduced confidence and accuracy of the important outputs of processes using treatment lengths.

REFERENCES

- State Highway Asset Management Manual (SM020)
- State Highway Database Operations Manual (SHDOM)
- Sectioning of Road Data for Pavement Management, Dr Chris Bennet
- RAMM Road Condition Rating & Roughness Manual

REG is a collaborative project between Local Government and the NZ Transport Agency.

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