

Maintaining Expected Surface Lives in RAMM

June 2019



INTRODUCTION

This guideline is intended to provide a detailed level of support and direction in *maintaining* expected surface lives in the Road Assessment and Maintenance Management (RAMM) software. Supplementary higher-level guidance is provided in the practice overview; *Managing* Expected Surface Lives in RAMM. Any relevant current industry guidance and case studies have been referenced, where they provide more detailed assistance.

WHAT IS AN EXPECTED SURFACE LIFE?

An expected surface life is the average number of years a surface is expected to achieve based on its physical characteristics, environment and knowledge. These include (not exhaustive):

- Surface material type and chip/aggregate size
- Traffic volume and loading
- Pavement strength
- Condition of the underlying surface at the time of resurfacing (i.e. was texture variable?)
- Number of seal layers
- Geometry
- Rainfall

SURFACE LIVES IN RAMM?

The Carriageway Surface table has three fields for recording the expected life of a surface asset.

C_Surface Table Field	Description
Default Life	The expected surface life based on network averages recorded in the Surface Material table at the time the Carriageway Surface record was created (<i>network level</i>)
Modified Life	The expected surface life based on network averages currently recorded in the Surface Material table (<i>network level</i>)
Design Life	The expected surface life specific to the surface record based on knowledge at the time of construction and supplemented with comments in the Notes field (<i>site level</i>)

The default and modified lives are system applied network level lives recorded in the Surface Material table. The lives should be reviewed periodically to confirm they are representative of what is being achieved on the network.

An expected life should only be recorded in the design life field by exception. This should be done when the expected life based on knowledge at the time of construction varies from the network level life in the Surface Material table.

The rest of this document provides guidance suggesting how to approach this type of analysis to maintain the expect lives.

KEY POINTS

Surface Lives in RAMM:

- ✓ An expected surface life is the average number of years a type of surface is expected to achieve based on its physical characteristics and environment
- ✓ The default and modified lives are system generated by RAMM based on the Surface Material table
- ✓ The structure of the Surface Material table in RAMM enables default and modified lives to be specified by material type, chip size, surface function and pavement use
- ✓ Populating the design life field should only be done at the time the surface was constructed and the inventory record created
- ✓ Any value recorded in the design life field should be specific to the expected performance of that surface asset based on knowledge
- ✓ It is best practice to supplement the design life value with details why in the notes field
- ✓ Achieved surface life analysis should consider condition and level of maintenance activity as well as surface age at time of treatment
- ✓ Surface life analysis results should be cross-checked against table 4.4 of Chipsealing in New Zealand guide

Expected surface lives need to reflect the reality of what is being achieved on the network. These lives are key inputs into our asset management and decision-making processes.

HOW TO MAINTAIN THIS DATA

Default and Modified Lives

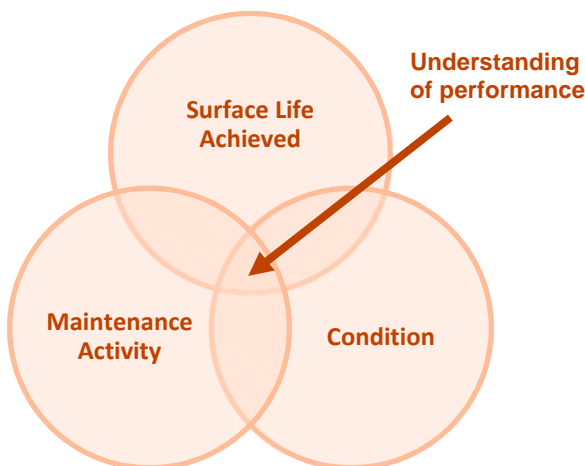
Factors that affect the performance of surfacing assets can change. Technologies change, vehicle and tyre quality and grip improve, our networks change. It is, therefore, necessary that the expected lives in the Surface Material table are reviewed and updated by a Road Controlling Authority regularly to ensure they are reflecting the reality on the network.

The frequency and timing of the review and update should align with your individual business process needs. Every three years, and available at the time required for developing surfacing and pavement renewal programme as part of the 3-year LTP funding cycle is recommended.

The structure of the Surface Material table in RAMM enables default and modified lives to be specified by material type, chip size, surface function and pavement use (traffic volume band). As these are *network level averages*, there will be surfaces which achieve longer lives, and others that achieve shorter.

A Road Controlling Authority's surface record history is a great source of data for understanding how long surfaces are lasting on the network. The Surface Structure table in RAMM structures the carriageway surface records to provide a dataset suitable for this type of analysis.

Analysing achieved lives by only including surface age at treatment provides part of the story. It is good practice also to include condition and level of maintenance activity when analysing achieved lives.



The Achieved Surface Life Report that can be generated from RAMM Manager for your network is not sufficient for this type of detailed analysis. This will only provide you with part of the story in understanding how your surfaces have performed for those sites that have been renewed.

Analysing Achieved Lives

The following should be included (not exhaustive):

- What lives have been achieved for recently treated surfaces (i.e. the last 5-10 year period)?
- What will be the achieved lives of the current top surfaces programmed for treatment in the current 3-year FWP that are scheduled based on need (condition and not age)?
- How much of the network has a current top surface with a long-achieved life (i.e. >10 years)?

The last point is important. Simply looking at surfaces that have received or are programmed for treatment potentially gives a pessimistic view. Including the long performing surfaces is needed to provide a more balanced analysis.

Considering Condition

Condition data should be included when analysing the achieved lives on the network. This increases the understanding to support the identification of appropriate lives for the network.

By including condition, we can understand the deteriorated state before the intervention. This will show if surfaces have historically been in good, average or poor condition before treatment. This raises the question of whether those in good condition were resealed based on age, and those in poor condition intervention occurred too late.

The condition data used should be driving the need for renewals on the network. This could be from manual visual road rating surveys, high-speed data capture surveys, SCRIM surveys, etc. Looking at the distribution of condition provides a picture of the typical condition of surfaces at treatment for historical practices.

Considering Maintenance Activity

The level of maintenance activity should also be considered when analysing achieved surface lives. This provides an understanding of the period activity undertaken, resulting in the achieved life and condition at treatment for each surface asset.

The data recorded against the pavement and surfacing cost groups in the RAMM Maintenance Cost table is a recommended data source for this. Care needs to be taken that this data includes maintenance activity only and not any renewals.

Comparison of Analysis Findings Against Chipsealing in New Zealand

On completion of analysing your achieved surface lives, it is considered best practice to review these against the lives contained within Table 4-4 of Chipsealing in New Zealand. When there are notable differences, it needs to be understood why this is the case.

Updating the Surface Material Table

The Surface Material table in RAMM is prepopulated with several default values for the more common surfacing treatments used.

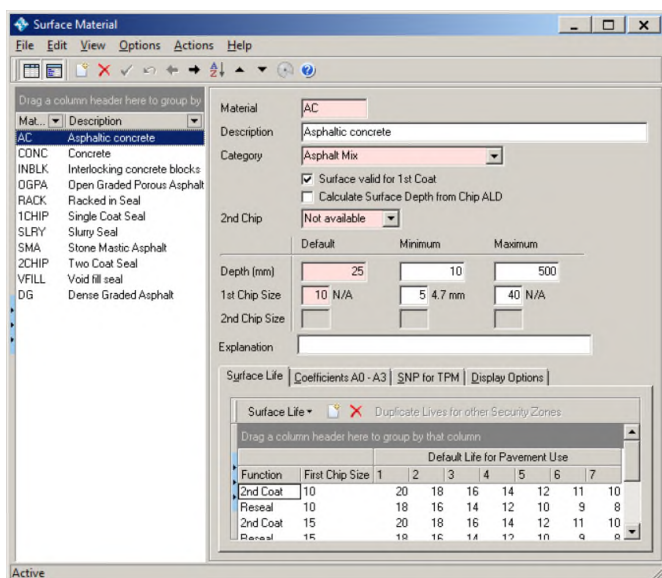
Following the completion of any surface life analysis (including the comparison against lives in Chipsealing in New Zealand table 4-4), *the Surface Material table needs to be updated to reflect the recommended changes.*

These need to be network level expected lives and subsequently become the new modified life values assigned in the Carriageway Surface table.

Changing the Surface Material table values will result in a system generated change to the modified life values for the affected surface records.

Network level surface lives are maintained through RAMM Manager. The Surface Material table can be found at:

RAMM Manager > Maintenance > Lookups > Surface > Surface Material



The Surface Material table also needs to be updated in the scenario that a surface material, function, chip size and pavement use combination is not available. This requires the combination to be added to the lookup table.

Further details on how to populate/update the Surface Material table is available in the Surfaces section of the [Working with RAMM online guidance](#).

Design Life

Populating the design life field should only be done at the time the surface was constructed, and the inventory record created. These should not be updated over time because this life is based on known conditions at the time of sealing.

A value recorded in the design life field should be specific to that particular surface record. This should **only** be used when the expected life is different from the network level value based on knowledge at the time the surface was placed. For example, a holding seal treatment will have a shorter expected life than one under 'typical conditions' on the network for this surface material, etc. When populated, this value is taken as the expected top surface life for the treatment length section.

A life recorded in the design life field should not be a contract requirement in terms of minimum performance or a conservative assessment based on limiting liability. They should be a realistic expectation of the life that can be achieved from the surface based on the performance of the existing surface at the time of treatment.

Using the Notes Field to support the Recorded Life

It is best practice to use the Notes field in the Carriageway Surface table to provide further detail for why a specific life is expected and not the network level value. For example, "holding seal", "previous surface heavily flushed at the time of construction", etc.

What Should be done with Design Lives that are not based on Knowledge at the time of sealing?

In the event, there are historically recorded values in the design life field that are not consistent with this approach they should be reviewed and deleted where they are found not to be appropriate.

REFERENCES

[Chipsealing in New Zealand](#) (Author: Transit New Zealand, Road Controlling Authorities & Roading New Zealand)

[Surfacing Data Overview](#) (Author: Road Efficiency Group)

[Maintaining Surface Lives in RAMM Guideline](#) (Author: Road Efficiency Group)

[Working with RAMM](#) (Author: RAMM Software Limited)

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

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