

# Rubicon Newsletter

July 2007

## Rubicon Toolbox: New Release, Version 2.7

Version 2.7.0 of Rubicon Toolbox contains several new features and modifications. Improvements were made to the following modules: High Low Comparer; FWD file parser; Trial Pit Reporter; Stress-Strain Calculator, and Deflection Bowl Analyzer. New features and modifications are briefly described overleaf. The latest version of the program is **Version 2.7.0** and can be downloaded from the website from **10 July**.

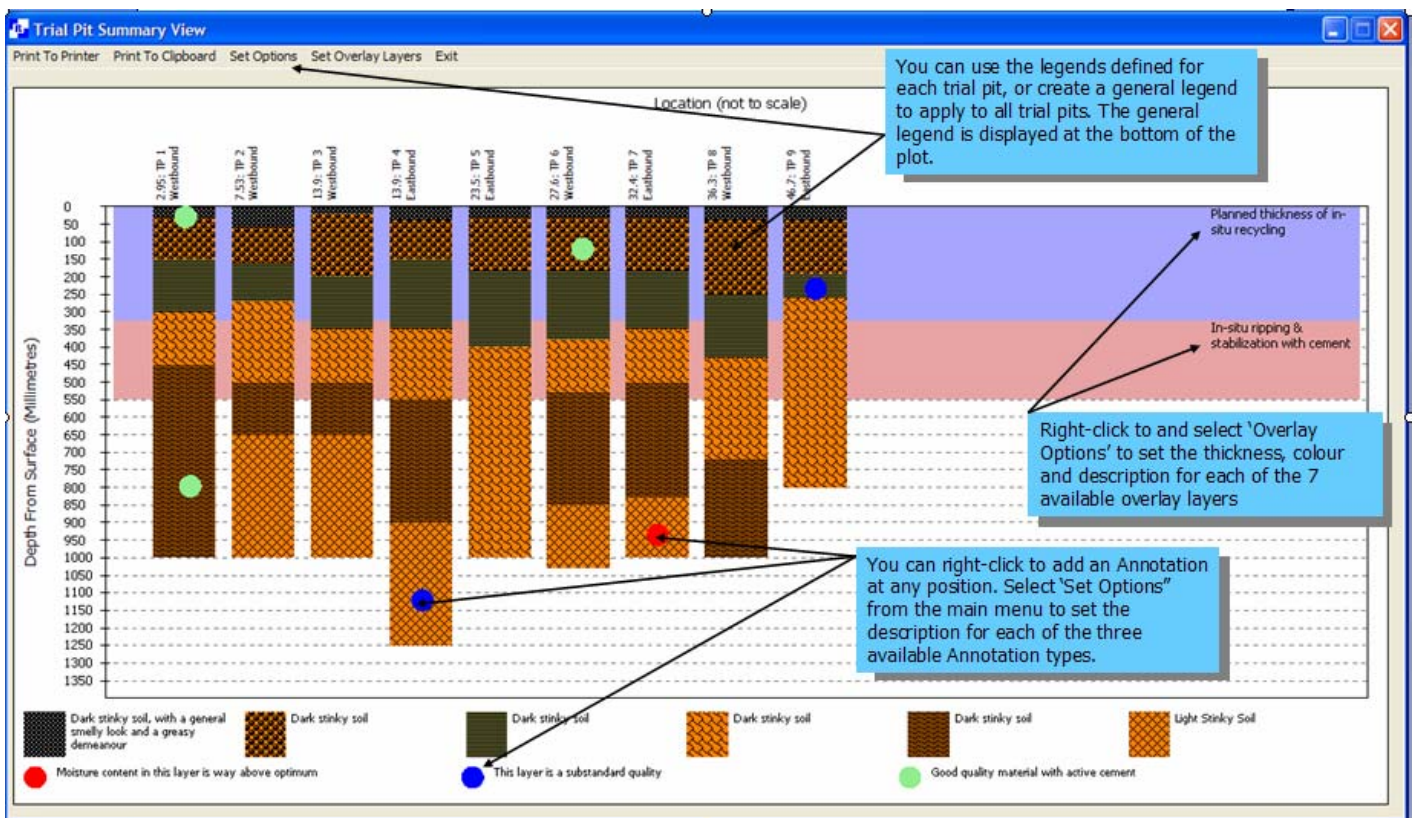
### Obtaining New Tools Included in your Maintenance Contract

When new tools are included in the software, they typically require a licence before you can access the full functionality of the tools. However, under your maintenance contract this licence may well be available to you *at no cost*. To obtain licences for features that you qualify for under your maintenance agreement, please email Marlou Bredenkamp (marloub@modsys1.com) at MAS.

## Rubicon Toolbox Feature: Trial Pit Summary

The trial pit summary feature was introduced in Version 2.6 of Rubicon Toolbox and several improvements were made to this tool in the latest release. The trial pit summary view is an expansion on the Multiple Trial Pit Reporter tool and allows you to automatically plot a profile of all the imported trial pits. Since the summary tool is linked automatically with the trial pits that you import into the Multiple Trial Pit Reporter, there is no need to re-enter data for the summary plot, simply select Summary View from the main menu of the Multiple Trial Pit reporter and get to work. There are two features of the Trial Pit Summary View that can give you an edge in the way you present your pavement data to clients (see figure below for details):

- You can add annotations to highlight problem areas (e.g. excessive moisture). This feature can help you to spot consistent problems in a specific layer.
- You can add overlays that are plotted behind your layers. These overlays will typically represent a fixed horizon, such as a depth to which you plan to rework the existing pavement. With this feature, you can quickly spot which layers will be affected by a planned rehabilitation action.



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## Brief Summary of New Features

### *Axle Spectrum Analyzer Tool*

This new tool allows designers to evaluate the impact of a defined axle spectrum on a pavement's design capacity. With this tool, you can build and analyze an axle spectrum for a specific design situation. The axle spectrum can consist of any number of axle types which you have predefined in your defaults database.

The Axle Spectrum Analyzer tool evaluates the structural capacity of all layers under each of the axles included in the traffic spectrum. The output can be viewed in several formats: a) a summary view which shows the overall pavement capacity in terms of number of axles accommodated and years of expected service; b) a detailed view which shows the calculation details for each axle type; and c) a tabular view showing the axle growth in and layer damages for a specific layer. You can export the tabular data to Excel to plot the damage done by different axles, axle growth, etc.

Key features of the Axle Spectrum Analyzer Tool include:

- Three, separately defined, pavement phases can be accommodated.
- For any phase, four seasonal stiffness values for each layer can be included.
- An axle spectrum can consist of any number of pre-defined axles. You can create your own axles and an axle can have up to eight load contact areas.
- Growth rates can be defined separately for each axle group and three growth rates can be selected to cover three user-defined growth periods.

## Brief Summary of Modifications

***FWD File Parser:*** This tool has been improved to make it more robust and better able to handle anomalies in f25 files.

***High-Low Comparer:*** The filter setup on the High Low Comparer was improved so that null or empty values in the linked database are ignored. Previously these values were read as zeros.

### ***Multiple Trial Pit Reporter:***

- You can now use your own header names in the import template. This applies to the first 5 columns, *except for the Station column*. Thus if the *Direction* column header is changed to *Road Name*, the report will show Road Name = "Value"
- You can now also plot the legends of individual test pits (because of space limitations, only the first seven legends will be plotted) on the summary trial pit report.

***Stress-Strain Calculator Tool:*** This tool has been improved so that the vertical deflection is also shown on the results output screen. Thus you can now check deflection bowl calculations with the stress-strain calculator tool.

***Data Viewer Tool:*** Help files, complete with examples, were added for the lane distress strip. This strip type was featured in our last newsletter and allows you to schematically plot distresses in different lanes and even wheelpaths on your project.

***Deflection Bowl Analyzer:*** This tool was improved so that the load details are now also shown on the bowl report. The report now includes the load type, pressure and plate radius (for FWD loads) or axle load and tyre spacing (for Benkelman beam loads).

## Training

During March, workshops were presented in Cape Town and Pretoria by Dr Arno Hefer and Dr Fenella Long.

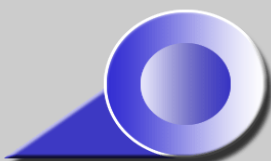
- Our workshops deal with the fundamentals of pavement data analysis and pavement design, by means of brief lectures and worked assignments. Rubicon Toolbox is used for the assignments, thereby providing an environment for learning how to use the program.
- If your maintenance is up to date, you will receive a discount on the workshop attendance fee.
- We are also available to hold in-house customized workshops at your offices. We have found an intensive one-day workshop works well. Again, contact the MAS office if you are interested.
- Both our two-day and one-day courses are accredited for Continued Professional Development (CPD) points.
- We are working on two new courses which will cover (a) Introduction to Pavement Design Principles; and (b) advanced pavement analysis using the Spectrum Analyzer tool. If you are interested in one of these courses, please contact Marlou (marloub@modsys1.com) to add your name to our list. This will assist us in planning the workshops.

## MAS News

- Fenella Long gave birth to her second son on 25 April, 2007. Congratulations Fenella! We look forward to you joining us again in August.
- Fritz and Sanet Jooste will be doing contract work in New Zealand from the end of 2007. Fritz will continue to be actively involved in the continued improvement of Rubicon Toolbox, and is already working on some new ideas for a web-based future. Watch this space!
- Our work on a project for SABITA and Gautrans to update the foamed bitumen and emulsion guideline documents is continuing. This project has led to two interesting developments, namely a new, Pavement Number based design method and a method for classifying pavement materials consistently from routine pavement test data.

## Comments and Suggestions

We welcome your ideas for improving Rubicon Toolbox. Please share them with us and notify us if you find any bugs or errors. You are our best source of ideas for new features in the software.



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