The majority of readers will already be familiar with the world famous adaptive urban traffic signal control system SCOOT (Split Cycle Offset Optimisation Technique) and how its adaptive nature responds automatically to traffic fluctuations, and MOVA (Microprocessor Optimised Vehicle Actuation) which is now a very well established strategy for the control of traffic light signals at isolated junctions i.e., junctions that are uncoordinated with any neighbouring signals. TRL Software is behind the design and development of both products with Peek Traffic Ltd, and Siemens Traffic Controls Ltd making up the other parts of the collaboration.

To date more than 1,500 UK junctions have MOVA installed with around 300 further junctions being rolled out every 12 months. SCOOT is extensively used both within the UK and overseas, with around 150 towns and cities benefiting worldwide.

TRL has recently produced PCMOVA which allows MOVA to be linked to either S-Paramics or VISSIM. With the increasing use of microsimulation to model wider areas, many models will include junctions that are MOVA controlled. These models have proved unrealistic as they could not factor MOVA installations within the model in the past so PCMOVA was created to provide a solution. Now with PCMOVA, the models can give realistic results, allowing planners to carry out their task effectively.

With any errors occurring in the safe haven of the desktop model, unguessable mistakes can be saved from causing impact on street!

An important aspect of using PCMOVA is the need to understand MOVA itself. Like many aspects of traffic signal control, full understanding of MOVA may be demanding and is not something that can necessarily be achieved within the timescales of most normal assessment projects. With its detailed knowledge of MOVA, TRL is able to provide help with MOVA design and implementation issues, and can provide validation of both MOVA and the S-Paramics or VISSIM model.

Through TRL’s consultancy work we have developed the ability to link SCOOT to VISSIM. Any customers having the requirement to compare MOVA (linked or otherwise) with SCOOT for a particular network, or even individual junctions, can call upon TRL for assistance. Comparisons do not need to include MOVA: SCOOT can also be compared to fixed time or VA within VISSIM as well.

To be able to model MOVA or SCOOT within a microsimulation model, detailed knowledge is required not only of how to set up the control strategies in the first place, but also what peculiarities need to be taken into account when modelling in microsimulations, as opposed to implementing on street. Not only has TRL developed expertise in MOVA and SCOOT, but also in integrating this modelling within VISSIM and S-Paramics on real world projects, and we are now in a position to provide this service to others.

If you are interested in finding out more about how we can help you, please contact Mark Crabtree.
HDM4

In 1996, the World Road Association (PIARC) assumed the responsibility for the management of the HDM project, following on from the World Bank.

HDMGLOBAL companies have now been awarded a five year concession by PIARC for the future management of HDM-4. The consortium partners are the Highway Development and Management Research Group a UK based association of TRL, the University of Birmingham, Atkins and Scott Wilson (UK), ARRB (Australia), ENPC and Scetauroute (France), and ICH (Chile).

The Highway Development and Management (HDM-4) system was first released in 2000, following an extensive international study of highway development and management tools. The study extended the scope of HDM-III and resulted in the development of an advanced road investment analysis tool with broad-based applicability in developing and developed countries. More than 1500 licenses of HDM-4 have been sold worldwide.

Following HDM-4 Version 1 a survey of HDM technology users’ needs and an extensive review of the technical models were undertaken. The identified areas for improvements were included in the latest release, HDM-4 Version 2.

Major improvements include:
- Improved Analysis Modes
- Sensitivity Analysis
- Budget Scenario Analysis
- Multi-Criteria Analysis (MCA)
- Asset Valuation
  - Improved Technical Modes
  - Improved Connectivity
  - Improved Data Handling & Organisation
  - Improved Usability & Configuration

The scope of HDM-4 Version 2 has been broadened considerably beyond traditional project appraisal to provide an internationally recognised tool for the analysis of road management and investment alternatives. It is used by government road administrations and agencies, transportation consultants, and education and transportation research institutions worldwide. HDM4 is now an internationally recognised software package which provides a harmonized approach to road management with adaptable and user-friendly analysis tools, for investigating road investment choices.

The Strategy Analysis module is used to prepare medium to long term planning estimates of funding needs for road network development and maintenance. Estimates of the medium to long term budget requirements for the entire road network together with forecasts of pavement performance and road user effects can be obtained. The impact of different Budget Scenarios can be estimated together with the Asset Value of the network.

The Programme Analysis module is used to prepare rolling work programmes in which candidate road sections are identified and assigned maintenance or improvement options. HDM-4 calculates the economic benefits and expenditure requirements of each option. A schedule of optimum pavement maintenance and/or road improvement projects which can be carried out within specified budget constraints are identified.

HDM-4 Version 2 provides a powerful system for road management, programming road works, estimating funding requirements, allocating budgets, predicting road network performance, project appraisal and examining the impact of policies.

The Project Analysis module can be used to estimate the economic or engineering viability of road investment projects by performing lifecycle analysis of pavement performance, maintenance and/or improvement effects together with estimates of road user costs. The main outputs include:

- Annual predictions of pavement performance
- Pavement maintenance and road improvement effects
- Road user costs and benefits
- Estimates of environmental effects
- Standard economic indicators such as NPV and BRR

A Sensitivity Analysis module allows the user to investigate the impact of variations in key parameters on the analysis results. Multi-Criteria Analysis (MCA) provides a means of comparing projects using criteria that cannot easily be assigned an economic cost. For example, environmental, social or political impacts.

HDM-4 can be used to examine road sector policy studies including:
- Funding policies for competing needs, e.g. feeder versus main roads
- Impacts of road transport policy changes on energy consumption
- Impact of axle load limits
- Pavement maintenance and rehabilitation standards

Default data and calibration coefficients can be user defined for any country or region. This allows HDM-4 to be configured to suit the customers’ local conditions and therefore can be applied throughout the world.

By exchanging data with a Pavement Management Systems (PMS) or other databases, HDM-4 can utilize existing data to perform an analysis. The output reports can be adapted to individual requirements thereby integrating HDM-4 into an existing road management framework.

If you would like more information, please contact:

- Gavin Jackman
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- Greg Morosiuk
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OSCADY PRO has recently been used in Italy to dramatically improve the performance of a signalised intersection. Aldo Conti, of Regolazione Controllo Traffico, used OSCADY PRO in drive-on-the-right mode to analyse a busy vehicle-actuated four-arm junction in Cantù, near Milan.

Aldo writes: "Today we have reprogrammed a junction with the results of OSCADY PRO. I have just come back from a visit of the junction during the peak of traffic and it is behaving very well. The difference is amazing. The junction is actuated and until this morning it was running a cycle of 184 seconds (maximum green). Now the cycle is 105 and it is doing well. I could already see one person amazed by the fact that the intersection is not jammed. The expectation here was that OSCADY PRO would not have produced timings very different from the current ones. I would say that 105 seconds instead of 184 is a big difference. And it can still be improved, as at the moment I am considering only the heaviest traffic I measured."

Thanks to the reduction in queues and delays at the junction, Aldo has estimated that they have saved the equivalent of one car waiting at the traffic light for 13 hours a day with the engine running, which has saved about 62 kg of CO2 per day. Aldo and his colleagues are still experimenting with further options at this and other intersections and we hope to publish further details of his experience with OSCADY PRO soon.

TRL is very interested to hear from other partners with similar findings to feature in future editions of TSN and use as case studies.

You can now purchase both OSCADY PRO and OSCADY Classic together via our new OSCADY + package. Please see our website or contact the Software Bureau for more details.

Gavin Jackman Greg Morosiuk
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Graham Burtenshaw Alistair Maxwell
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User Group Meetings are held annually for ARCADY, PICADY, OSCADY and TRANSYT users. (Normally these are run over two days, with one day dedicated to TRANSYT and the other to ARCADY, PICADY and OSCADY.) They provide an opportunity for users of the programs to raise a variety of issues, and always result in interesting and sometimes lively discussions! As well as presentations from TRL on current and future developments, we encourage talks or presentations from users.

**UPGRADE TO TRANSYT 13**
25th June 2008
VENUE: Edinburgh
COST: £275 (Maintenance Holder, £250)

**UPGRADE TO TRANSYT 13**
17th July 2008
VENUE: The Grange Hotel, Charles Square, Bracknell
COST: £275 (Maintenance Holder, £250)

**ARCADY and PICADY Workshop**
1st-2nd October 2008
VENUE TRL, Crowthorne House
COST: £595 (Maintenance Holder, £545)

**TRANSYT Workshop**
8th-9th October 2008
VENUE TRL, Crowthorne House
COST: £595 (Maintenance Holder, £545)

**SafeNET 2 Training**
16th October 2008
VENUE TRL, Crowthorne House
COST: £495 (Maintenance Holder, £450)

**Engineer's MOVA Workshop**
4th-5th November 2008
VENUE TRL, Crowthorne House
COST: £595 (Maintenance Holder, £545)

**OSCADY PRO Training**
13th Nov 2008
VENUE TRL, Crowthorne House
COST: £495 (Maintenance Holder, £450)

Training courses can be specially tailored for STM, PERS and MAAP users and conducted either at their place of work, whether in UK or elsewhere, or at TRL (Crowthorne House, Wokingham) on dates convenient for users. Please use the web link below for details of any forthcoming events.

All prices exclude VAT. All bookings are subject to places being available. Courses priced in Euros will be subject to exchange rate fluctuation. TRL reserve the right to cancel courses if there is insufficient demand.

For more details, please check the TRL Software web site where you will be directed to the booking form.