Traffic Software News

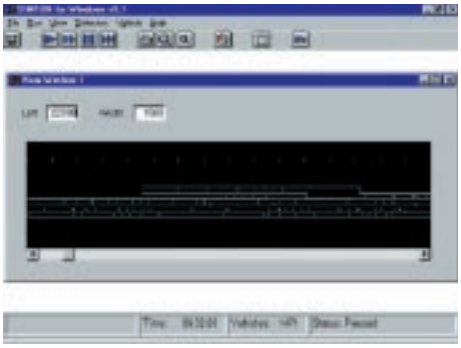
Quarterly Issue No. 13. March 2000 Transport Research Laboratory

The Maintenance Contract Newsletter

A NEW SISTM

TRL has upgraded the Highways Agency's microscopic motorway simulation software, SISTM (Simulation of Strategies for Traffic on Motorways), to version 5.1.

A number of new features have been added to the model to ensure that it meets the Highways Agency's objectives of evaluating methods for reducing congestion on the UK motorway system. As part of the Government's Integrated Transport Strategy, new appraisal methods have been introduced that take account of the environmental and safety impact of the scheme as well as the more traditional measure of individual journey times. Accordingly SISTM now produces output to take into account the effect on the environment. The enhancements introduced into version 5.1 include the modelling of exhaust emissions, fuel consumption, driver workload and vehicle noise.



SISTM is able to model up to 99 km of single direction motorway with up to 9 entry slip roads and 9 exit slip roads. It has been used in a range of studies, mostly for the Highways Agency, in order to explore and evaluate the effects of different traffic management strategies. The strategies that can be modelled include ramp metering, variable speed limits, incident detection, lane management (including HGV and bus lanes) and demand control measures. The program has extensive user front-end facilities for creating the motorway geometries and has a Windows based method of displaying the simulation as it is running.

TRL is able to offer a consultancy service to carry out and report on SISTM runs to meet the requirements of individual clients.

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Peter Phillips appointed Head of Traffic Team

Peter Phillips joined TRL in November 1999 as Group Manager of the Traffic Team. The Traffic Team is responsible amongst many other things for the development of much of the TRL traffic software, such as TRANSYT, SCOOT, OSCADY, ARCADY and MAAP. Peter has joined TRL from the Traffic and Road Safety Group at Surrey County Council and brings with him many years experience and knowledge in project management, practical traffic engineering and road safety. He has worked in traffic and transportation engineering for almost 20 years through consultants and local authorities, both inner London with the GLC and throughout the rest of the country. His experience runs through almost every aspect of highway engineering, from desk top work with planners on potential developments, through safety audits and policy preparation, to on site construction.

His main role at TRL, aside from managing the traffic team, will be to develop the liaison with Local Authorities and developers to widen the customer base for the group's skills. Peter has already settled into what is an accomplished team and looks forward to expanding the use of their traffic engineering skills and helping put TRL on the consultancy map.

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WHERE SHOULD YOU MEASURE THE APPROACH WIDTH (V)?

This is another case where the ARCADY Application Guide covers the "normal" 99 percent of roundabout approaches. The approach width is measured just upstream of the point where local flaring begins, and therefore the approach is parallel-sided. The "width of the approach before the roundabout was built" is a convenient way of visualising the measurement required.

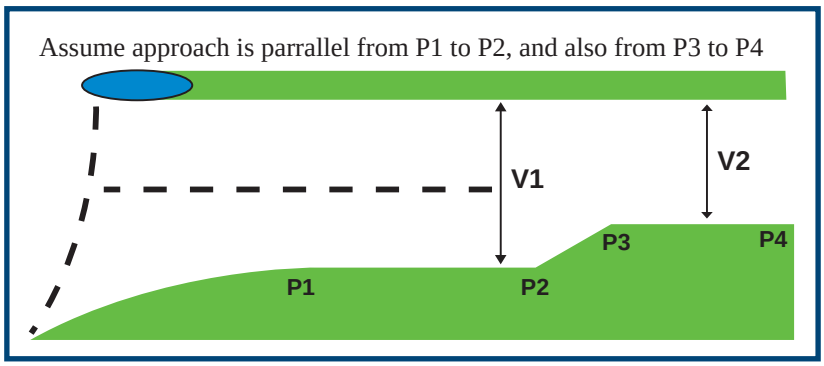
The 1 percent of anomalies are more familiar to the Software HelpDesk! Sometimes an approach might widen from (say) one lane to two lanes, at a significant distance upstream of the give-way line. The number of lanes is irrelevant, but the point is that the approach is parallel-sided from P1 to P2, and is also parallel-sided from P3 to P4.

Does the "local flaring" begin at P1 or at P3? Is the approach width equal to V1 or to V2? Would your answer be different if the two-lane section in the diagram was (say) 5 kilometres long rather than 20 metres long? Here is how to decide where to measure V in the real situations which will lie between these two extreme cases :-

Run the model with ***V1*** as your approach width. Check if :-

(a) the mean queue on the approach is at all times contained well within the two lane section. Assume that 1 pcu plus the gap occupies 10 metres of queueing space – this is an overestimate, but it will allow for the random variability of queues.

(b) the capacity of the give-way line is not greater than the capacity of the link bottleneck at point P3 on the diagram (unlikely).



If ***both conditions (a) and (b)*** are met, you need do no more than have a short tea break. If not, you should use **V2** as the approach width, and re-run the model. The queues from this 2nd run will probably be much bigger than in the first run, but this will be the correct model to use. N.B. Adjust flare details accordingly.

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MTV - TRL's Motorway Traffic Viewer

MOTORWAY TRAFFIC VIEWER

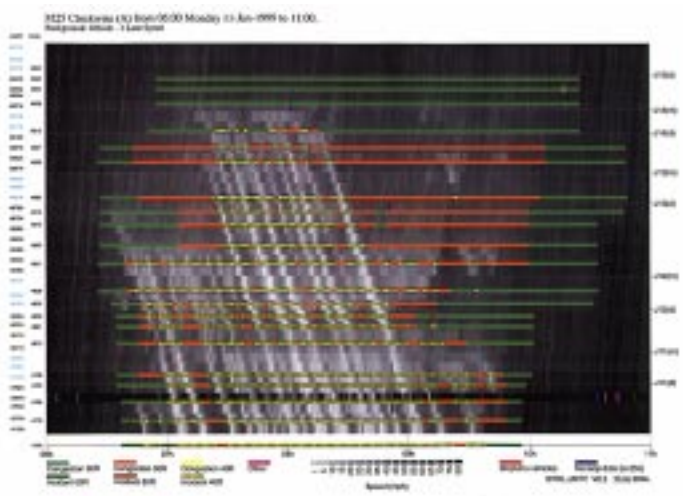
The Motorway Traffic Viewer (MTV) is a visualisation tool designed for traffic researchers to analyse traffic patterns and automatic signal settings on motorways. MTV takes traffic data, signal alerts, and motorway geometry, processes the information in a specified form and produces detailed graphical outputs. MTV has been developed using Visual Basic as an independent integrated software package.

MTV has been designed to analyse traffic data (collected from MIDAS loops) and signal logs (recording variable speed limits and messages displayed on overhead gantries). TRL has worked closely with the UK Highways Agency in order to ensure compatibility with technical standards. The wide variety of components within MTV provides the researcher with a multiple approach for visualising or seeking to understand a particular scenario. Components include:

- Detailed Traffic Data and Signal Overlays,
- Weekly summaries presenting key information,
- Utilities to examine the quality of data available,
- Traditional speed-flow-time combination plots,
- Multiple lanes per page for comprehensive overview,
- Virtual vehicle displays and traffic statistics.

Once the graphical output is obtained, the patterns can then be interpreted to describe the true situation. One of the most useful plots for evaluating Controlled Motorway performance is shown alongside. This image shows a greyscale representation of a particular measurement (e.g. vehicle speeds or flows) within a distance-time axis. The speed limits extracted from the signal logs are then overlaid at the appropriate locations, so that an overview of the interplay between traffic and the variable speed limits is produced.

Whilst the software was originally designed with the M25 Pilot Scheme in mind, the 'network editor' facility allows researchers to build up models for other motorways. TRL has already used MTV successfully to examine traffic conditions on the M6 (Birmingham) and the M60 (Manchester) motorways. The MTV Research Tool has proved invaluable in the understanding of traffic behaviour and evaluating the performance of variable speed limits on the M25 Controlled Motorway.



An example of MTV output

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Capacity implications of Advanced Stop Lines for cyclists

TRL has been commissioned by the Charging and Local Transport Division of the Department of the Environment, Transport and the Regions (DETR) to carry out research into the capacity implications of installing Advanced Stop Lines (ASL) for cyclists. This research is part of a project on cycling facilities and engineering.

An ASL is a cycling facility that allows cyclists to move to the front of the queuing traffic at a signalised junction. It usually includes a cycle lane approach (most commonly located on the nearside) to a waiting area approximately 5 metres deep. Its function is to aid cyclists through the junction effectively and safely by enabling them to move off ahead of motor vehicles and clear the junction first. This makes cyclists more visible to motorists and can reduce the risk of conflict, especially with turning vehicles.

It has been suggested that some ASLs may reduce the overall capacity of junctions. Where a traffic lane is removed to allow the inclusion of a cycle lane, this is undoubtedly true. However, with most schemes, no traffic lane is lost and so the effects on capacity should be minimal. However, these effects need to be assessed in order to help traffic engineers decide on where and how their use is appropriate.

A desktop study using OSCADY has been carried out to assess what effect installing an ASL with either a nearside or a central cycle lane has on the capacity of that approach to the junction. Before and After video surveys are being carried out at four sites in Guildford, in order that saturation flow measurements can be taken from video tape. The results from the video surveys will show how best to handle ASLs when using OSCADY. To supplement the video surveys, and to widen the understanding of cyclists' actions, interviews with cyclists are being undertaken, to determine attitudinal and behavioural information. The research will be completed in August 2000.

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Happy Birthday - *Safe*NET

The 26th March 2000 marks the first anniversary of the release of TRL's road safety software SafeNET. SafeNET is currently being used by 19 Local authorities and consultancies. To promote this new approach to modelling road safety, we invite current users of SafeNET to write to TSN with details of how you have used SafeNET, how useful you have found the software and what improvements you would like to see made to the package. We hope to be able to publish responses received in the next issue of TSN. If there is enough interest then TSN may be a useful forum for users to discuss ideas and ways forward in this new approach to analysing road safety. If successful, a user group may be formed as has happened with other TRL software products.

For those who have missed all the previous publicity on SafeNET, the above screen shots illustrate the power and level of detail of the package. SafeNET is a design tool for engineers to rapidly assess effects on safety of potential traffic management changes. It allows the engineer to model individual junctions and road links or a whole road network. The software is quick and easy to use and is capable of modelling road networks which could include:

- Roundabouts
- Mini-roundabouts
- Traffic signals
- Urban and rural priority T-junctions
- Urban crossroad and staggered junctions
- Urban single carriageway roads
- Urban roads including minor junctions
- Traffic calming measures

The main SafeNET output is an estimate of the accident frequency per year for each junction and road section in the network. This information can also be transformed into casualty estimates to allow calculation of estimates for KSI figures. The package is even capable of breaking down the results into accident categories such as single vehicle accidents.

For more details on SafeNET either visit our web site (where a demo version can be downloaded) or contact the Software Bureau who will gladly send more information and demonstration disks.

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HAS YOUR TELEPHONE NUMBER CHANGED?
(or any other address details or contact names) If so, please complete the enclosed 'Change of Details' form and fax it back to us here at the Software Bureau.

COURSES, SEMINARS & WORKSHOPS 1999

TRANSYT WORKSHOP

2 DAY WORKSHOPS IN MAY & OCTOBER

1ST COURSE 9-10/5/00
2ND COURSE 3-4/10/00
3RD COURSE 5-6/10/00

Course Fee £600 +VAT (£540 Maintenance Holders)

ARCADY/PICADY WORKSHOP

2 DAY WORKSHOPS IN MAY & NOVEMBER

1ST COURSE 11-12/5/00

2ND COURSE 14-15/11/00
Course Fee £600 +VAT (£540 Maintenance Holders)

OSCADY WORKSHOP

$1^1/_2$ DAY WORKSHOP IN NOVEMBER

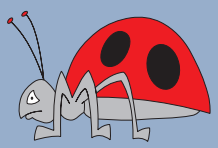
1ST COURSE 16-17/11/00

Course Fee £450 +VAT (£405 Maintenance Holders)

Places are limited (9 delegates for each course) so if you are interested please register now to avoid disappointment

DISCOUNT PRICE FOR 1 DELEGATE TO ATTEND BOTH THE ARCADY/PICADY AND OSCADY COURSE £950 +VAT (Maintenance Holders £855 +VAT)

BUG BOX



TRANSYT 11

Please see article on this page

Annual User Groups

The Annual User group meetings will be on the following dates:

13th June 2000 - ARCADY /PICADY 4
14th June 2000 - OSCADY 4
4th July 2000 - TRANSYT 11

All the meetings will be held at TRL.

All customers of the above programs are entitled to send one delegate free of charge in the first year after purchase of the software as are all maintenance contract holders. The arrangements for the User Group Meetings are currently being made, and an invitation is enclosed . Please return or fax your reply to the Software Bureau on fax number 01344 770864 or e-mail softwarebureau@trl.co.uk as soon as possible if you intend to send a delegate. (A limited number of additional spaces for are available for £75 +VAT, this excludes the MOVA user group).

20th Sept 2000 - MOVA - more information for the MOVA User Group will be published in the next TSN, but please note the date in your diary.

Software Bureau, Telephones Lines: 01344-770018, 01344-770758, 01344-770176
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TRL Traffic Consultancy Services

- **Traffic Impact Assessment**
- **Review TIA**
- **Junction/Network Modelling**
- **Traffic Signal Design**
- **MOVAVerification Service, design and installation**

TRL Safety Consultancy Services

- **Accident Prediction Models**
- **Route Treatment**
- **Safe Route to Schools**
- **Safety Audit**
- **Speed Management**
- **Traffic Calming**
- **Accident investigation and Litigation**

BUG BOX REPORT TRANSYT 11 GUI Release AA

An error has been discovered in the Graphical User Interface (GUI) program supplied with the first issue of TRANSYT 11. Although the analysis program is unaffected, the error prevents many input data files from being generated correctly.

As a result, a new release of TRANSYT 11 (Release AC) is now available. By the time you receive this edition of TSN existing users will have received a floppy disk with the new files. Installation instructions are included on the disk.

CURRENT PROGRAM VERSIONS

Visual PICADY 4	V4.02 AJ/2.1
Visual ARCADY 4	V4.01 AF/2.1
Visual OSCADY 4	V4.01 AC/2.1
(16 BIT, 32 BIT and INTERNATIONAL versions now available)	
TRANSYT 11	V11.0 Rel AC/1.0
TPM	V1.0
BUNDLE	V 2.0
MOVACOMM	V 2.6.0
MOVASETUP	V 2.3
CONTRAM7	V1.1
MAAP *for Windows*	2.0.9
*Safe*NET	1.0
PARC 2M & PARC 2P	

Who's Who in Traffic Software

Manpal Sangha

Manpal joined TRL in November 1997 with a degree in Physics from Imperial College London and a Masters in IT from University College London. He has worked on various projects throughout the Software Bureau.

Manpal is a key member of the Traffic Software Development Team and has contributed in the development OSCADY and PICADY. He has also been heavily involved in maintenance support for DETR's COBA, EUREKA and QUADRO programs.

For further information about TRL software please contact :
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