

## ARCADY 5 FOR MINI ROUNDABOUT MODELLING

The much awaited mini roundabout version of ARCADY is now available. ARCADY 5 provides both capacity and accident modelling for 3-arm and 4-arm mini roundabouts, and has had several new features added to the graphical user interface.

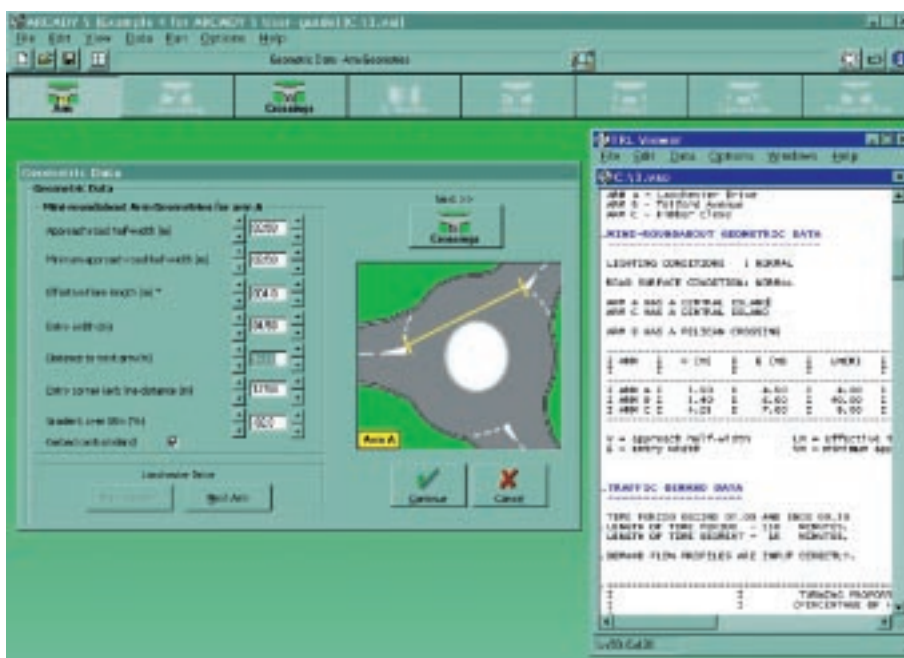
For the purposes of use within ARCADY 5, a mini roundabout is defined as a roundabout with a central island diameter of under 4m, with no kerbing. The island can be raised or domed (but not enough to prevent vehicles running over it) and, although commonly painted white, can be other material (concrete, block paving etc.).

When the mini roundabout option is selected, a number of new geometric data and accident data screens become available. These work in the same way as the equivalent standard roundabout screens, but use geometric data specific to mini roundabouts. The pedestrian crossing data screen is slightly different for mini roundabouts (both zebra and pelican crossings can be modelled), and it is possible to compare the effects of road surface and lighting conditions on capacity. All other data, such as modelling parameters and turning counts, are entered as usual. The resulting output includes standard ARCADY queue and delay tables and new accident tables which show figures for various types of accident.

Additions to the front end include a batch mode, allowing multiple runs to be performed at once, and an option to export the queue and delay tables as a comma delimited text file for use in spreadsheets or word processors.

ARCADY 5 includes an updated version of the Viewer program. Several new features have been added to make common tasks easier, including file comparison and text search facilities. The Viewer can be set to automatically update output files as soon as they are run from ARCADY. This makes it possible to change various data items and instantly see what effect this has on the output - combined with the file comparison, it's now much easier to get a feel of how individual parameters affect the performance of the junction. Viewer 2.0 is also compatible with Visual PICADY 4 and Visual OSCADY 4.

ARCADY 5 features are additional to that of Visual ARCADY 4. Maintenance holders of ARCADY 4 qualify for a substantial discount, if they upgrade. Please contact the Software Bureau for further details.



## New features for CONTRAM

**Work has been continuing on bringing new modelling features to CONTRAM 7.**

Following the collaboration with VIPS AB of Sweden, a mode choice interface has been developed between the CONTRAM 7 highway model and VIPS/3RNA public transport model. Released at the end of last year, the user friendly Windows interface allows easy selection of time slices and user classes and includes a calibration module for mode choice parameters.

Collaboration with Vägverket (the Swedish National Road Administration) is helping to develop new features for modelling the dynamic management of road networks. Drawing on a long history of analysing the effects of traffic incidents and driver information systems with CONTRAM, new modelling features have been included in an enhanced development version of CONTRAM 7. This is currently being tested by SNRA using a CONTRAM model of Stockholm.

A new matrix estimation facility has also been developed that will automate the process of updating trip matrices when new traffic count information is available. This will take into account the time varying demand associated with CONTRAM models and weights associated with the prior matrix and counts. This is being tested on different networks including Stockholm.

The new modelling features will be incorporated into a new version 8 of CONTRAM due for release by the end of 2000.

*For further details contact Chris White, [cdw@mm-winc.mottmac.com](mailto:cdw@mm-winc.mottmac.com) or Nicholas Taylor, [ntaylor@trl.co.uk](mailto:ntaylor@trl.co.uk)*

## TRANSYT – Queue graphs and link capacity

HelpDesk had a recent enquiry about using the “link graph” to decide whether a critical lane had sufficient capacity to hold its queue, without blocking upstream traffic. We are talking here not about the flow-profile graphs produced by Card Type 35, but the more recent queue graphs (described in AG35 Section 10.3). However, as the latter are derived directly from the former, the answer would be the same anyway!

A queue consists of three components, namely “Uniform”, “Random” and “Oversaturation”, as described in an earlier TSN and elsewhere. Although the TRANSYT **analysis** takes account of all three components, the **graphs** display only the “Uniform” component. Therefore, one cannot use the graphs to predict blocking problems.

Alongside each graph is the “UMMQ” value, i.e. the “Uniform Mean Maximum Queue”. This figure will always be less than the “MMQ” value given elsewhere in the TRANSYT output, which includes all three components of queue. The “MMQ” value should always be used as the basis for predicting queue blocking, and even then one should make allowance for variations from day to day.

## TRANSYT – “Tweaking” the model

It is becoming more and more difficult to produce signal timings which will “work” (whatever that means!) as traffic flows climb relentlessly. For what its worth, here are a few tips which might take you a few percent closer to the goal. The larger the network, the more likely they are to help. Results are sometimes better than you expect (because of TRANSYT’s “hillclimbing” process).

Trying a wider variety of cycle times, not just units of 10 seconds.

Repeating the node list on Card Type 2 so that each node is optimised twice.

Repeating the hillclimb increments on Card Type 4.

The **final run** of TRANSYT should always be carried out with 60 “steps” per cycle (Card Type 1) because it will give the most accurate traffic model, and therefore the best signal timings for use on the road.

## What is acceptable?

This question, in all its forms, is probably the most difficult that HelpDesk staff are ever asked! It usually concerns the “maximum allowable RFC value”, otherwise known as the degree of saturation. Quite apart from the fact that we are not High Court judges, it makes no sense to quote a maximum value because :-

- RFC varies throughout a peak, and can rise and fall sharply or slowly.
- The consequences of a high RFC depend on the flow. An RFC value of 1.2 might not matter with a very low flow, whereas a value of 0.8 might be disastrous with a high flow.

The important criteria for judging the success of a design (from the point of view of congestion) are the total delay to all vehicles, and the mean delay per vehicle on each of the approaches. The latter is a question of “fairness” and “politics”. Is it acceptable for some drivers to suffer twice as much delay as others? How about ten times as much? That is a matter for your opinion as much as ours.

*Peter Webb*  
[pwebb@trl.co.uk](mailto:pwebb@trl.co.uk)

# Need a Traffic Consultant?



**All Highway Authorities at some time or other throughout the year call upon the services of a Traffic Consultant, but which one? There are numerous options, big or small, well known and the not so well known. But there is an organisation that you know well, perhaps too well. It is often at the forefront of your mind when you think research, think innovation, think safety, think software, but when you (and your colleagues) think Consultancy, do you think TRL?**

For many years TRL has been world renowned for its research work in both highway and vehicle safety and engineering. TRL is known for its software to help design road layouts and junctions, software that has been continually updated to account for changes in thinking on transport issues. But few people see TRL beyond this scientific research image, and many still see it as a government body.

Only four years ago TRL became an independent company, Government control was severed and it is now a self supporting consultancy and research centre. The research side to The Lab’s work is still key, but it now uses the skills gained over the years and the immensely experienced staff to use and support that research through a fully fledged traffic consultancy business.

TRL is able to undertake any traffic and transport consultancy work and offer an independent research based response. Aside from the skills and understanding of traffic behaviour that enabled the development of software such as Arcady, Picady and Oscady, TRL can offer the same level of expertise in all traffic, safety and transport fields from traffic signal control, through speed control to network management and design. All forms of transport can be considered in an integrated approach. Safety audits and accident investigation can be provided as can assessment and design of facilities for vulnerable users.

*If you need the services of a Traffic and Transport Consultant then speak to Peter Phillips (01344 770692) or Bob Collis (01344 770474) at TRL.*

## ARCADY 5 AND TRANSYT 11 INSTALLATION

Not a bug - just a reminder for users installing ARCADY 5 and TRANSYT 11 from floppy disk that you should leave the last disk in the disk drive until you are prompted to remove it.

# Reviewing MOVA control

TRL Traffic have recently completed a review of 10 MOVA controlled junctions in the London area on behalf of TCSU, at the request of the Highways Agency. The purpose of the project was to review the continuing appropriateness of the original MOVA setup in the light of current traffic loads and any changes in road layout. The TCSU contract also called for TRL to recommend "fall-back" maximum timings that could be used should MOVA drop from control. These fall-back timings are derived from the mean stage times extracted from the MOVA logs for critical times of day. The main findings of the review were that MOVA continued to operate effectively, but that there were a number of minor points needing attention. Operational/dataset problems were remarkably few, with the most common observation being the rare setting of the "oversaturation" flag.

*John Peirce  
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## MAAP for Windows installations in Vietnam, Zimbabwe and Uganda

The rapid motorization of Developing countries over the last twenty years has inevitably led to a large increase in the number of traffic accidents. In 1999 the number of people who lost their lives on Vietnam's roads was 6,958. To indicate the magnitude of the problem this represents 15 times the number of people that died in Vietnam due to AIDS during the same period. This figure only represents the number of accidents reported to the police. It is suspected that the true number is nearer 9000 or 25 a day. For each of these 25 people killed, 2 more are permanently disabled and 10 more are temporarily disabled to the point where they can not work. These figures are typical of developing nations, Zimbabwe and Uganda experience similar accident rates. This puts a tremendous strain on the economic development of these countries and their health services. For example in Vietnam surgery for victims of traffic accidents accounts for 90 percent of the health services budget for surgery. However, it has been recognised in many developing countries as the largest single preventable cause of death and injury.



*A demonstration of MAAP at the police training college in Kampala*

Reliable accident statistics play a major role in reducing accident rates by enabling accident statisticians to understand the nature of their accident problems and to discover which counter-measures are successful and which are not. In most developing countries, as in most developed countries, budgets are restricted and tools such as MAAP (Microcomputer Accident Analysis Package) are vital at identifying accident black spots and accident trends. Accurate accident statistics can also be used to support public road safety initiatives such as campaigns to encourage the wearing of crash helmets when the public is often sceptical as to the improved safety.

In Vietnam although the traffic in the cities is reputed to be 'the most chaotic that can be found outside of India' the relatively slow speeds mean

that the majority of serious accidents occur on the nation's highways. The project that is now using MAAP is concerned primarily with improving the safety of 'Highway 1', Vietnam's main north-south artery. 'Highway 1' along with 'Highway 5', which links the northern cities of Hanoi and Hai Phong, have accident rates 50-70 percent greater than all other roads. Similarly in Uganda the current study is concentrating on a few major trunk roads including the Kampala to Entebbe and Kampala to Jinja highways that experience particularly high accident rates.

MAAP for Windows is a versatile tool used for the storage and analysis of road accident data. MAAP provides direct, intuitive and validated data-entry from accident reports to a customised database. Detailed query construction, multidimensional cross-tabulations,

accident plotting on either vector or raster maps, stick diagram analysis, worst grid square analysis and the new kilometre analysis module provide the user with powerful accident investigation tools. Data transcription via either databases or text files is also possible. MAAP is used extensively throughout the world and in the UK by government ministries, local authorities and police constabularies. In addition to the work in Vietnam, Zimbabwe and Uganda, MAAP has recently been installed in Nepal, Turkey and Fiji.

Prior to installation a database is configured to match the Accident Report Form and to customise the program for the

requirements of the local statisticians. In Vietnam, MAAP has been installed at six locations nation wide. In Zimbabwe MAAP was installed for a prototype stage at the Police General Headquarters and in Southerton and in Chitungwiza. A second visit is planned for later in the year to oversee the nation-wide expansion to over 40 installations at local police stations. In Uganda MAAP was installed at the offices of the Road Agency Formation Unit in Kampala.

TRL is at present preparing several new developments in MAAP for Windows. The new version will improve MAAP's ability to readily identify black spots and analyse clusters graphically on the mapping (GIS) display.



*The bustling streets of Hanoi.*

*Andrew Morrison  
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## COURSES, SEMINARS & WORKSHOPS 2000

### TRANSYT WORKSHOP 2 DAY WORKSHOPS IN OCTOBER

1st Course Date 3-4/10/00  
2nd Course Date 5-6/10/00

Course Fee £600  
(£540 Maintenance Holders)

### ARCADY/PICADY WORKSHOP

### 2 DAY WORKSHOP IN NOVEMBER

Course Date 14-15/11/00  
Course Fee £600  
(£540 Maintenance Holders)

### OSCADY WORKSHOP

### 1½ DAY WORKSHOP IN NOVEMBER

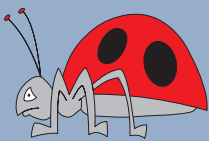
Course Date 16-17/11/00  
Course Fee £450  
(£405 Maintenance Holders)

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  
(Maintenance Holders £855)

All prices exclude VAT

## BUG BOX



NO BUGS  
TO REPORT

See Page 2 for  
ARCADY 5  
& TRANSYT 11  
installation note

## ANNUAL MAINTENANCE FEES

**Did you know that there are big savings to be made if you are a current ARCADY 4 Maintenance Agreement holder and you wish to purchase ARCADY 5?**

**For example – ARCADY 5 with ARCADY 4 maintenance cover:**

(Purchasers of ARCADY 4 between 1/1/99 and 31/8/99)

1PC Licence = £200      4PC Licence = £300  
Unlimited Licence = £400      Educational = £200

**ARCADY 5 without ARCADY 4 maintenance cover:**

1PC Licence = £750      4PC Licence = £1150  
Unlimited Licence = £1550      Educational = £750

Consider this!!! The annual maintenance charge is just 10% of the current software Licence fee (or £100 whichever is the greater), for UK Licence holders and 15% for overseas Licence holders. Not only can you make big savings on new versions of the TRL software range of products, the other benefits of our Maintenance Agreements are:

- Telephone Support Line, for installation and technical modelling advice.
- Supply of minor updates/modifications/improvements to the current versions at least once a year, if necessary, or on request.
- Corrections to major faults would be supplied as soon as available.
- Your Traffic Software Newsletter.
- Free attendance at Annual User Group Meetings, for one person.
- Discount of 10% on associated TRL Traffic Workshop places.

### 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

## TRL JUNCTION +

The complete TRL Traffic Suite of programs is now available to UK customers at a discounted price of £3,000 for a 1PC Licence, £4,000 for a 4PC Licence and £6,000 for an Unlimited Licence. All Licences are based on a single site and the prices exclude VAT.

Junction + is made up of the following software products:

**ARCADY 5, PICADY 4, OSCADY 4,  
TRANSYT 11 and BUNDLE**

Please contact the Software Bureau for further details.

## CURRENT PROGRAM VERSIONS

Visual PICADY 4 V4.02 AJ/2.1

Visual ARCADY 5 V5.00 AA/1.0

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 V1.2a

BUNDLE V 2.0

MOVACOMM V 2.6.0

MOVASETUP V 2.3

CONTRAM7 V1.2j

MAAP for Windows 3.2.1

SafeNET 1.02

PARC 2M & PARC 2P

## Who's Who in Traffic Software

### Graham Burtenshaw

Graham joined TRL in October 1997 with a Masters Degree in Physics from Leicester University. A key member of the Traffic Software Development Team, he is heavily involved in the development and maintenance of ARCADY, OSCADY and PICADY, including the recent launch of ARCADY 5. Graham deals with technical enquiries for these products and lectures at the software workshops.

Graham has also worked on various projects covering aspects of MOVA, as well as several other software products.



For further information about TRL software please contact :

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