



## TRL's software takes to the skies

In a unique move, TRL's CarShare Online software has made its own modal shift by entering the air travel market. In so doing, it has enabled Flightshare of Farnborough to offer the world's first private flight sharing club through a new on-line web portal, aimed at helping the world's famous ameliorate the environmental impact and cost of private jets.



TRL and CarShare Online have worked closely with Flightshare, who have consulted widely with private jet owners and operators, passengers and jet card holders, to establish a common sense solution to the problems associated with the use of private jets, including high demand, low supply and increasing costs. Currently jets fly empty 40% of the time, frequently flying to and from the same airports, on the same day and at very similar times, creating their own congestion and using up precious slots.

Last year in Europe alone, there were 710,000 private flights. An estimated 250,000 of these were empty positioning flights. Major events in the entertainment, social, sporting and business calendar are frequent examples which create a 'honeypot' effect of private aircraft around airports. Madonna and the Prince of Wales are just two of approximately 3,000 celebrity flyers who are being invited to join the world's first private flight sharing club, the Flightshare Private Members Guild. Last year, Flightshare were the first company to introduce carbon offsets to the European private jet industry.

Together TRL and CarShare Online have reconfigured not only the software profile, but emissions data and administration areas as well to tailor it specifically for air travel, not just in the UK, but throughout the world. Applying the software to another transport sector is evidence of how TRL can help organisations reduce their environmental impact.

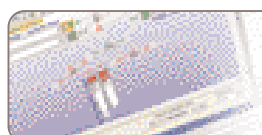
Chris Edge, TRL's Software Business Development Manager said; "The transference of the software to another transport sector was technically challenging and is a good example of how TRL can help organisations reduce their environmental impact. Being able to share flights in this way will help to eliminate waste in the private jet industry by utilising empty seats and by cutting emissions at source."

The CarShare Online software continues to expand throughout the UK as companies look to address the environmental impacts their business has and how they can reduce their carbon footprint. Having a CarShare Online scheme offers companies and their employees an opportunity to reduce car use, save money and make a real contribution to cutting emissions and road congestion. The latest version of the software includes elements to encourage walking and cycling as well as dedicated business journey and taxi share options to aid more sustainable business travel.

All organisations can take part in a free, no obligation trial of the CarShare Online software by contacting TRL's Software Bureau on **01344 770758**.




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# OAQ (Occasionally asked questions!)

This month we bring you a number of answers to some less often posed questions, but ones that are none-the-less still of interest to those of you who are using TRANSYT, ARCADY and PICADY.



## How does TRANSYT deal with inconsistencies between link entry flows and link total flow?

Typically the flows specified in TRANSYT can be inconsistent simply because they are often obtained from on-street measurements made at different times. TRANSYT automatically increases or decreases by the same proportion ALL upstream link entry flows so that their combined value is the same as the link's Total Flow (CT32 value). This effectively means that the upstream entry flows are not used directly within TRANSYT and are simply defining the PROPORTION of the total flow for that link that is coming from the specified upstream link, e.g. doubling all the upstream entry flows on a particular link would produce the same TRANSYT results.

TRANSYT works out what factor to multiply the total flow (CT32) on an upstream link by, in order to provide the downstream link with the right flow (based on the relevant proportion of the Total Flow for the downstream link).


If a link U flows into several downstream links TRANSYT checks to see if the flow to any individual link is greater than **twice** the total flow on link U and if so produces a warning message. See the example below:

e.g. This scenario (see diagram) would produce the following warning...

LINK 5 IS MULTIPLYING UPSTREAM FLOW ON ENTRY 2 BY 327 PER CENT

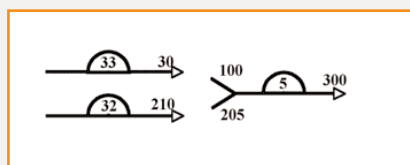
TRANSYT is multiplying link 33 total flow by 3.27 in order that it provides link 5 with the traffic flow it is expecting, i.e.  $100 / (100 + 205) * 300$ . N.B. The reference to ENTRY 2 in the error message is simply referring to the second defined upstream link of Link 5 (in this case Link 33) and is NOT a link number.

TRANSYT does not check to see if the sum of **all** flows out of U is greater than twice the reported flow on U. Therefore, whether a warning is given will depend on the total flow for U, and so it's possible that for a given downstream link D a warning may get written for some upstream links but not others. N.B. TRANSYT only stops a run and produces an **error message** (instead of a warning) when any upstream flow is scaled by a factor of 6000%!




## When collecting data for TRANSYT models by what method do TRL measure on-street SATFLOWS? Or is there an industry standard method by which this is done?

Road Note 34, which describes a methodology involving recording flow rates over 6 second intervals can be used. This is the method as used by the SATFLOW program available as part of TRL's "Traffic Engineering Software BUNDLE" Version 3.1 which works on Palm-OS (PDA) devices. RN34 requires a minimum of 12 seconds effective green to be useable. You may find you need to adopt a different method if saturation flow does not last very long.



An alternative is to measure all of the sat flow excluding the first two vehicles at the start of green, by simply counting the vehicles until satflow ends and then recording the length of time the recording was for. This method however has its drawbacks as it does not allow you to analyse the data for each 6-second period so you may miss the fact that you might be recording far too long in each cycle such that the flow has dropped below satflow.



**I am getting conflicting information regarding the measurement of cruise time/speeds. By definition cruise times in TRANSYT are undelayed travelled times and therefore there is a tendency for cruise time measurements to be undertaken usually during off peak periods (early morning or late evening) when there is virtually very little traffic on the network. However, as a result, measurements made at these times do not reflect existing traffic conditions. The problem I think is the interpretation of what represents undelayed travel time. Does undelayed travel time represent free flow under existing traffic conditions (even in peak traffic conditions) where there are no delays due to signals or queuing traffic? Currently, I am working on a model where cruise times have been measured on a very busy link during the off peak period (when there is free flow of traffic). The proposals improve traffic flow during peak periods but no changes have been made to cruise times since this is not expected to change. There has been a suggestion that cruise time in the proposed model should be modified on account of improved traffic flow in the proposed model. Should this be the case?**

Cruise times should not be changed to reflect improvements that simply reduce queuing and delay as the cruise times are already meant to represent free-flow conditions. However, if the improvements mentioned involve changes that impact on the cruise speed then cruise times should be re-measured. E.g. examples of this would be stopline-to-stopline distances changing, reduction of parked vehicles and changes in lane widths and introduction of any speed reducing features/street furniture etc. (as these all affect skin friction which affects speeds). Also changes in the mix of traffic (vehicles should be selected for measurement by a random process so that the resultant cruise speed or time reflects the mix of traffic) will have an effect.

Please note that the measurement of cruise times is best carried out during off-peak periods but should avoid very lightly loaded conditions as they will tend not to be typical.



**Mean Arriving Vehicle Delay wasn't in earlier versions of ARCADY or PICADY - why would we want to use it, or refer to it?**

Simply dividing the total delay experienced during one segment by the flow during that time segment is of limited use, as this value gives no indication of how long individual vehicles will have to queue. The **Mean Arriving Vehicle Delay (min)** is the expected average delay suffered by each vehicle arriving during a particular time interval. This value takes account of the fact that traffic may be queuing in more than one time interval and is therefore subject to varying traffic intensity levels. To manually calculate these values for each time segment would be difficult. More importantly, for someone who is unfamiliar with ARCADY and PICADY, the Mean Arriving Delay is **one of the most understandable outputs** as it represents the delay a driver will experience (on average) when negotiating the junction.



**Banned traffic movements - will they affect my PICADY results?**

Generally any movement that is NOT a controlling flow, e.g. a left turn from a minor road can be modelled by simply specifying that movement with zero flows. However any banned movement that another movement would ordinarily give way to WILL affect the results - Traffic giving way to a movement with no traffic on it, is not the same as banning that movement. Drivers have to check that they can proceed and that entails an element of delay which is a component of the queuing delay that PICADY calculates (and also part of geometric delay). This checking delay is absent if an otherwise controlling movement is banned. The good news is that, as this effect is not taken account of, your PICADY results will be slightly pessimistic rather than optimistic - That is, if PICADY could take account of it, the results would be even better.



**The traffic flows in my PICADY output file do not add up - the total demand from Arm C is not the same as the input for that arm - the total entering on this arm is smaller than it should be, and the proportion turning right is higher than I've specified. Can this be right?**

The flows DO add up. The confusion comes from the way the flows are labelled. The flows associated with streams C-AB and C-A are added together to give the total. C-A is NOT a subset of the flow on C-AB. Traffic arriving on arm C and leaving on arm A is split between the two streams. A proportion of this straight-ahead traffic gets blocked by right-turning traffic on the main carriageway and ends up in the C-AB stream while some gets through unimpeded and this remaining flow is in the C-A traffic flow - i.e. the flow is 'mutually exclusive'. The C-A traffic stream you will notice has no queue and no delay associated with it as it goes through the junction uninterrupted.

TRL software moves towards VISTA compatibility

The standard suite of TRL transportation software packages are moving towards compatibility with the latest Microsoft platform. As with CONTRAM, testing of ARCADY, OSCADY, PICADY, MOVA, MAAP, PCMOVA, STM and TRANSYT have so far produced no problems. The VISTA compatible software will be rolled out as maintenance releases in due course.



**Jim Binning**  
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# MAAP for Kosovo

The project to supply a modern road accident report database for Kosovo was won by TRL in 2006 and it is in its final stages of completion. Kosovo is currently administered by the UN after extremely serious conflict with Serbia in the late 1990s. Fighting and destruction were widespread and the region is still recovering from the conflict in which many were killed.

Kosovo had been an independent state within Serbia prior to the conflict and the majority ethnic Albanian inhabitants are currently seeking full independence through the UN.

The main client for this World Bank loan project is the Ministry of Transport and Communications, (MTC) Kosovo, but many of the tasks in the project have been carried out with the Kosovo Police Service (KPS). The KPS are responsible for collecting the crash data, entering the data into the computer and then passing the data to others involved in road safety, such as Ministry road safety staff. Thus KPS is the primary stakeholder, certainly for the operation of the crash database system.

In addition to Albanian, which is spoken by 90% of the population, materials and the MAAP menus have also been translated into Serbian, at the request of the KPS.

A new crash pro-forma was produced specifically for Kosovo based on crash forms used in other countries in the vicinity. KPS were fully and actively involved in this process. The requirement was for a form that is relevant for local conditions and that is short, easy and quick to fill in yet with enough quality information that can be used for road safety purposes. We think this difficult balance has been achieved.

The MAAP menu commands have been produced in both Albanian and Serbian in addition to English. This

was a major undertaking which required several thousand phrases and words to be translated with the help of Kosovan translators.

KPS personnel were trained in how to complete the new crash form in May 2007. Around 20 staff were trained. The staff found the new form easy and quick to fill in. Materials, including step-by-step guidance and a number of practical examples were produced in English, Albanian and Serbian. The form has been used by KPS since the start of June 2007.

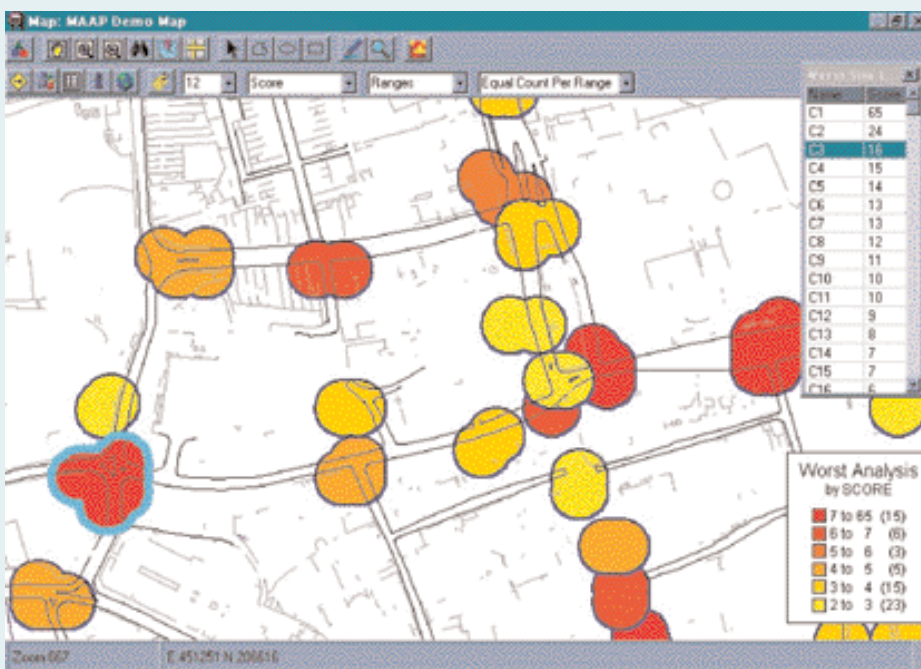
KPS personnel were trained in how to enter data from the new crash report form into MAAP in May 2007. Around 20 staff were trained using a number of pre-filled forms. Again the task was quickly learned.

Installations of the MAAP system and Databases have been made on 2 PCs at police Headquarters in Pristina and also at 6 locations on machines at regional traffic police headquarters.

KPIS (Kosovo Police Information Service) personnel received training in how to install the software and databases. KPIS moved several installations to PCs in other locations because the original sites were not networked, demonstrating their good grasp of the system.

KPS now have a fully working system of software/databases. Data entry has been tested, as has the exporting of data and all functions are working satisfactorily. The police in all regions should now be entering data into the MAAP system as a matter of routine.

TRL has won a further road safety assistance project together with WSP Group Plc and will conduct more training with the KPS to support MAAP as is necessary



EXAMPLE MAAP ACCIDENT HOT SPOT ANALYSIS



CRASH SITE OUTSIDE PRISTINA, CAPITAL OF KOSOVO

to over-come any teething problems in filling in the forms and also in entering the data into the database. We will also conduct more training with the staff of MTC and the Health Ministry amongst others. This training of the Ministry personnel will concentrate on how to use the MAAP system for the improvement of roads safety.

Kosovo is an extremely interesting and historic part of Europe. The country is experiencing a rapid increase in traffic currently which is leading to a worsening road safety situation. We hope that MAAP will help the country to identify specific road safety problems and also provide an easy way to monitor the impact of measures to improve the situation.

Our thanks go to Rame Qupeva of MTC, Colonel Goran Stojanovic (Head, Traffic KPS), Lieutenant Qamil Behrami and Captain Jeton Rexhepi and KPS staff for their involvement and support for the project together with the translator and local guide Blerim Gashi.

For further information contact Dr John Fletcher (jfletcher@trl.co.uk) or Sanjay Vadgama (svadgama@trl.co.uk)



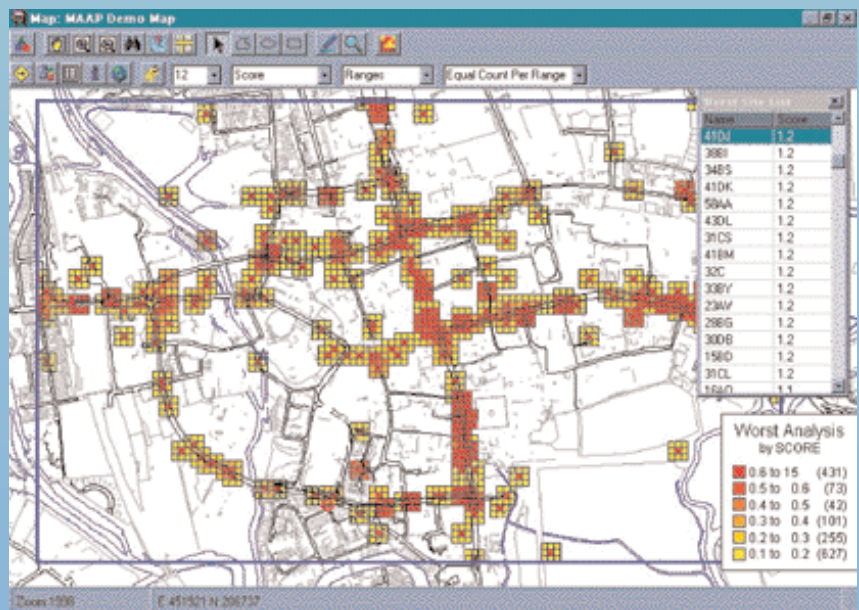
KOSOVO POLICE DATA ENTRY TRAINING

## New MAAP User Groups to be formed

Support for users of the accident analysis package is to be enhanced by the formation of user groups in the UK. The inaugural seminars are scheduled for the end of September 2007, providing users with the opportunity to learn more about the use of the software for promoting road safety. Users will gain synergy from interacting with other practitioners and sharing their work experiences and understanding of the software.

More user groups are planned on the international scale. MAAP has recently been successfully deployed for police forces in Eastern Europe and the Middle East, and has a world-wide user base.

If you are interested in attending the user group meetings please contact TRL Software Bureau on **+44 (0)1344 770758**, or see the web site <http://www.trlsoftware.co.uk/> as soon as you can (as there will be limited spaces available).



EXAMPLE MAAP GRID CLUSTER ANALYSIS

## CURRENTLY AVAILABLE PROGRAM VERSIONS

ARCADY	v6.0	AD/4
PICADY	v5.1	AD/4 <b>NEW</b>
PICADY Italia	v5.1	AD/4 <b>NEW</b>
OSCADY Classic	v5.0	AB/2
OSCADY PRO	v1.1	
TRANSYT	v12.1	AE/5

(All above have right/left capability)

BUNDLE	v3.1	Issue 4
CONTRAM	v8.3b	<b>NEW</b>
MAAP	v4.3.5	
MOVA SETUP	v6.0	
MOVA COMM	v6.02	
MTV	v2.1	
PERS	v2.12	
PCMOVA	v1.1.5	
SafeNET	v2.02	

# Release of CONTRAM version 8.3b

This release consolidates updates since the release of version 8.3a, the most significant of which are Windows VISTA compatibility, a substantial improvement in run time for some large networks thanks to streamlining of the route skimming procedure and provision of gap calculation, together with various enhancements to improve flexibility. There may be small differences in results from **8.3a**, especially for more congested networks. (For full details see Release Notes)

CONTRAM users running on VISTA should download an extra Microsoft component to allow them to view the

CONTRAM help file from <http://www.microsoft.com/downloads/details.aspx?displaylang=en&familyid=6ebcfad9-d3f5-4365-8070-334cd175d4bb>, which is the link to the Windows Help program (WinHlp32.exe) for Windows Vista. Since this is difficult to type in, contact TRL software bureau if you want this link emailed to you.

The gap is a commonly accepted measure of convergence which compares the costs of alternative routes. At dynamic equilibrium, these costs should theoretically be equal, making the gap zero. In practice there may be differences but the aim is to make them

as small as possible. Because gap calculation requires extra computation time, version **8.3b** offers several options that allow users to limit the calculation to selected assignment iterations, controlled via the **Run >Criteria->Assignment** template in the GUI. Some users were frustrated by clutter caused by long descriptive link names (as distinct from numeric link identifiers), which they may rely on for managing their network data. These can now be defined in three parts separated by a delimiter, e.g. Part1#Part2#Part3, with the option to display some, all or none of the name parts.

## Who's Who



**Pankaj Kale** comes from the cosmopolitan city of Mumbai in India. He has recently graduated with an MSc in Embedded

Systems from Heriot-Watt University in Edinburgh and joined the Traffic Group in TRL's Transportation Division. He has developed firmware for different microcontrollers, and has a keen interest in real-time computing. He has a first class BEng in Electrical and Electronics Engineering from Mumbai University. At TRL he enjoys working on MOVA, the signal control strategy researched and developed by TRL for isolated (uncoordinated) road traffic intersections. Pankaj has a passion for software development, but when not pursuing that, his hobbies include playing cricket and travelling.



**Dr. Sergey Skachek** joined TRL in 2007 from the Bristol Robotics Laboratory, where he developed a model of a distributed

manipulator, controlled by non-linear media. He has a BSc, an MSc in Physics from Moscow Power Engineering Institute and a PhD in Electrical Engineering from the University of the West of England. He also has an MA in industrial management and has been a researcher at a power generating company, optimising the economy of chain decommissioning of nuclear power plant networks. Currently he works on COBA (the transportation cost benefit analysis suite), adjusting it to the requirements of the Republic of Ireland. He is a keen water polo player.

### CONFERENCE ANNOUNCEMENTS

#### MANAGING THE ASSET:

DATE: Tuesday 9th October 2007, 10.00 to 16.00  
VENUE: TRL Crowthorne  
COST: £0 (Yes, it is free!)

#### "Managing the Asset: - a seminar for Local Authorities"

Experts from both TRL and the Department for Transport will talk about the background to and outcomes from recent work which has looked at three key aspects of particular relevance to asset management: **impacts of climate change on highway maintenance, sustainability in construction layers and materials and highway service levels**. More information can be found at [www.trl.co.uk/events/default.asp?pid=22](http://www.trl.co.uk/events/default.asp?pid=22) or email [conferences@trl.co.uk](mailto:conferences@trl.co.uk)

#### ROAD EXPO NORTH:

DATES: Wednesday 26th - Thursday 27th September 2007  
VENUE: Lancashire County Cricket Club, Manchester

#### ROAD EXPO SCOTLAND:

DATES: 31st October - 1st November 2007  
VENUE: The Royal Highland Centre, Lowland Hall, Ingliston, Edinburgh, EH28 8NF  
Tel: 0131 335 6200  
COST: £0 (Yes, they are also free!)

#### "Road Expo North - The road less travelled"

TRL experts will be talking on:

- Recent Extreme Weather - a portent for the future?
- Climate Change as a socio-economic issue
- Financial, Legal & political responsibility
- Engineers as providers of solutions
- Risk management

More information can be found at [www.road-expo.com](http://www.road-expo.com)

### COURSES, SEMINARS & USER GROUPS 2007

**Introduction to ARCADY/PICADY**  
Central London, 2nd - 3rd October

**TRANSYT Workshop**  
Central London, 9th - 10th October

**SCOOT Workshop**  
TRL, Berkshire, 10th - 11th October

**Introduction to OSCADY PRO**  
TRL, Berkshire, 16th October 2007

**Introduction to MOVA**  
TRL, Berkshire, 13th November 2007

**MOVA Workshop**  
TRL, Berkshire, 14th - 15th October 2007

**SAFENET Workshop**  
TRL, Berkshire, 27th November 2007

**MAAP User Group**  
Cardiff, Wales, 2nd October

**MAAP User Group**  
Edinburgh, Scotland, 27th September

**If you would like any more information on the items focussed on in this issue please contact us Email: [softwarebureau@trl.co.uk](mailto:softwarebureau@trl.co.uk) or Web: [www.trlsoftware.co.uk](http://www.trlsoftware.co.uk)**

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