Traffic Software News

Quarterly Issue No. 32. December 2004 www.trlsoftware.co.uk TRL Limited

ARCADY 6 – Released!

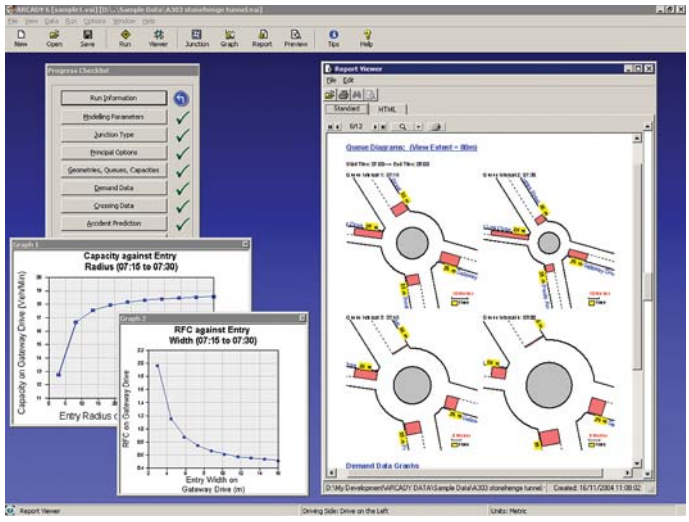
ARCADY, the internationally-recognised computer program for predicting capacities, queue lengths, delays and accidents at non-signalised roundabouts, has just got better!

The release of ARCADY 6 introduces a number of new major features. These are:

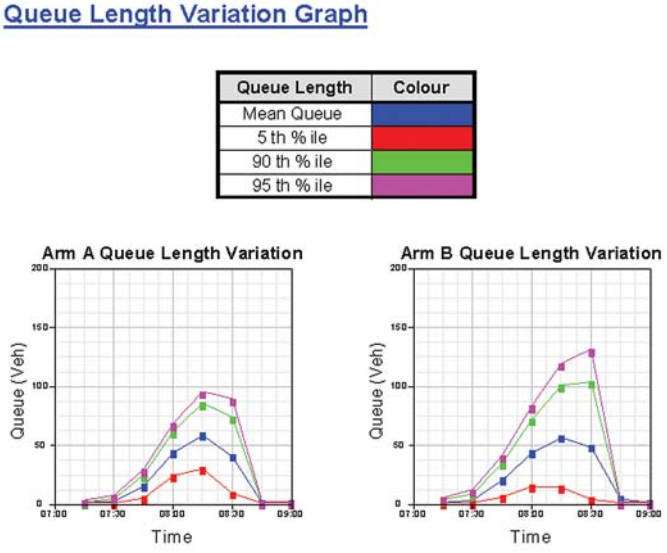
- A Report Designer
- A Graph Designer
- A prototype 3-D visualisation tool. (Bundled with ARCADY 6 for free!)
- Multiple demand sets
- Improved pelican crossing model
- Calculated (average) arriving vehicle delay
- Demand flow scaling factors
- Decimal or US Customary units

In particular, considerable work has gone into a complete overhaul of how ARCADY reports its findings. Not wishing to repeat what was reported in TSN Issue 30 we thought it best simply to illustrate the changes by way of a few pictures. So take a look…

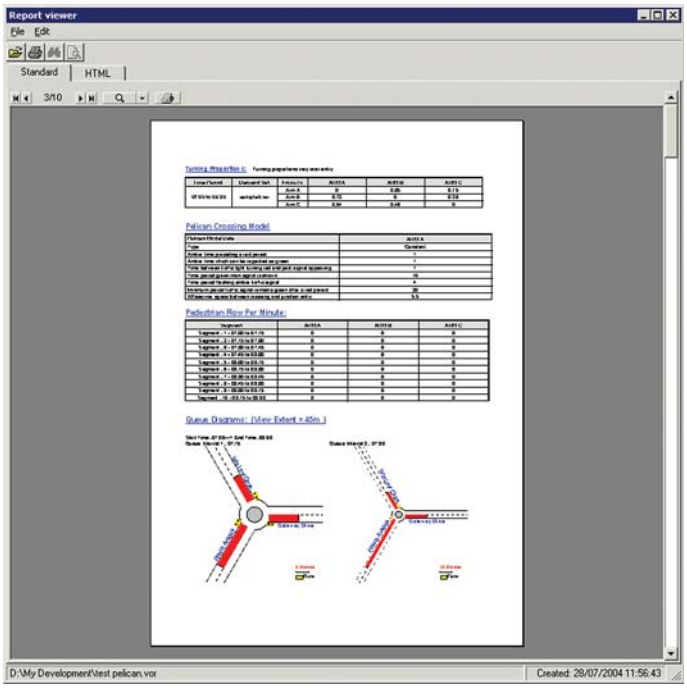
ARCADY has a powerful new facility called the 'Report Designer' from which user-defined reports can be 'designed'. It defines the content and the order in which these are presented.



ARCADY 6 – customisable reports, graphs, queue snapshots and more!



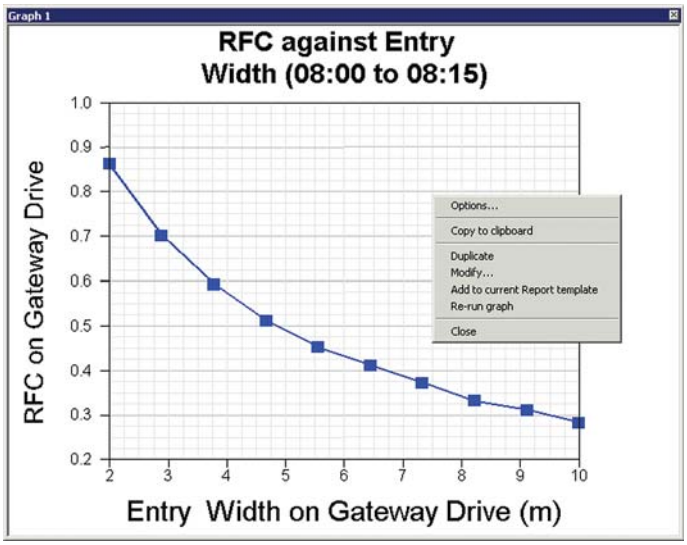
The new queue length variability graph – a huge improvement on the old ASCII output diagram



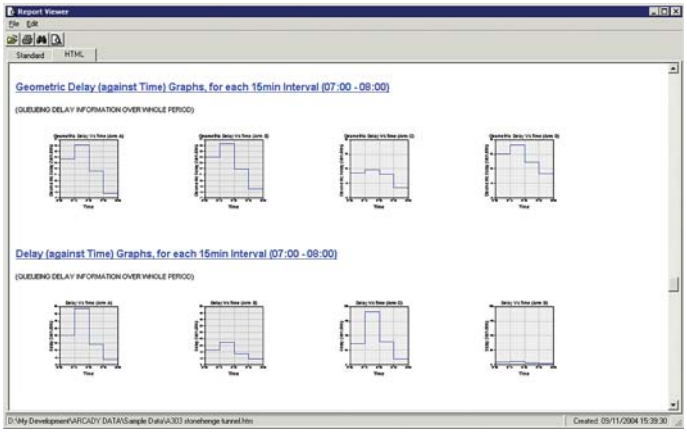
The Report Viewer showing one page of a report in 'standard view' – ideal for printing!

Software Bureau

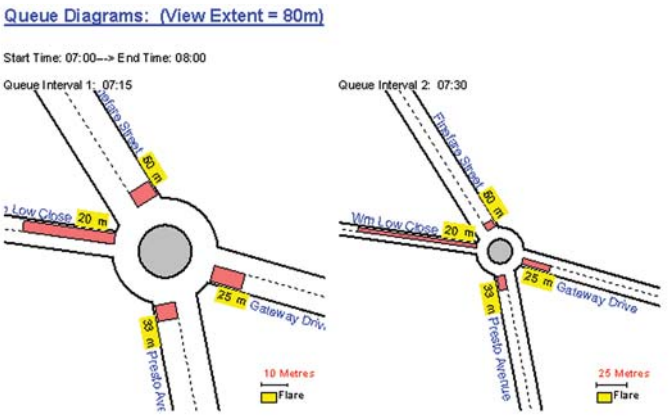
A MERRY CHRISTMAS TO ALL OUR READERS



Graphs like this (i.e. one parameter plotted against another) can be added to the report



The Report Viewer in 'HTML view' – ideal for copying and pasting individual components into another application such as a word processor



Queue snapshots are a great way of illustrating queue lengths in your report

The new release not only contains all the usual standard ARCADY tables (in a clearer form than ever before) but also includes many new graphs such as queue variability, and queue snapshots showing queues for each time interval.

The Report Designer is complemented by the Graph Designer that allows individual graphs to be plotted of user specified output results against certain input parameters. For example, plotting a graph of capacity against entry width will show you what entry width you might require to achieve a particular capacity. Furthermore the graphs can be embedded into the new ARCADY 6 graphical report.

Headers, footers, icons, user-defined graphs, standard ARCADY graphs, tables, annotations - You name it! It can be included in your professionally presented ARCADY report.

If you still feel the need to export the results into another application you can do so simply by cutting and pasting from the Report Viewer's HTML view.

Jim Binning
email: jbinning@trl.co.uk

Prototype Visualisation Utility

With the release of ARCADY 6, TRL has taken the opportunity to produce a prototype utility which allows the user to create a more realistic 'visualisation' of the roundabout layout, and create a 3D animation showing the roundabout in operation.

The visualisation capabilities of ARCADY to date have been limited to tabular reports and relatively simple animation facilities for understanding results. In this prototype, TRL is working towards a more 'realistic' and detailed representation of the junction and traffic operation. This will provide a more intuitive representation of ARCADY's results, which will help both traffic engineers and non-specialists understand the results better.

How the prototype Visualisation Utility works with ARCADY

There are three main components to the Visualisation Utility:

- The Visualisation Editor. This creates an image of the roundabout based on the main ARCADY geometric parameters: entry width, approach half width, and flare length. The Editor can then be used to add additional detail, for instance by adding hatching and splitter islands. The Editor allows the user to create a reasonable visual representation of the roundabout - full engineering accuracy is not intended at this stage.
- The Visualisation Simulator. Once the roundabout image has been refined, an animation can be created. This is done by running the Visualisation Simulator. The Simulator uses the demand and geometry data for the roundabout to generate vehicles and manage their paths through the roundabout as it runs through the ARCADY analysis period. Predicted queue and capacity data from the ARCADY analysis program are used to 'inform' the Simulator, allowing it to refine vehicles behaviour to match predicted queue lengths. Once the simulation is complete, a script file is produced, which can then be passed to the Visualisation Player to animate.

A roundabout animated by the prototype visualisation utility

Continued...

- The Visualisation Player. This can be used to play the animation of the roundabout created by the Visualisation Simulator. The Player displays the animation in 3D, and allows the user to position a camera at any point within the scene to view the animation. DVD-style controls are provided to play, pause, fast forward, rewind, and skip forwards or backwards to any point in the animation. This allows the user to view the queues at any point in the analysis period.

The prototype visualisation utility is the first such tool to be released by TRL, and is being included with ARCADY release 6. It should be recognised that it is currently experimental in nature, and should be treated as a **prototype for evaluation**, rather than as a finished product. To this end, TRL is keen to receive feedback from users so that the utility can be improved. If it proves to be successful, it may well be developed for other TRL software packages.

Ian Henderson,
Email: ihenderson@trl.co.uk

The 6th Annual Strategic Transport Modelling Seminar

TRL organised its 6th Annual Strategic Transport Modelling Seminar on November 4th at its new offices at Crowthorne House. This year's seminar was particularly successful and attendees heard a series of stimulating presentations from representatives of different sections within the broad strategic modelling community.

In looking forward to another Annual Seminar in 2006, we would like to thank our speakers for offering their time and effort to attend this year and make it such a success. Similar thanks go out to our attendees without whom we would have no event!

Andrew Ash
aash@trl.co.uk

Bug Box

PICADY 4.1: PICADY does not deal correctly with situations where a zebra crossing is assigned to a minor arm that is also defined as a "one lane plus flare". This is due to the way PICADY 4.1 distributes the lane widths based on the turning proportions in each time interval. The fault is indicated by PICADY suggesting that the capacity of the arm with the crossing has dropped to zero even when pedestrian flows on the crossing are very low. When a repair is available it will be announced via our monthly e-mail Software Bulletin and our website (www.trlsoftware.co.uk).

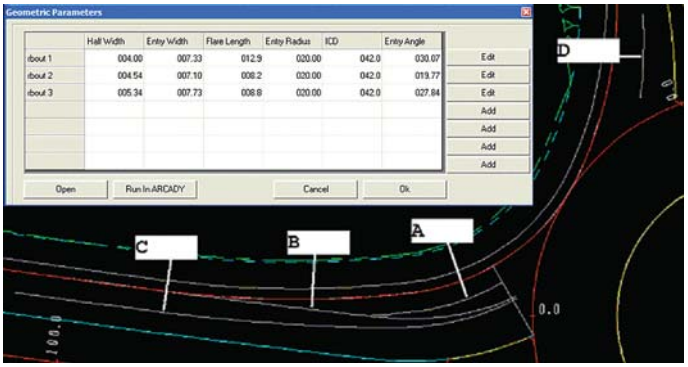
TRANSYT 11: A new release dealing with compatibility problems arising from the introduction of Windows XP (SP2) will be available shortly. Maintenance holders, can of course, request the update from the TRL Software Bureau for free when it is made available.

ARCADY MXROAD Plug-in

TRL has recently been collaborating with Bentley Systems to provide a closer degree of integration between junction capacity assessment and the highway design process. Bentley Systems are market leaders in civil engineering design, construction, and operation software, developing products such as Microstation and MXROAD. To make the roundabout design process more integrated, Bentley has produced an ARCADY plug-in for their MXROAD highway design package. This allows MXROAD users to generate ARCADY geometric parameters directly from roundabouts constructed in MXROAD.

Once appropriate 'strings' have been added to the MXROAD roundabout, the software will calculate the ARCADY geometric parameters, automatically generating an ARCADY input file. ARCADY can then be launched from within MXROAD to continue the junction assessment process.

For further information, see www.bentley.com or contact Ian.mcGregor@bentley.com.



ARCADY geometric parameters calculated by MXROAD using strings A-D

Ian Henderson
Email: ihenderson@trl.co.uk

Editorial

The future direction of mapping

We've thought for a while that the pan-government service level agreement for digital mapping was going to have an impact on the way that transportation analysis software will progress. Given the data-hungry nature of many models, it makes sense to populate data sets with readily available information from Ordnance Survey. We take heart too from the knowledge that OS are leading the way in setting European digital mapping standards which will help us to improve road safety and improve the efficiency of our transportation systems, as well as monitoring the environmental and economic well-being of the EU population. Please see OS web link: http:/www.ordnancesurvey.co.uk/oswebsite/business/sectors/transport/.

As an OS accredited data consultant and an OS developer partner, TRL are happy to offer our expertise to clients on issues concerning transportation and geographic information.

Dave Savage
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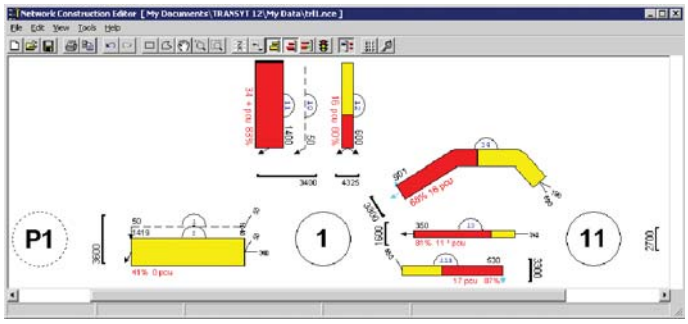
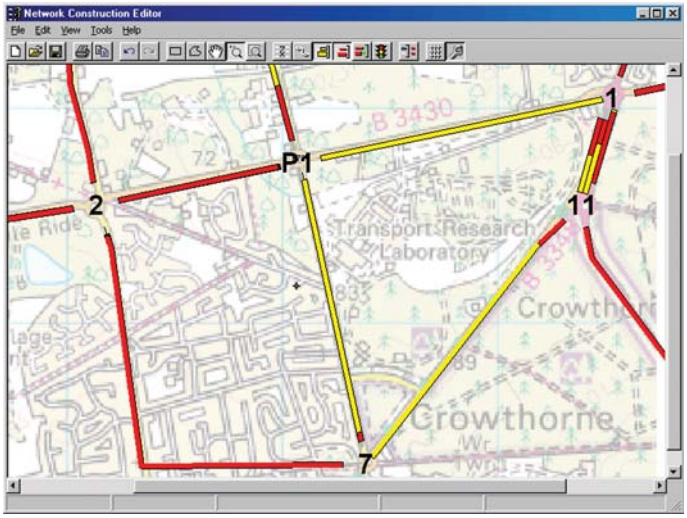
FAQ

This month's FAQ brings you a a special feature on TRANSYT's NetCon.



What is the 'Link Lengths View' for?

Normally, the NetCon diagram is a purely topological representation of the network. That is, it is simply a schematic that does not show any information relating to geographical position such as orientation and length. The Link Lengths View is intended to make use of the length data that is stored for each link, to show each link at its real length. In this view, a scale indicator is shown at the very top of the diagram, and all lines are drawn relative to this scale. (You can adjust the scaling via the Options screen.) This is not possible in the normal view, because there is usually much more 'clutter' on the screen in terms of stoplines, arrows etc. Clearly the diagram cannot show the physical sizes of the junctions, but you can set these globally by adjusting the Node Size option in the Options screen.



Link Lengths View (showing Mean Max Queues)

In TRANSYT 12 I have noticed that my changes to the satflow values in my data file are not reflected in NetCon. I have saved both the NCE and DAT files and closed down and re-opened TRANSYT and still the changes are not shown. What is going wrong?

BEFORE a run of TRANSYT, NetCon shows the input data file satflows – indicated with bracketing. AFTER a run of TRANSYT, NetCon displays the satflows as they appear in the OUTPUT file, NOT the input file, hence any changes will only be reflected in NetCon once a new TRANSYT run has been completed. The satflows of a particular link can, for example, be less than the satflow specified if there is oversaturation in any of the links feeding that particular link. The moral of the tale is – "If you are making changes to the data file remember to re-run TRANSYT before looking again at the NetCon diagram.

There is an 'Adjust Node Spacing' option, which makes all nodes more spaced out, relative to each other, but there isn't an 'Adjust Link Spacing' option. This would be useful for spacing out shared links, as they can be too close together by default.

Such an option was included in TRANSYT 12 AC, which was released as a maintenance update in June 2004. If you have a maintenance agreement you should have automatically received this update.

The link numbers and names are very small when the network is printed out.

We have added new options (Release AC) to allow the user to specify the sizes of several text items, to control the size on the screen and when printed. (The problem only becomes apparent when printing a large network. The network is scaled so that the whole network fits on the paper, but this results in all text items becoming very small.) We have also adjusted the default sizes.

Is it possible to print NetCon diagrams onto a plotter or large-sheet printer?

If you can print to the printer from any normal Windows program, you should be able to use it to print NetCon diagrams. Just choose the printer in the dialogue box that appears when you choose the Print option. If NetCon appears to ignore printer options, you can set them via the Control Panel in Windows, and set the desired printer to be the default printer. If you do have problems, you can copy the NetCon diagram (Edit menu, then Copy) and paste it into any image viewer, or a word processor, and print it from there. Note that, when using this technique, the quality of the pasted image depends on the zoom level of the NetCon diagram. The further you have zoomed into the diagram, the larger the pasted diagram and therefore the higher the quality.

The network diagram (NetCon) seems to redraw slowly, or responds jerkily to mouse movements.

If you are editing a very large network, the mouse response can be less smooth than when editing a small network. This is simply due to the increased number of calculations that have to be carried out for each redraw of the network. However, you can improve performance by turning on the "Only show basic items when dragging" option on the Network Appearance tab of the Options screen. This has the effect of only redrawing details such as text items when you stop moving the mouse. Editing the network in Link Lengths mode (switch via the View menu) will also be faster.

Depending on your PC and graphics card you may also find that reducing your graphics card's hardware acceleration gives an improvement. (This applies to any graphics intensive program, not just NetCon.) To do this:

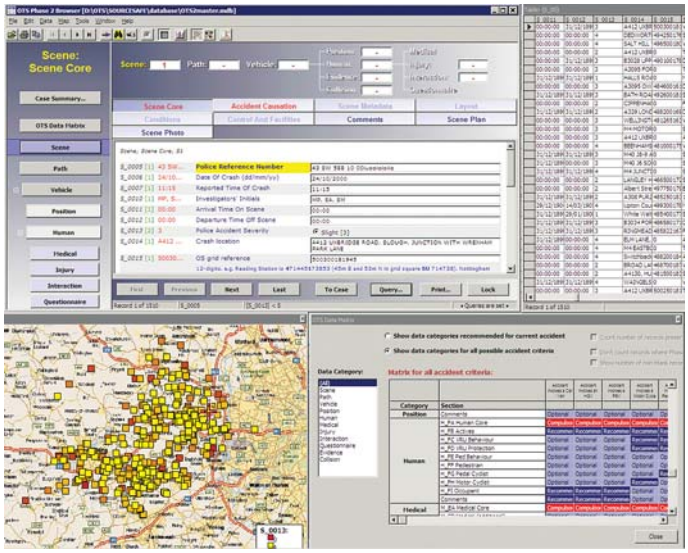
Minimise all open windows

- Right-click on the desktop and select "Properties"
- Choose the "Settings"> tab
- Click the "Advanced" button
- On the new window, choose the "Troubleshoot" tab
- The "Hardware acceleration" will probably be at the 'Full' setting. If so, reduce it by one or two notches, and click the –"Apply" button.
- Experiment with different settings to see their effect in Netcon.

Continued...

On the Spot (OTS) Browser

As part of our continuing close involvement with accident studies, we have recently completed a brand new, feature-rich software system for the On-The-Spot (OTS) project.



The OTS accident research project began in 2000 and is funded by the Department for Transport and the Highways Agency. Its aims are to establish an in-depth database that can be used to improve the understanding of the causes and consequences of road traffic accidents and thus aid the Government in reaching its 2010 road causality reduction targets such as reducing the number of people killed or seriously injured in Great Britain in road accidents by 40 per cent compared with the average for 1994-98.

As part of the project, expert investigators attend the scene of an accident **within 15 minutes of the incident occurring,** using dedicated response vehicles and equipment. There are two teams: TRL, covering the Thames Valley area, and VSRC (Vehicle Safety Research Centre, attached to Loughborough University), covering the Midlands. Together they study 500 crashes in depth, each year.

In contrast to other studies that are based on evidence gathered after incidents, or based on secondary evidence, OTS investigations allow vital **"perishable" accident data** to be gathered. This includes trace marks on the highway, pedestrian contact marks on vehicles, the final resting position of the vehicles involved, weather at the time of the incident, visibility and traffic conditions. Medical data and questionnaires are also collected.

OTS is an extremely important database as it contains a wealth of data that is not collected by any other UK accident investigation project. For each accident, there are nearly 2000 individual data fields that can be collected, ranging from Animal In Carriageway to Yellow Side Reflectors. Many fields have multiple options and in total there are almost 3600 defined options. Detailed descriptions cover injuries, collisions, interactions and avoidance indicators that suggest **how the accident might have been prevented**. Roughly half the fields have an associated causation probability. Add to this photographs of scenes and vehicles, movies of approaches to scenes (filmed from a police or OTS car and used to record road surface, bends, obstructions and visibility) and mapping data, and it is clear that a comprehensive, reliable and highly productive software system was required.

The new system, developed by TRL has now been released and is being used to study live accident cases. Features include:

- HTML web browser style presentation of data
- Integrated display of photos and movies
- Detailed accident location automatically looked up and displayed at a street-map level
- Any data field can be plotted on a schematic map using a built-in GIS system
- Accident 'matrix' assigns fields an importance according to accident meta-data (e.g. if 'Bad Weather' meta-data is set then the system highlights detailed fields relating to conditions, lighting and so on).

The OTS accident investigation team

The associated data input system is currently being developed and will allow users and managers to create cases, track their progress, carry out validation and dispatch cases to the live database. It is designed so that several investigators can simultaneously enter data at the roadside, using laptops connected to portable servers, with the data being synchronised to the master databases held at TRL and Loughborough.

Graham Burtenshaw, gburtenshaw@trl.co.uk

Can I actually build or construct a network using NetCon? The name 'Network Construction Editor' implies that I can use NetCon to build a new network. However, it only seems to let me view current networks.

The emphasis on the first version of NetCon was to design and develop a product that would produce a clear easily understood graphical representation of a network, and use this to visualise data such as signal states, queue lengths, link lengths and link connections. In future versions we expect to improve NetCon's interoperability with the rest of TRANSYT and to add a variety of additional features.

Having said that, it is possible with the current version to use NetCon as a useful aid in constructing a new network. As long as there is at least one node and one link to start off with, a network can be built entirely from within NetCon by double clicking on nodes and links to set their properties and adding new nodes and links. e.g.

Start a new file

- Add one node and one link (you can use arbitrary data values and change them later)
- Launch NetCon. You will see the single node and link - in close up! The link will be connected to implied entry (E) and exit (X) nodes unless you have specified otherwise.
- Double click the node or the link to access its properties
- If, for example, you now set the link's controlling node to the first node (which will be the only available option), and then click 'OK', the NetCon diagram will update to reflect the changes.
- Carry on making changes one at a time and confirm each time that the diagram looks correct.

It is still necessary to know the numbers of links in order to add connections. You can do this by reading the numbers from the screen. See future issues of the Software Bulletin and Traffic Software News for news of improvements and developments in NetCon.

Jim Binning, Email: jbinning@trl.co.uk

TRAINING COURSES, SEMINARS & USER GROUPS 2005

TRANSYT

2 DAY TRAINING COURSE
5th - 6th April 2005
Course Fee £500
(£450 Maintenance Holders)
if first fully booked, the 2nd course will be held on
7th - 8th April 2005

ARCADY & PICADY

2 DAY TRAINING COURSE
15th -16th March 2005
Course Fee £500
(£450 Maintenance Holders)
if first fully booked, the 2nd course will be held on
17th - 18th March 2005

OSCADY

2 DAY TRAINING COURSE
12th -13th April 2005
Course Fee £500
(£450 Maintenance Holders)

SCOOT

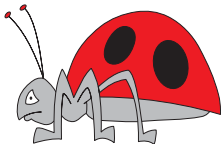
2 DAY TRAINING COURSE
10th -11th May 2005
Course Fee £700

All prices exclude VAT

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

Contact the Software Bureau

BUG BOX



PICADY 4.1

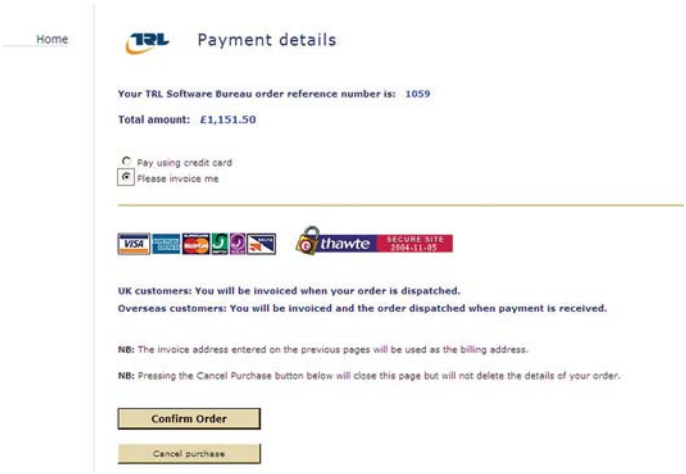
and TRANSYT 11

See page 3

TRL Software Website: *www.trlsoftware.co.uk*

Online ordering: invoicing option now available.

To make it even easier to order TRL software online, we have updated our website to include an 'invoice me' option. When you reach the secure payment screen, you can now either pay immediately by credit card, or choose to be invoiced when we dispatch your order. (NB for non-UK customers, we invoice you before sending the goods.)



Here's a quick reminder of the online ordering process:

1. Go to **www.trlsoftware.co.uk** and click on the **Buy** section
2. Click on the **Pricelist** and then click on each item you wish to order. Each item will be shown in your basket
3. Click on **Checkout** and enter your delivery address and invoice address (if required)
4. On the next screen you will be asked to choose between UK and International licenses and confirm that you have agreed to the terms of the licenses
5. You will then be transferred to our secure payment area where you can either pay by credit card or else simply submit the order.
6. Whichever method of payment you choose, we will send you a confirmation email and process your order in the shortest possible time (urgent orders can be processed within 1 working day). You will be shown an Order ID on the screen which you can use if you need to e-mail or telephone the Software Bureau about your order.

For more information, please see the help pages in the **Buy** section of our website.

Graham Burtenshaw
gburtenshaw@trl.co.uk

THE CHRISTMAS HOLIDAY

The Software Bureau will be closed from noon Christmas Eve until 9:00am on the 4th January 2005

CURRENT PROGRAM VERSIONS

ARCADY 6	V6.0 AA/1
PICADY 4	V4.1 AN/4
OSCADY 5	V5.0 AB/2
TRANSYT 12	V12.0 AC/3

(All above have Right/Left capability)

TPM	V2.1
STM	V4.4
BUNDLE 3	V3.0 Issue 2
MOVASETUP	V 4.0h
CONTRAM 8	V 8.2b
MAAP *for Windows*	4.20
*Safe*NET	1.03
PERS	1.1
MTV	V1.2.9

Who's Who in Traffic Software

Louise Marshall

Louise Marshall joined TRL in August 2004. She graduated in July with a first class BSc (Hons) degree in Physics from the University of Leicester, and has experience of programming in C and Visual Basic.

Louise is currently working on a DfT project, developing a new piece of software for the Truck Crash Injury Study (TCIS). This study will provide information to promote safer commercial vehicle design.

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