

MAAP for Windows

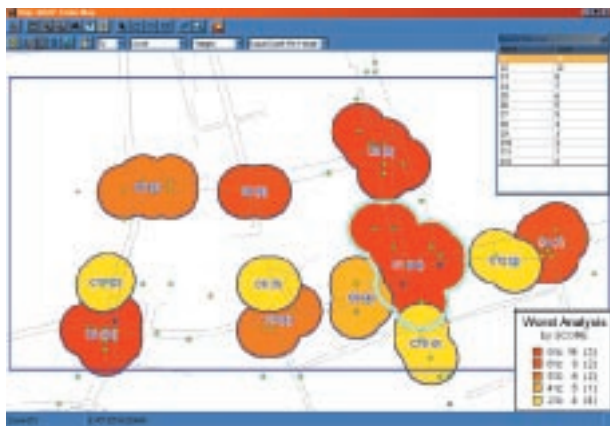
- Release of New Cluster Analysis and Stick Diagram Modules

TRL's road traffic accident data storage and analysis package, MAAP for Windows, has been in use for some time at a number of UK and international locations. TRL seeks to continually improve and refine all its software products. In line with this policy, and in response to UK Highway Authority customer requests, TRL has developed the latest version of MAAP for Windows. The recent additional features include cluster, density and site monitoring analysis modules, improved stick diagrams and several other minor improvements.

The new version of MAAP for Windows incorporating these new features will be released during September 2000, the 'beta testing' phase for these new modules having been completed during July and August.

Cluster Analysis

In the cluster analysis, searches are made for collections of geographically related accidents within a defined area. MAAP defines geographically related accidents as those lying within a user-defined resolution distance of each other. Within a cluster, each accident lies within the resolution distance of at least one other accident in the same cluster.



Cluster Analysis

MAAP counts the number of accidents in each site. This information is then thematically represented on the map and a list of the sites with the highest accident counts produced.

The value of analysing clusters is the potential for identifying common factors amongst groups of accidents that are physically close.

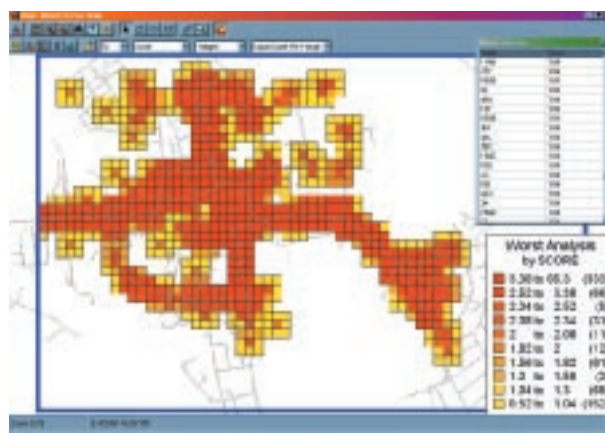
Density Analysis

Density analysis divides a user-defined geographical area into equally dimensioned squares. MAAP will then count the number of accidents in each square and thematically colour the map correspondingly. A list of the worst squares, i.e. the squares with the highest accident counts is produced and the accidents contained within the square can then be analysed further within MAAP.

In the example figure (top of next column), a rectangular analysis area of 5km by 3km (represented by the blue line) has been divided into 100m by 100m squares. The worst sites are shaded from yellow (fewest accidents) to red (most accidents).

User-Site Analysis / Monitor Site Analysis

MAAP can also be used to generate polygons that act as monitor sites. The boundary can be defined by the user and then saved and reused to monitor the particular area over a period of time.



Density Site Analysis

MAAP will determine which of the monitored sites has the highest accident counts and will rank the sites in order. In the example below, 5 monitor sites have been analysed. MAAP thematically colours the sites to give an immediate comparison of the sites.

Each of the analysis methods allows the user to weight accidents based on the accident severity. This gives the user an option to prioritise the accident scores within the analysis therefore influencing the final display.



Monitor Site Analysis

Display Criteria

Once the analysis has completed the user is given various options of display. The display is such that it gives the user many combinations of displays with or without labels. The analysis does not need to be rerun to change display settings, although it can be rerun at a click of a button to change the area defined, the sites used or accident weightings, etc.

- continued overleaf

Stick Diagrams

'Stick Diagram Analysis' offers the user the facility to view groups of accidents with each accident record being represented by a column or 'Stick' of information. By rearranging these 'Sticks', the accident investigator can often discover patterns in the accidents at a particular location, and thus identify underlying causes. The technique was first developed for analysing the factors in groups of accidents occurring at known bad accident locations, but it can equally be used for examining any particular group of accidents.

This feature has been significantly enhanced to provide the option of having 'pictures' or icons within the stick elements so that they are easier to view. Other work has also been completed to ensure robustness and flexibility with regards to viewing and printing.

The following example shows an analysis of accident trends at a major road junction. The stick elements can be sorted to identify any patterns that may exist (see next column).

Other Improvements

Other improvements to MAAP include:

- Upgrading of STATS19 validation, including on-line and batch validation
- Enhanced flexible printing of maps and data
- Improved export and import facilities in various formats
- Enhanced flexible Cross-tabulation using Data Dynamics Dynamicube™
- Usability of causation factors in query searches.



Stick Diagram

These new facilities have been primarily developed to meet the requirements of UK Local Government users, for whom MAAP should now be a particularly attractive and comprehensive accident analysis system.

If you would like further information about these new modules or details about the other new and improved features please contact TRL's software bureau (e-mail: softwarebureau@trl.co.uk).

**Ron Bartlett, rbartlett@trl.co.uk
Sanjay Vadgama, svadgama@trl.co.uk**



The fourth TRANSYT User Group was held on July 4th 2000. The day was highly successful with the attendees creating very pro-active discussion throughout.

The User Group is provided to our maintenance contract holders and the aim is to enhance the support we provide to our customers. The purpose is to provide two way communication between TRL and the users. We need to know your future requirements for the software, so the next versions can be relevant to your needs. Attendees were invited to bring examples and discuss specific issues and difficulties they have dealt with, on past or current projects.

One question was "How can we encourage more of our users to write articles for the TSN?". Time is precious and this is probably the main problem. However, it is a good time to mention that our line for

maintenance support is not just for dealing with issues relating directly to the software. We are happy to discuss briefly problems with your project or in the application of the software. With a little of your help we could present the issues to other users. Obviously we cannot do the work for you, although we can provide official consultancy if required. The main message we wish to get across is 'DON'T BE AFRAID TO RING' - we will help where we can. A transcript of the day is available on request by ringing the Software Bureau.

Also, how can we improve the User Groups - your day to have your say. A fax-back form is enclosed which we want as many users as possible to

Launching CONTRAM 8

CONTRAM 8 will be launched at this year's CONTRAM forum, to be held at TRL on November 7. Jointly developed by TRL and Mott MacDonald with support from the Swedish National Roads Administration, it includes ITS and matrix estimation modules. The ITS features model drivers diversion due to VMS and unexpected queues in the event of an incident, aiding the assessment of traffic management and signing strategies. The matrix estimation procedure updates a trip matrix to reproduce observed time-dependent flows and allows for weights to be applied to counts and prior matrix cells.

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TRANSYT Version 11.01

In addition to correcting the error described in the Bug Box, which does not affect the graphical interface, we are taking the opportunity to make a number of improvements including a new button bar. Full details of the changes will be documented in the README file supplied with the software. The Design Tips help file will be amended to include full details of the additional functionality.

TRANSYT's new button-bar

complete and return. The aim is to try to make the User Groups even more successful by attracting more users. To do

this, we need to understand more about what makes the days useful and valuable to you.

**John Peirce
jpeirce@trl.co.uk**

Modelling “bottlenecks” using dummy zebra crossings

Both ARCADY and PICADY programs make the implicit assumption that traffic suffers no delay or capacity restriction, except when they are having to give-way to other vehicles (or pedestrians on a Zebra). However, in some cases there may be bottlenecks elsewhere. One obvious example might be on an exit from a roundabout, which is unable to take all the traffic aiming for it.

In these circumstances, you can approximate to the effect of a bottleneck by using a dummy Zebra crossing in the model. Although a Zebra crossing doesn't have exactly the same effect as any other bottleneck on a vehicle-by-vehicle basis, over the longer term it should be a good proxy (the best available, anyway!).

The formula for the vehicular capacity of a Zebra crossing, as used in ARC/PIC, was first derived by J. D. Griffiths (Transportation Science, Vol 15, No. 3, August 1981). By using this formula (see below) you can fabricate a dummy Zebra crossing with any vehicular capacity you wish (i.e. that of the bottleneck) – the most obvious way of doing this is to adjust the pedestrian flow rate. If you are going to use this technique, it is advisable to create a spreadsheet based on this formula, particularly given the units (sorry!). There may be someone at TRL who might let you have a spreadsheet, in exchange for a pint of Wadworths 6X!

PICADY 4.1 (Revised flare model) – FREE to Maintenance holders

A new version of PICADY is currently being prepared and when finished, will be on its way to all customers who have current maintenance agreements.

The new version has an improved method of modelling flared minor roads, defined as those where traffic queues in two streams at the give-way line but in one stream further back up the queue. Using the new model is more straightforward than before. Although the total approach width at five different points must be specified (0 to 20 metres from the give-way line) there is no need to calculate the mean width, or to give separate widths for left and right turners.

The main internal difference from the old model is that PICADY takes account of the turning proportions when it distributes the available road space (and therefore capacity) between left and right turners. Naturally, this does not apply when there are specific dedicated lanes marked for each stream.

Existing PICADY 4 data files can be read into the new program, but the user will be asked to check the default approach widths the program chooses, and if necessary modify them.

Furthermore, the graphical interface has been brought up-to-date. Here is a list of the improvements:

- improved modelling flared minor arms
- updated context-sensitive documentation and Application Guide
- new feature-rich VIEWER program (Version 2)
 - with file comparison
 - automatic run comparison
 - search facility
 - automatic updating of displayed files (effects of data changes seen almost instantly)
 - other minor improvements to facilitate the analysis and interpretation of results.



Minor arm geometries in PICADY 4.1

Jim Binning, jbinning@trl.co.uk

$$C = \frac{U}{UB + (e^{UA} - 1)(1 - e^{-UB})}$$

Where :

C is vehicular capacity of Zebra crossing (Vehicles/Second)

U is two-way pedestrian flow on crossing (Peds/Second)

A is mean crossing time of pedestrian (Seconds)
(ARC/PIC assume a mean crossing speed of 1.2 metres/second)

B is mean time headway of vehicles when there are no pedestrians crossing (Seconds)

(the reciprocal of vehicles per second saturation flow)

e = 2.7183 (to four decimal places)

One problem is that the bottleneck generally applies to traffic in one direction only. For example, if you insert a dummy Zebra crossing on one arm of a roundabout because of an **exit restriction**, you will also affect the **entry** capacity on that arm. Fortunately there is an easy solution :-

Model the dummy Zebra as a two-stage crossing with central refuge. Make the distance between the crossing and the junction **exit** equal to the true value, but the distance between the crossing and junction **entry** equal to some huge number. In that way, the program assumes that the Zebra is a very long way from the junction entry, and therefore has virtually no effect on entry capacity.

Peter Webb, pwebb@trl.co.uk

BUG BOX

TRANSYT Version 11.0 (Release AC)

A significant error has been discovered in the analysis program supplied with Version 11.0 of TRANSYT. When using step sizes which do not represent a whole number of seconds (e.g. cycle time = 45 secs, and steps = 40) various values are being incorrectly calculated in the Prediction Tables.

The fault does not affect all the links to the same degree, but our tests have revealed that there can be significant changes to the degree of saturation levels reported for some links which obviously have knock on effects elsewhere within the network being modelled. Thankfully, when the fault occurs it tends to be fairly obvious. The majority of data files appear to be unaffected.

As a result, a new release of TRANSYT is being prepared (also see article on Page 2). In the meantime, any users seriously affected by this problem, please contact the help desk.

PICADY 4.1

The new release of PICADY will incorporate a number of bug fixes, including:

- Removal of a bug that could cause the software to crash when running under Windows NT/2000 with Internet Explorer 4.0 (or above) installed. (This was first mentioned in TSN Issue 11.) This also resolves compatibility issues between PICADY and ARCADY 5.
- Improved handling of network drives.

Various minor bug fixes to both the front end and the analysis program.

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

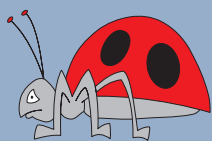
Course Fee £450
(£405 Maintenance Holders)

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



See Page 3 for
details on
TRANSYT 11.0 Rel. AC
and
PICADY 4.1



Modelling Bus Set-backs

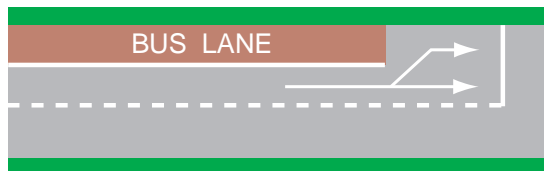
We often get asked how to model bus set-backs in TRANSYT so we thought a short explanation would be in order. The diagram shows the layout of the most common type of bus set-back, and it is straightforward to model.

The first important point to note is that two **separate** links should be used. It is not a case where shared links can be used as the two lanes have very different uses. You can still assign the bus lane as a bus link by entering a four-digit value in the cruise-speed/time field (of the format XXYY where XX is the cruise speed in km/hr and YY is the time spent at bus stop(s), including '00')

Next, the link for the other traffic takes the form of a flared approach, and can be modelled as such in TRANSYT. Decide how many vehicles, on average, will use the space between the end of the bus lane and the stopline; then estimate the saturation flow of the short lane or bay (TRANSYT is not especially sensitive to this value). Enter these into the TRANSYT model.

Finally, the start lag for the buses needs to be adjusted to take account of the time it will take (again on average) for the first bus to cross the stopline after the start of green. This will be the normal start-lag, plus about two-seconds for each vehicle between the bus and the stopline.

This is, of course, a straightforward example. We do know that other more complicated variations exist, even some with extra signals. If you know of other examples we would welcome a chance to look at them. If you have had to solve a complex example, please show us, or write your solution down so we can include it in a future edition of TSN!



Mark Crabtree, mcrabtree@trl.co.uk

**There is no such thing as a free lunch,
BUT this must be close!**

MAAP DEMONSTRATION AFTERNOON

**If you work with accident data, be it input or analysis,
then MAAP could be just what you need.
HOW DO YOU FIND OUT?**

Come to TRL at Crowthorne, we will give you a free buffet lunch followed by a demonstration of MAAP and a chance to evaluate the new features that we have added to the latest release.

**Monday 2 October 2000, 13.00 – 15.30
at TRL Crowthorne.**

Please contact our software bureau to book your place,
ring 01344 770758 or Fax 01344 770864
or e-mail softwarebureau@trl.co.uk

We acknowledge that TRL is a long way for those of you in the north of the country. TRL is considering running a similar event based in the north, please let us know if this would help you.

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 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



John Peirce

John has worked at TRL since 1973 and has a Degree in Aeronautical Engineering from Kingston Polytechnic. With over 20 years of experience in the field of traffic signals, junction design and control, roundabouts and MOVA, John has managed many major research projects within the UK for DETR, and has provided technical and traffic expertise and consultancy services in the UK and overseas. John was a founder of the TRL Software Bureau over 4 years ago and keeps close involvement with both Development Team and the Software Bureau.

For further information about TRL software please contact :

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