

SCOOT Version 4.4 soon to be released

The SCOOT Urban Traffic Control system is now operating in over 180 cities and towns world-wide. Since the first system was installed there has been a continuous programme of research and development to provide new facilities to meet the requirements of the traffic manager. In 1997 SCOOT 4 was released which, among other enhancements, included logic to provide estimates of vehicle emissions and to allow information from 'non-SCOOT' loops placed at or near the stopline to be utilised.

This was followed in 1998 with the release of Version 4.2 which included logic to improve the control of flared approaches and provide better recovery when SCOOT is overridden e.g. when a controller hurry call is used to provide priority to an emergency or Light Rapid Transit (LRT).

Version 4.4 is about to be released with the following improved features:

Enhanced gating logic

Gating is a technique used to control the flow of traffic into sensitive areas where it is important to avoid serious congestion. Queues can be relocated to a more acceptable location, perhaps moving pollution away from highly populated areas or holding back traffic so that buses can use bus lanes to 'jump' the congestion.

New developments allow gating to progressively increase the traffic restraint at successive signals along a route. Also the new logic allows for 'clusters' of junctions to be defined so that the

strength of the gating can now respond to the combined assessment of traffic conditions over an area of the network.

Differential priority for buses

Previously all buses requesting priority at a node were treated equally. Logic has now been introduced that allows different buses to be given different levels of priority. For example, the operator may decide to give late buses a high level of priority, whilst give very low priority to early or on-time buses. This strategy is particularly useful in helping to make services more regular.

Logic to allow emissions to be taken into account by the SCOOT optimisers

This improvement allows the operator to choose to let SCOOT optimise emissions levels. SCOOT will use its estimates of emissions to keep emissions levels to a minimum, hopefully decreasing the pollution in the area.



Other smaller improvements include:

- Logic to allow detector information from supplementary loops to be either added to or subtracted from the normal SCOOT loop.
- Provision of daily summary statistics on bus priority operation
- Option of removing nodes from the cycletime optimiser decision at cycle times above their required minimum
- Improved control of filter links in busy conditions
- Improvements to the split optimiser if a demand-dependent stage is not called

More information on SCOOT and the next SCOOT Workshop can be found on the SCOOT website (www.scoot-utc.com).

Kathryn Smith, email: kasmith@trl.co.uk

MOVA Development Group Launched

The formation of the MOVA Development Group was announced recently by TRL (see accompanying Press Release) on behalf of all the Development Group members.

MOVA has been commercially available for about 10 years, and there are now in the region of 500 MOVA installations. From being largely deployed on HA roads, it is now becoming more common on Local Authority roads, leading to an accelerating installation rate.

Until now, software maintenance and new developments have been financed internally by TRL, apart from major DTLR-funded facilities such as Bus Priority.

The MOVA Development Group brings together the major interested parties, DTLR, the HA, MOVA suppliers and TfL as a major user, as well as TRL, to organise future development work to meet the needs of the Group. A formalised development and finance process has been set up. The Group members contribute to development costs, adding about one man-year/year to the development resource available. The Group intends to produce a new release of MOVA each year. The MOVA User Group has accepted an invitation to appoint a representative to the MOVA Development Group, giving users a voice in the development process. One of the Group's first major objectives will be to simplify the complex process of setting up MOVA.



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Pedestrian Environment Review System

ITRL Limited has developed a Pedestrian Environment Review System for use in assessing the quality of pedestrian environments. The System assists users in identifying opportunities to improve pedestrian environments and supports the effective targeting of resources.

The Pedestrian Environment Review System is based on studies carried out on behalf of municipal authorities, in particular the London Borough of Bromley.

The system is particularly suitable for use in Town Centres but is sufficiently flexible to be used in all pedestrian environments.

Using the System

The Review System is based on the principle that pedestrian environments should be of high quality and should be accessible to all pedestrians, including those with sensory or mobility impairments.

In conducting a review it is necessary to assess whether the environment meets the necessary criteria of capacity, safety, legibility and quality. The assessment is carried out against a range of relevant headings, e.g. surface quality, lighting and conflict with traffic.

In order to ensure flexibility, the reviewer is required to assess each link and crossing within a pedestrian network. These can then be considered individually or combined to compare the

quality of routes between key trip generators.

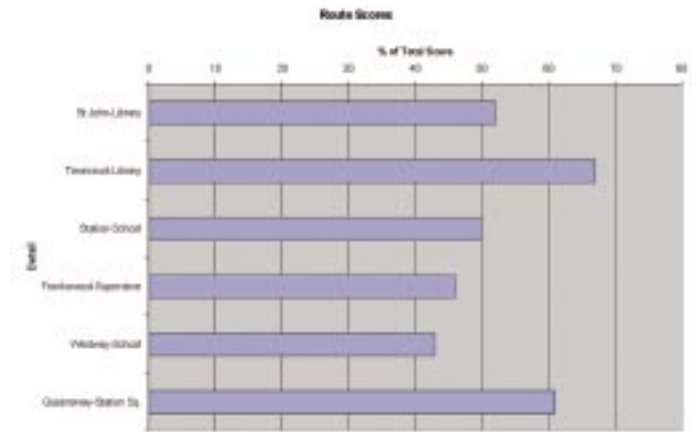
Conducting A Review

The reviewer collects information at desktop level and on-site. In reviewing the quality of the pedestrian environment qualitative information is gathered and a numerical score is assigned to each of the relevant headings.

The information gathered is then consolidated in the customised spreadsheet. Weighting factors are automatically applied to the range of scores that have been assigned.

The spreadsheet allows instant comparison between links, crossings or routes. This information is displayed graphically for ease of interpretation and presentation. The software allows comparison of overall scores or detailed performance of routes, links or crossings against the review criteria.

The spreadsheet enables the comparison of current conditions within a walking environment and of conditions before and after a particular development affecting the pedestrian environment has been put in place. The system can



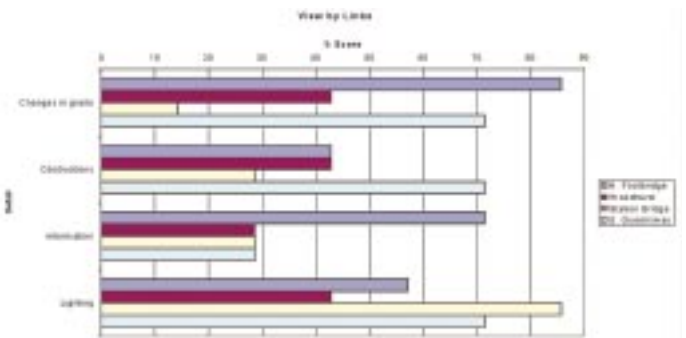
Relative overall performance of six routes

also be used as a model to assess the effect of a particular proposal to the footway.

Value of the TRL System

The system is fully PC compatible and is based on Microsoft

Excel. Reviews are quick to conduct and hence are a cost effective means of assessing the quality of individual links or of areas with results that are clear and easily presented.



Relative performance of four links against selected review criteria

TRL wish to acknowledge the support and contribution of the London Borough of Bromley in developing and piloting this system.

The TRL Pedestrian Environment Review System will be available to buy from Summer 2002. To register an interest, or for more information, email sreid@trl.co.uk or telephone:

Contact: Stuart Reid, email: sreid@trl.co.uk or Lynn Basford, email: lbasford@trl.co.uk

The Review System consists of three integrated components:

- A handbook for users giving guidance on the physical review
- Data collection sheets for use on-site
- Customised spreadsheet software to allow for rapid analysis and comparison of routes.

The TRL Pedestrian Environment Review System package will be available to buy from Summer 2002. A palm-top compatible version is currently in development.

Pain relief for security headache

Our copy protection system for ARCADY, PICADY, OSCADY and TRANSYT has been around for almost two years now in its current form. Although we realise there is "no gain without pain" when it comes to software security, i.e. it involves increased effort on the part of ourselves and our customers, we also listen to feedback and take action when necessary.

From feedback from our corporate users we realised there must be a better way to deal with security across networked personal computers. We are therefore pleased to announce that our latest release of ARCADY (v5.0 Release AD/1.1) includes both a 'Network Security' version, in addition to the standard 'Stand Alone' version.

The new Network Security version no longer requires every installation of ARCADY to be registered with the TRL software Bureau – Instead, a single network licence provided by the Bureau is all that is needed to allow a fixed number of users to access the network version of ARCADY.

Initially, we will be providing it only to 'Unlimited User' licence holders. As and when each of our other copy-protected products are re-released, network versions will become available, e.g. TRANSYT is likely to be next.

Jim Binning
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Modelling opposed right-turn movements in TRANSYT – Part 3

In the previous two articles on opposed right turn movements in TRANSYT (TSN numbers 20 and 21) I concentrated on approaches with single lanes. Now it's time to consider situations where there are two or more lanes on an approach.

'Standard' two-lane approach

Firstly, consider the situation where there are two lanes on an approach without 'bays' or flares, with an opposed right-turn movement. The main consideration is whether the offside lane will contain just right turners, or a mix of traffic. If the lane is marked for right-turners only, it would normally be expected to carry just right-turning traffic. A separate link for this movement would be required in this case. If, however, straight-ahead traffic is permitted to use the lane, then it is a question of how much right-turn traffic there is: light demand will allow straight-ahead traffic easier access to the lane, whereas heavy right-turn demand will discourage straight ahead traffic from using it. You have to decide, either by on-street observation or by some common-sense based calculation, what the mix of traffic on that lane will be. Where there is a high proportion of right turners in the offside lane, some straight-ahead traffic might be able to get to the front of the queue ahead of right-turners who might otherwise block them. The number able to do this (on average) depends on the proportion of straight-aheads to right-turners, and also on driver behaviour. But it might be enough to give a small increase in capacity which might be worth modelling with an increase in saturation flow for example. On the other hand, even if straight-ahead traffic is unimpeded by the right turners, the saturation flow will still be reduced as the right-turners divert and leave gaps in the traffic flow.

Having decided the mix of traffic in the offside lane, you need to specify the give-way parameters for the opposed movement. The way this is done was covered in the first article in this series – in this case we can (usually) effectively ignore the presence of the nearside lane.

Considering the opposition

Where there are two lanes on the approach with the opposed right-turn movement, there is a high chance that there will be two lanes opposing the right turners and these lanes might form two separate links. However, you can only specify one link as the opposing link in this situation. This might not be satisfactory; but there is a way this can be overcome. If you feed the traffic from the two (or more) opposing links into a single 'dummy' link, the dummy link can be specified as the opposing link (see figure 1). In some cases you may need to keep the flows into the dummy link separate in order to model them separately on the next links. This can be achieved by making the dummy link a shared link in which case only the main link needs to be specified in the give-way parameters. This automatically means the opposing flow is made up of the combined main and shared link(s). To ensure the dummy link has no undesirable consequences during optimisation, or on the performance index, it may be advisable to set the stops and delay to zero. The signal timings for the dummy link have to be the same as the two feeding links. This is to ensure that TRANSYT switches from using the give-way parameters to the signal control parameters at the appropriate time (usually when either an end-lag or an unopposed stage has been

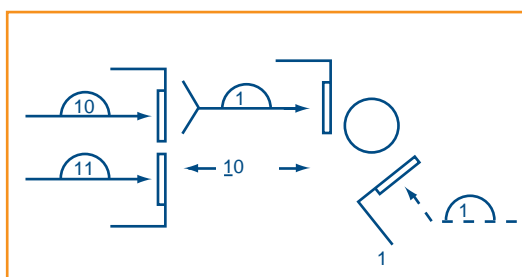


Figure 1 - Combining opposing flows

specified). Set this 'stub' link to 10 metres in length with a high (ie non-limiting) saturation flow. Ensure you look at the cyclic flow profile graphs to confirm that the model behaviour is satisfactory and understood.

When a right-turn bay is present

Sometimes, a multi-lane approach may have a right-turn bay. If so, you need to know whether the bay is large enough to store all of the right-turn demand or not. The previous article (part 2 in TSN 21) provided a means by which the queue length can be estimated.

Once you have decided whether the bay can cope with the demand or not, the link structure can be set. If the bay can cope with the right-turn demand, the approach could be specified as two, or maybe three links. Whichever way it is modelled, the capacity of the offside lane will be affected by the proportion of right-turners in the stream. The greater the number of right turners, the fewer straight-ahead vehicles in the lane. If the right turn is not especially critical, it would be possible to use three links, with the saturation flow of the 'middle' lane reduced in proportion to the number of right turners. The fact that right turners can then queue in their own link in TRANSYT, whereas in reality they might not all be able to reach the stopline, may not matter too much. If, however, the proportion of right-turning traffic is high (but still not enough to fill the bay) it might be better to model the situation as shown in article 2 with one link feeding two further links representing the bay and the adjacent portion of the main lane.



Figure 2 - Two-lane approach with right-turn bay - heavy right-turn movement

If the bay does fill up, it will effectively make the offside lane a right-turn only lane (see Figure 2). The main difference between this situation and the similar situation above (ie without the bay) is that there will be some space ahead of the point where the right turners divert into their bay. This extra space can be fully used by the straight ahead traffic (whether they actually use the space is another matter).

In many cases it may prove difficult to find an ideal modelling solution to your problem. However, with the application of common sense and experience it should be possible to find a solution that meets your particular requirements.

WORKSHOPS 2002

ARCADY/PICADY

TWO 2 DAY WORKSHOPS

1-2 & 3-4 October 02

Course Fee £500
(£450 Maintenance Holders)

TRANSYT

TWO 2 DAY WORKSHOPS

22-23 & 24-25 October 02

Course Fee £500
(£450 Maintenance Holders)

OSCADY

TWO 2 DAY WORKSHOPS

12-13 & 14-15 November 02

Course Fee £500
(£450 Maintenance Holders)

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

All prices exclude VAT

Contact the Software Bureau

SCOOT

A 3 DAY WORKSHOP

24-26 September 02

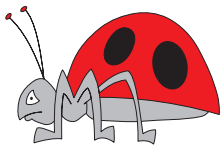
Course Fee £650

For SCOOT contact
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BUG BOX

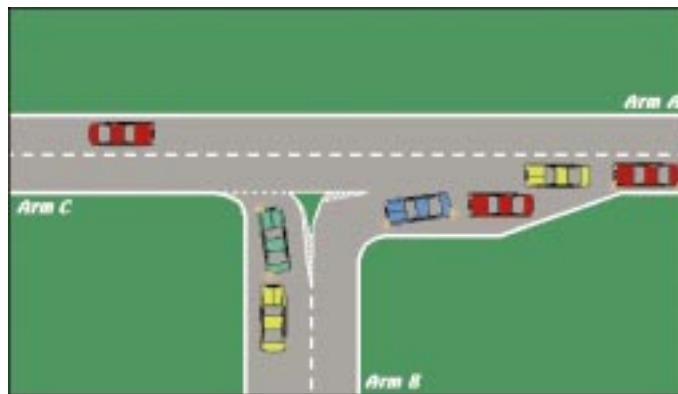


ARCADY 5

If you are currently using
Version 5.0 Release AB or AC
(check "Main Menu/Help/
About ARCADY 5") and are
planning to carry out accident
analysis on a mini-roundabout
please obtain the latest
Release 'AD' from the TRL
Software Bureau. This release
resolves a fault that prevents
analysis of this sort.

PICADY 4- Modelling a diverge lane for left turners into a side road

Drivers emerging from a side road are inhibited by traffic coming from their right and turning left into the side road, even though they don't have to give way to such vehicles. Drivers don't always signal left, and you have to be cautious even if they do. The inhibiting effect is **ROUGHLY** about 30 percent of the effect of traffic going straight ahead on the main road, i.e. the effect (on traffic emerging from the side road) of 100 PCU turning left into the side road is the same as 30 going straight ahead on the main road. This is modelled explicitly in the standard PICADY model.



On a diverge lane, which cannot be modelled explicitly by PICADY, it is reasonable to assume that the inhibiting effect of left turners will be significantly reduced. By how much depends on the geometry of the diverge lane, so there can be no hard and fast "rule". In an extreme case, if drivers entered the diverge lane 300 metres from the junction, and were physically prevented from leaving it, they would have no effect whatsoever on traffic emerging from the side road. Conversely, if drivers enter the diverge lane very close to the junction, their inhibiting effect may not be reduced very much.

To take account of the fact that left turners are using a diverge lane, you have to "manually adjust" the model. You should NOT adjust any O/D flows because these affect many different traffic streams, and are interactive. To adjust the model in this case:

1. Determine the sensitivity of Arm B capacity to the left turning A_B flow (by doing two runs at different flow levels)
2. You then know what capacity increase is equivalent to a reduction (or elimination) of left turning A_B flow.
3. Adjust the model by manually increasing the capacity of Arm B, rather than reducing the flow of A_B.
4. The capacity can be manually adjusted in several ways, but the most sanitary is to apply a site-specific intercept correction.
5. The value of the intercept correction needed can be calculated, but it is quicker in the long run to do it by trial and error. Carry out a series of runs until you get the Arm B capacity required (as determined by Point 2).

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CURRENT PROGRAM VERSIONS

ARCADY 5	V5.0 AD/1.1
PICADY 4	V4.1 AM/3.0
OSCADY 4	V4.02 AE/2.2
TRANSYT 11	V11.1 AH/1.4
<i>(All above have Right/Left capability)</i>	
TPM	V2.0
STM	V2.2b
BUNDLE 3	V3.0 Issue 1
MOVASETUP	V 4.0c
CONTRAM 8	V 8.1f
MAAP for Windows	4.12
SafeNET	1.02

Who's Who in Traffic Software



Laura Meikle

Laura recently came to TRL after graduating from University College London with a 2:1 BSc in Computer Science. Her main programming language is Java, but she is currently learning Visual Basic on the job.

Laura also has experience of building websites, using Java, HTML, Javascript, and Flash.

Laura has joined the software development team and is currently updating Oscady 4. She is also working on a project on factors influencing trip mode choice.



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