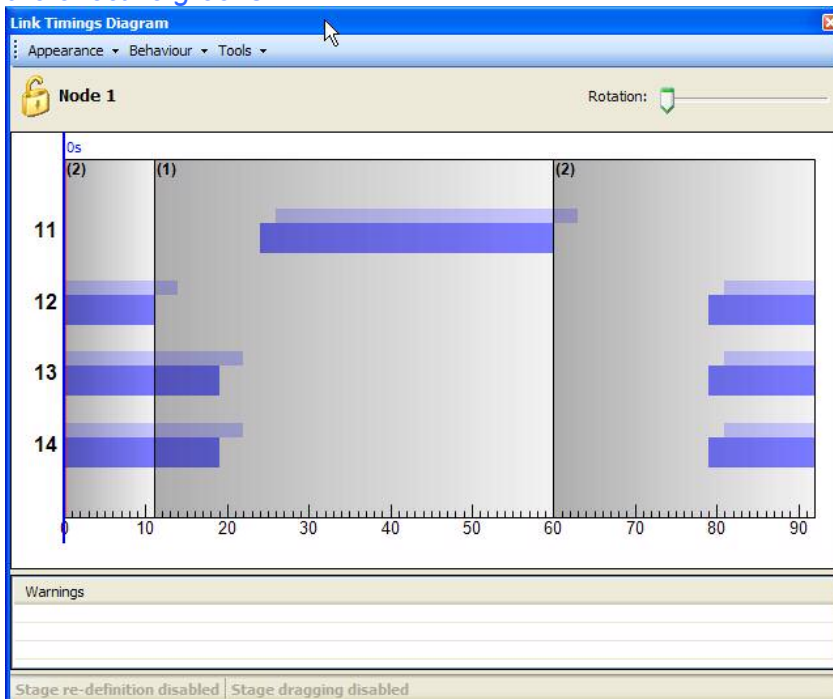


New signal timings modes

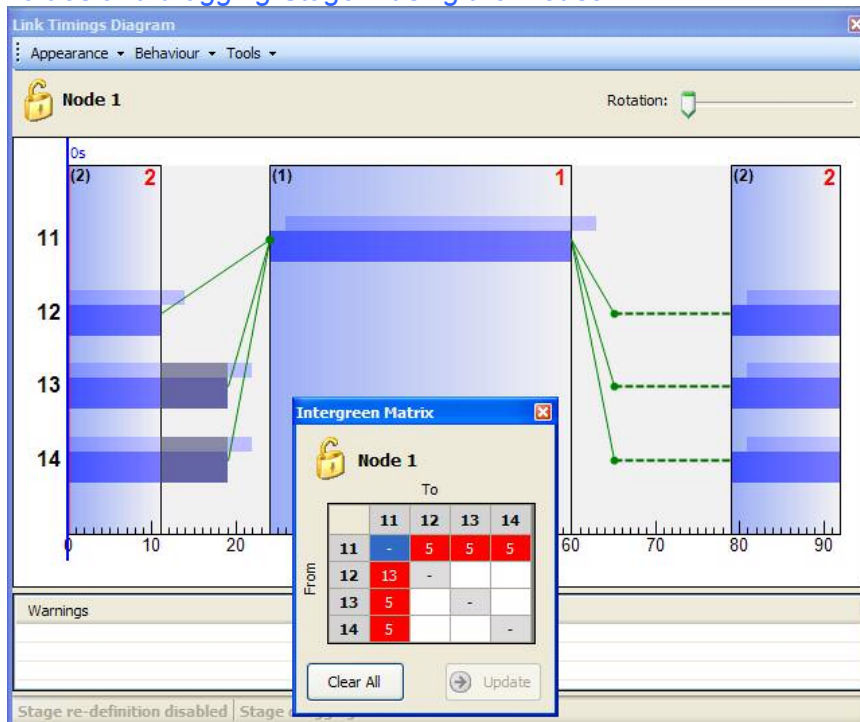
TRANSYT has historically used its own approach in the definition of signal timings, requiring the user to calculate and enter items such as preceding interstage values and link start/end lags. TRANSYT 13 retains this system for compatibility purposes, but also introduces a new mode where the user can work directly with standard stage and link/phase timings. The user can switch between the two modes at any time. TRANSYT 13 also introduces a new Link Timings Screen which shows a graphical depiction of signal timings and which, in the new signals mode, is fully editable. Other features include:

- New Intergreen Matrix screen lets you enter link-link intergreens. Interstages and other data items are calculated automatically and timings are optimised to satisfy intergreens and other constraints.
- The new mode uses standard stage starts/ends and losing/gaining delays as an alternative to link start/end lags.
- Effective greens can be controlled explicitly using network-wide and link-specific start/end displacements. The diagram optionally shows both actual AND effective greens
- Graphical visualisation and editing modes make data entry much easier and less error-prone
- Timings can be pasted from a spreadsheet into the editing screens

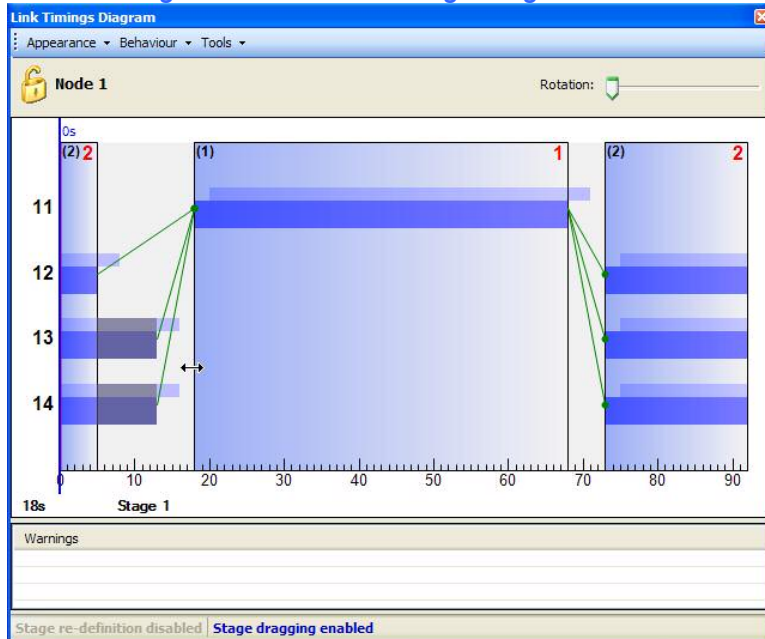
Link Timings Screen in v12 compatibility mode. Dark blocks are actual greens; light blocks are effective greens.



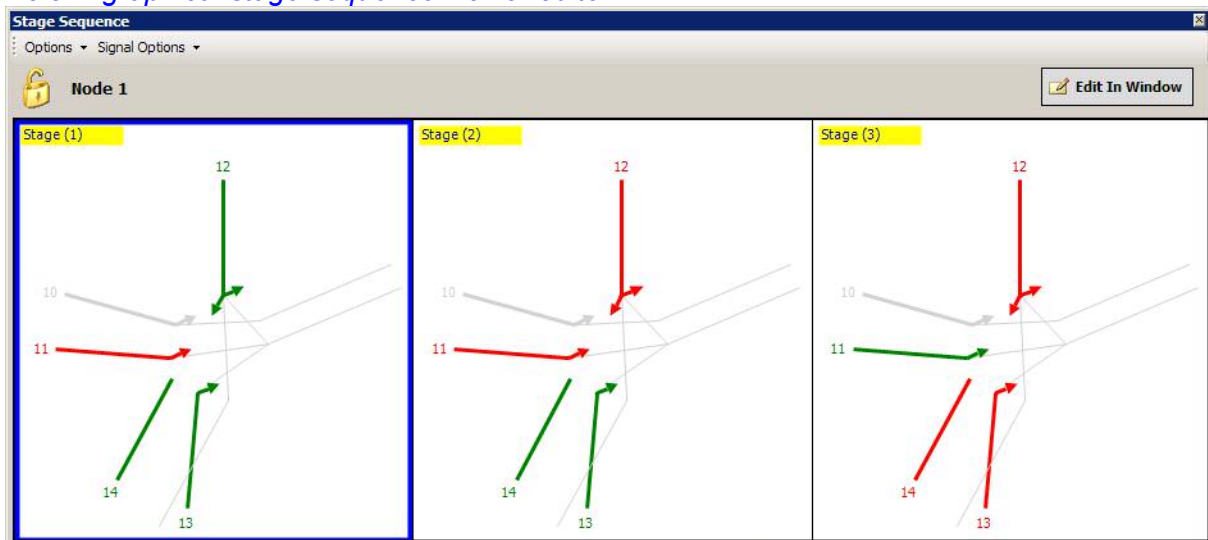
The same timings using the new TRANSYT 13 mode and after adding some intergreen values and dragging Stage 1 using the mouse



After running TRANSYT. The stage lengths have been maximised.



Below: graphical stage sequence viewer/editor



Time-varying flows, Analysis Sets and Demand Sets

Another major addition to TRANSYT 13 is the ability to model time-varying flow profiles (as found in ARCADY, PICADY and OSCADY PRO). This requires that queues that have built up in one time-slice are passed on to the next, requiring time-dependant queuing (hence delay) to be accounted for. TRANSYT 13 will optimise timings based on the varying flows, allowing the flow variations to propagate through the network and the results for each time segment calculated, along with overall average values. Each link can have its own varying profile (or indeed not have one at all).

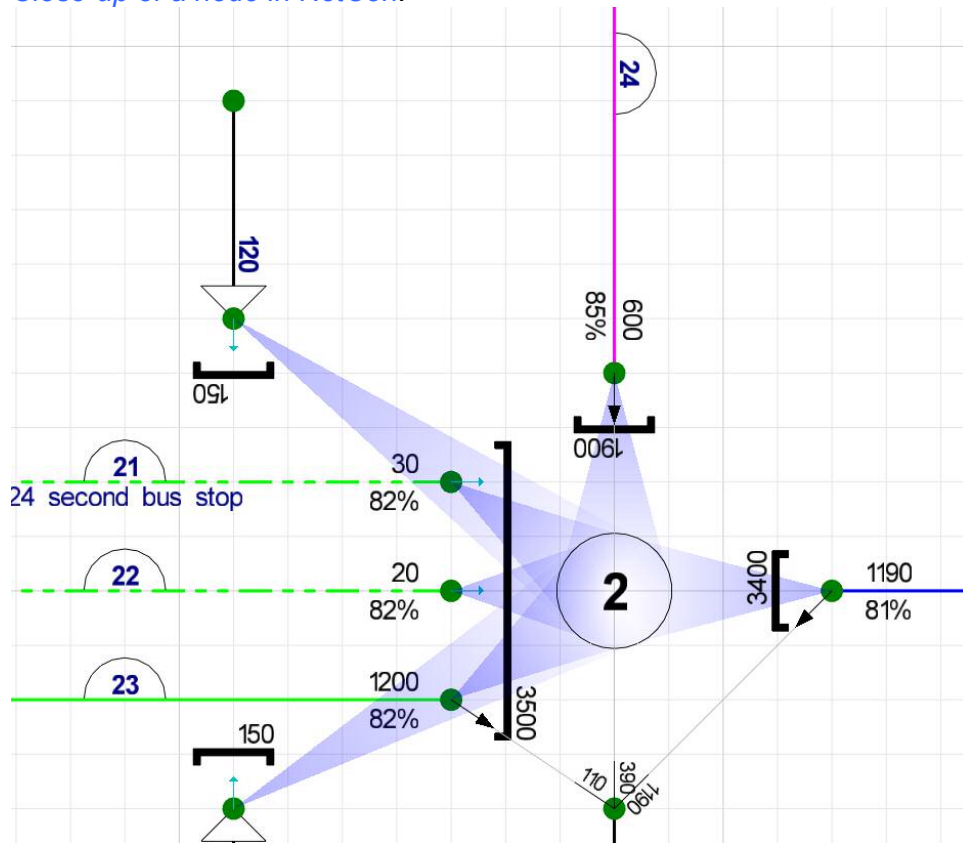
Different modelling scenarios can now be stored within a single file via one or more Analysis Sets. Different flow sets can also be stored, independently, within the same file via one or more Demand Sets. Within each Demand Set, each entry link can have its own time-varying flow profile applied, so that varying flows throughout, e.g., an AM peak, can be fully modelled.

Other new modelling features

TRANSYT 13 includes a number of additional new modelling features, including:

- Explicit identification of pedestrian links
- Explicit identification of tram links
- Ability to enter custom parameters (stopping, dispersion etc) for bus and tram links
- Improved optimisation
- Improved opposed-right turn give-way model
- Each signalised link is now associated with a signals node, and, independently, a traffic node. This separation in TRANSYT 13 allows certain special cases to be modelled in a more straightforward way.
- As well as double-cycling, nodes can now be triple and quadruple-cycled, and each link can have up to four green periods.
- New outputs, including un-weighted P.I., wasted time, end-of-red/green queues
- All outputs available for each link as well as the entire network – e.g. fuel consumption figures are now shown for individual links
- Various data ranges extended to increase the scope and usefulness of TRANSYT, e.g. number of upstream links and shared links increased and maximum cycle time extended.

Close-up of a node in NetCon.



TRANSYT 13: the GUI

Brand new Graphical User Interface (GUI)

The GUI has been entirely rewritten for TRANSYT 13 and provides a greatly improved, highly interactive, feature-rich and intuitive way of entering data, managing files and visualising results. Main features include:

- Data Outline/Data Editor allow access to all data at any time in a consistent manner
- Powerful and flexible Data Grids allow views of nearly all data in a grid style, including combinations of input and output data. Grids can be filtered and sorted in numerous ways by a variety of built-in methods, and at any time show the overall average/total of all relevant results; if this is not enough, there is also a query-builder system. For example, you could use grids to show data and results for all bus links over 50m in length and the total PI and fuel consumption on those links.
- 'Copy and paste' Data Grids to and from spreadsheets
- Integration between data screens and NetCon: click on any item or a set of data-grid rows and see those items light up in NetCon – and vice versa.
- OSCADY PRO style interface: the user can work with any number of windows and can enter data in any order
- TRANSYT 12 style screens for those who like the TRANSYT 12 way.
- Dynamic Task List – shows any problems with the file at any time – these are also highlighted and colour-coded in NetCon
- Work with multiple files at the same time
- Data field finder – helps out if you forget where a data item lives
- Printing/copying of most screens
- Undo/redo any operation
- Auto-run mode – the TRANSYT model can automatically re-run every time something changes
- Summary results screen – main network performance metrics can be made to be always visible
- Link flow consistency checker – highlights any inconsistencies between link source flows

A data-grid showing main data for all links

Datagrid, showing Links (18 / 18)

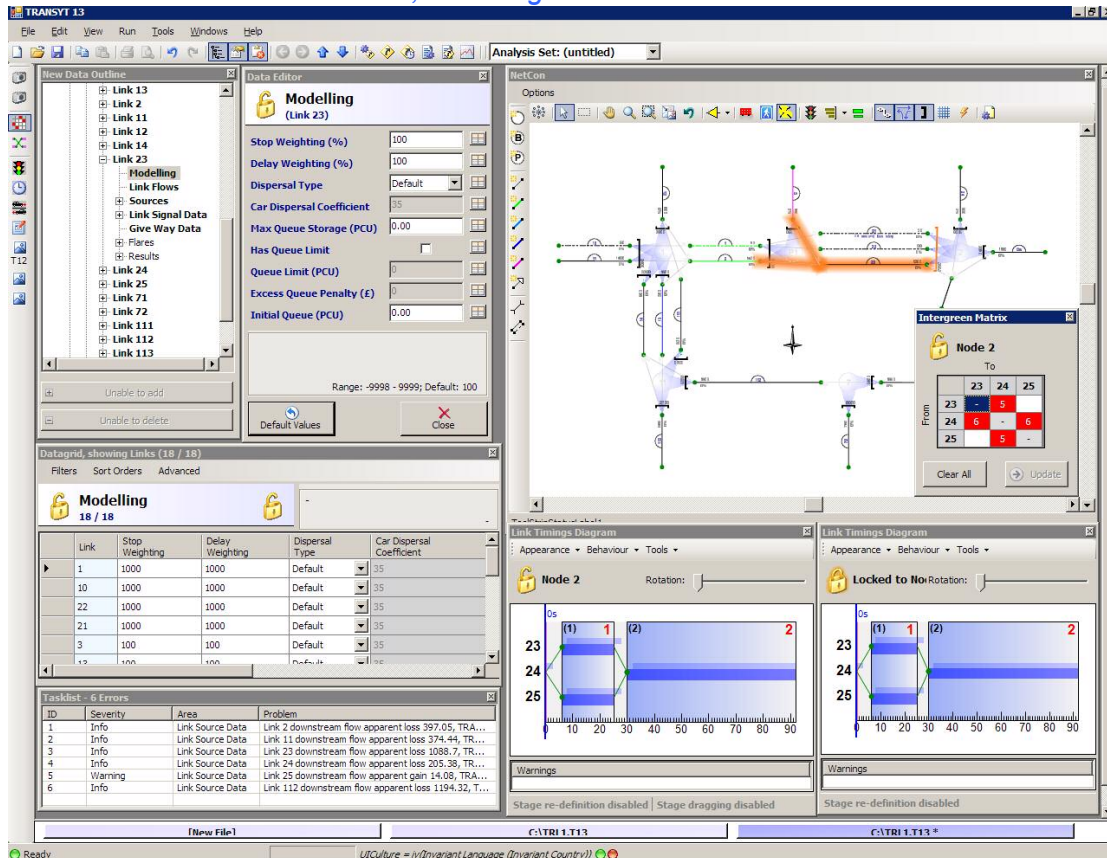
Filters Sort Orders Advanced

Link 18 / 18 Range: Yes/No; Default: False

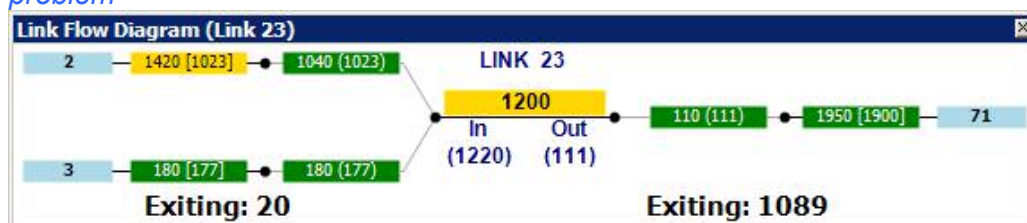
Tick if this link's TrafficNode and SignalNode are different. Please see the User Guide for details.

Link	ID	Name	Descripti	Saturation Flow	Length	Link Control Type	Traffic Node	Signals Node	Separate Signals Node	Is Give Way Link	Is Pedestrian Link	Is Minor Shared Link
1	1			3600	80.00	Bottleneck	P1	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	10			3400	100.00	Signalised	1	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
22	22			3500	230.00	Signalised	2	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
21	21			3500	230.00	Signalised	2	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	3			150	100.00	None	P1	N/A	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	13			1600	95.00	Signalised	1	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	2			3600	80.00	Bottleneck	P1	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	11			3400	100.00	Signalised	1	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	12			3200	100.00	Signalised	1	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	14			3300	95.00	Signalised	1	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	23			3500	230.00	Signalised	2	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	24			1900	100.00	Signalised	2	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	25			3400	100.00	Signalised	2	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
71	71			5400	260.00	Signalised	7	7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
72	72			8000	100.00	Signalised	7	7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
111	111			3300	90.00	Signalised	11	11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
112	112			5200	160.00	Signalised	11	11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
113	113			2700	100.00	Signalised	11	11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Example screen-shot of the new fully-integrated and fully-interactive GUI, showing a selection of the available forms, including NetCon.



Link consistency screen, showing the inflows and outflows of any link and highlighting any problem



Other features and improvements

- TRANSYT 12 compatibility mode
- Saturation flow calculator using lane geometry (RR67 method)
- Import TRANSYT 12 data files
- Import TRANSYT 12 NetCon data
- Import TRANSYT/11 data files
- Works with any units of cost
- Most items, including nodes and links, can have a name and description attached – not just a numerical ID.
- Choices of speed and distance units

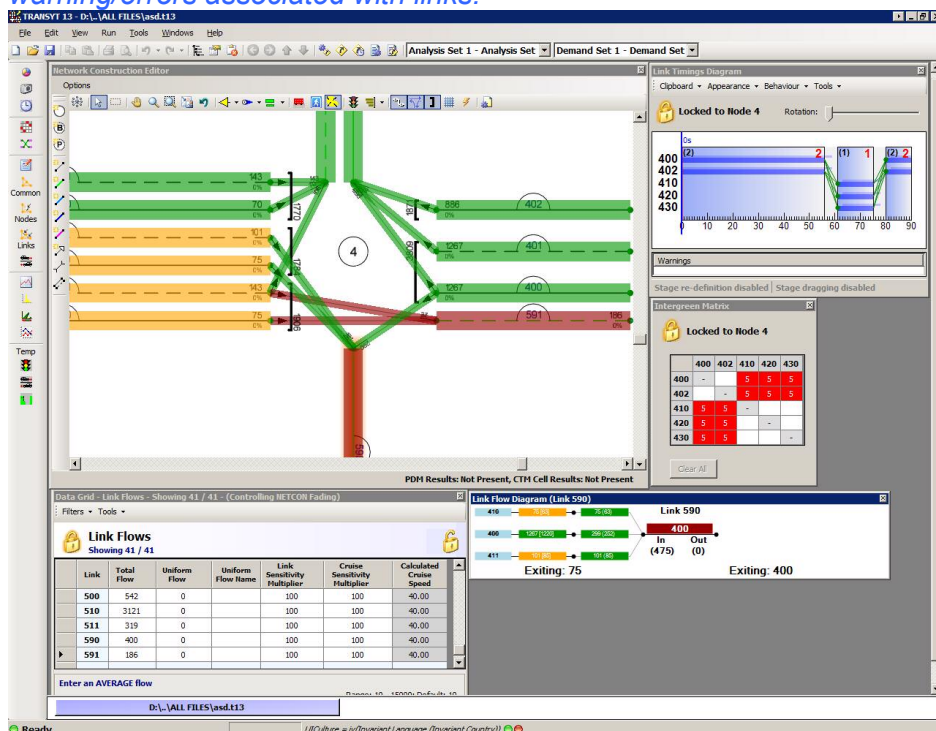
TRANSYT 13: the Network Construction Editor (NetCon)

Brand new Network Construction Editor (NetCon)

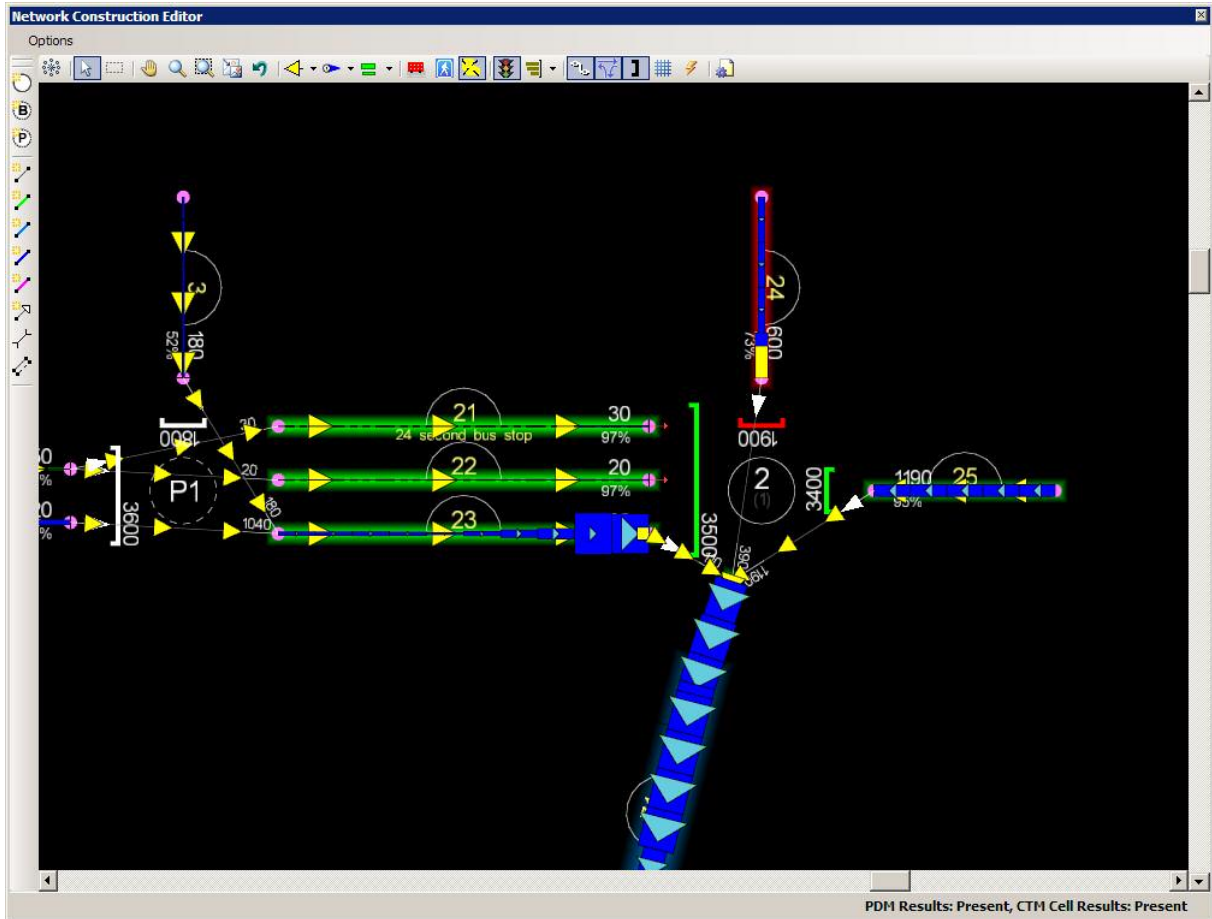
NetCon has been completely rewritten for TRANSYT 13 and, like the rest of the GUI, is now much more flexible and more fully integrated with the rest of the program. For the first time, you can build a network from scratch using NetCon.

- Drag in nodes and links from the toolbox into the network diagram, then use the intelligent connector tool to link them to nodes and other links
- Toolbox includes priority nodes, bottleneck nodes and all link types
- Diagram clearly shows different link types (pedestrians, give-ways, bottlenecks etc)
- Upstream links (sources) are separate items that can be manipulated
- Links can be colour-coded to show any warnings or errors, including flow consistency checks: as you correct them, they turn green
- Clearly shows which node controls each link
- Can calculate the shortest route between any points
- Animation of effective greens, upstream and downstream links
- Animation of signal states
- Highlighting of different parts of the network (e.g. bus links, routes, or any other user-defined subset)
- Depiction (using colour or width) of various data items including traffic flows
- Depiction and animation of queues (various types), plus CTM occupancy and flow density at any point in the cycle
- Export to AutoCAD (DXF)/SVG/bitmap/metatile
- Numerous options and other tools and features

NetCon showing links colour-coded to indicate problems with flow-consistencies. Amber/red links have an inconsistency with their flows. The same system can also show all other warning/errors associated with links.



NetCon in a different colour mode and showing animation of signal states (red/green), CTM cell occupancy (i.e. number of vehicles at each point in each link) (dark blue blocks), CTM cell flows (blue arrows), effective greens and link movements (yellow arrows).



TRANSYT 13: the output

New-look reports

Reports in TRANSYT 13 are in HTML format; individual tables or entire reports can easily be pasted into any spreadsheet or word processor. A variety of report modes are available, including a basic TRANSYT 12 .PRT mode. Reports can contain diagrams such as link timing diagrams and the NetCon diagram.

A table from a TRANSYT 13 report.... which will be very familiar to all existing TRANSYT users!

Link Results

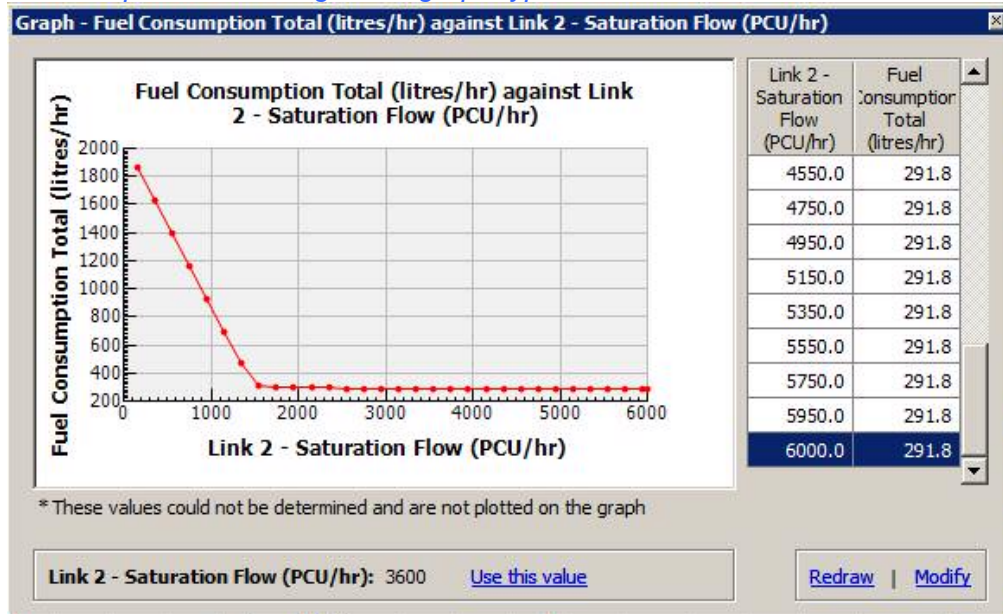
Link ID	Major Link	Calculated Flow Into Link (PCU/hr)	Calculated Sat Flow (PCU/hr)	Degree Of Saturation (%)	MEAN TIMES		DELAY			STOPS		QUEUES		P.I.
					Mean Cruise Time Per PCU (s)	Mean Delay Per PCU (s)	Uniform Delay (PCU-hr/hr)	Random Plus Oversat Delay (PCU-hr/hr)	Weighted Cost Of Delay (£ per hr)	Mean Stops Per PCU (%)	Weighted Cost Of Stops (£ per hr)	Mean Max Queue (PCU)	Average Limit Excess Queue (PCU)	
1 BL	2	50	(2)	(41)	9.60	0.34	0.00	0.00	0.68 *	0	0.02 *	(0)	(0)	0.70
2		1419	3600	41	8.28	0.34	0.00	0.14	1.93	0	0.10	0	0	2.03
3		180	715	25	11.25	0.85	0.00	0.04	0.60	0	0.00	0	0	0.60
10 BL	11	50	(4)	(77)	12.00	19.11	0.22	0.04	37.69 *	77	4.82 *	(30)	(0)	42.51
11		1400	3400	77	10.00	19.11	6.20	1.23	105.53	77	19.43	30	0	124.96
12		600	3920 f	56	10.00	30.04	4.64	0.36	71.11	83	9.02	13	0	80.12
13		350	1600	58	12.21	17.64	1.33	0.39	24.37	104	3.96	9	0	28.33
14		901	3300	76	10.55	22.73	4.48	1.21	80.81	83	10.64	21	0	91.45
21 BL	23	30	(7)	(78)	60.40	14.13	0.08	0.03	16.67 *	91	3.44 *	(19)	(0)	20.10
22 BL	23	20	(7)	(78)	27.60	13.93	0.05	0.02	10.95 *	95	2.39 *	(19)	(0)	13.34
23		1199	3500	78	22.17	13.46	3.15	1.34	63.69	90	21.73	19	0	85.41
24		600	1900	88	10.00	32.36	2.30	3.09	76.57	124	13.37	10	0	89.94
25		1190	3400	77	12.00	14.27	3.46	1.25	66.97	86	12.75	13	0	79.72
71		1949	5400	64	28.05	6.48	2.94	0.56	49.82	67	21.01	19	0	70.83
72		760	8000	40	72.00	15.31	3.10	0.13	27.54 *	84	0.13 *	8	0	27.67
111		530	3300	87	10.13	31.18	1.82	2.78	65.23	118	8.87	16	0	74.10
112		1899	5200	88	15.16	12.19	3.12	3.31	91.28	83	31.57	27	0	122.85
113		580	2700	90 !	10.00	56.95	5.47	3.71	130.29	118	12.29	18	0	142.59

- BL = at least one source for this link carries buses
- TL = at least one source for this link carries trams
- PL = this link is a pedestrian link
- < = adjusted flow warning (upstream links are over-saturated)
- ! = DOS threshold exceeded
- f = average saturation flow for flared link
- * = stops/delay weighting has been set to a value other than 100%
- P.I. = PERFORMANCE INDEX

New Graphs

The existing cyclic flow profile, queue and PI-offset graphs have been improved, and a new type of generic graph allows any TRANSYT output to be plotted as a function of any TRANSYT input. You could, for example, easily study the effect on the PI of any link (or the entire network) caused by varying bus stationary times, or any other item you choose. An improved, graphical version of CYOP is also included.

An example of the new generic graph type



TRANSYT 13: to summarise

TRANSYT 13 is no ordinary upgrade – it represents the single biggest advancement of the product in years – in terms of its traffic model, its features and its presentation. Furthermore, if that isn't enough then there are still features we have not had space to mention or describe in any kind of detail. Also look out for the TRANSYT 13 upgrade courses on our website!

Jim Binning – jbinning@trl.co.uk
 Graham Burtenshaw – gburtenshaw@trl.co.uk

Ordering and price details

TRANSYT 13 is due for release in April 2008 and we are taking pre-orders now. Special upgrade prices are available for users of TRANSYT 12. For full details, please see www.trlsoftware.co.uk or contact the TRL Software Bureau.

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