

ARCADY 7

Roundabout design and analysis

ARCADY 7 offers a host of new features and a brand new user interface. Available for a limited period at introductory prices, there has never been a better time to upgrade from ARCADY 5 or ARCADY 6. For upgrade pricing, please contact TRL Software Sales.

ARCADY 7 is a modernised and updated version of our popular, internationally-renowned software program for the assessment of roundabout capacity, delay and safety at standard, mini and grade-separated roundabouts.

Fast and easy to use, **ARCADY 7** is an invaluable tool to aid the busy traffic engineer to design new roundabouts and to assess the effects of modifying existing designs.

Main features include the following:

- ◆ Brand new user interface, providing a task list, window management tools, data grids, undo/redo and many more
- ◆ Analyse multiple scenarios simultaneously
- ◆ Interactive roundabout diagram showing entry, circulating and exit flows
- ◆ Model linked roundabouts
- ◆ Dynamically updating GUI provides immediate feedback
- ◆ Many more features.... *see overleaf*



Scenarios, Analysis Sets and Demand Sets

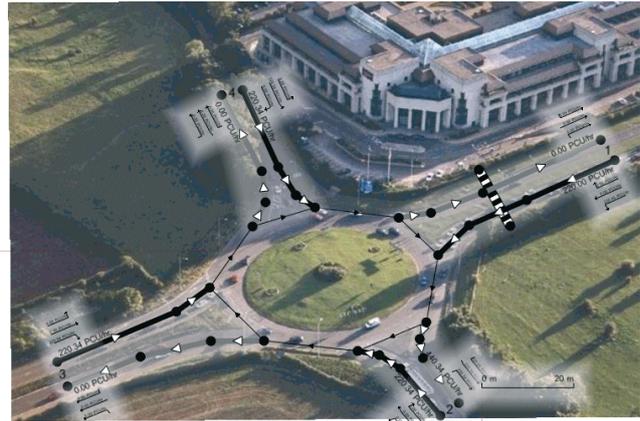
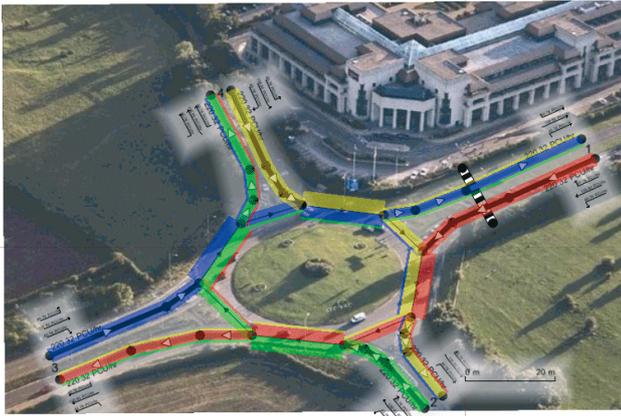
- ◆ Set up multiple geometries and flows for different time periods and years in the same file
- ◆ Immediately compare performance across ALL scenarios
- ◆ See instant results for all scenarios whenever any data values change

Summary Results

	AM				PM			
	RFC	Delay (min)	Queue (PCU)	LOS	RFC	Delay (min)	Queue (PCU)	LOS
Existing Layout - 2009								
Arm 1	0.67	0.28	2.03	C	0.78	0.48	3.51	D
Arm 2	0.67	0.28	2.03	C	0.78	0.48	3.51	D
Arm 3	0.67	0.28	2.03	C	0.78	0.48	3.51	D
Existing Layout - 2012								
Arm 1	0.83	0.54	4.66	D	1.00	2.97	25.55	F
Arm 2	0.83	0.54	4.66	D	1.00	2.97	25.55	F
Arm 3	0.83	0.54	4.66	D	1.00	2.97	25.55	F
Experimental Layout - 2009								
Arm 1	0.34	0.07	0.52	A	0.38	0.08	0.61	A
Arm 2	0.34	0.07	0.52	A	0.38	0.08	0.61	A
Arm 3	0.34	0.07	0.52	A	0.38	0.08	0.61	A
Experimental Layout - 2012								
Arm 1	0.42	0.08	0.72	A	0.48	0.10	0.90	A
Arm 2	0.42	0.08	0.72	A	0.48	0.10	0.90	A
Arm 3	0.42	0.08	0.72	A	0.48	0.10	0.90	A

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

Interactive Junction Diagram



- ◆ View, edit and manipulate roundabouts graphically
- ◆ Turning counts and flows shown graphically for each arm
- ◆ Full control over appearance. Depiction of queues, flares and crossings
- ◆ Scale indicator and measuring tool
- ◆ Overlay modes showing relative proportions of entry, exit and circulating traffic in vehicles or PCU, colour-coded by origin or destination

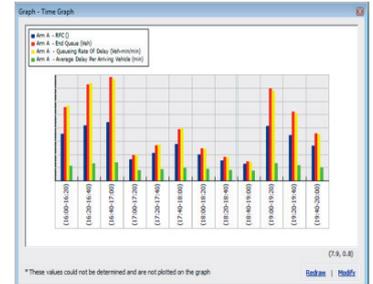
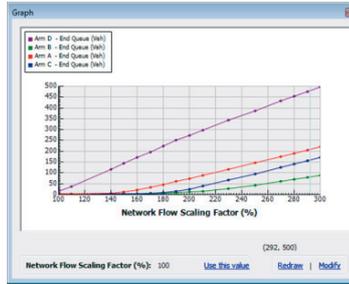
Choice of units for ALL data input and output

Mode	Columns	AM	PM					
Arm 1	0.67	0.28	2.03	C	0.78	0.48	3.51	D
Arm 2	0.67	0.28	2.03	C	0.78	0.48	3.51	D
Arm 3	0.67	0.28	2.03	C	0.78	0.48	3.51	D

- ◆ Distance (metres, feet); speed (mph, kph)
- ◆ Traffic (PCU, vehicles); Flows (per min, per hour, per time segment)
- ◆ Delay (veh-min, PCU-hr, etc)
- ◆ Measurement converter for converting measurements made in other units to current working units
- ◆ New traffic flow input screens, with many new options

Performance Analysis

- ◆ Powerful graphs and charts
- ◆ Optimiser mode finds best set of parameters to meet any required target performance
- ◆ Quantify variation in performance resulting from uncertainty in measurements
- ◆ Determine additional traffic demand that roundabouts can cope with



New modelling features

- ◆ Linked roundabouts - model entire systems of roundabouts
- ◆ Entry and exit restrictions
- ◆ Puffin crossing model
- ◆ Minimum/maximum capacity functions
- ◆ Improved SATURATION mode
- ◆ Level of Service outputs
- ◆ Peak Hour Factor traffic flows
- ◆ Direct entry of slope/intercept
- ◆ More options for flow and capacity scaling
- ◆ More options for capacity adjustments
- ◆ Easily see the effect on any aspect of performance due to changing flows or capacity
- ◆ More queue variation options
- ◆ Set up a different traffic profile type on each arm
- ◆ More outputs, including random queues and exit/circulating flows

Flexible data entry and results viewing modes

- ◆ Practically any set of data can be viewed and edited using flexible data grids
- ◆ No need for a separate viewer program

Data Grid - Summary - Showing 3 of 3 items; 9 column(s)

Filters | Column Layouts

Summary Showing 3 / 3 Edit In Window

Arm	Results	E - Entry width (m)	f - Effective flare length (m)	R - Entry radius (m)	Circulating Flow (PCU/hr)	Capacity (PCU/hr)	RFC (%)	Start Queue (PCU)	End Queue (PCU)	Total Delay (PCU-hr/hr)
A	(08:00...	3.00	0.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00
B	(08:00...	3.00	0.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00
C	(08:00...	3.00	0.00	3.00	1.00	1.00	1.00	1.00	1.00	1.00

Vehicle Mix - Roundabout 1

Average PCU per Veh | HV Percentages | Options

From \ To	Arm 1	Arm 2	Arm 3	Average
Arm 1	10.000	10.000	10.000	10.00
Arm 2	15.000	15.000	15.000	15.00
Arm 3	5.000	5.000	5.000	5.00
Average	10.00	10.00	10.00	-

- ◆ Work with inputs and outputs simultaneously
- ◆ Customisable grids and layouts
- ◆ Easy to use data matrix screens
- ◆ Copy and paste to/from any screen
- ◆ Use turning counts directly as flows

Reporting and Comparing Files

- ◆ Customisable reports contain all input and output information, including custom data grids
- ◆ Built-in HTML viewer
- ◆ Generate reports covering all analysis and demand sets
- ◆ Save as PDF document or convert to Word file
- ◆ Comparison tool generates a report showing differences between two or more files

Help Options

- ◆ Glossary Screen available at all times; shows detailed information about currently selected data item
- ◆ Comprehensive User Guide

Other Features

- ◆ Drive-on-the-left or drive-on-the-right
- ◆ Work with multiple files
- ◆ Change options at any time without loss of data
- ◆ US terminology option
- ◆ Copy all flow data to clipboard for editing within spreadsheets
- ◆ Geometric Delay, Accident Prediction and all other ARCADY 6 features
- ◆ Import from and export to ARCADY 6 and ARCADY 5
- ◆ Many more features

The screenshot displays the ARCADY 7 software interface. The main window shows a report titled 'Heavy Vehicle Percentages - Roundabout 1 (for whole period)'. Below this is a 'Results' section with a 'Results Summary' table and 'Main Results' for two time periods: 16:00-16:20 and 16:20-16:40. A 'Glossary' window is open, showing the definition for 'PHI - Conflict (entry) angle' and 'Conflict (entry) angle (1)'. The glossary also includes a diagram of a roundabout with a central island and entry arms labeled A, B, C, D, E, and F.

From	To	A	B	C
A	25.00 10.00	25.00 10.00	25.00 10.00	
B	10.00	10.00	10.00	
C	10.00	10.00	10.00	

Arm	Max VPC	Max Delay (min)	Max Q (veh)	Max LOS	Total Demand (Vehicles)	Total Arrivals (veh)	Total Queueing Delay (veh-min)	Average Queueing Delay (veh-min)	Rate Of Queueing Delay (veh-min/min)	Inclusive Queueing Delay (veh-min)	Inclusive Queueing Delay Rate (veh-min/min)	Slope (p/100m)	Intercept (p/100m)	Average PC Left Veh Entry
A	0.00	0.00	0.00	?	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.392	0.00
B	0.00	0.00	0.00	?	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.392	0.00
C	0.00	0.00	0.00	?	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.392	0.00

Arm	Demand (veh/min)	Arrivals (veh)	Entry Flow (veh/min)	Exit Flow (veh/min)	Circulating Flow (veh/min)	Pedestrian Demand (Ped/min)
A	0.00	0.00	0.00	0.00	0.00	0.00
B	0.00	0.00	0.00	0.00	0.00	0.00
C	0.00	0.00	0.00	0.00	0.00	0.00

PHI - Conflict (entry) angle
 This represents the conflict angle between entering and circulating streams. (Do not confuse with the entry angle measurement used for geometric delay.)
 Units: (none)
 Range: 0 - 60 ; Default: 0
 Input/output: Input
 This data item can be entered separately for each Analysis Set.

Conflict (entry) angle (1)
 Represents the angle between entering and circulating traffic streams. There are two techniques for measuring this angle, depending on the size of the roundabout and the spacing of the arms. Note that you should not necessarily expect to get the same value from the two techniques, since they represent the entry angle at different types of entry. You can of course use either method for each entry individually.

Entry angle 1
 For roundabouts where traffic on the entry arm gives way to circulating traffic only, the construction is as follows:

For further information on ARCADY 7, including pricing and license types, please contact TRL Software Sales or visit www.trlsoftware.co.uk.