Roundabout Capacity Software Summary -Rodel

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OVERVIEW

RODEL, and ARCADY are computer software programs that predict the traffic performance of roundabouts. Capacity estimates for both ARCADY and RODEL programs are based on research completed by R.M. Kimber of the British Transport and Road Research Laboratory (TRL). Both ARCADY and RODEL will produce identical results when the same input is utilized.

The empirically based capacity equations were developed in the U.K. from 1975-1980 and published in 1980. The regression equations utilize data from an extensive research effort that included gathering data from 86 roundabouts with diverse geometry and flow volumes including 11,000 minutes of 'at-capacity' data.

The TRL also created and tested various roundabout layouts at a test track.

It should be noted that in 1996 the TRL repeated the capacity measurements at 35 roundabouts in order to update the equations.

The results served to confirm the accuracy of the existing equations and no revisions or updates were needed.

The capacity of each entry of a roundabout was found to be a function of the circulating flow past that entry together with the interaction of six geometric parameters at each entry.

Geometric Definition
Rodel was developed by Barry Crown and became available for use in approximately 1988.

Rodel was created with particular attention to features that facilitate the optimization of roundabout designs. Thus allowing the designer to achieve solutions to difficult situations.

Rodel allows the designer to quickly test "what-if" scenarios by changing input parameters. This allows the design engineer to achieve an optimize design in a short period of time rather than accept the first design that meets the minimum criteria.

Another important feature of Rodel is the capability to vary the confidence level. It provides a factor of safety that takes into account the variability of traffic predictions and inherent flow characteristics within the hourly traffic flows.