WSDOT Sidra Policy Settings

This is a reference guide for WSDOT policy settings for completing an analysis of roundabouts using **Sidra 8** for WSDOT projects or projects affecting state owned or state interest facilities. Any adjustments to either the settings or Sidra defaults (remaining parameters not discussed in this guide) should be documented in a "Method and Assumptions" document.

Lane Geometry Dialog

Lane Configuration Tab - Unless the roundabout being analyzed already exists or there is a detailed drawing available, use the following Lane Widths:

- Single lane approach: minimum 15 ft.
- Multi-lane approach: minimum 14 ft. (each lane)

Lane Configuration	Lane Disciplines			
Approach Select	tor	Lane Editor		
	ε			1
	5	South Approach Lane 1		
RoadName		Lane Configuration Data	provide the backward and an	
Legend: Lane Edi	itor	Lane Configuration	Full-Length Lane	
E Approach Lan	10	Lane Type	Normal General Maid	
Selected Lane	Nisland	Cane Control	Size Size Size Size Size Size Size Size	
Strip Island/St	hort Lane	Lace Length	1600.0.8	
		Lane Width	14.00 ft	
		Grade	0.0 %	
		Lane ID		
		Lane Colour (Layout)	-	
Contra-flow lanes (for Roundabout Sil	are not allowed			
Front width is not a roundabout splitter	ipecified for rislands.			
Dialog Tips 2				

Roundabouts Dialog

Options Tab – Use the following settings for Roundabout Model Options parameters:

- Roundabout Capacity Model Sidra Standard
- Roundabout LOS Method Same as Signalized Intersections
- Delay Model uncheck both exclude Geometric Delay and HCM Delay Formula

Options Roundabout Data			_	
Roundabout Model Options				
Roundabout Capacity Model	When you change the Rou	ndabout Capacity Model, the related pa		
SIDRA Standard	HCM Delay Formula and Exclude Geometric Delay will remain unchu combination of these parameters for the selected Roundabout Capar "Roundabout Capacity Model" topic in Help.			
O US HCM 2010				
Roundabout Level of Service (LOS) Method	Table: Default settings of re	lated parameters involved in changing	1	
SIDRA Roundabout LOS	SIDRA Standard roundabo	ut capacity models		
Same as Signalised Intersections		Roundabout C		
Same as Sign Control	Related Parameters	SIDRA Standard		
Delay Model	Roundebout LOS Method	Same as Signalised Intersections		
Exclude Geometric Delay		Unchecked (use the SIDRA Standard Delay equation)		
HCM Delay Formula	HCM Delay Formula			
HCM 2010 Roundabout Model Extension		Unchecked (include geometric delay)		
Apply the SIDRA Model for Unbalanced Flow Conditions	Exclude Geometric Delay			
Other Roundabout Models				
FHWA 2000				
Lim Use Urban Compact Roundabout				
HCM 2000				
IN MAACOA 1000				

Roundabouts Dialog

Roundabout Data Tab – Use the following settings:

- Circulating width: single lane roundabout minimum 18'-20', multi-lane 15' each
- Entry Radius: 90' 110' (unless a site specific design is available)
- Environment Factor: 1.1 for opening year and 1.0 for horizon year



Parameter Settings Dialog

Options Tab – Use the following settings for Options Tab:

Options	Model Parameters	Cost	Fuel & Emissions	
General O	ations			
General O	otions			
Site Level of Service Method *		Delay & Degree of Saturation (SIDR/		
Site Level of Service Target		LOS D		
Pedestrian Level of Service Target		LOS D		
Performance Measure *		Delay		
Percentile C	ueue *			
 Percentile 		95 %		

Model Parameters Tab – Use the following settings for the Delay and Queue parameters (if the recommended parameters for the Roundabouts dialog where followed, these parameters should already be unchecked):

- Exclude Geometry Delay: uncheck
- HCM Delay Formula: uncheck

Options Model Parameters	Cost	Fuel & Emissions	
Passenger Car Equivalents			
Movement Class	pc	cu / veh This parameter	
Light Vehicles (LV)	1.0	(continuous) m	
Heavy Vehicles (HV)	2.0	Calibration tab.	
Delay and Queue Exclude Geometric Delay HCM Delay Formula			
Downstream Short Lane		1	
Minimum Downstream Utilisation Ratio	20 %		
Minimum Downstream Distance	100 ft		
Distance for Full Lane Utilisation	660 ft		
	1.2		

Additional considerations

Measures of Effectiveness (MOE): Unlike other intersection control types, the primary MOE for roundabouts is not LOS. Instead, it is a mix of MOEs. For operational modeling, first attempt to balance each lane group to less than about 0.85 - 0.9 v/c with reasonable queues given local conditions (keeping in mind RAB queues are moving queues, which are not perceived to be as negative as static signal queues). MOE's in order of importance are v/c, delay, stop rate, queue, and then LOS. If LOS is reported as D or better while v/c or queues are unacceptable, consider LOS as failing. Conduct sensitivity analyses by adjusting volumes and geometrics. If v/c => 0.9, examine volume projections & consider microsimulation. In addition queues for 20 year analyses need not be considered and Peak Flow Factor should be set to 1.0. Consider practical solutions that may not last the entire 20 years.

Network Function: The network function allows users to evaluate how multiple, closely spaced intersections will interact. The control types can be any combination of roundabout, signal, two way stop, and pedestrian midblock crossing. Sidra is a good tool for evaluating closely spaced intersections containing one or more roundabouts if it is determined that microsimulation is not warranted (based on the complexity of the project, scope, or budget). WSDOT does not recommend using Sidra to produce MOE's for intersection control types other than roundabouts.

For questions contact:

Doug McClanahan WSDOT Traffic Operations 360-705-7984 <u>mcclando@wsdot.wa.gov</u>