November 28, 2008

Region of Waterloo

REGION OF WATERLOO
ROUNDABOUT FEASIBILITY
INITIAL SCREENING TOOL VERSION 1.0

The intent of this screening tool is to provide a relatively quick assessment of the feasibility of a modern roundabout at a particular intersection in comparison to other appropriate forms of traffic control or road improvements including auxiliary lanes, traffic control signals, four-way stop, etc. The intended outcome of this tool is to provide enough information to assist staff in deciding whether or not to proceed to an Intersection Control Study to further investigate in more detail the feasibility of a roundabout.

1) Project Name/File No.:

2) Intersection Location
(Street/Road Names, distance from major intersection, etc.):

3) Brief Description of Intersection
(Number of Legs, Lanes on each leg, total AADT, AADT on each road, etc. Attach or sketch diagram showing existing and horizon-year turning movements.):

4) What operational problems are being experienced at this location?

5) Is it a new intersection or is it a retrofit of an existing intersection? If existing, what is the existing traffic control?

6) Is the intersection in the vicinity of a railroad crossing *or another intersection?* If so, how close and what type of traffic control exists at the adjacent intersection(s)? Will queues be a problem?

7) Would the intersection be located within a coordinated signal system?

8) Would the intersection be located on a Preferred Roundabout Corridor?

9) Is the intersection located within a corridor that is scheduled for improvements in the 10 Year Transportation Capital Program? What is the ultimate cross-section of the approach roads?

10) What is the collision history of the intersection over the past five years? Is there a collision problem that needs to be addressed?

11) Are persons with disabilities or horse and buggies frequent users of this intersection?

12) What traditional road improvements are proposed for this intersection? (eg. traffic signals, all-way stop, auxiliary lanes, etc.) Please attach a sketch of the traditional road improvements. A sample sketch is attached (DOCS #529440).

13) If traffic control signals are being considered, are the traffic signal warrants met for the horizon year?

14) What size of roundabout is being considered for this intersection? (eg. Single-lane, two-lane entry or three-lane entry?) Please attach a Traffic Flow Worksheet and lane configuration diagram. Please attach a sketch showing how a roundabout would "fit" into the right-of-way. A sample sketch is attached (DOCS #529433).

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15) 20-Year Life Cycle Cost Estimate

Injury Collision Cost (ICC): _____

Discount Rate: (i): _____

20 YEAR LIFE-CYCLE COST COMPARISON		
Cost Item	**Other Traffic Control**	**Roundabout**
Implementation Cost	$	$
Injury Collision Cost (Present Value)	$	$
Total Life Cycle Cost	**X**	**Y**

Notes:

- Implementation Cost
  = sum of costs for construction, property utility relocations, illumination, engineering (20%), contingency (20%) and maintenance (5%);
- Present Value of 20 Year Injury Collision Cost
  = expected annual collision frequency x ICC $((1 + i)^{20}-1) / i(1+i)^{20}$
- Monte Carlo Analysis may be required. If so, a range for the implementation cost (i.e. 10%, 50%, 90% probability) is required

Conclusions and Recommendation