



**REGION OF WATERLOO  
ROUNDAABOUT FEASIBILITY  
INITIAL SCREENING TOOL GUIDE**

***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.:

**PROJECT NAME / REGION PROJECT NUMBER**

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2) Intersection Location

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

**PROVIDE ENOUGH INFORMATION TO ALLOW REVIEWER**

**TO LOCATE INTERSECTION.**

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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.):

**3-LEGS OR 4-LEGS?**

**PROVIDE DAILY TRAFFIC VOLUMES FOR EXISTING AND**

**HORIZON YEARS. PROVIDE PEAK HOUR TURNING MOVEMENTS.**

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

**BASED ON EXISTING CONDITION, ARE THERE ANY MOVEMENTS**

**EXPERIENCING LARGE DELAYS? (LOS E OR F)**

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

**NEW OR EXISTING INTERSECTION?**

**EXISTING TRAFFIC SIGNALS? STOP CONTROLLED?**

- 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?

**PROVIDE DISTANCE TO ADJACENT RAIL CROSSING OR OTHER**

**INTERSECTION.**

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

**CHECK WITH REGION TRAFFIC SYSTEMS.**

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

**CHECK WITH REGION TRANSPORTATION PLANNING**

**REPRESENTATIVE.**

- 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?

**ARE ANY OF THE APPROACH ROADS SCHEDULED FOR WIDENING**

**IN REGION'S 10 YEAR TRANSPORTATION CAPITAL PROGRAM?**

**CHECK WITH TRANSPORTATION PLANNING REPRESENTATIVE OR**

**ACCESS CAPITAL PROGRAM ON REGION WEBSITE.**



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

**COLLISION PROBLEM TO BE DETERMINED BY TRANSPORTATION**

**ENGINEERING.**

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

**DOES THIS INTERSECTION HAVE AUDIBLE TRAFFIC SIGNALS?**

**CHECK WITH REGION TRAFFIC SYSTEMS.**

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- 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).

**BASED ON THE TRAFFIC ANALYSIS FOR THE HORIZON YEAR**

**PEAK MOVEMENTS, WHAT IMPROVEMENTS ARE REQUIRED?**

**PROVIDE STORAGE LENGTHS OF TURNING LANES.**

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

**BASED ON OTM WARRANTS.**

**WARRANT TO BE VERIFIED BY TRANSPORTATION ENGINEERING.**

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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). **USE TRAFFIC FLOW WORKSHEET AND RODEL (OPTIONAL) TO DETERMINE NUMBER OF ENTRY LANES.**

**SINGLE – 40M INSCRIBED CIRCLE DIAMETER (ICD)**

**2-LANE – 55M INSCRIBED CIRCLE DIAMETER (ICD)**

**3-LANE – 70M INSCRIBED CIRCLE DIAMETER (ICD)**

15) 20-Year Life Cycle Cost Estimate

Injury Collision Cost (ICC):     **\$30,000**    

Discount Rate: (i):     **6%**    

<b>20 YEAR LIFE-CYCLE COST COMPARISON</b>		
<b>Cost Item</b>	<b>Other Traffic Control</b>	<b>Roundabout</b>
Implementation Cost	<b>\$ Refer to May 7/09 Roundabout Workshop Notes</b>	<b>\$ Refer to May 7/09 Roundabout Workshop Notes</b>
Injury Collision Cost (Present Value)	<b>\$ Refer to May 7/09 Roundabout Workshop Notes</b>	<b>\$ Refer to May 7/09 Roundabout Workshop Notes</b>
<b>Total Life Cycle Cost</b>	<b>X</b>	<b>Y</b>

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



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**Conclusions and Recommendation**

***PROVIDE A RECOMMENDATION TO PROCEED TO AN INTERSECTION  
CONTROL STUDY OR NOT. BRIEFLY EXPLAIN RATIONALE.***

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