

Gonna Go 'Round in Circles Ontario Implements Education Campaign for New Roundabout Designs on Provincial Highways

The Ministry of Transportation (MTO) strives to be a world leader in moving people and goods safely, efficiently and sustainably. Ontario's highway infrastructure supports a globally competitive economy and high quality of life. MTO is committed to implementing leading innovations; a recent example is the implementation of modern roundabouts.

Traditional traffic circles were designed with a large radius, allowing drivers to enter, circulate and exit the circle at high speeds. Drivers seldom had to yield on entry since older traffic circles were designed to allow traffic to merge and diverge without significant slow down. In modern roundabouts, a smaller radius regulates traffic speed, compelling drivers to slow down before entering the roundabout while yielding the right-of-way to circulating traffic.

Where appropriate, modern roundabout designs offer a number of benefits over traditional intersections including:

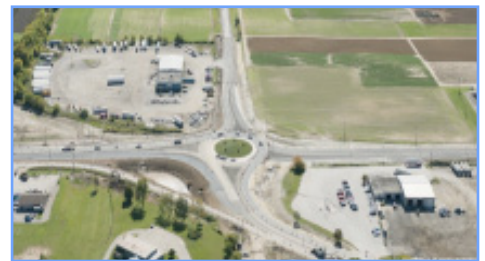
- Improved safety—Potential vehicle collision points, severe crashes and serious injury are decreased by reducing vehicle speeds.
- Increased capacity – A high volume of left turning vehicles maneuver better in roundabout than a signalized intersection.
- Fewer stops and reduced delays –Yielding at a roundabout entry significantly reduces delays compared to waiting for a green light at a signalized intersection or waiting for a gap in traffic at a stop sign.
- Less idling and air pollution – Reduced delays mean reduced fuel consumption improving air quality by reducing greenhouse gas emissions.
- Reduced maintenance costs – Roundabouts eliminate maintenance and electricity costs associated with traffic signals.
- Aesthetically pleasing – Opportunity for landscaping design within the centre island of a roundabout.

MTO's first roundabout, located on Highway 33 near Picton was opened to traffic in 2009. This was followed in 2011 by the opening of the roundabout located on Highway 17 in Mattawa. As part of the ongoing work associated with the international border crossing at Windsor, a roundabout on the Rt. Hon. Herb Gray Parkway was opened to traffic in 2012. Three additional roundabouts, also completed in fall 2012, are of notable interest due to their unique design challenges: a roundabout in the City of Hamilton at Peter's Corners on Highway 5/8 features the ministry's first multi-lane roundabout; another in Wasaga Beach and Collingwood, on Highway 26, features unique highway lane

transitioning; and Highway 406 at Main Street in Welland, where the highway terminates.

City of Hamilton Roundabout at Peters Corners (Highway 5/Highway 8/Hamilton 5/Hamilton 52)

In February 2001, an operational and safety review was completed for Peters Corners in the City of Hamilton. The review included collision history and operational characteristics for three individual intersections at the location.



New roundabout at Peters Corners, Hamilton, Ontario.

In early 2004, the ministry and McCormick Rankin Corporation conducted a Preliminary Design Study for the location and the associated Class Environmental Assessment process was completed in 2009. A comprehensive review and analysis of intersection layout alternatives was conducted, complete with consultation with external agencies, the City of Hamilton, residents and members of the public. A roundabout was selected as the most effective design to replace the existing signalized intersection at Peters Corners.

Stantec Ltd. and Roundabouts Canada, experts in the design of roundabouts, were hired to complete the detail design. Genivar Inc. administered the construction contract, which was awarded to E. & E. Seegmiller Limited. Construction began in spring 2012 and included realignment of the affected highways, lighting and sign upgrades, drainage improvements including a storm water management pond, and landscaping improvements.

When the roundabout was opened, the ministry temporarily installed a camera at the site to monitor operations while drivers became familiar with the new highway configuration. Operations at this roundabout are successful.

Wasaga Beach and Collingwood Roundabouts

Highway 26 in the Wasaga Beach and Collingwood areas experiences traffic volumes up to 18,000 vehicles per day during the winter and summer months while tourists travel to these recreation attractions.

The realignment project between Wasaga Beach and Collingwood on Highway 26 included new roundabouts at Airport Road and Poplar Sideroad. The Airport Road two-lane roundabout

New Roundabout Designs on Provincial Highways, *continued*



Realignment project on Highway 26, including a new roundabout.

is located at the transition from the two-lane to four-lane divided highway. The Poplar Sideroad two-lane roundabout is located at the transition from the four-lane divided to four-lane undivided highway.

A comprehensive education campaign helped improve local driver awareness and increase public confidence in the months leading up to the roundabout's opening. A public education

centre provided information materials including a website, brochure, video, three-dimensional model, proposed sign designs and information presentations. Education also included radio and newspaper media releases providing tips for navigating new roundabouts.

Temporary cameras at Airport and Poplar Roads monitor traffic and operations. Ministry staff continues to make adjustments to signing, pavement markings and other details as necessary. A third roundabout being constructed at the existing Highway 26/Mosley Street intersection is scheduled to open in the summer of 2013.

First Provincial Freeway to Terminate in a Multi-Lane Roundabout – Highway 406, Region of Niagara

In summer 2013 the ministry will open the province's first multi-lane roundabout at a highway terminus.

Highway 406 is the primary north-south route through the Niagara Peninsula providing a connection between the Queen Elizabeth Way and Highway 3. Highway 406 links St. Catharines, Thorold, Welland, and Port Colborne municipalities. Highway 406 terminates in the City of Welland, Region of Niagara.

The ministry performed a road safety and human factors review focusing on three different proposed design alternatives for the Highway 406 terminus including a signalized intersection and two roundabout designs. After public consultation, analyses indicated a roundabout design provides several important advantages for the

location.

Once the Highway 406/Main Street roundabout is operational, rear-end crash problems and collisions are expected to be reduced. The roundabout will allow drivers from each direction to enter at speeds of 30 to 40 km/hr, except when queuing occurs during

peak hours when maximum queue lengths are expected to be 40 metres. When queuing doesn't occur, speed-adapted drivers won't be required to stop. Instead, these drivers will slow down through multiple curves on the approach to the roundabout.

Guide signs are a unique design challenge for this roundabout. Motorists on the westbound approach drive through a tunnel under the Welland Canal and then proceed uphill to the new roundabout. In the summer of 2012, the ministry coordinated a temporary night time closure of the highway to test the proposed overhead signs for the roundabout to verify that motorists would see them with sufficient time to move safely to their designated lane; signs were refined accordingly.

Design Standards for Provincial Roundabouts

MTO has developed design standards and guidelines for roundabouts on provincial highways (e.g.: traffic control devices and illumination) and provincial standards for pavement markings and signing at roundabouts.

The Future of Provincial Roundabouts

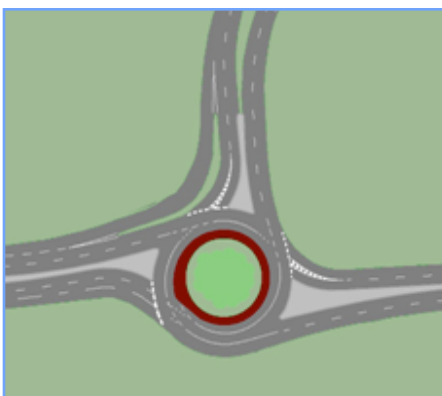
With more than 50 provincial roundabouts in various stages of planning, design and construction across the province roundabouts are now considered in MTO's design phase whenever possible due to their success. In 2007, MTO established the Roundabout Implementation Team (RIT). RIT is mandated to review all provincial roundabout designs to ensure consistency as we move forward with our roundabout program. The Team also provides input into the development of provincial design standards for roundabouts based on lessons learned during design, construction and operation of provincial roundabouts. This will ensure that our standards will continue to grow and evolve, building on our collective experience.

For information on the benefits of roundabouts, including driving tips, an instructional video and a brochure, please visit our website: www.ontario.ca/roundabout or contact:

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[Ministry Roundabout video](#)



Proposed roundabout at the terminus of Highway 406 on Main Street in Welland.