



# THE DISTRICT MUNICIPALITY OF MUSKOKA

## ENGINEERING AND PUBLIC WORKS DEPARTMENT

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**TO:** Chair and Members  
Engineering and Public Works Committee

**FROM:** Craig Douglas, P.Eng.  
Manager of Design Services

**DATE:** May 12, 2011

**SUBJECT:** Traffic Control At The Intersection Of Muskoka Road 42 (Taylor Road)  
And Cedar Lane In The Town Of Bracebridge.

**REPORT NO:** PW-7-2011-2

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### RECOMMENDATION

THAT, subject to the agreement of the Town of Bracebridge, the final design of the traffic control measures included in proposed improvements to the intersection of Muskoka Road 42 (Taylor Road) and Cedar Lane in the Town of Bracebridge be based on the use of a roundabout as recommended in Report No. PW-7-2011-2.

### ORIGIN

Resolution R4/2011-PW of the Engineering and Public Works Committee authorized the appointment of an engineer to provide professional consulting services in connection with proposed improvements to the intersection of Muskoka Road 42 (Taylor Road) and Cedar Lane in the Town of Bracebridge. The engineering assignment included an evaluation of traffic control options including signalization and the construction of a roundabout.

### ANALYSIS

The major focus of the intersection study has been on the comparison of a traditional signalized intersection to a roundabout. General arrangements for the two options are attached as Appendices "A" and "B". Common elements shared by both options include:

- Relocation of the McNaughton Court connection from Taylor Road to Cedar Lane (approximately 100m north of Taylor Road);
- A new right turn lane from westbound Taylor Road to northbound Pine Street;
- A new sidewalk on the south side of Taylor Road from Pine Street to the existing sidewalk located approximately 70 meters west of Depot Drive (to be constructed at the expense of the Town of Bracebridge);
- Identical centerline alignments for Taylor Road and Cedar Lane; and,
- Capacity to accommodate future (20 year) traffic volumes.

Highlights of the option to signalize the intersection include:

- The addition of left and right turning lanes as warranted; and,
- Due to the close proximity of the three sets of signals (at Pine Street, Cedar Lane, and Depot Drive), signal timing coordination would be reviewed to minimize the overall delay to through traffic on Taylor Road. The disadvantage of this measure is that the related constraints on the yielding of the right of way to traffic on the side streets may be quite unpopular. This is especially true for Depot Drive where the right of way is currently transferred to westbound traffic almost immediately upon demand.

Highlights of the option for a roundabout include:

- A single lane roundabout with an outside diameter of 40 metres and an inside diameter of 22 metres, with a 3 metre wide portion delineated to direct cars to the outside of the circle, while allowing long trucks to navigate the circle;
- Raised channelization islands on each of the four legs to direct traffic counter clock wise and to provide a refuge area for crossing pedestrians;
- Signage for each approaching vehicle will direct traffic to yield to traffic already in the roundabout; and,
- Green space in the centre (22 metre diameter) to provide aesthetically pleasing, low height plantings, and/or other welcoming features and landscaping.

The rationale for proceeding with the design and construction of a roundabout is summarized as follows.

- The increased safety level in roundabouts is well documented and can be attributed to the yield-at-entry operation, fewer conflict points (standard four-way intersections have 32 conflict points versus 8 in a roundabout) largely attributed to the central and channelization islands, one-way travel, and lower speeds;
- The capital cost of the roundabout is more than 20% lower than that of the signalized intersection due to the lack of signals and the smaller asphalted area;
- The operating cost of the roundabout is less since there are no signals to maintain and power to provide ;
- The roundabout is not affected by power outages;
- There is less delay time (idling) to traffic moving through the intersection which reduces exhaust emissions and driver travel time; and,
- The central area of the roundabout can accommodate a pleasing and welcoming driver experience, which is particularly significant since this location is a gateway to the urban centre of the Town of Bracebridge.

Pedestrians will cross at the intersection where the channelization islands are located. The sidewalks will direct pedestrians to the correct locations and crossing locations will be well marked on the asphalt. Cyclists, if experienced, will use the roundabout similar to a car, otherwise they will cross the roundabout like a pedestrian. Under no circumstance will pedestrians be allowed to cross through the centre circle.

Transport Canada ([www.tc.gc.ca](http://www.tc.gc.ca)) describes roundabouts as follows:

*Roundabouts are a new type of intersection that are becoming very popular in Canada, and all over the world because they offer so many benefits. At a roundabout, vehicles simply slow down and go around an "island" in a counter-clockwise way, instead of stopping and waiting. There are never any left turns in front of oncoming traffic in a roundabout – and that means far less serious accidents. Also, because drivers don't have to stop in a roundabout, there's far less traffic noise.*

Wikipedia ([www.wikipedia.org](http://www.wikipedia.org)) offers the following:

*Modern roundabouts are particularly common in Australia, China, Malaysia, Iceland, Denmark, Germany, France, Hungary, Ireland, Morocco, New Zealand, Qatar, Spain, the United Arab*

*Emirates and the United Kingdom. Half of the world's roundabouts are in France (over 30,000 as of 2008). The first modern roundabout in the United States was constructed in Summerlin, Nevada in 1990, and roundabouts have since become increasingly common in North America.*

The construction of a roundabout would create an intersection that is unique within Muskoka, and it is likely that opinion within the community respecting its merits will be divided. Therefore, it is recommended that the selection of this option be subject to the agreement of the Town of Bracebridge.

**FINANCIAL CONSIDERATIONS**

This project is included in the 2011 Tax Supported Capital Budget and Forecast and is numbered 314003. At the time of approval, the life to date budget was \$270,000. However, the current estimated cost of the project is \$700,000 for the roundabout option and \$900,000 for the signalization option. Both options include all approach roads, the realignment of McNaughton Court, a right turn lane at Pine Street, sidewalks, engineering and contingencies. Subject to the approval of the budget adjustments recommended in Report No. PW-7-2011-1, the life to date budget will be \$700,000 and the status of the project may be summarized as follows:

<b>Project #314003 MR 42 &amp; Cedar Lane Signals</b>	<b>Life To Date Commitments/ Actuals</b>	<b>Forecast To Complete</b>	<b>Total Project Budget</b>	<b>Variance</b>
<b>Expenditures</b>				
Construction		580,000		
Other Project Costs	17,000	103,000		
<b>Total</b>	<b>17,000</b>	<b>683,000</b>	<b>700,000</b>	<b>0</b>
<b>Funding Sources</b>				
Reserve Fund			76,800	
Development Charges			563,200	
Municipal Contribution			60,000	
<b>Total</b>			<b>700,000</b>	<b>0</b>

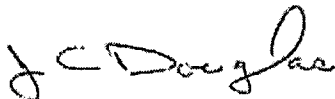
**STRATEGIC PRIORITIES**

In keeping with Muskoka's September, 2010, Strategic Priorities - item 4.5 *Incorporate the Active Transportation Plan into future road and related projects*, this project will consider options to accommodate Active Transportation (AT) through the study area. The Taylor Road intersection is located on the AT network as defined in the *Muskoka Active Transportation Strategy*, June 2010. In addition, the Muskoka Trails Council has identified Taylor Road from Cedar Lane to Depot Drive as the AT Hot Spot (area of greatest need for AT) in Bracebridge.

The roundabout option also promotes Muskoka's Strategic Priorities - items 5.5 (vehicle idling policy) and 5.8 (promote and encourage the Muskoka community to reduce their ecological and carbon footprint).

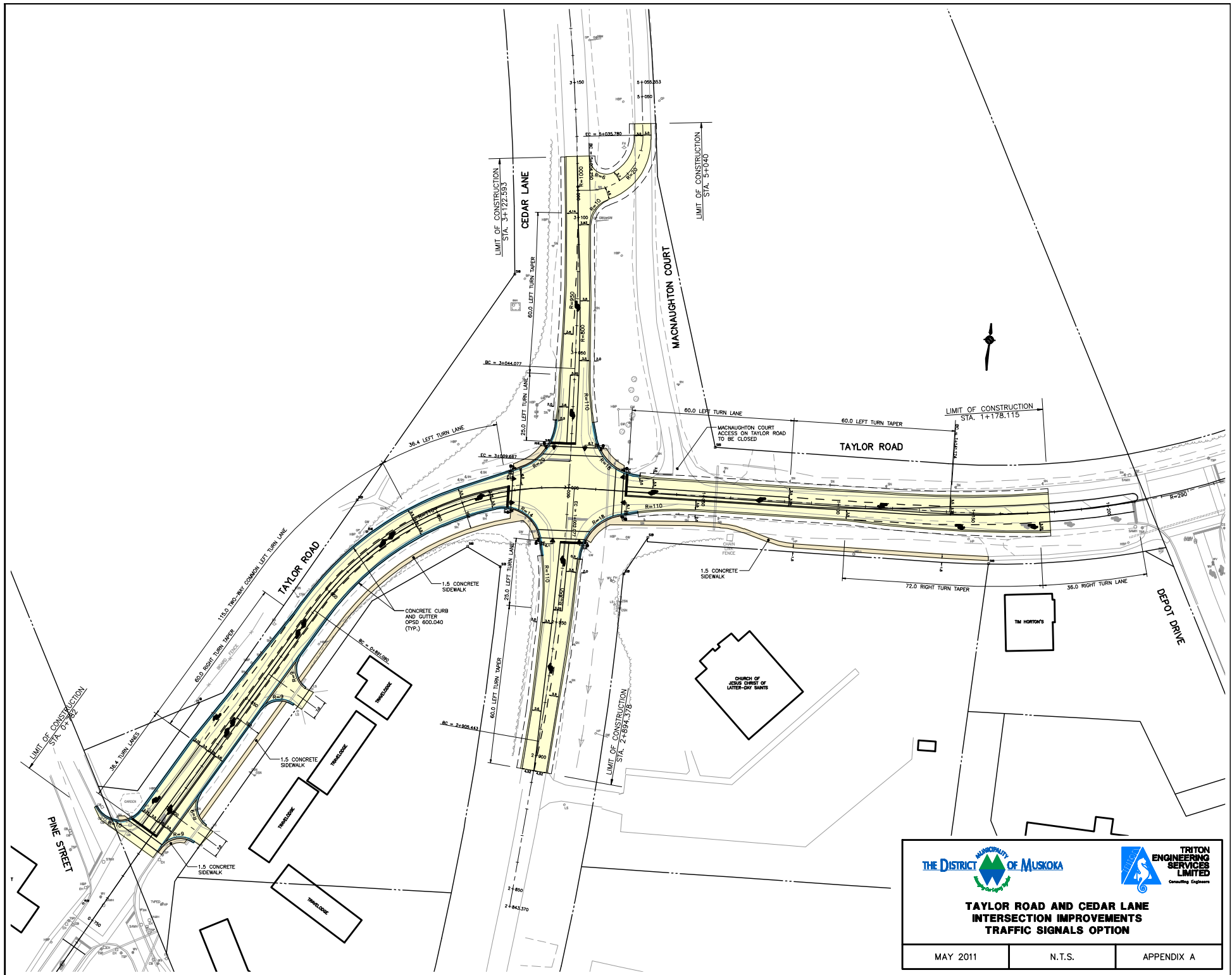
Respectfully submitted,



With the concurrence of,

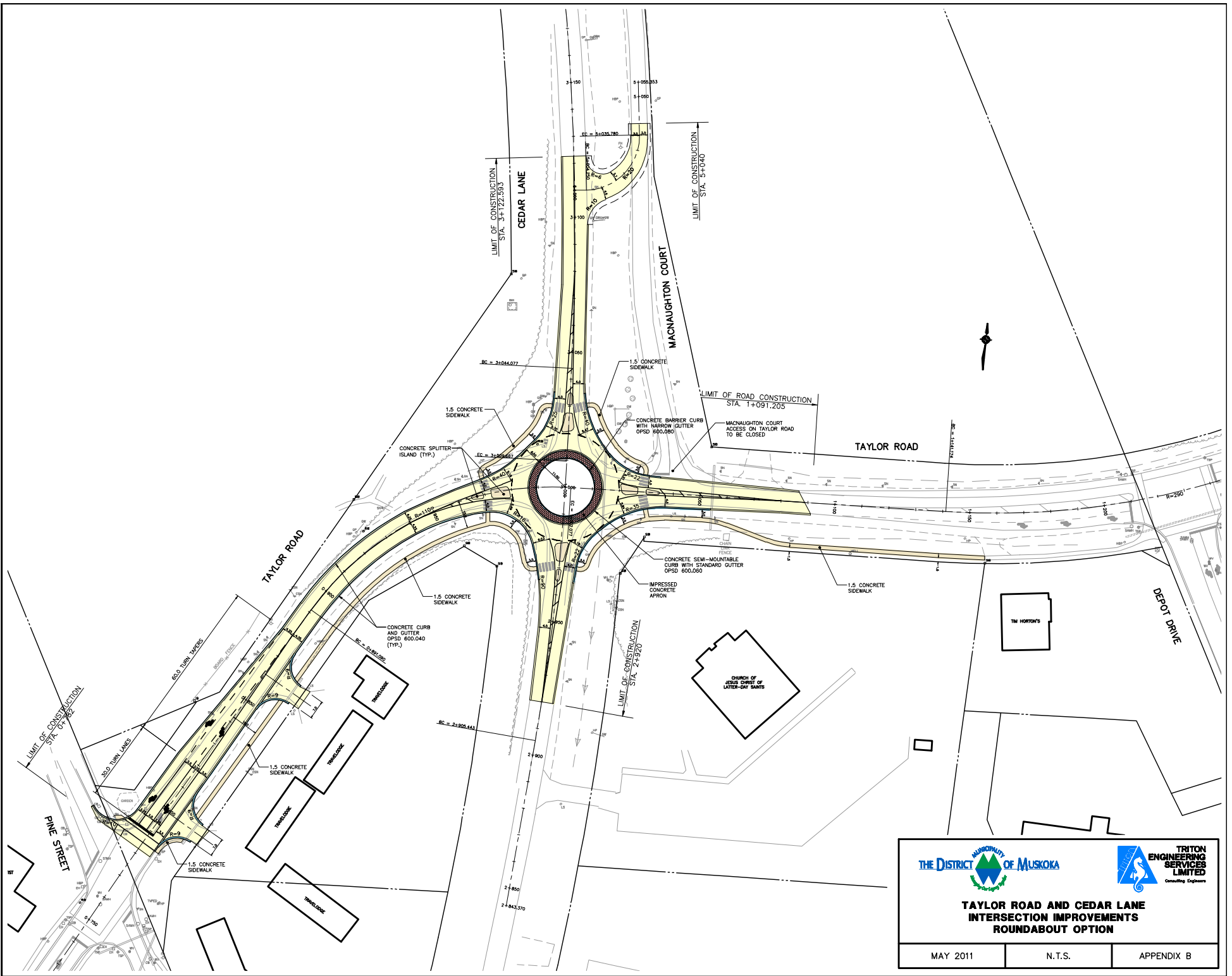


Craig Douglas, P.Eng.  
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Sharon Donald, CMA  
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<b>TAYLOR ROAD AND CEDAR LANE INTERSECTION IMPROVEMENTS TRAFFIC SIGNALS OPTION</b>		
MAY 2011	N.T.S.	APPENDIX A



**TAYLOR ROAD AND CEDAR LANE  
INTERSECTION IMPROVEMENTS  
ROUNDBOUT OPTION**