

COMMITTEE OF THE WHOLE – MAY 6, 2002

RECONSTRUCTION OF CLARENCE STREET RUTHERFORD ROAD TO MODESTO GARDENS TRAFFIC CONTROL AT INTERSECTIONS

Recommendation

The Commissioner, Development Services recommends:

- 1) That the following staff report on the results of public consultation on the use of alternate traffic control measures at the three intersections on Clarence Street between Rutherford Road and Modesto Gardens be received;
- 2) That staff complete the project design and proceed to tender the project for the alternative utilizing standard intersection design maintaining the existing all-way stop controls at the Clarence Street intersections with Wycliffe Ave. and Thompson Creek/Woburn.

Purpose

To seek Council concurrence regarding the type of traffic control measures to be incorporated in the Clarence Street reconstruction project at three intersections between Rutherford Road and Modesto Gardens.

Background - Analysis and Options

The reconstruction of Clarence Street from Modesto Gardens to Rutherford Road has been planned and designed as a Schedule B undertaking, following the requirements of the Class Environmental Assessment for Municipal Road Projects. This ensures that the public has an opportunity to provide input and that comments be considered during the process. Notices indicating the commencement of the EA process were published in the local papers in June 2000.

A Public Information Centre (PIC) was held on January 25, 2001, to present the various design concepts and background materials considered for this project. Notices of this PIC were provided through newspaper ads, letters and a notice board on Clarence Street. The PIC was well attended with over 60 names appearing on the sign in sheets. The residents and public in attendance were provided with handouts and comment sheets for their input. Based on the presentation materials provided by the City, the majority of residents attending the PIC were in favour of Option C – which includes roundabouts, curbs and sidewalks, street lights and landscaping features. A Notice of Completion was published on March 21, 2002 and submitted to the Ministry of the Environment providing the public with a 30-day comment period.

Detailed design based on the preferred Option C was prepared and a second PIC meeting was held on May 16, 2001, to present the final detailed design information on this project which reflected comments that were received and to provide a final opportunity to comment on the design. It is important to note that this second PIC is not required by the Environmental Assessment Process but rather reflects extra effort by staff to consult with the public regarding major capital projects during the detailed design phase. This PIC was also well attended (31 residents) and the majority of these residents were pleased with the proposed design. Any concerns or questions subsequent to the PIC were responded to in writing by staff.

A letter from the Belvedere Estates Ratepayers Association dated March 20, 2001, was received by the Engineering Department on May 25, 2001. Neither the Clerks nor the Engineering Departments have any record of receiving this letter at an earlier date. The letter expresses concerns regarding the proposed roundabouts in Option C. A response to the Belvedere Estates Ratepayers Association was sent on June 14, 2001.

The contract for the Clarence Street reconstruction project was planned to be tendered over the winter (in early 2002), with construction scheduled to commence in the spring of 2002 and completion by the fall of 2002 as originally planned.

In November of 2001, while staff was preparing to tender the contract, some residents expressed further concerns to Council and staff regarding the use of roundabouts instead of all-way stop signs at the intersections. Staff were therefore instructed to hold a third Public Meeting regarding the issue prior to tendering this project for construction.

A newsletter (refer to Attachment No. 1) was sent to the residents of the area through door-to-door delivery notifying them of the third public meeting which was held on February 27, 2002 with a signed attendance of over 60 people.

The meeting commenced with a brief introduction by the Executive Director of City Engineering and Public Works on the purpose of the meeting followed by a short slide and video presentation of the project rationale, the project history and a brief discussion on the alternatives of providing roundabouts or all-way stops at intersections. The public was presented with information on traffic movement at roundabouts and all-way stops together with the pros and cons of roundabouts and all-way stops with respect to some notable issues such as safety, speeding, traffic flow and environment.

The floor was then opened to the public for questions, opinions, comments and discussion. Comments for and against both alternatives were received. Before the end of the meeting the Executive Director of City Engineering and Public Works requested a show of hands and it was recorded that 40 attendees were in favour of the all-way stops while 21 were in favour of the roundabouts alternative. A copy of the presentation materials is attached (Attachment No. 2).

Based on the majority opinion at the third public meeting, staff was instructed to prepare an alternate incorporating all-way stops at the intersections. Since this involved a revised design after publication of the original Notice of Completion and submission to the Ministry of the Environment, a Revised Notice of Completion was published on March 13, 2002 and re-submitted to the Ministry (refer to Attachment No. 3). Under the Class Environmental Assessment process, a 30 day period was again given to the public to submit comments on the revised design.

Since publication of the Revised Notice of Completion, telephone calls, e-mails and letters were received by staff requesting reversion to the original roundabouts design. A letter of petition signed by a group of local residents was also received by the Executive Director of City Engineering and Public Works also requesting reversion to the original roundabouts.

Background on Roundabouts

Option C was rejected by the majority of residents at the third public meeting because of concerns with the three roundabouts proposed in the original road reconstruction design. Although roundabouts (or traffic circles) are a relatively new means of intersection traffic control in North America, they are often used in other countries because of certain advantages compared with traffic signals or allway stop controls.

These advantages are:

- Reduced delay: Roundabouts result in less delay than at allway stop controlled intersections because motorists only have to yield to traffic in the roundabout. This means reduced noise and emissions resulting from motorists stopping and starting their vehicles.
- Higher capacity: Because roundabouts reduce delay, they can increase the capacity of an intersection without the need for extra turn lanes.

- **Increased motorist safety:** Intersections with roundabouts experience fewer collisions than those with traffic signals or allway stop controls. Of the collisions that do occur, they are usually at shallow angles as motorists enter the roundabout, which is less severe than the head-on and right angle collisions common at standard intersections. Data from other countries show that roundabouts have reduced total collisions by as much as 61 percent, and collisions involving personal injury by as much as 87 percent. This is due to the slow speeds at which motorists must travel through roundabouts, and the fact that motorists entering a roundabout only have to deal with oncoming traffic in one direction (from the left), as opposed to three at a standard four-way intersection.
- **Increased pedestrian safety:** Intersections with roundabouts generally have shorter crossing distances for pedestrians because the diverter islands that accompany most of them act as pedestrian refuges, and because there are usually fewer approach lanes than with standard intersections. Data from other countries show that roundabouts have reduced collisions involving pedestrians by as much as 30 percent. This is because speeds are lower at roundabouts, and pedestrians only have to deal with oncoming traffic in one direction at a time.
- **Landscaping:** Roundabouts offer opportunities for treatments that make for distinctive and interesting streetscapes. They could be used on Clarence Street to notify motorists southbound from Rutherford Road that they are entering a "different" area, and that they should reduce speed and exercise caution.

Some residents at the third public meeting raised the issue of removing or signaling roundabouts. It may be that some traffic circles or rotaries, where motorists do not yield on entry, have been removed or replaced with roundabouts. However, true roundabouts have been very successful when implemented at appropriate locations, and have rarely been removed. A few roundabouts, particularly in the United Kingdom, have had signals or signal metering installed on some approaches because of higher-than-anticipated traffic volumes. This has occurred where it has not been feasible to add more approach lanes.

Other residents have expressed the concern that motorists in Vaughan may not be familiar with the operation of roundabouts, and may jeopardize their safety or the safety of others. The City of Vaughan currently has nine roundabouts in operation. To date, there has only been one reported collision: a single vehicle lost control and collided into the central island of a roundabout in the Woodbridge Expansion Area. The collision occurred at 2:00 am on a Sunday morning.

Staff are currently standardizing the dimensions and signage associated with all roundabouts in the City to ensure that certain vehicles are able to properly negotiate them, and that motorists are made aware of their operation.

Conclusion

Although the general consensus of the public appeared to be in favour of the roundabouts at the conclusion of the second Public Information Centre, the public opinion seems to be mixed between the two alternatives of roundabouts and all-way stops since that time. Given that there is divergent public opinion on the use of roundabouts and that public acceptance is key to the success of roundabouts in traffic management, staff recommend that the Clarence Street reconstruction project utilize standard intersection design without roundabouts.

Attachments

1. Notification to residents of third PIC
2. Third PIC presentation materials
3. Revised Notice of Completion

Report prepared by:

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Dan Stevens, P. Eng. – Manager of Engineering/Construction Services, ext. 8257

Respectfully submitted,

FRANK MIELE
Commissioner, Development Services

Bill Robinson, P. Eng.
Executive Director of City Engineering
and Public Works

FL:MC



February 12, 2002

**CLARENCE STREET RECONSTRUCTION
NEWSLETTER
(FROM RUTHERFORD RD. SOUTH TO MODESTO GARDENS)**

The City of Vaughan Engineering Department is completing the design of the Clarence Street Reconstruction Project. Two Public Information Centres were held on January 25, 2001 and May 16, 2001 to solicit feedback from area residents regarding design options. The majority of resolutions were in favour of the recommended option which included a new two lane road, curbs, storm drainage, sidewalks, wide boulevards with landscaping and traffic circles at the intersections.

Some residents have expressed concerns to City staff and Council regarding the use of traffic circles rather than all-way stop signs at the three intersections of Clarence and Andell/Chiffers, Thomann Creek/Wolman and Wycliffe (refer to the attached map). Staff are therefore holding a final Public Meeting regarding this issue prior to tendering this project for construction.



Public Meeting Date: Wednesday, February 27, 2002
Location: St. Andrews Catholic School
 151 Forest Fountain Drive
 Woodbridge, Ontario
 L4H 1S4
Time: 6:45 p.m. 8:00 p.m. - with a presentation at 7:00 p.m. sharp
Purpose: To review the pros and cons of traffic circles versus all-way stop signs at the 3 intersections and to decide on the preferred option.

(Note: Traffic volumes do not warrant the installation of traffic signals).

Please note that a recorded vote on the use of traffic circles versus all-way stop control at the intersections will be taken after the presentation and question and answer period.

If you cannot attend and would like to receive information about the project or this issue in particular, please contact Pat Marcantono at (905) 832-8523, ext. 8367.

Clarence Street Reconstruction Revised Notice of Completion Class Environmental Assessment

The above project is being planned under Schedule B in accordance with requirements of the Class Environmental Assessment for Municipal Road Projects. Subject to comments received as a result of this notice and the Public Meetings, the City of Vaughan intends to proceed with revisions to the detailed design and reconstruction of Clarence Street between Rutherford Road and Modesto Gardens. The revised plan for this project is to reconstruct the two lane road with all-way stop signs and left turn lanes at all intersections. This project is scheduled for tendering and construction in 2002.



This notice is to advise interested parties that subsequent to a recent public meeting held on February 27, 2002, it has been determined the provision of Traffic Circles (also called Roundabouts) at the intersections is less favourable to all-way stop provisions with left turn lanes.

Interested persons may submit comments within 30 calendar days from the date of this notice to the Executive Director of City Engineering and Public Works at the City of Vaughan. If concerns regarding this project cannot be resolved with the municipality a person may request a Part II Order ("bump-up") for an individual environmental assessment from the Minister of the Environment. If no "bump-up" request is received within 30 days of this notice the project will proceed to construction.

Minister of the Environment
135 St. Clair Avenue, 15th Floor
Toronto, Ontario M4V 1P5

This notice issued March 13, 2002.

Further information is available by contacting:

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Dill Robinson, P. Eng.
Executive Director of City Engineering and Public Works

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**Welcome to Our
Public Information Session
for
Clarence St. Reconstruction**

Meeting No. 3

6:45 p.m. to 8:00 p.m.
Wednesday, February 11, 2003





*Our goal is to provide you with
information and answer any
questions you might have
about this important project for
your community, particularly
concerning intersection
treatment.*





Purpose of this Meeting?

- To review information from previous meetings
- To discuss the alternatives of providing:
 - All-way stops at intersections
 - Turning Circles/Roundabouts at intersections



General Notes



- Staff are identified with name tags.
- Please sign the register.
- Please help yourself to the information package.



**Public Information Session
for the Clarence Street
Reconstruction**

Meeting No. 1



Meeting was held on
Thursday, January 23, 2003



Project Rationale



Why do we need to reconstruct this street at this time?

- Road pavement structure is deteriorating
- The road has been subject to many partial improvements over the years.
- No sidewalks exist along this road
- No streetlights exist to provide illumination for safety and security



Project Rationale – cont'd


- Drainage along the road is intermittent and substandard
- Traffic is travelling at significantly higher speeds than the posted speed
- The physical characteristics of this street are not comparable to other streets in the area

Project Challenges



What are some of the notable issues that need to be examined and addressed?

- Need to improve road while mitigating speeding
- Make the street pedestrian friendly
- Respect the natural resources, the adjacent parks and streams
- Need a cost-effective solution

Project Challenges – cont'd



- Must ensure the road meets the traffic needs for many years
- Provide a road design that addresses the sloping topography
- Provide efficient road drainage while implementing features to address water quality in the watercourses

Traffic Analysis

What did we discover about the current traffic situation?



- Traffic signals are not warranted at any local intersections.
- Current AADT (daily traffic) is about 4,000 to 5,000 vehicles per day and is expected to increase to 8,000 as development occurs in the area

Traffic Analysis – cont'd

- Left turn lanes, or alternative designs, are required at all intersections and will provide a good level of service (LOS)
- Current traffic speeds are well in excess of the posted speed (50 kph)


Average Speed		85 th Percentile Speed	
Northbound	Southbound	Northbound	Southbound
58 kph	63 kph	65 kph	70 kph

Design Options

What options have been considered for the proposed road design?

- Option A – a standard 2 lane design with turning lanes at intersections.
- Option B – a 2 lane design with a continuous centre median feature.
- Option C – a 2 lane design with traffic calming features such as turning circles

Design Options – cont'd

- *Option D* – a 4 lane design, 2 lanes in each direction. Similar to *Option A* with extra lanes (not shown)
- *Option E* – leave road as is with minor improvements or changes
- All options are for urban sections (curbs and storm sewers) to be compatible with the surrounding developed areas.

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Engineering

Preferred Option

What is the preferred road design? *Option C*

Why?

- Traffic calming features are incorporated:

"Traffic Calming... the combination of multiple physical measures that reduce the negative effects of motor vehicle use, alter driver behaviour, and improve the conditions for non-motorized street users."

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Engineering

Why Option C? – cont'd

- Promotes slower traffic using a narrow road width
- Facilitates the controlled movement of traffic through the use of traffic islands/circles
- Traffic circles are environmentally friendly – less fuel consumption, less wear on tires and brakes

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Why Option C? – cont'd

- Highlights pedestrian crossing areas through use of textured and coloured pavement
- Enhanced landscaping provides roadside "friction" while improving the aesthetic character of the street
- Decorative lighting fixtures are compatible with surrounding residential neighbourhoods

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Public Information Session for the Clarence Street Reconstruction

Meeting No. 2

Meeting was held on
Wednesday, May 11, 2005

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Why a second Public Meeting?

- As follow-up to the first meeting as indicated at that time
- An opportunity to provide more detail than available at preliminary design
- The design drawings incorporate comments from first meeting

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Why a second Public Meeting? – cont'd


- Residents had an opportunity to review the final details – particularly for turning circles and landscaping
- A chance for possible refinements based on input received at this meeting

Vitaphan


**Welcome to Our
 Public Information Session
 for
 Clarence St. Reconstruction**


Meeting # 3


6:45 p.m. to 8:00 p.m.
 Wednesday, February 25, 2003

Vitaphan


Purpose of this Meeting?

- To discuss the alternatives of providing:
 - Turning Circles/Roundabouts intersections
 - All-way stops at intersections

Vitaphan




Vitaphan
 All-Way Stops & Left Turn Lanes





Vitaphan
 Roundabout Design


**Operation at
 All-Way Stops**

What to do at an all-way stop:

- Bring your car to a full stop
- Check for approaching traffic in all directions
- Yield to cars to the right
- Wait for a gap in traffic
- Proceed when safe to do so

Vitaphan


Operation at Traffic Circles/Roundabouts

What to do at a Roundabout:

- Slow down as you approach
- Watch for vehicles to the left
- Yield to traffic in the circle
- Proceed into the next available gap
- Exit the circle at the appropriate location

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All-Way Stops vs. Traffic Circles/Roundabouts

Some notable issues that need to be examined:

- Safety
- Speeding and Traffic Flow
- Environment

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Safety

- Traffic Circles/Roundabouts can reduce the frequency and severity of accidents
- provision of median islands provide refuge for pedestrians
- drivers have more reaction time while navigating circles

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Speeding & Traffic

- current traffic speeds are well in excess of the posted speed (50 kph)
- speed reduction is caused by geometry rather than traffic control devices
- speed reduction can be realized at all times of day & on streets of any volume
- traffic volumes (flow through) are similar to those of all-way stops

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ENVIROPLAN

Environment

- less fuel consumption due to less delay times and not stopping and then accelerating
- less pollution due to no motor idling and excessive fuel burning during acceleration
- quieter operation due to less tire squeal during stopping and starting
- more aesthetically pleasing due to landscaping with trees and shrubs

ViaQuest
ENVIROPLAN

Annual Average Crash Frequencies

All U.S. intersections converted to Roundabout

Type of Roundabout	No. Sites	Before Roundabout			Roundabout			Percent Change		
		Acc	PDD	Total	Acc	PDD	Total	Acc	PDD	Total
Circle	4	22	24	46	0.9	1.8	2.7	-95%	-92%	-94%
Miniature	2	2.8	16.7	20.5	4.0	11.5	15.5	-86%	-85%	-86%
Total	6	24.8	40.7	66.5	4.9	13.3	18.2	-90%	-89%	-90%

Note:
 1 - Average Number of crashes annually per intersection
 2 - Acc = Personal Injury
 3 - PDD = Property Damage Only

See Appendix 11. In addition to the 6 Roundabout Intersections listed above, there are 100 other Roundabout Intersections.

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ENVIROPLAN

Mean Crash Reductions in various countries

Country	Mean Reduction (%)	
	All Crashes	Property Crashes
Australia	41 - 61%	47%
France		57%
Germany	38%	
Netherlands	47%	
United Kingdom		25 - 39%
United States	37%	51%

Source: FHWA/HTL/97/12 - An International Study of 40 Intersections of Transportation Planning Products, Inc./October, December, 1998.

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All-Way Stops vs. Traffic Circles/Roundabouts

Criteria	All-Way Stops	Roundabouts
Safety	more conflict points	less conflict points
Speeding	does not limit speed between intersections	more vigilance throughout the section of road
Liability	intersection and signage governed by MUTCD & MUTCD	intersection and signage specifically addressed
Traffic	restricts flow of traffic	permits continuous flow
Flexibility	none	opportunities for variable

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- ### What's Next?
- Receive comments on Traffic Circles/ Roundabouts vs All-Way Stop (Q and A period)
 - Final plans will be prepared
 - Project will be tendered in early 2002
 - Contractor will start work asap
- Vitacore
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Thank You for attending this presentation.

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