DEVELOPMENT AND INFRASTRUCTURE SERVICES – ENGINEERING SERVICES
TOWN OF NEWMARKET
395 Mulock Drive
P.O. Box 328
Newmarket, ON L3Y 4X7
www.newmarket.ca
info@newmarket.ca
905.895.5193

May 11, 2016

DEVELOPMENT AND INFRASTRUCTURE SERVICES ENGINEERING SERVICES 2016-24

TO: Mayor and Members of Council

SUBJECT: Savage Road / Sandford Street Traffic Review

ORIGIN: Commissioner of Development & Infrastructure Services

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RECOMMENDATIONS

THAT Development and Infrastructure Services Report – ES 2016-24 dated May 11, 2016 regarding "Savage Road / Sandford Street Traffic Review" be received and the following recommendations be adopted:

1. **THAT bicycle lanes be proposed to the households on Sandford Street from Mulock Drive to Savage Road with the possible extension along Savage Road to the Paul Semple Park entrance, and a report be brought back to Council on this issue.**

2. **AND THAT the households along Savage Road and Sandford Street from Mulock Drive to Savage Road be informed of the traffic calming measures to be implemented.**

BACKGROUND

Over the years, the Town has received requests to review speeds and all-way stop warrants on a number of road sections and intersections on both Savage Road and Sandford Street. More recently, with the construction of vivaNext on Yonge Street, this area may be experiencing an influx of traffic attempting to avoid the construction activities.

Engineering staff have determined that this would be a good opportunity to review all of the streets in the Savage/Sandford area and apply any traffic mitigation deemed necessary. The Engineering Services team are currently creating a policy for a Town-wide traffic mitigation strategy, and is considering introducing traffic-calming techniques.

COMMENTS

The Town studied the speeds, volumes, key turning movements and collisions in the study area along Savage Road and along Sandford Street from Savage Road to William Roe Boulevard. The detailed analysis and results can be found in Appendix A.

In summary, the traffic volumes for a section of Savage Road between Yonge Street and Sandford Street, and Sandford Street from Savage Road to Mulock Drive, are within the volume range expected from a residential collector road, but are approaching the upper limits. The turning movement analysis indicates a percentage of vehicles are likely using the Savage/Sandford route as a bypass to the Yonge/Mulock intersection. This may increase as vivaNext Yonge construction continues. As for speeds, several sections of Savage Road and Sandford Street are approaching the policy limit of 55 km/h (15 km/h over the posted limit). The Town has undertaken speed mitigation measures through the Speed Management Program which has had some success.

Engineering staff are working on the Town-wide Traffic Mitigation policy, and in a concerted effort to be proactive, Engineering staff are recommending a few pilot program ideas for the area. The following mitigation measures are:

1. **Focused boulevard signs**. As a continuation of the previous successful lawn sign campaigns, the Town would be administering targeted boulevard signs. These signs would be placed in areas where the speed management program (speed trailers and pole-mount signs) is implemented.
2. **Enhanced Speed Management Equipment**. Currently, the radar speed signs are rotated every week, mainly to charge batteries. The Town would place a solar-powered pole-mounted speed sign on Sandford Street. This sign would be installed for a period of one month or more, and not for only one week.
3. **Enhanced Intersection Design**. As part of the initiative to increase the visibility of pedestrians at intersections (increased pedestrian safety), the Savage/Sandford intersection would be targeted for line painting improvements. This would include the installation of a ladder-type painted pedestrian crossings at each stop sign in the intersection. This is similar to what is being done at by York Region at their signalized intersections.
4. **Active Transportation Plan**. The Active Transportation Plan includes implementing on-street bicycle lanes, with a priority and hierarchy of facilities as recommended in the Town's Active Transportation Plan. Bicycle lanes narrow the travel path for vehicles, which results in reduced traffic speeds. It is recommended that bicycle lanes be implemented on Sandford Street from Mulock Drive to Savage Road, with an extension along Savage Road to Paul Semple Park. The Community on Sandford Street would lose on-street parking but

gain a permanent traffic-calming feature and an active transportation feature. This would need to be further studied with public consultation, especially with respect to parking.

5. **Road Diet**. Engineering Staff recently attended a demonstration of the use of flexible bollards to create a roadway "pinch-point'. This road diet system reduces the width of the travelled portion of the roadway, thereby slowing down drivers. The section of Savage Road between Shanahan Boulevard and Sandford Street, and the section of Savage Road between Yonge Street and Jelley Avenue, would be two good locations to try this type of traffic calming. It should be noted that this particular system is removed for the winter months to allow plowing of the roads.

BUSINESS PLAN AND STRATEGIC PLAN LINKAGES

- Well Planned and Connected…strategically planning for the future

CONSULTATION

Town representatives have met with local residents on this issue. This report specifically addresses four areas of community concerns.

HUMAN RESOURCE CONSIDERATIONS

No impact on current staffing levels.

BUDGET IMPACT

The budget for this initiative would be from the Traffic Management Operating Budget.

The approximate cost of the above initiatives are:

1. Bicycle lane on Sandford from Mulock Drive to Sandford Street with the extension along Savage Road to Paul Semple Park: $4,950
2. Intersection enhancement at the Savage/Sandford intersection: $5,500
3. The Road Diet hardware at two locations: $2,500

The remaining items like the boulevard signs and additional pole-mount equipment have been budgeted for and purchased, and are being deployed at this location and throughout the Town.

CONTACT

For more information on this report, please contact Mark Kryzanowski at 905-953-5300 extension 2508; or at mkryzanowski@newmarket.ca via e-mail.

W. Gould, A.Sc.T.,
Senior Transportation Coordinator

M. Kryzanowski, M.C.I.P., R.P.P.
Manager, Transportation Services

Rachel Prudhomme, M.Sc., P. Eng.
Director, Engineering Services

Peter Noehammer, P. Eng.
Commissioner,
Development & Infrastructure Services

Appendix A

The study area is Savage Road and Sandford Street from Savage Road to William Roe Boulevard. The traffic review focuses on speeds, volumes and recorded collisions.

Speeds

The table below indicates the historic speeds for the various sections of the study area. The Town developed a Transportation Management Policy (2009) to deal with speeding based on the operating speeds. Operating speeds are considered the 85th percentile of recorded speeds, so 85% of all vehicles are travelling at this speed or less. The Policy states that the operating speed of 55 km/h determines the method of mitigation.

At 55 km/h or less, the Policy requires that Category 1 measures be used, which include additional signage and pavement markings, enforcement and the application of the Town's Speed Management Program. Above 55 km/h operating speeds, the Policy also indicates that Category 1 measures be implemented to reduce speeds, and failing reasonable speed reduction, more aggressive Category 2 measures may be implemented if deemed necessary.

Road Section	**Operating Speed**							
Savage	2006	2007	2008	2011	2012	2013	2014	2015
Yonge (south) to Jelley	54		54		55	54		54
Jelley to Sandford	51					51		54
Sandford to Yonge (north)			51		**58**	55		53
Sandford								
Savage to Mulock		53		54		53	54	
Mulock to Lloyd								42
Lloyd to William Roe		47					49	

Over the past 10 years, with the exception of Sandford Street north of Mulock Drive, traffic speeds have been relatively consistent, averaging 50 km/h to 55 km/h. It should be noted that the Town has been implementing available Category 1 measures on the subject streets since at least 2010, with speed trailers being deployed twice yearly on these streets over the last several years. Although the data confirms that speeds remain somewhat higher than they should be for a residential collector road, the Category 1 measures have kept the speeds consistently below the policy level of 55 km/h.

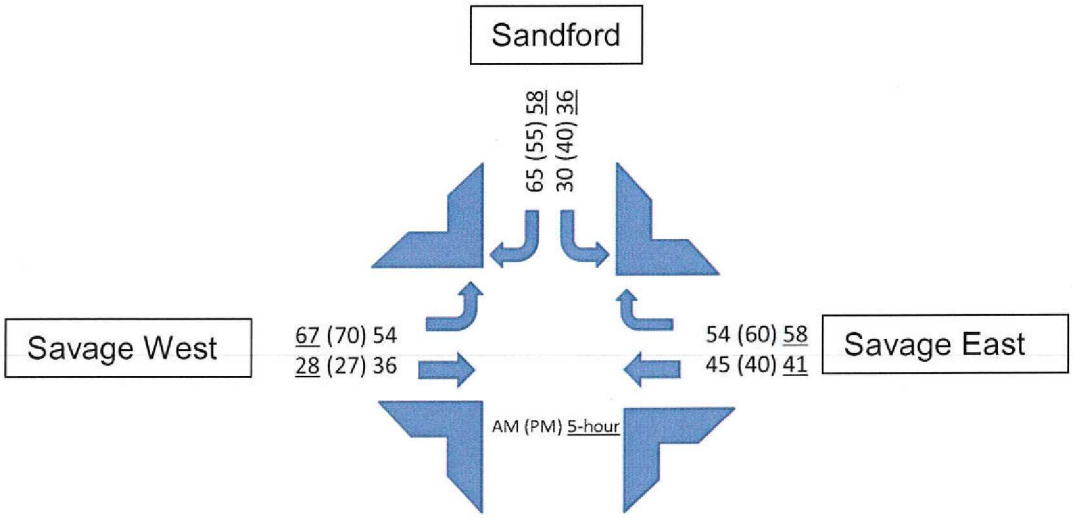
Volumes

The table below indicates the historical daily traffic data for the study area. Daily traffic is defined as the average traffic volume from seven continuous days of counting. Typically, for a Town residential collector road, we anticipate daily traffic volumes of between 1,500 and 5,000 vehicles per day.

Road Section	**Average Daily Traffic**							
Savage	2006	2007	2008	2011	2012	2013	2014	2015
Yonge (south) to Jelley	1470		1665		1830	1630		1735
Jelley to Sandford	3170					2205		2920
Sandford to Yonge (north)			4660		4045	4895		4475
Sandford								
Savage to Mulock		**6545**		4860		**5120**	**5150**	
Mulock to Lloyd								3570
Lloyd to William Roe		3955					3485	

The most successful traffic volume mitigation measures are implemented with minimal impact to traffic operations on the arterial road system and without impacting the community's ability to access their local streets. In the past, the Town, in collaboration with The Regional Municipality of York Region, considered revising the traffic signal timings at the Mulock/Sandford intersection to reduce the traffic inflow and to create increased left-turn capacity at the Mulock/Yonge intersection. The transportation network design of the community, however, is the main contributor to traffic volume challenges in the subject area. The community has only three (3) intersections to exit/enter the area – Savage Road (north leg) at Yonge Street, Savage Road (south leg) at Yonge Street and Sandford Street at Mulock Drive. As well, volumes on Sandford Street are relatively high, as Sandford offers the best access to Mulock Drive, and is the most direct route to Highway 404 (there is a partial south-to-south interchange at Highway 404 and Mulock Drive).

The most important intersection in the community is the Sandford/Savage intersection. Engineering staff reviewed turning percentages detailed in a 2014 turning movement count. The turning movement volumes at this intersection confirm that the local community accounts for higher traffic volumes on Sandford Street. The diagram below indicates the percentages of the key movements for the a.m., p.m. and five-hour total time periods. Generally, the a.m. peak hour includes school traffic to Armitage Public School while the p.m. peak hour does not. The five-hour total captures the school traffic.



Turning Movement Analysis

1. The percentages from the Savage East leg confirmed Engineering staff expectations and represents primarily community traffic.
2. The Savage West leg numbers were split between 1) typical community traffic for the through movement and 2) proportionally higher traffic for the left turn movement. The 70% value for the p.m. peak hour left turn movement indicated infiltration traffic.
3. The Sandford leg illustrated a distinct split between 1) primarily community traffic turning left (30 (40) 36) and 2) a combination of community traffic and infiltration traffic for the right turn movement. The a.m. was expected to be slightly higher due to trips destined to either Sir William Mulock High School or St. John's Chrysostom CES on the west side of Yonge Street. This traffic originated from the community north of Sandford Street. As well, the p.m. percentage was higher because this movement count likely included patrons of the large commercial plaza fronting Yonge Street.

Turning Movement Concerns

The intersection turning movement values indicate possible areas of concern:

1. The volumes generated from the local Sandford Street community likely account for a large portion of Sandford traffic because this portion of the community has only two intersections for access and exit: Mulock Drive or Savage Road.
2. The Savage portion of the community has slightly more than 1,000 homes, which likely generate 7,000 to 10,000 daily trips. The Sandford Street portion of the community has

about 300 homes which equates to 2,100 to 3,000 trips per day. However, the large commercial land uses on Yonge Street contribute to traffic volumes on Savage Road.

Collisions

Collision data determines areas which have traffic safety issues based both on the number (rate) and type of collisions. Generally, the collision rates on the road sections and intersections in the study area were quite low, with an average of one collision or less per year. In some years, there were no collisions. However, the Savage/Sandford intersection has the highest collision rate in comparison to the others, with 14 recorded collisions since 2000. The following table illustrates the collision information at this intersection.

	Year	Environment Factor	Impact Type	Classification	Possible Cause
1	2000	Rain	Re-end	Non-reportable	n/a
2	2003	Clear	Rear-end	Property Damage	n/a
3	2004	Rain	Rear-end	Property Damage	n/a
4	2005	Clear	Rear-end	Property Damage	n/a
5	2006	Rain	Approaching	Property Damage	n/a
6	2008	Clear	Rear-end	Property Damage	n/a
7	2009	Rain	Rear-end	Property Damage	Speed
8	2009	Clear	Turning	Injury	Fail to yield
9	2011	Clear	Angle	Property Damage	Fail to yield
10	2014	Clear	Rear-end	Injury	Follow too close
11	2014	Clear	Rear-end	Property Damage	Follow too close
12	2015	Clear	Rear-end	Property Damage	Speed
13	2015	Clear	Other	Property Damage	Lost control
14	2015	Clear	Angle	Property Damage	Fail to yield

With the stated traffic volumes, the incidence of collisions at the subject intersection was anticipated. The interesting trend over the years is that a majority of collisions were rear-end impacts. The environment during collision events was not a significant factor. The possible cause was listed as driver error, which typically indicates speeding.

Conclusion

Based on average daily traffic volumes, turning movements and collision data, there are slightly higher than anticipated traffic volumes on Sandford Street between Savage Road and Mulock Drive. Although the speeds have remained somewhat consistent in recent years, they are approaching the 15 km/h threshold in the area, with the exception of lower speeds on Sandford Street, between Mulock Drive and William Roe Boulevard.

Road Diet approximate locations

Intersection Enhancement

Proposed Bicycle Lanes