

Committee of the Whole (1) Report

DATE: Tuesday, June 09, 2020

WARD(S): 1

TITLE: MELVILLE AVENUE TRAFFIC OPERATIONS REVIEW

FROM:

Zoran Postic, Deputy City Manager, Public Works

ACTION: FOR INFORMATION

Purpose

To inform Council of the key findings of the Melville Avenue traffic operations review from Rutherford Road to Major Mackenzie Drive.

Report Highlights

- A traffic operations review has been completed per Council direction of June 18, 2013. Overall, Melville Avenue is operating as designed and is serving its intended function within the transportation system.
- Total recorded traffic and heavy truck traffic volumes are representative of the designated roadway classification.
- Vehicle speeds through Melville Avenue were found to exceed the posted speed limits with low compliance. Increased enforcement is recommended.
- Recommended short-term improvements include the installation of pavement markings, 40km/h signs with flashing beacons, and pedestrian countdown signals at the intersections of Melville Avenue with Avro Road and Springside Drive.
- Recommended long-term improvements include installation of gateway features at Major Mackenzie Drive and Rutherford Road intersections and separated cycling infrastructure.

Recommendations

1. That this report be received.

Background

At the June 18, 2013 Committee of the Whole meeting, Council directed staff to undertake a traffic operations review to identify potential speed management strategies for Melville Avenue from Rutherford Road to Major Mackenzie Drive.

Melville Avenue is a four-lane major collector roadway between Rutherford Road and Major Mackenzie Drive, consisting of a 26.0 metre right-of-way and a 13.5 metre pavement width. Melville Avenue, as a collector roadway, is designed to provide both land access and service traffic.

Melville Avenue is the only alternate north-south collector roadway between Jane Street and Keele Street that provides a transportation link between the arterial roadways of Rutherford Road and Major Mackenzie Drive. A location map is outlined in Attachment 1. There are commercial/retail and municipal uses located at the north and south ends of the corridor, and rear-lot single-family residential dwellings abutting the length of Melville Avenue between Rutherford Road and Major Mackenzie Drive. Municipal sidewalks exist along both sides of the roadway. Transit service is provided along Melville Avenue.

The City has studied traffic operations, safety and heavy vehicle traffic along Melville Avenue in the study area for over 10 years in response to Council and community requests. Several measures have been implemented on Melville Avenue over that period including:

- A Community Safety Zone with a speed limit of 40km/h;
- An all-way stop control at the intersection of Parktree Drive and Springside Road, near Maple High School;
- Centre medians along Melville Avenue to manage speeds;
- Long term speed radar message boards, near the Community Safety Zone; and
- A northbound left turn advance green at the intersection of Rutherford Road and Melville Avenue was activated to improve intersection operations.

Trucks are permitted to travel on major collector roadways. As outlined in previous Council reports, all previous studies undertaken have determined that the volume of trucks travelling on Melville Avenue is not excessive and is within the limits of a roadway of this classification and design. In accordance with the Transportation Association of

Canada (TAC) design manual, where buses and larger trucks are expected to regularly use a lane, a minimum lane width of 3.3 metre is recommended regardless of design speed or traffic volume. The lane width on Melville Avenue is 3.5 metres.

At its June 18, 2013 meeting, the Committee of the Whole directed staff to undertake a study identifying potential speed management strategies for Melville Avenue between Rutherford Road and Major Mackenzie Drive. Since that time, citizens have raised concerns about heavy truck traffic on Melville Avenue and requested that a prohibition be considered on this roadway (as outlined in Attachment 2).

An independent consultant was selected to undertake a comprehensive traffic operation review on Melville Avenue.

The City retained Paradigm Transportation Solutions Limited as an independent consultant to conduct a comprehensive traffic operation review of Melville Avenue. The study included a review and assessment of the roadway characteristics, traffic operations, travel speeds, heavy vehicle volume, walking and cycling infrastructure, and identification of any potential design and operational safety improvements. An executive summary of the study is attached (Attachment 3).

Previous Reports/Authority

Committee of the Whole Report No. 21, Item 42, May 18, 2010 Extracts
http://meetingarchives.v Vaughan.ca/extracts_2010/pdf/21cw0511ex-10.pdf

Committee of the Whole Report No. 21, Item 42, May 18, 2010
https://meetingarchives.v Vaughan.ca/council_2010/pdf/21cw0511m-10%20shortreport.pdf

Committee of the Whole Report No. 32, Item 11, June 28, 2011 Extracts
<https://vol.vgn.cty/departments/OCC/Council%20Secretariat/Extracts%20Library/2011/Committee/32cw0614ex-11.pdf#search=Melville%20Avenue%20%2D%20Traffic%20Analysis.pdf>

Committee of the Whole Report No. 23, Item 24, June 4, 2013.
https://www.v Vaughan.ca/council/minutes_agendas/ShortReports/23cw0521m_13%20short%20report.pdf

Committee of the Whole Report No. 32, Item 21, June 25, 2013 Extracts
https://www.vaughan.ca/council/minutes_agendas/Extracts/32cw0618_13ex_21.pdf

Committee of the Whole Report No. 34, Item 6, October 5, 2016
https://www.vaughan.ca/council/minutes_agendas/AgendaItems/CW1005_16_6.pdf

Analysis and Options

The following are the findings of the comprehensive traffic operations review.

Melville Avenue is operating as designed and is serving its intended function within the overall transportation system.

Melville Avenue is constructed and operates as a four-lane urban collector roadway in accordance with the Ministry of Transportation (MTO) Design Supplement and Transportation Association of Canada (TAC) Design Guide for Canadian Roads.

Melville Avenue has a design speed of 60-70 km/h (20 km/h over the posted maximum speed limits) and an AADT (Average Annual Daily Traffic) greater than 6,000 vehicles. The lane width is 3.5 metres, which is permitted for this type of road.

The level of heavy truck volume on Melville Avenue ranges from 1.19% to 1.76%, which is within the range anticipated for a major collector roadway.

To assess the traffic conditions on Melville Avenue, vehicle volume, speed, vehicle classification counts, and a truck traffic origin and destination study were conducted. In addition, pedestrian studies were also undertaken and analyzed.

As an urban major collector, Melville Avenue was designed to accommodate all types of vehicles and enable both traffic movement and land access. Goods movement is important to Vaughan's economic vitality. In the City's Official Plan, policies include, supporting an integrated and efficient transportation network for the movement of goods.

Table 1 shows the most recent daily 24-hour traffic counts, and the percentage of heavy trucks along the corridor. These counts were recorded for three consecutive 24-hour periods. The data summarized in the table represents the average of the three days of data recorded.

Table 1: Daily Traffic Volume Along Melville Avenue

Location along Melville Avenue	Date	Direction	Average Daily Total Traffic	Percentage Trucks
North of Avro Road	April 2018	NB	6,230	3.74%
		SB	6,128	3.56%
		<i>Two-way</i>	<i>12,358</i>	3.65%
Between Norwood Avenue and Eddington Place	April 2018	NB	4,804	0.85%
		SB	5,893	2.49%
		<i>Two-way</i>	<i>10,697</i>	1.76%
Between Parktree Drive and Hawker Road	April 2018	NB	4,412	1.21%
		SB	5,222	2.15%
		<i>Two-way</i>	<i>9,634</i>	1.71%
North of Rutherford Road	April 2018	NB	6,123	0.68%
		SB	6,498	1.68%
		<i>Two-way</i>	<i>12,621</i>	1.19%

The average two-way daily traffic along the Melville Avenue corridor ranges between 9,634 to 12,621 vehicles. The daily percentage of trucks observed along Melville Avenue is in the range of 1.19% to 1.76%. The section north of Avro Road was found to experience a higher volume of heavy vehicle traffic principally due to the adjacent retail plaza and supermarket. On review of the hourly traffic profiles, the average heavy truck volumes are less than 10 per hour. The vehicle classification data shows that 81% to 90% of the 1.19% to 1.76% of truck traffic were delivery vehicles, small size concrete trucks, and waste collection trucks that were likely engaged in services on local connecting roadways. Therefore, limiting truck traffic on Melville Avenue may potentially have little effect or no effect in reducing the number of trucks operating in this corridor.

The observed daily number and percentage of trucks is within the range for a major collector roadway and is comparable to similar four lane major collector roadways, such as Clark Avenue, and New Westminster Drive.

Heavy truck access is required for the commercial/retail properties at the north and south ends of the corridor. Heavy trucks and service vehicles essential to the delivery of City services - such as snow ploughs, salters, sweepers, and vacuum trucks - are most efficiently operated using the Melville entrance of the Joint Operations Centre (JOC). As an example, snow ploughs utilize the Melville Avenue exit from the JOC during the winter months to deploy to various areas of the City – including the local roadways connecting to Melville Avenue.

Prohibiting heavy trucks on this roadway could create access, routing and delivery difficulties to business within the corridor. The truck prohibition could also displace heavy vehicle traffic to nearby residential streets.

Speeds on Melville Avenue are within design operating guidelines; however, they are not in keeping with the desired operating speeds of the community.

The posted speed limit is 50 km/h between Rutherford Road and Hawker Road, and between Norwood Avenue and Major Mackenzie Drive. A Community Safety Zone is designated between Norwood Avenue and Hawker Road, with a 40 km/h posted speed limit.

Table 2 shows the speed data collected along the corridor, indicating that vehicle operating speeds (85th percentile) consistently exceed the posted speed limit with very low compliance.

Table 2: Speeds on Melville Avenue

Road Section	Date	Posted Speed Limit	85 th Percentile Speed (NB/SB)	Percentage Driving Above Speed Limit (NB/SB)
North of Avro Road	April 24-26 2018	50 km/h	56 km/h/71km/h	51.2%/88.1%
	October 6-8 2015	50 km/h	64 km/h/63km/h	85.2%/67.3%
	April 28-30 2015	50 km/h	61 km/h/69km/h	75.8%/84.6%
Norwood Avenue to Eddington Place	April 24-26 2018	40 km/h	58 km/h/62km/h	89.7%/95.5%
Hawker Road to Parktree Drive	April 24-26 2018	40 km/h	50 km/h/56km/h	64.9%/76.4%
	October 6-8 2015	40 km/h	59 km/h/56km/h	89.8%/76.2%
North of Rutherford Road	April 24-26 2018	50 km/h	61 km/h/63km/h	65.6%/64.7%
	November 24-26 2015	50 km/h	62 km/h/63km/h	66.2%/72.3%
	April 28-30 2015	50 km/h	61 km/h/53km/h	70.7%/23.2%

Comparisons with available historical speed data shows overall travel speeds have decreased slightly. This may be attributed to the installation of radar speed boards on Melville Avenue within the Community Safety Zone to raise awareness of motorist's travel speeds. Data collected in 2015 as part of Item 6, Report No. 34, of the Committee of the Whole meeting on October 5, 2016 demonstrates that radar speed boards are effective as both a community tool to raise motorist awareness of travel speeds, and as influencers of vehicle speed reduction where installed. Additional measures have been identified to manage speed through the corridor such as pavement markings, a 40km/h sign with flashing beacon, and increased York Regional police enforcement.

Review of collision incidences along Melville Avenue did not identify significant or immediate road safety concerns.

A traffic safety assessment was undertaken as part of this operational review to determine the safety performance of the Melville Avenue corridor. This assessment supplements the analysis of heavy vehicle traffic along the study area corridor.

Typically, three to five years of collision data is assessed in a traffic operations study. Given the nature and history on Melville Avenue, eight years of collision history – from January 2012 to July 2019 – was examined and analyzed. The findings are as follows:

- No significant or immediate road safety concerns were identified.
- No fatal collisions were reported.
- Most reported collisions involved property damage only (no injuries).
- Several collisions at the Melville Avenue and Avro Road intersection and at the Melville Avenue and Springside Road intersection were related to motorists disobeying the traffic signals.
- Only one collision involving a heavy truck was reported at the Fortino's access driveway on Melville Avenue. The impact was a turning movement, resulted in property damage only and was due to driver error (e.g. failing to yield to right-of-way).
- The current volume of trucks travelling along Melville Avenue is not damaging the pavement structure of the hard-surfaced roadway.

Minor improvements are recommended at the Melville Avenue intersections with Rutherford Road and Major Mackenzie Drive (connections to the Regional arterial network); specifically, traffic signal control timing adjustments to improve traffic operations and associated vehicle queuing.

Study area intersections under the jurisdiction of the City were all found to be operating at acceptable levels of service and well within capacity. The Melville Avenue intersections with the arterial roads of Major Mackenzie Drive and Rutherford Road were observed as having several movements approaching or at-capacity. Relatively minor improvements

could be made to increase intersection capacity through adjustments to signal phasing and timing. However, the extent of timing adjustments would be limited due to signal coordination of adjacent intersections on Major Mackenzie Drive and Rutherford Road (Regional arterial roads).

Separated cycling infrastructure on the Melville Avenue corridor should be considered.

Pedestrian infrastructure within the Melville Avenue corridor is continuous and connects with the overall pedestrian network. Mid-block crossings and adequate facilities (including delineated ladder crosswalks and pedestrian signal heads at intersections) are provided. However, the Melville Avenue corridor is lacking cycling infrastructure. Currently, those riding a bicycle have to either share the road with other vehicles or ride on the sidewalk with pedestrians. Separated cycling infrastructure on Melville Avenue was identified in the 2019 Pedestrian and Bicycle Plan Update. Future cycling infrastructure will also connect to planned separated cycling facilities on Major Mackenzie Drive and Rutherford Road.

Short-term and long-term improvements have been identified to manage speed, enhance traffic operations, support all modes of travel, and to provide an identity for the Melville Avenue corridor.

Speeding throughout the corridor, and minor intersection related issues within the corridor have been identified in the study.

Short-term initiatives identified to address both issues include:

- Install stencilled pavement markings indicating “SLOW” as a pilot within the Community Safety Zone to visually alert motorists that they have entered a different section of Melville Avenue;
- Install a flashing 40 km/h sign within the school zone to increase awareness of the school area and the reduced speed limit;
- Request increased York Regional Police enforcement to increase driver compliance;
- Launch education and communication material to residents with respect to speeding in the community, and provide a reminder of the consequences and associated fines for speeding;
- Review visibility of traffic signal heads and install pedestrian countdown signals at the intersections of Avro Road and Springside Road for increased conspicuity and increased pedestrian guidance; and,
- Request that York Region adjust signal timings where Melville Avenue approaches both Major Mackenzie Drive and Rutherford Road to reduce queuing and provide additional green light time to Melville Avenue.

Long-term improvements that have been identified include:

- Apply line markings to visually narrow the travel lanes, when road resurfacing;
- Continue to request enforcement presence from York Regional Police to alter driver behaviour;
- Assess the feasibility of installing gateway features at the north and south ends of the Melville Avenue corridor to alert motorists they have entered a community where the roadway connects and provides access to adjacent residential areas; and,
- Provide separated cycling infrastructure along Melville Avenue.

These recommended short-term and long-term improvements are expected to:

- Influence lower speeds and encourage speed compliance with the posted speed limits; and,
- Support all modes of transportation by providing separated cycling infrastructure.

Financial Impact

The estimated cost to administer all suggested short-term improvements is \$50,000. The capital cost to install the pavement markings, flashing beacons and pedestrian countdown signals is supported through capital projects RP-6759-18 (Pedestrian Crossing Enhancement Program) and EN-1843-11 (Traffic Signal Improvements). Funding for the ongoing operating costs will be supported within the department's operating budget in the respective budget year.

Projects associated with long-term improvement recommendations will be brought forward through the annual budget approval process.

Broader Regional Impacts/Considerations

Staff will forward a copy of this report to Regional staff for review and consideration of signal timing adjustments to reduce traffic queues at the Melville Avenue intersections at Major Mackenzie Drive and Rutherford Road.

Staff will forward a copy of the report to York Regional Police requesting increased speed enforcement on Melville Avenue.

Conclusion

Melville Avenue is operating as designed and is serving its intended function as a major collector road within the transportation system. As a major collector road, Melville Avenue is to accommodate all types of vehicles. Total traffic and heavy truck volumes are within the range anticipated of a major collector roadway. The truck traffic volume remains relatively low, which is within the range anticipated for a major collector roadway. A review of the number of collision incidences over an eight-year period did not identify significant or immediate road safety concerns. Based on the eight-year collision history, only one collision involving a heavy truck was reported at the Fortino's plaza access driveway due to a driver failing to yield to the right of way. Based on the traffic review, a heavy truck prohibition is not necessary, nor is it practical to implement. Vehicle travel speeds were found to be in excess of the maximum posted speed limits with low compliance. Melville Avenue currently does not have cycling infrastructure to accommodate those traveling by bike. Short term and long-term improvements are recommended to influence lower speeds and improve driver compliance, enhance traffic operations, and support all modes of transportation.

For more information, please contact:

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Attachments

1. Melville Avenue Traffic Operational Study - Study Area
2. Citizen Communication – truck traffic on Melville
3. Executive Summary, Paradigm study

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