

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF JUNE 29, 2020

Item 9, Report No. 22, of the Committee of the Whole, which was adopted without amendment by the Council of the City of Vaughan on June 29, 2020.

9. MELVILLE AVENUE TRAFFIC OPERATIONS REVIEW

The Committee of the Whole recommends approval of the recommendation contained in the following report of the Deputy City Manager, Public Works, dated June 9, 2020:

Recommendations

1. That this report be received.

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:

Donald Eta, Director, Transportation and Fleet Management Services, ext. 6141 and/or Margie Chung, Manager of Traffic Services, ext. 6173.

Attachments

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

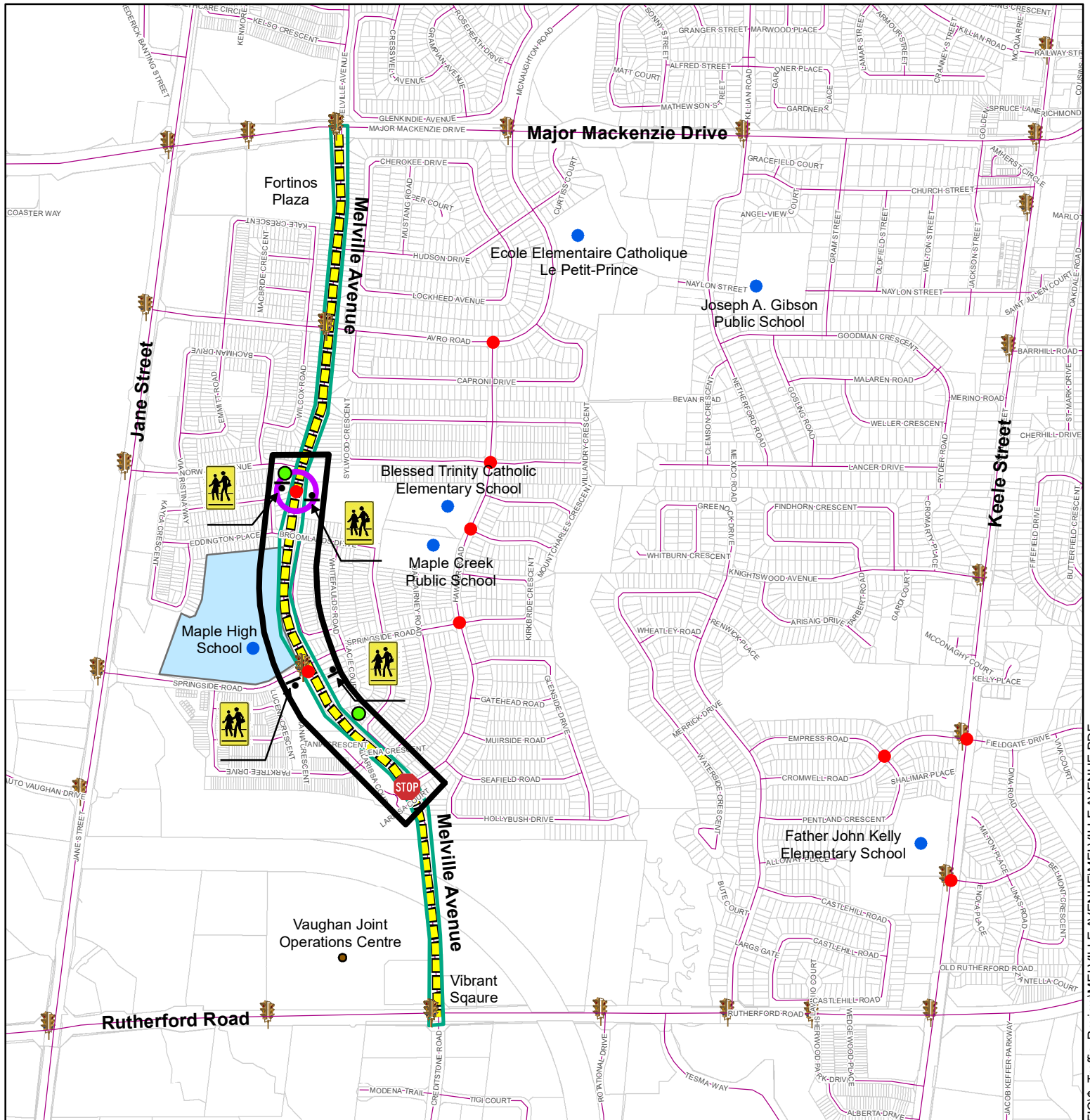
Prepared by

Margie Chung, Manager of Traffic Services, ext. 6173
Sunil Kumar, Senior Technologist, ext. 6125

In consultation with:

Selma Hubjer, Manager of Transportation Planning, ext. 8674
Dorothy Kowpak, Project Manager, Active and Sustainable Transportation, ext. 8812

ATTACHMENT No.1



MELVILLE AVENUE TRAFFIC OPERATIONS REVIEW FROM RUTHERFORD ROAD TO MAJOR MACKENZIE DRIVE

LEGEND:

- | | | | | | |
|----------------------|--|-------------------------------|-----------------|---|--|
| Study Area | Existing Community Safety Zone (40 km/h) | Existing Traffic Signal | School | Proposed School Zone + Max Speed + Beacon | |
| Roadway Under Review | Existing Pedestrian Signal | Existing All-Way Stop Control | School Crossing | | |



NOT TO SCALE

ATTACHMENT No. 2

March 18, 2020

Office of the City Clerk
Vaughan City Hall, Level 100
2141 Major Mackenzie Dr.
Vaughan, ON L6A 1T1

Re: Committee of the Whole public hearing dated for April 7, 2020, & 2020 submission of Melville Ave traffic study.

To whom it may concern,

I am hereby submitting this communication to be presented to the Vaughan City Council specifically addressing heavy truck traffic on Melville Ave and the 2020 traffic study thereof.

I am requesting a heavy truck restriction be put into place restricting heavy trucks from using Melville Ave between Rutherford Road and Major Mackenzie Road.

The history behind the request and some brief facts leading to the request follows. Over the past 10 years I have personally been deputized a number of times making this very same request. Multiple studies have been prepared by city staff showing clearly that heavy vehicles do in fact use the street; these vehicles largely service or originate from the industrial lands that encroach our street from the south. To date none of the studies have provided any evidence that such a restriction would hamper the movement of traffic around Vaughan; the only relevant comment provided to date would be that Melville was designed to handle the traffic it currently experiences.

A petition with 150 signatures, signed by residents backing onto Melville, asking for a speed limit reduction and heavy truck restriction was submitted and is on record with the city clerk. At the time a speed limit reduction was put into place for a very small section of the street; no heavy truck restriction was implemented.

On September 9, 2014 Tony Carella submitted and city council passed a resolution stating where employment lands, in close proximity to residential areas, result in heavy trucks driving through said residential areas a prohibition will be put into place. A copy of the resolution is attached herein and a copy of an overhead view of the residential land being encroached by industrial lands is also attached herein.

Given the circumstance described meets the criteria of the September 9, 2014 resolution, and given the request is aligned with the interests of residents backing onto the street, and lastly given that all studies have indicated a use by heavy truck but lack any evidence that a restriction would greatly hamper the movement of traffic around Vaughan I respectfully request that the street be identified as required by the resolution and a restriction be put into place.

Thank you for your time a consideration.

Eddy Aceti
10 Tracie Crt
Maple, ON L6A 2K1

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF SEPTEMBER 9, 2014

Item 47, Report No. 36, of the Committee the Whole, which was adopted, as amended, by the Council of the City of Vaughan on September 9, 2014, as follows:

By replacing recommendations 1. and 2. in the Member's Resolution submitted by Councillor Carella with the following:

1. *That appropriate staff conduct a review to identify those locations where employment lands and residential areas abut each other, and report back on the appropriateness of restricting heavy trucks in those residential areas; and*
2. *That By-law & Compliance staff refer complaints of Traffic By-law violations to York Regional Police; and*

By receiving Confidential Communication C18 from Legal Counsel, dated September 8, 2014.

47 PROHIBITION OF HEAVY TRUCKS IN RESIDENTIAL NEIGHBOURHOODS

The Committee of the Whole recommends approval of the recommendation contained in the following resolution submitted by Councillor Carella dated September 2, 2014:

Member's Resolution

Submitted by Councillor Tony Carella

Whereas, the development of employment lands in close proximity to residential areas creates concerns that the drivers of heavy trucks having business in employment areas may seek access to or egress from such employment lands via nearby residential streets as a means of avoiding traffic congestion on those roads built to service employment lands; and

Whereas, the use of such local residential roads by heavy trucks is limited to those making pickups and deliveries in immediate area; and

Whereas, any other use of residential roads by heavy trucks constitutes a nuisance to which residents may reasonably object;

It is therefore recommended:

1. ***That*** appropriate staff conduct a review to identify those locations where employment lands and residential areas abut each other, and report back on the costs to install appropriate signage at the entrance ways into such residential areas; or, in the alternative, where the placement of such signage can be effected using current approved operating dollars, such signs be installed at the earliest opportunity; and
2. ***That*** complaints received by Compliance or other staff be referred to York Regional Police, District 4, for enforcement of relevant legislation and/or regulations.

MEMBER'S RESOLUTION

Meeting/Date: COMMITTEE OF THE WHOLE - SEPTEMBER 2, 2014

Title: PROHIBITION OF HEAVY TRUCKS IN RESIDENTIAL NEIGHBOURHOODS

Submitted by: COUNCILLOR TONY CARELLA

Whereas, the development of employment lands in close proximity to residential areas creates concerns that the drivers of heavy trucks having business in employment areas may seek access to or egress from such employment lands via nearby residential streets as a means of avoiding traffic congestion on those roads built to service employment lands; and

Whereas, the use of such local residential roads by heavy trucks is limited to those making pick-ups and deliveries in immediate area; and

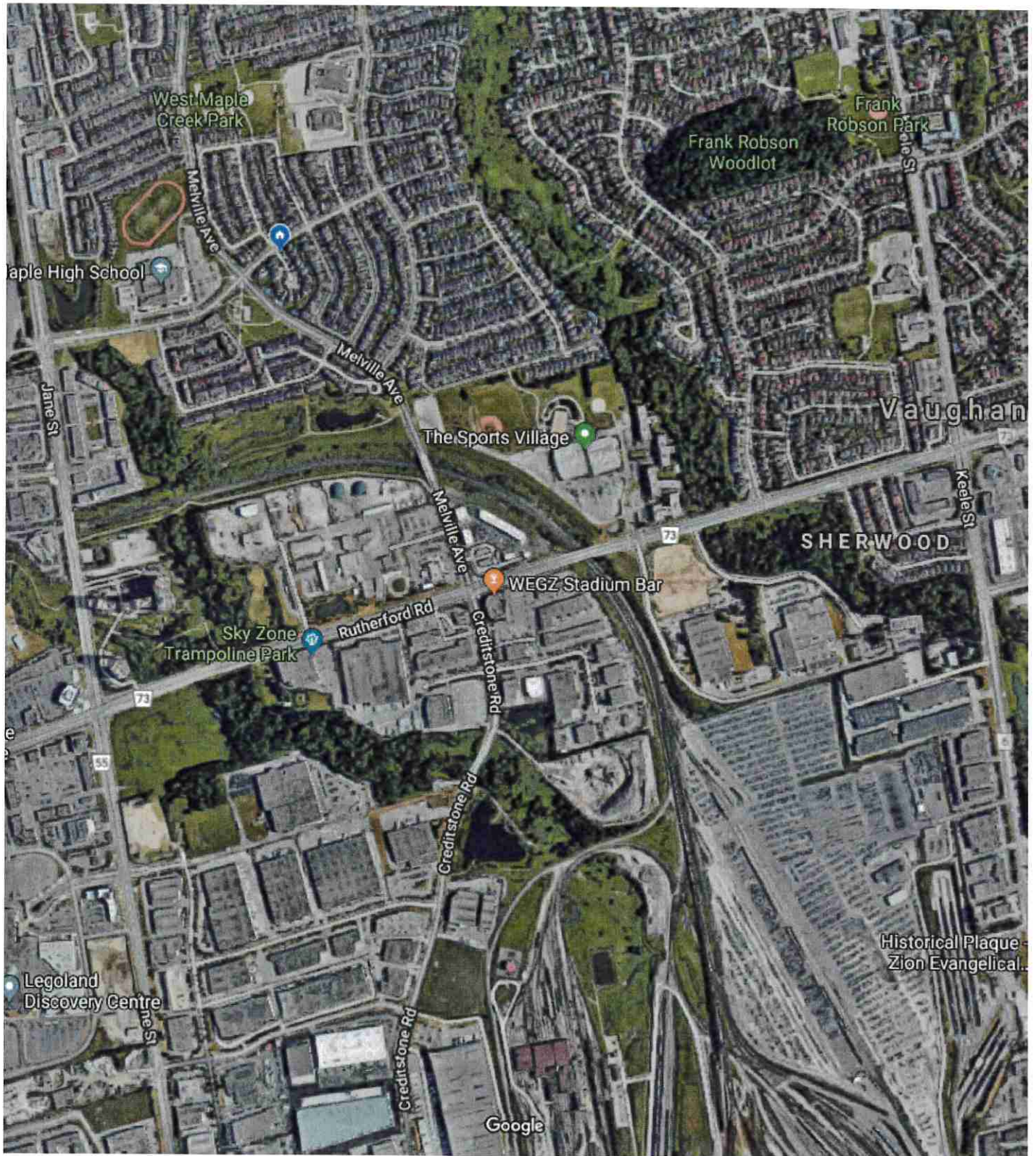
Whereas, any other use of residential roads by heavy trucks constitutes a nuisance to which residents may reasonably object;

It is therefore recommended:

- 1. That** appropriate staff conduct a review to identify those locations where employment lands and residential areas abut each other, and report back on the costs to install appropriate signage at the entrance ways into such residential areas; or, in the alternative, where the placement of such signage can be effected using current approved operating dollars, such signs be installed at the earliest opportunity; and
- 2. That** complaints received by Compliance or other staff be referred to York Regional Police, District 4, for enforcement of relevant legislation and/or regulations.

Respectfully submitted,

Councillor Tony Carella, FRSA
Ward 2/Woodbridge West



Executive Summary

The City has studied traffic operations, safety and heavy vehicle usage along Melville Avenue for over 10 years in response to Council and community requests. This resulted in numerous data collection programs including vehicle classification and travel speed surveys, reviews of reported collision data, the implementation of a Community Safety Zone and the subsequent extension of the zone limits, the installation of Radar Message Boards, and installation of traffic calming measures (medians for roadway narrowing).

All previous studies undertaken by the City have indicated the volume of trucks travelling within the Melville Avenue corridor are not excessive and are within the limits of the roadway classification and design. Past speed studies indicated the implementation of Radar Message Boards were effective in reducing the average and 85th percentile travel speeds. Staff have recommended on several occasions that a “Heavy Truck” prohibition not be implemented on Melville Avenue and that the existing speed limit not be reduced from 50 km/h to 40 km/h on Melville Avenue between Rutherford Road and Major Mackenzie Drive.

Paradigm was tasked with assisting the City as an independent consultant to review the existing operational and road safety conditions.

Content

An objective review of the Melville Avenue corridor between Major Mackenzie Drive and Rutherford Road was undertaken to identify any design, operational and/or safety issues. This included the following:

- ▶ A review of studies previously conducted
 - Findings from previous studies undertaken by City staff were reviewed and validated.
- ▶ A review and assessment of the roadway characteristics
 - Roadway classification and context within the overall transportation network;
 - Posted speed limits; and
 - Roadway design including cross-section, alignment, and sight distances.
- ▶ An assessment of traffic volumes along the corridor



- Examination of daily and peak hour traffic volumes;
 - Inventory of vehicle classification types travelling within the corridor. Including the detailed investigation of heavy truck vehicles;
 - Comparison of historical traffic volumes and growth within the corridor; and
 - Vehicle operating speeds.
- ▶ A safety review
- Collision analysis;
 - Roadway conditions; and
 - Speed limit review.
- ▶ A traffic operations review
- Intersection operational analysis;
 - Left turn lane warrant review; and
 - Intersection control warrant review.
- ▶ Multi-modal transportation review
- Active transportation infrastructure review

Conclusions

Background Studies

- ▶ The findings of this study validate and further confirm the findings from previous studies undertaken by City staff.

Area Characteristics

- ▶ Commercial/retail and municipal uses are located at the north and south ends of the corridor with back-lotted single family residential houses abutting the length of Melville Avenue in between;
- ▶ Melville Avenue is a major collector roadway and is acknowledged to be the only other alternative north-south route connecting Rutherford Road and Major Mackenzie Drive between Jane Street and Keele Street. The function of a collector roadway is to provide organization for the local street system within residential areas and to provide the main connecting points to the arterial system;



- ▶ Melville Avenue provides a four-lane cross-section that has been designed accordingly providing appropriate lane widths and sight distance;
- ▶ Has a posted maximum speed limit of 50 km/h between Rutherford Road and Hawker Road, and between Norwood Avenue and Major Mackenzie Drive. A Community Safety Zone is designated from Norwood Avenue to Hawker Road – within this section the maximum posted limit is reduced to 40 km/h;
- ▶ Existing traffic calming measures are provided within corridor – specifically, three sections along Melville Avenue exist where the roadway narrows and provides “courtesy” pedestrian crossings across Melville Avenue;
- ▶ Appropriate signage is posted throughout the study area corridor;
- ▶ Transit service is provided along the Melville Avenue corridor, with transit stop access easily accessible to nearby adjacent residents; and
- ▶ Sidewalk is provided along both sides of Melville Avenue. However, no dedicated bicycle facilities are provided with cyclists having to share the travelled roadway with vehicles.

Overall it was determined that Melville Avenue is operating as designed and is serving its intended function within the overall transportation system.

Transportation Conditions

- ▶ The average two-way daily total traffic along the Melville Avenue corridor ranges between 9,634 – 12,621 vehicles within the study area;
- ▶ The daily percentage of trucks currently experienced along the Melville Avenue corridor is in the range of 1.19% - 1.76%;
- ▶ The number and percentage of trucks experienced daily is noted to be within range for a Major Collector roadway. The data suggests that heavy truck traffic through the corridor is not excessive;
- ▶ Vehicle classification was reviewed and heavy truck percentages were found to be generally unremarkable, and can be considered typical for roadways in urban, non-heavy industrial areas.
 - The majority of trucks noted within the Melville Avenue corridor are within Class 6 – 8. The highest heavy vehicle type recorded being a three-axle single unit truck, typically



represented by delivery vehicle, small size concrete trucks, etc.

- Heavy vehicles within Class 9 – 13 (larger trucks, multi-trailer trucks) are not a significant component of the daily heavy vehicle traffic using the Melville Avenue corridor.
- ▶ The number of heavy vehicles has seen negative growth over the past few years at several locations along Melville Avenue, whereas total overall traffic volumes have remained stable or have increased slightly;
- ▶ A comparable major collector road within the City of Vaughan provides indication whether the volume of heavy vehicles travelling along the Melville Avenue corridor are either typical, less than or excessive to what other collector roads are experiencing.
 - Melville Avenue was found to experience lower directional and two-way daily traffic volumes in comparison to a similar major collector.
 - In regard to heavy vehicle volumes, Melville experiences a lower volume on a daily basis. The percentage of trucks recorded on Melville Avenue is close to half the amount travelling along the comparable major collector road.
- ▶ Vehicle operating speeds were found to be exceeding the posted maximum speed limits. High levels of non-compliance were reported from the speed study data.

Overall it was determined that Melville Avenue is operating as designed and is serving its intended function within the overall transportation system. Total traffic and heavy traffic volumes are representative of the designated roadway classification and have been found to be similar to a comparable major collector road within the City.

Vehicle travel speeds through the Melville Avenue corridor were found to be exceeding the maximum posted limits with low compliance. Operating speeds are a function of the roadway design.

Safety Review

- ▶ Review of collision data indicates the average number of yearly reported collisions and the resultant impact types as generally unremarkable with no identifiable concerning patterns or trends;



- ▶ A total of two collisions involving pedestrians were reported which were determined to be minor in nature and did not result in any fatalities;
- ▶ A single collision was reported involving a heavy truck within the eight-year collision dataset reviewed. Reported at the Fortino's Access driveway on Melville Avenue. The collision resulted in property damage only and was due to driver error (i.e., failing to yield to right-of-way);
- ▶ Overall, the collision incidences are generally unremarkable. The majority of collisions involve property damage only (i.e. no injuries). No significant or immediate safety issues have been identified;
- ▶ The maximum posted speed limits are lower than what the roadway is designed for. In consideration of the roadway geometry, curvature, lane widths, pedestrian and cyclist exposure, pavement surface conditions, number of intersections, and number of intersections with private access driveways, the desirable operating speed for an urban, undivided, collector roadway is 60 to 70 km/h. The existing posted maximum speed limits are well below the desirable operating speeds per TAC guidelines. Motorists will typically travel at speeds they feel comfortable driving at and will disregard posted signage;
- ▶ The existing speed limits outside the Community Safety Zone limits are recommended not to be reduced from 50 km/h to 40 km/h on Melville Avenue between Rutherford Road and Major Mackenzie Drive;
- ▶ No substandard road widths are provided within the study area corridor, with the exception of the three sections where road narrowing was purposely implemented as a traffic calming measure; and
- ▶ The pavement condition is noted to be acceptable with no major visible wearing on the asphalt surface and no wheel rutting or other major deficiencies. The current volume of trucks travelling along Melville Avenue are not impacting the pavement structure (i.e. not causing damage to the hard-surfaced roadway).

Overall, the reported collision incidences are generally unremarkable. No immediate safety issues have been flagged.

Vehicle travel speed through the Melville Avenue corridor is a potential safety concern. The current maximum posted speed limits are below the recommended speed limit, which further



validates that the roadway has been designed and constructed for a design speed much higher than the posted limit.

Higher speeds contribute to a higher risk of serious injuries and fatalities by reducing driver reaction time, increasing the vehicle stopping distance, and inflicting more severe blunt force trauma on victims upon impact. However, it is noted that the reported highest operating speeds are within the design limits for a collector roadway. No reported collisions were the result of high travel speed.

Traffic Operations Review

- ▶ The analysis of existing conditions indicates that all traffic movements at the study area intersections are currently operating at acceptable levels of service and well within capacity. Exceptions are noted at the intersections of:
 - Major Mackenzie Drive and Melville Avenue during the AM and PM peak hours;
 - Hawker Road and Melville Avenue during the AM peak hour; and
 - Rutherford Road and Melville Avenue/Creditstone Road during the AM and PM peak hours.
- ▶ The two signalized intersections at the north and south end of the study area along Melville Avenue were identified to operate with several critical movements;
- ▶ The unsignalized study area intersections were determined not to warrant upgrading existing traffic control to all-way stop control nor traffic signal control; and
- ▶ Auxiliary left turn lane warrants were investigated and determined to be warranted at several locations. Although left turn lanes are warranted, the existing operational analysis is noted to show that all intersections and the shared left/through movements operate well without the provision of turn lanes and therefore implementation would be negligible. Furthermore, from a safety perspective the collision analysis did not indicate any predominant trends or patterns related to intersection collisions that could be mitigated through the provision of an auxiliary turn lane.

Study area intersections under the jurisdiction of the City of Vaughan 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 noted to be operating with several movements approaching or at-capacity. There are relatively minor improvements that could be made to increase the intersections and movement's capacity. This includes adjustments to signal phasing and timing. The amount of timing adjustments that could be made would be limited due to signal coordination of adjacent intersections along the Major Mackenzie Drive and Rutherford Road Regional arterial corridors.

Multi-Modal Transportation Review

- ▶ Transit stops are located throughout the corridor and are easily accessible for adjacent residents/patrons;
- ▶ The study area of Melville Avenue between Rutherford Road and Major Mackenzie Drive West currently does not provide any bicycle infrastructure to accommodate traveling cyclists;
- ▶ It was documented during the in-field investigations a number of cyclists were observed on the sidewalk, providing indication that these cyclists may not feel safe sharing the roadway with vehicles;
- ▶ The pedestrian infrastructure throughout the study area is well maintained and supportive of those who choose to travel by walking. Delineated crosswalks at the intersections of Melville Avenue with Springside Road and Avro Road provide pedestrian push buttons to actuate the pedestrian crossing phases, in addition to the mid-block pedestrian crossings provided.

Pedestrian infrastructure within the Melville Avenue corridor is continuous and connects seamlessly with the overall pedestrian network. Mid-block crossings and adequate facilities (including delineated ladder crossings and pedestrian signal heads at intersections) are provided.

The Melville Avenue corridor is lacking cycling infrastructure. As dedicated facilities are not provided, cycling trips are either made within the travelled roadway shared with other vehicles or on the sidewalk.

Recommendations

Based upon the operational and safety review, several issues have been identified. Namely, speeding throughout the Melville Avenue corridor and minor intersection related issues noted within the corridor.



Based on our findings, the following is recommended to address the identified issues:

Shorter Term Improvement Plan

The following combination of alternatives is recommended for immediate implementation.

- ▶ Application of pavement markings, longitudinal and/or transverse markings can be applied to influence drivers' perceptions of the roadway environment. Longitudinal edge of pavement markings to artificially narrow the roadway and travel lanes. Transverse text stencils indicating the posted speed limit (i.e. 40 km/h) or advisory text (i.e. SLOW) to visibly enforce adjacent posted signage. Currently the existing roadway design caters to a higher operating speed in comparison to the posted maximum speed limit. The application of pavement markings can be completed as a pilot program;
- ▶ Installation of a flashing beacon to increase effectiveness of signage. The beacon would augment the existing "School Crossing Ahead" warning signage as this would visibly enforce the posted signage with the Community Safety Zone;
- ▶ Increased York Regional Police enforcement and rollout of education materials to the adjacent community residents. This would alter the "reputation" of the corridor and deter motorists from speeding. The educational outreach would cater to the portion of residents that speed while providing a reminder of the consequences and associated fines for speeding within designated the Community Safety Zone and adjacent sections along the corridor;
- ▶ Through the collision reports, several motorists were found to disobey the traffic signal and running the red-light resulting in collisions at the intersections of Melville Avenue with Avro Road and Springside Drive. To confirm whether the resultant collisions are the result of driver behaviour or a function of traffic signal head visibility, it is advised to check and confirm the visibility of the traffic signal heads are conspicuous during various lighting conditions;
- ▶ Provision of pedestrian countdown timers in addition to the existing pedestrian signals at the intersections of Melville Avenue with Avro Road and Springside Drive. Furthermore, the City will be reviewing all intersection locations starting in 2021 as part of the Traffic Management Strategy; and
- ▶ Request signal timing adjustments from York Region to provide additional green time to the Melville Avenue approaches with



Major Mackenzie Drive and Rutherford Road to improve queues approaching these arterial roads.

The recommended combination of shorter-term improvements is expected to:

- ▶ Mitigate the speeding and non-compliance issues along the Melville Avenue corridor;
- ▶ Reduce the potential risk of motorists running the red-light signal at the intersections of Melville Avenue with Avro Road and Springside Drive; and
- ▶ Reduce the potential risk of turning movement and angle movement collisions associated at driveways along Melville Avenue in vicinity to Major Mackenzie Drive and Rutherford Road.

Longer Term Improvement Plan

The following combination of alternatives is recommended for future implementation and consideration.

- ▶ Application pavement markings to influence drivers' perceptions of the roadway environment. Longitudinal and/or transverse pavement markings to be investigated for long term implementation when Melville Avenue is subject to resurfacing;
- ▶ Continued long-term York Regional Police enforcement. It is recommended frequent enforcement continue until the "reputation" of the corridor has altered and vehicle compliance with the posted maximum speed limits is achieved;
- ▶ Installation of gateway features at the north and south ends of the Melville Avenue corridor. Provision of entrance features to the corridor will help to alert motorists they have entered a community where the roadway connects and provides access to adjacent residential areas. Features could include signage, art, landscaping, and/or pavement treatments;
- ▶ Provision of dedicated cycling infrastructure along Melville Avenue. The 2019 City of Vaughan Pedestrian and Bicycle Plan Update identifies the Melville Avenue corridor as part of the local cycling route network. The plan specifically proposes the provision of Class 1 separated (in boulevard) facilities implemented by 2023. The infrastructure would result in a noticeable change in the "feel" of the roadway as the boulevard will not appear as wide. Provision of the infrastructure will have cost implications and possible road width constraints for design. It is assumed cost implications and design constraints will be



investigated in further detail through a feasibility and design study; and

- ▶ Continue to monitor traffic operations at the intersections of Melville Avenue with Major Mackenzie Drive and Rutherford Road, specifically the queues on Melville Avenue approaching the arterial roads and the impact and interaction it causes with the driveway accesses in proximity.

The recommended combination of longer-term improvements is expected to:

- ▶ Provide an identify for the Melville Avenue corridor;
- ▶ Manage the identified speeding issues and ensure compliance with the posted speed limits occurs; and
- ▶ Provide safe separated cycling infrastructure, which in turn promotes increased use of the bicycle travel mode, reduces the reliance on the automobile for short trips, and promotion of a healthy lifestyle.

