

TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON MARCH 10, 2020
FROM:	KELLY SCHERR, P. ENG., MBA, FEC MANAGING DIRECTOR, ENVIRONMENTAL AND ENGINEERING SERVICES AND CITY ENGINEER
SUBJECT:	AREA SPEED LIMIT IMPLEMENTATION

RECOMMENDATION

That, on the recommendation of the Managing Director, Environmental and Engineering Services and City Engineer, the following actions **BE TAKEN** with respect to the implementation of the Area Speed Limit program:

- a) The proposed by-law, attached as Appendix A **BE INTRODUCED** at the Municipal Council meeting to be held on March 24, 2020, for the purpose of amending the Traffic and Parking By-law (PS-113);
- b) The Area Speed Limit Program **BE IMPLEMENTED** on local and collector streets in neighbourhoods where the London Transit Commission have identified none, limited or low impact to transit service; and,
- c) Implementation of the Area Speed Limit Program in neighbourhoods where the London Transit Commission have identified as having a medium or high impact to transit service **BE DEFERRED** until transit impact data from the initial areas is analyzed.

PREVIOUS REPORTS PERTINENT TO THIS MATTER
--

For additional information, please refer to the following committee reports:

- Civic Works Committee – 2019-05-14 - [2.6 Area Speed Limit](#); and,
- Civic Works Committee – 2019-09-24 – [3.2 Area Speed Limit Update](#).

COUNCIL’S 2019-2023 STRATEGIC PLAN

The following report supports the Strategic Plan through the strategic focus areas of **Strengthening Our Community** and **Building a Sustainable City**. Area speed limits could enable Londoners to move around the city safely and easily in a manner that meets their needs by improving safety for all modes of transportation in accordance with Vision Zero principles.

BACKGROUND

On October 1, 2019, Municipal Council passed the following resolution:

That the following actions be taken with respect to area speed limit:

- a) the Civic Administration BE DIRECTED to implement the Area Speed Limit program or 40 km/h default speed limit will be established on local streets and Area Speed Limit zones will also be designated Community Safety Zones; and
- b) the following additional considerations BE REFERRED back to the Civic Administration in order to allow for consultation with the London Transit Commission:
 - i) consideration of the implementation of the 40 km/h speed limit on collector roads;
 - ii) consideration of the implementation of the 40 km/h speed limit also be applied to the following arterial roads and the area they encompass, within the downtown area to reflect the high level of pedestrian and cyclist activity:
 - A. King Street from Thames Street to Colborne Street;
 - B. Pall Mall Street from Richmond Street to Wellington Street;
 - C. Queens Avenue from Colborne Street to Ridout Street North;
 - D. Richmond Street from Horton Street East to Oxford Street East; and
 - E. Wellington Street from Horton Street East to Pall Mall Street;
 - iii) reduction of the School zone speed limits from 40 km/hr, to 30 km/hr on local streets. (2019-T07) (AS AMENDED) (3.2/13/CWC)

This report addresses the above Council resolutions.

DISCUSSION

Background

The Ontario Highway Traffic Act (HTA) 128 (2.1) was recently amended to allow municipalities to pass a by-law to set a speed limit less than 50 km/h for all roads within a designated area. The Community Safety and Crime Prevention Advisory Committee (CSCPAC) and the London Middlesex Road Safety Committee (LMRSC) supported the lowering of the speed limit in residential areas to 40 km/h. A slight majority of public survey respondents to Get Involved London supported the lowering of speed limits in residential areas. Approval was given to implement the Area Speed Limit (ASL) on local streets (neighbourhood streets); however, additional consultation with the London Transit Commission (LTC) was needed before implementation on collector streets (neighbourhood connectors).



London Transit Commission (LTC) Impact

The LTC passed the following resolution:

That the Commission CONFIRM the following feedback be provided to civic administration with respect to the potential impacts of a reduced speed limit on area collectors to public transit services;

- The anticipated impact on the conventional transit service as the result of a reduction in speed limit on area collectors is significant.
 - The manner in which the issue is addressed will result in either significant operating and capital cost increases or significant negative impacts on service (the Route 15 example from this report will be included).
- While not assessed, lower speed limits on area collectors are also likely to have an impact on the productivity of the specialized services, resulting in fewer trips per hour, and less ridership.

A minimum of nine months' notice (prior to the fall service implementation period) is required prior to the speeds being altered on area collectors in order to provide time for the affected schedules to be changed and implemented. In addition, should additional buses be required to undertake the changes, a minimum one year notice would be required.

LTC staff reviewed the travel speeds of Route 15 (Huron Heights to Westmount Mall) on local and collector roads. Using this information the transit routes were broken down in the following impact categories:

- High – Routes operate mostly on corridors that are proposed to have a speed limit reduction. Speed limit reductions cannot be accommodated in the existing schedule without impacting frequency.
- Medium – Routes operate a significant portion along corridors with proposed speed limit reductions, however less than those listed as high. Speed limit reductions will likely require additional hours during some operating periods.

- Low – Routes operate on limited corridors with proposed speed limit reductions and can be accommodated for within the existing schedules.
- Limited – Routes have very limited or no operation along corridors with proposed speed limit reductions. No impacts to the existing schedule on these routes.

Each LTC route was assigned one of these impact categories. The LTC report on these impacts can be found in Appendix B which also contains the ranking of all transit routes.

ASL implementation in areas with both local and collector streets is more desirable and more cost-effective because of lower signage requirements. As a result of further dialogue with LTC, the following initial approach to area speed limit implementation is proposed at the current time:

1. In order to gain more information on the impact to LTC service, City and LTC staff developed three initial speed reduction areas that include High and Medium impacted routes. The reduction of the speed limit in these areas will allow for before/after comparisons to quantify the impact.
2. Speed reductions in other High and Medium impacted routes should be deferred until a comparison of the travel time data in these initial areas identified above is complete.
3. Areas with Low and Limited impact to LTC routes or the absence of LTC routes may proceed as resources are available.
4. The downtown ASL is recommended. Even though many LTC routes pass through the downtown, the impact to the schedule of these existing routes would be minimal if the speed limit was reduced. Given the frequent intersection and bus stop spacing in the Downtown Loop, any impact from the reduced speed limit is not anticipated to be significant for the future rapid transit vehicles.

School Zone Speed Limit

All school zones on minor streets have a speed limit of 40 km/h. Traffic operations in the new area speed limits will be observed and public feedback received to inform a future review of school zones and the potential for associated reduction to 30 km/h. The review will include consultation with committees and potentially impacted public services including LTC and LPS as knowledge is gained from these initial area speed limits. The Ontario Highway Traffic Act (HTA) defines a school zone as the road “that adjoins the entrance to or exit from a school and that is within 150 metres along the highway in either direction beyond the limits of the land used for the purposes of the school”.

Initial Area Speed Limit Implementation

Taking the above into consideration, the following are the suggested initial ASL zones, excluding arterial roads:

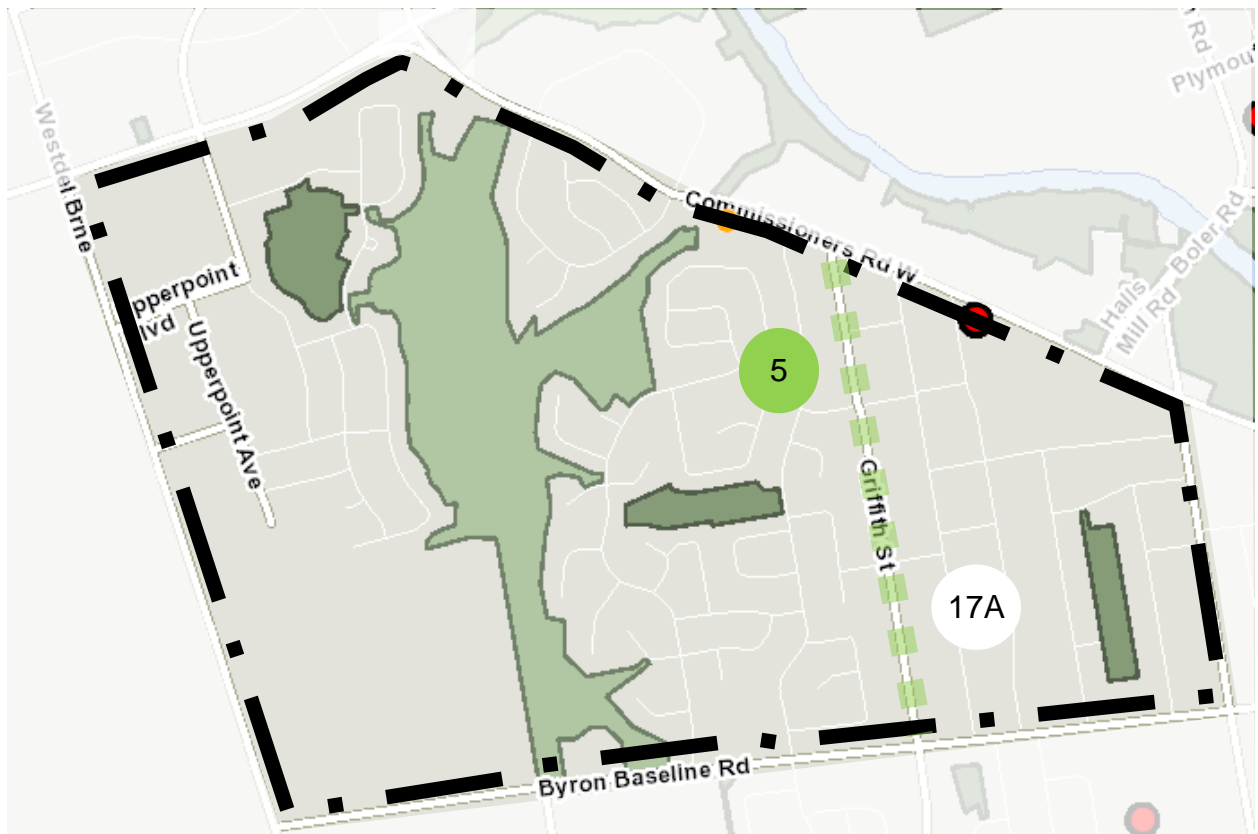


Figure 1: Limited Transit Impact - Route 17A and Low Impact - Route 5

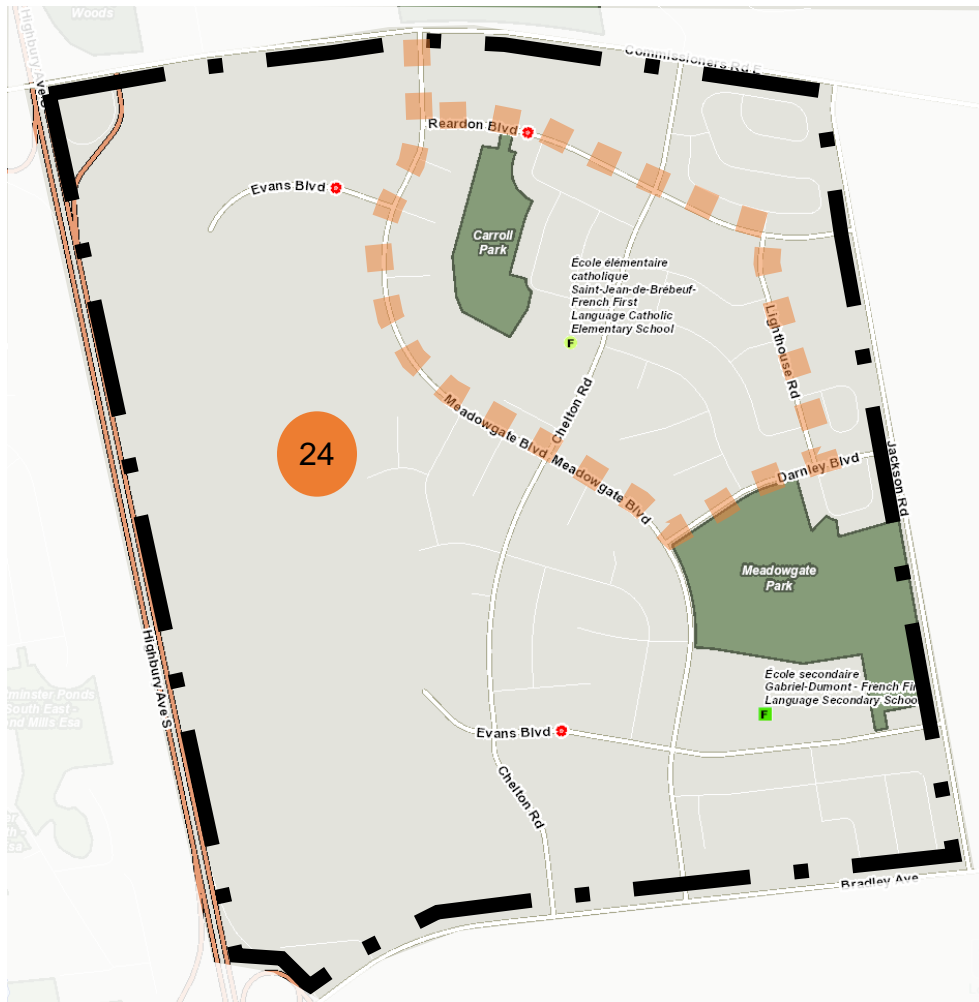


Figure 2: Medium Transit Impact - Route 24



Figure 3: High Impact - Routes 9 and 31

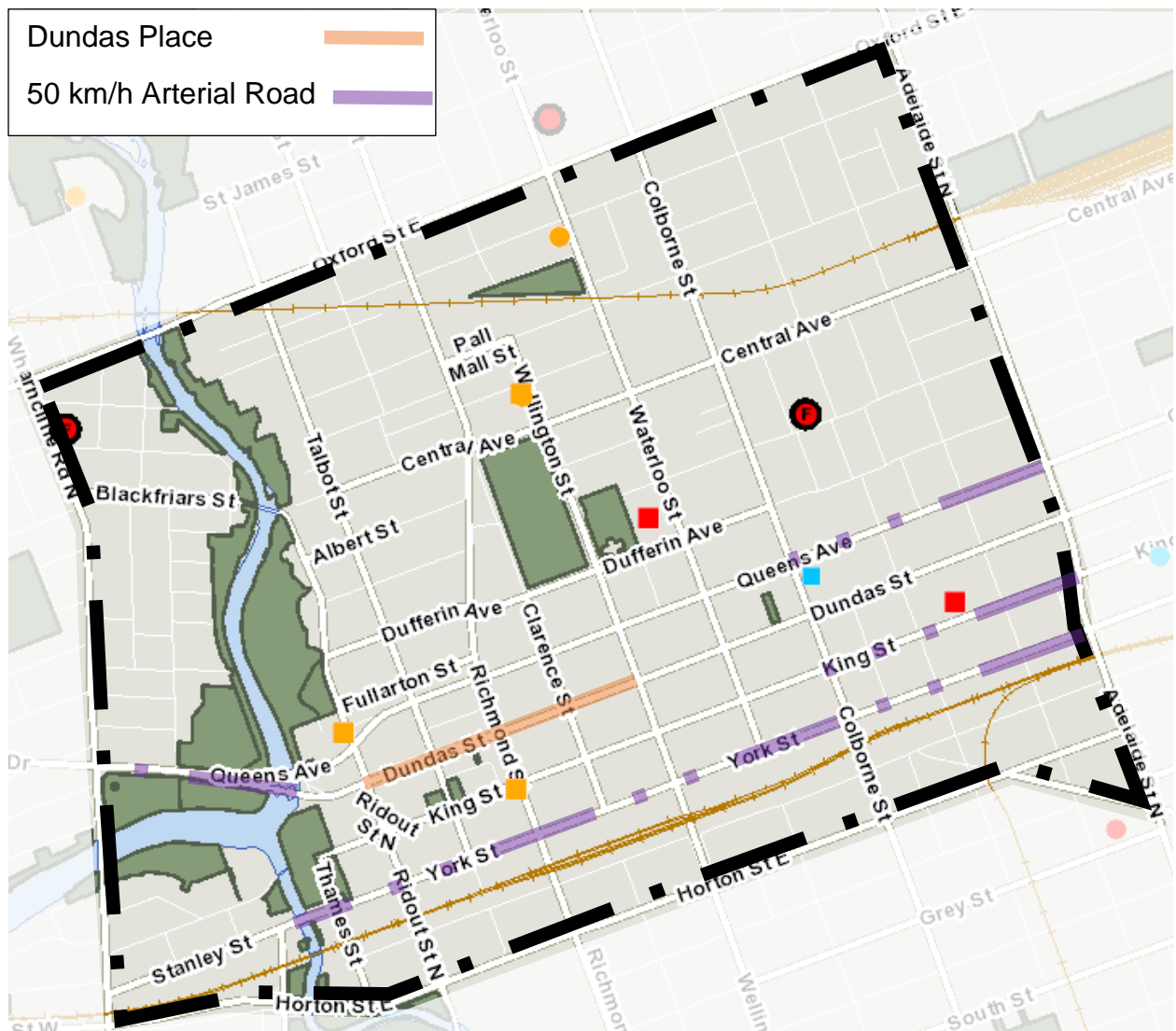


Figure 4: Downtown including Blackfriars and Woodfield Areas
(Transit routes are removed for clarity)

Most arterial roads in the downtown will be reduced to 40 km/h with the exception of King Street from Colborne Street to Adelaide Street North, Queens Avenue from Adelaide Street North to Colborne Street, Riverside Drive from Wharncliffe Road North to Dundas Street and York Street from Stanley Street to Adelaide Street North.

The downtown is an area with higher numbers of collisions including vulnerable road users when compared to other areas of the city which is demonstrated in Appendix C; therefore, this area is of special safety concern. It is recommended that the downtown should be designated as a Community Safety Zone (CSZ).

SUMMARY

The suggested implementation plan for the Area Speed Limit program includes areas with none or low impact on transit service. This initial phase also includes two areas that may have a medium or high impact on transit service to compare the actual impact of the speed limit reduction to the calculated impact.

The high concentration of trips by all road users in a compact area makes the downtown area an ideal zone for a reduced area speed limit. The lower speed limit in the downtown has the greatest potential to improve safety for all road users without significantly impacting transit. The higher number of vulnerable road user collisions supports the designation of a community safety zone in the downtown area.

As the ASL program is implemented, traffic operations will be monitored. This will inform the future review of the school zone speed limit and potential associated reductions in area speed limits.

PREPARED BY:	REVIEWED AND CONCURRED BY:
SHANE MAGUIRE, P. ENG. DIVISION MANAGER, ROADWAY LIGHTING AND TRAFFIC CONTROL	DOUG MACRAE, P.ENG., MPA DIRECTOR, ROADS AND TRANSPORTATION
RECOMMENDED BY:	
KELLY SCHERR, P.ENG., MBA, FEC MANAGING DIRECTOR, ENVIRONMENTAL AND ENGINEERING SERVICES AND CITY ENGINEER	

<https://cityhub/services/ees/roads/trans-op/CR/2020-03-10/2020-03-10-CWC-RPT-Area Speed Limit Implementation v5.docx>

February 25, 2020/sm

Attach: Appendix A: By-law to amend the Traffic and Parking by-law (PS-113)
Appendix B: London Transit Commission, Preliminary Assessment of
Speed Limit Reduction Impacts
Appendix C: Pedestrian and Cycling Collision Heat Maps (2015 – 2017)

cc: London Police Service
London Transit Commission

APPENDIX A

BY-LAW TO AMEND THE TRAFFIC AND PARKING BY-LAW (PS-113)

Bill No.

By-law No. PS-113

A by-law to amend By-law PS-113 entitled, “A by-law to regulate traffic and the parking of motor vehicles in the City of London.”

WHEREAS subsection 10(2) paragraph 7. Of the *Municipal Act, 2001*, S.O. 2001, c.25, as amended, provides that a municipality may pass by-laws to provide any service or thing that the municipality considers necessary or desirable to the public;

AND WHEREAS subsection 5(3) of the *Municipal Act, 2001*, as amended, provides that a municipal power shall be exercised by by-law;

NOW THEREFORE the Municipal Council of The Corporation of the City of London enacts as follows:

1. PS-113 By-law is hereby amended by **adding** the following rows:

35.3 The highways bounded by the limits set out in Column 1 of Schedule 17.3 (Area Speed Limit) of this by-law, are hereby restricted to maximum rates of speed as set out in Column 2.

2. Schedule 17.2 (Community Safety Zones) of the PS-113 By-law is hereby amended by **adding** the following rows:

Albert Street	Ridout Street North	Richmond Street
Albion Street	Rogers Avenue	Blackfriars Street
Alfred Street	Pall Mall Street	The northerly limit of Alfred Street
Angel Street	Richmond Street	Clarence Street
Ann Street	The westerly limit of Ann Street	The easterly limit of Ann Street
Argyle Street	Blackfriars Street	The north limit of Argyle Street
Arthur Street	William Street	Alfred Street
Barton Street	The west limit of Barton Street	Talbot Street
Bathurst Street	Thames Street	Adelaide Street North

Becher Street	Wharncliffe Road South	The east limit of Becher Street
Blackfriars Street	Wharncliffe Road North	Thames River
Burwell Street	Horton Street East	Bathurst Street
Burwell Street	York Street	Dundas Street
Carling Street	Talbot Street	Richmond Street
Carrothers Avenue	Wilson Avenue	The east limit of Carrothers Avenue
Cartwright Street	Dufferin Avenue	Central Avenue
Centennial Lane	Dufferin Avenue	Princess Avenue
Central Avenue	Talbot Street	Adelaide Street North
Chandler Avenue	Albion Street	Wilson Avenue
Cherry Street	Wilson Avenue	The east limit of Cherry Street
Clarence Street	Horton Street East	Bathurst Street
Clarence Street	York Street	The northerly limit of Clarence Street
Colborne Street	Horton Street East	Oxford Street East
Covent Market Place	Talbot Street	King Street
Cummings Avenue	Wilson Avenue	Napier Street
Dufferin Avenue	Ridout Street North	Adelaide Street North
Dundas Street	Thames Street	Wellington Street
Dundas Street	Wellington Street	Adelaide Street North
Empress Avenue	Wharncliffe Road North	Napier Street
Fullarton Street	Ridout Street North	Richmond Street
Hamilton Road	Bathurst Street	Horton Street East
Harvard Street	Waterloo Street	Yale Street
Hope Street	The westerly limit of Hope Street	Colborne Street

Horn Street	Stanley Street	Becher Street
Hyman Street	Saint George Street	Waterloo Street
John Street	Talbot Street	Adelaide Street North
Kenneth Avenue	Wellington Street	Waterloo Street
Kensington Avenue	Wharncliffe Road North	Wilson Avenue
Kent Street	Ridout Street North	Richmond Street
King Street	Thames Street	Adelaide Street North
Leslie Street	Wilson Avenue	The east limit of Leslie Street
Maitland Street	Horton Street East	Oxford Street East
Miles Street	Pall Mall Street	Piccadilly Street
Mill Street	Talbot Street	Adelaide Street North
Moir Street	Wharncliffe Road North	Albion Street
Mount Pleasant Avenue	Wharncliffe Road North	Wilson Avenue
Napier Street	Cummings Avenue	Empress Avenue
Palace Street	Princess Avenue	Central Avenue
Pall Mall Street	Richmond Street	Adelaide Street North
Perry Street	Stanley Street	Becher Street
Peter Street	Queens Avenue	Princess Avenue
Piccadilly Street	The westerly limit of Piccadilly Street	Adelaide Street North
Picton Street	Queens Avenue	Dufferin Avenue
Princess Avenue	Centennial Lane	Adelaide Street North
Prospect Avenue	Dufferin Avenue	Princess Avenue
Queens Avenue	Riverside Drive	Adelaide Street North
Regina Street	Colborne Street	Maitland Street
Richmond Street	Horton Street East	Oxford Street East

Ridout Street North	Horton Street East	Thames River (north branch)
Riverside Drive	Wharncliffe Road North	Thames Street
Rogers Avenue	Wharncliffe Road North	The east limit of Rogers Avenue
Rosedale Street	William Street	Adelaide Street North
Saint Andrew Street	Empress Avenue	Oxford Street West
Saint George Street	Central Avenue	Oxford Street East
Saint Patrick Street	Wharncliffe Road North	The east limit of Saint Patrick Street
Stanley Street	Wharncliffe Road South	The east limit of Stanley Street
Talbot Street	Horton Street East	Bathurst Street
Talbot Street	The southerly limit of Talbot Street	Oxford Street East
Thames Street	Horton Street East	King Street
Thames Street	Dundas Street	The north limit of Thames Street
The Ridgeway	Wharncliffe Road South	Becher Street
Waterloo Street	Horton Street East	Bathurst Street
Waterloo Street	York Street	Oxford Street East
Waverley Place	The westerly limit of Waverly Place	Colborne Street
Wellington Street	Horton Street East	Pall Mall Street
Wellington Street	Kenneth Avenue	Oxford Street East
William Street	Horton Street East	Oxford Street East
Wilson Avenue	Riverside Drive	Blackfriars Street
Wolfe Street	Wellington Street	Waterloo Street
Yale Street	Harvard Street	Yale Street

York Street	The west limit of York Street	Adelaide Street North
-------------	-------------------------------	-----------------------

3. Schedule 17.3 (Area Speed Limit) of the PS-113 By-law is hereby amended by **adding** the following rows:

Highbury Avenue South – Commissioners Road East – Jackson Road – Bradley Avenue	40 km/h
---	---------

Westdel Bourne - Oxford Street West – Commissioners Road West – Boler Road – Byron Baseline Road	40 km/h
--	---------

Wharnccliffe Road North – Oxford Street West– Oxford Street East – Adelaide Street North – Hamilton Road – Horton Street East; excluding:

- | | |
|---|---------|
| 1) York Street from Thames River to Adelaide Street North, | |
| 2) King Street from Colborne Street to Adelaide Street North, | 40 km/h |
| 3) Queens Avenue from Colborne Street to Adelaide Street North and; | |
| 4) Riverside Drive from Wharnccliffe Road North to Thames Street. | |

Hyde Park Road – Fanshawe Park Road West – Wonderland Road North – Gainsborough Road	40 km/h
--	---------

This by-law comes into force and effect on the day it is passed.

PASSED in Open Council on March 24, 2020

Ed Holder, Mayor

Catharine Saunders, City Clerk

First Reading – March 24, 2020
 Second Reading – March 24, 2020
 Third Reading – March 24, 2020

APPENDIX B
LONDON TRANSIT COMMISSION
PRELIMINARY ASSESSMENT OF SPEED LIMIT REDUCTION IMPACTS

October 30, 2019

To All Commissioners

Re: Preliminary Assessment of Speed Limit Reduction Impacts

Recommendation

That the Commission CONFIRM the following feedback be provided to civic administration with respect to the potential impacts of a reduced speed limit on area collectors to public transit services;

- The anticipated impact on the conventional transit service as the result of a reduction in speed limit on area collectors is significant.
 - The manner in which the issue is addressed will result in either significant operating and capital cost increases or significant negative impacts on service (the Route 15 example from this report will be included)
- While not assessed, lower speed limits on area collectors are also likely to have an impact on the productivity of the specialized services, resulting in fewer trips per hour, and less ridership
- A minimum of nine months' notice (prior to the fall service implementation period) is required prior to the speeds being altered on area collectors in order to provide time for the affected schedules to be changed and implemented. In addition, should additional buses be required to undertake the changes, a minimum one year notice would be required.

Background

At the October 1, 2019 meeting of Municipal Council, the following motion was passed with respect to adjustments to the speed limits in the City.

That the following actions be taken with respect to area speed limit:

a) the Civic Administration BE DIRECTED to implement the Area Speed Limit program or 40 km/h default speed limit will be established on local streets and Area Speed Limit zones will also be designated Community Safety Zones; and

b) the following additional considerations BE REFERRED back to the Civic Administration in order to allow for consultation with the London Transit Commission:
i) consideration of the implementation of the 40 km/h speed limit on collector roads;
ii) consideration of the implementation of the 40 km/h speed limit also be applied to the following arterial roads, and the area they encompass, within the downtown area to reflect the high level of pedestrian and cyclist activity:
A. King Street from Thames Street to Colborne Street;
B. Pall Mall Street from Richmond Street to Wellington Street;
C. Queens Avenue from Colborne Street to Ridout Street North;

- D. Richmond Street from Horton Street East to Oxford Street East;
- E. Wellington Street from Horton Street East to Pall Mall Street;

iii) reduction of the School Zone speed limits from 40 km/hr, to 30 km/hr on local streets.

Subsequent to being advised of this motion, Administration undertook to determine the best way to assess the impacts to transit service as the result of a potential reduction in speed limit to 40km/h on collector roads as well as those listed additionally above. While there is no timeframe provided in the motion with respect to the consultation, civic administration has inquired as to how quickly feedback from London Transit could be provided. In an effort to have materials for discussion at the October Commission meeting, a high level approach to the assessment was undertaken.

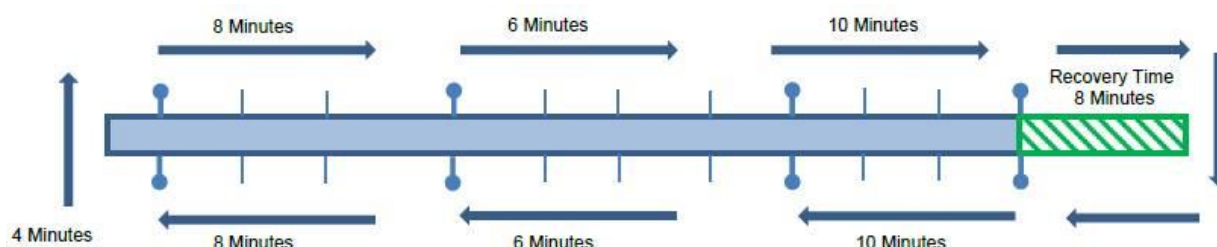
The summary section of this report outlines the feedback that is being recommended to be provided to civic administration with respect to the impacts of a reduced speed limit to 40 km/h on the conventional transit services, which is based on this high level assessment. As indicated later in the report, should a detailed assessment of each route be required, external resources would be needed, and it is anticipated the earliest this work could be completed would be by the end of the first quarter 2020.

Route Make-Up

In an effort to assist the reader in understanding the methodology utilized to assess the impacts of a lower speed limit, the following provides an overview of the make-up of a conventional transit route, and a description of how they are created.

When attempting to simplify the costs associated with the delivery of public transit the statement “time is money” is often used. While simple and to the point, the statement is also accurate. Every minute that a bus is running costs money; whether it be travelling to/from the Route it operates on, in service picking up passengers, waiting at a recovery point to allow the Operator an opportunity to use the facilities, or being serviced for the next day. When route schedules are created, significant effort is placed on making the schedule as efficient as possible. Consideration is given to the traffic conditions, speed limits on the corridors travelled, the number of turns and whether they are signalized, passenger loads, number and frequency of stops, and connections to other routes. This analysis is completed for each time period that the service will operate (AM Peak, Base, PM Peak, and Evening). The graphic below provides a visual of a Route schedule.

Visual of Simplified Route Schedule – Weekday Base Period Service



The hash marks in the diagram represent bus stop locations, with the bolder marks with the dots representing time points. In the simplified diagram above, the total round-trip

time for the route is 60 minutes, meaning each bus operating on the route would require 60 minutes to serve the entire route. The route is made up of a number of elements, each of which is described below:

- Stops – represented in the diagram by hash marks, are each of the designated stops along the route. The Operator will only stop at these locations in the event that a passenger wants to board or exit the bus.
- Time Points – represented in the diagram by bolder marks with a dot on top, are the stops along the route for which a time is provided for in the route schedule. In the case of time points, Operators will not pass or leave a time point prior to its scheduled time. Time points are also utilized when planning the transit network, as time points often represent stops that passengers may need to transfer to another route. In these cases, careful consideration is given to ensuring the time points for the connecting routes are scheduled in a manner to provide for convenient transfers.
- Recovery – represents the time allocated at a specific point in the route that provides the opportunity for the Operator to get the bus back on schedule if need be, as well as the opportunity to utilize the facilities nearby. The rule of thumb utilized by administration when creating schedules is that a minimum of 10% of the total running time of the route be dedicated to recovery. These locations are selected in an effort to provide a washroom facility for Operators, while at the same time ensuring the bus is not left idling for an extended period in a location that causes disruptions to traffic.

Recovery time in a route can be greater than 10%, and while this means the route is less efficient, it is done in an effort to balance the buses on the route. Depending on the running time of the route and the desired frequency, the connectivity requirements for transfers with other routes, and the scheduling for multi-use stops, there may be a requirement to include a longer recovery time. As will be discussed later in this report, if a route with greater than 10% recovery time is assessed to have schedule adherence issues, the schedule can be adjusted without the requirement for additional hours of service. Similarly, in some cases, the frequency of a route with greater than 10% recovery time can be increased without the requirement for additional hours. Routes that are operating with the minimum 10% recovery time however have no flexibility to be altered without the requirement of an additional bus and hours.

It is important to recognize that the example provided would not be accurate for all time periods during the service day. As indicated earlier, the round-trip running time of a route is impacted by a number of factors which change throughout the service day. As a result, the schedules for the route are changed to match those conditions. The time periods that service is broken into on weekdays and weekends are set out in the following table.

Weekday Time Periods	Saturday Time Periods	Sunday Time Periods
Early AM (6am to 7am)	Early AM (6am to 8am)	Early AM (7am to 9am)

AM Peak (7am to 9am)	Base (8am to 10am)	Base (9am to 12pm)
Base (9am to 2pm)	Peak (10am to 6pm)	Peak (12pm to 6pm)
PM Peak (2pm to 7pm)	Early Evening (6pm to 9pm)	Evening (6pm to end of service)
Evening (7pm to 9pm)	Late Evening (9pm to end of service)	
Late Evening (9pm to end of service)		

Referring back to the example route set out in the diagram, while the round trip running time may be 60 minutes for the weekday base period, a total running time for the same route will be something greater during the AM and PM peak periods. This is due to a number of factors including the increased levels of traffic and the increased stopping and starting due to heavier passenger volumes during those periods.

The next piece to consider when assessing a route is the frequency at which the service is operating. In the example above, if a 15 minute frequency were to be provided, it would require four buses (60 min round trip time divided by the 15 min frequency). If the frequency is adjusted in the base and evening periods to 20 minutes, the route would require only three buses.

As this section illustrates, there is not an easy way to assess the impact of a speed limit change on a route without undertaking a detailed assessment covering all time periods for weekdays, Saturday and Sunday service.

High Level Assessment

As a first step, all routes were assessed in an effort to determine the level of potential impact, based on factors including the corridors on which they travel, the spacing between stops, how tightly the current schedule runs, passenger loads by route, and how much of the route is impacted by the reduced speed limit. What has not been included in this assessment is the fact that a reduction in speed limit along a corridor will result in all traffic moving more slowly, which could result in increased congestion.

The following table sets out the results of this assessment, noting the impact assessments are based on the following criteria.

- High – Routes operate mostly on corridors that are proposed to have a speed limit reduction. Adding time to offset the speed limit reductions would result in

recovery time below the 10% target and therefore cannot be accommodated in the existing schedule without impacting frequency.

- Medium – Routes operate a significant portion along corridors with proposed speed limit reductions, however less than those listed as high. There may also be some more flexibility in the current schedule during certain time periods and may not require an additional peak period bus, but will likely require additional hours during some operating periods.
- Low – Routes operate on limited corridors with proposed speed limit reductions and it is assumed that the limited additional time required can be accommodated for within the existing schedules.
- Limited – Routes have very limited or no operation along corridors with proposed speed limit reductions. It is not anticipated that there will be an impact to the existing schedule on these routes.

Route Assessment – Impact of Reduced Speed Limits

Route	Impact		Route	Impact
1	High		27	Low
2	Low		28	Low
3	Limited		30	Limited
4	High		31	High
5	Low		33	Medium
6	Medium		34	High
7	Medium		35	Medium
9	High		36	Limited
10	Limited		37	Limited

12	Limited		90	Limited
13	Limited		91	Limited
15	High		92	Limited
16	Limited		93	Low
17	Low		94	Low
19	Medium		102	Medium
20	High		104	High
24	Medium		106	Medium
25	Limited			

Subsequent to this assessment, one of the routes assessed as “high” (Route 15) was selected for a detailed analysis. Data from the on-board metrics was reviewed for the period of 7am to 7pm on a weekday to determine the speeds at which the bus operated during the entire twelve hour period. The assessment was done over this period in an effort to determine the varying impacts during the AM Peak, Base and PM Peak operating periods, noting it was assumed that the Evening period would operate similar to the Base period. For each of the periods, the total time that the bus operated above 40 km/h were calculated, and then adjusted down to 40 km/h to determine the additional time that would be required to travel the same route.

The results of the detailed assessment for Route 15 on a weekday over the period concluded the following:

- AM Peak (7am-9am) – an additional 2 minutes and 12 seconds per hour, per bus would be required to travel the same distance. During this period, this additional time can be accommodated within the existing schedule.
- Base (9am to 2pm) – an additional 4 minutes and 8 seconds per hour per bus is required. The current schedule does not have adequate time to allow for this

while maintaining a 10% recovery time, and as such, an extra bus would need to be added to continue to operate during this period at the same frequency.

- PM Peak (2pm to 7pm) – an additional 2 minutes and 26 seconds per hour per bus is required. The current schedule does not have adequate time to allow for this while maintaining a 10% recovery time, and as such, an extra bus would need to be added to continue to operate during this period at the same frequency.

Extrapolating the results from the detailed assessment above, the following assumptions were made for the remaining weekday periods.

- Early AM (6am to 7am) – it is assumed this period would operate similar to the AM Peak period, and there would be adequate time in the schedule to accommodate the changes.
- Evening (7pm to 9pm) – it is assumed this period would operate similar to the Base period, and there would not be adequate time in the schedule while maintaining a 10% recovery time, requiring the addition of a bus to maintain the same frequency.
- Late Evening (9pm to end of service) – it is assumed this period would also operate similar to the Base period; however, the Late Evening schedules have adequate time to allow for this to be accommodated within the existing schedule.

A similar extrapolation of the detailed assessment was applied to weekend periods, with the results as follows.

- Early AM (start of service to 8am) – it is assumed that weekend services would operate similar to Early AM weekday service, and as such, there would be adequate time in the schedule to accommodate the changes.
- Base (8am to 10am) – it is assumed that weekend services would operate similar to the Base weekday period, and as such, there would not be adequate time in the schedule while maintaining a 10% recovery time, requiring the addition of a bus to maintain the same frequency.
- Peak (10am to 6pm) – it is assumed that weekend services would operate similar to the Base weekday period, and as such, there would not be adequate time in the schedule while maintaining a 10% recovery time, requiring the addition of a bus to maintain the same frequency.
- Early Evening (6pm to 9pm) – it is assumed that weekend services would operate similar to the Evening weekday period, and as such, there would not be adequate time in the schedule while maintaining a 10% recovery time, requiring the addition of a bus to maintain the same frequency.
- Late Evening (9pm to end of service) – it is assumed that weekend services would operate similar to the Late Evening weekday period, and as such, there would be adequate time in the schedule to accommodate the changes.

Based on the above results and extrapolations, the impact to weekday services in order to maintain the current frequencies would be an additional bus from 9am to 9pm (12 hours per day), for a total of 3,120 annualized service hours. Similarly, the impact on weekend services in order to maintain the same frequencies would be an additional bus from 8am to 6pm (10 hours per day), for a total of 1,040 hours. In total, the annualized operating impact on the route assessed would be the requirement of an additional 4,160 hours. In addition, given the bus would be required during peak operating periods on weekdays, one expansion bus would also be required. In terms of actual costs, if the

direct operating cost per service hour for the 2020 budget (\$114 per hour) is applied to the total hours, the total cost of the additional hours would be approximately \$474,000. In addition, the capital cost of an expansion bus is approximately \$600,000 for a 40 foot bus including all required ancillary equipment. It is recognized that this assessment makes a number of assumptions. In the event the speed limits are reduced, actual schedules would be re-created based on current frequencies, which could result in variations from these estimates.

An alternative to increasing the hours and buses allocated to the route would be to reduce the frequency. In the case of Route 15, the additional time required would result in a 17 minute frequency (up from 15 minutes) during weekday Base and PM Peak periods, from 30 to 33 minutes on weekends during peak periods and from 60 to 63 minutes during weekend Evening periods. Increasing frequencies in order to accommodate the changes to speed limits system wide will inevitably undo many of the improvements made over the last Five Year Service Planning period in an effort to make the system as a whole more attractive. Additionally, as set out in Staff Report #1, dated October 30, 2019, one of the strategic directions in the 2020-2024 Service Plan Framework is to improve frequencies system wide, as well as eliminate any 60 minute frequencies. While it may seem like a minor change to adjust frequencies by two to three minutes, the route cannot be looked at in isolation. Adjusting the frequencies may result in extended waits for transfers with connecting routes, bunching of buses at multi-use stops, and more difficult schedules for customers to understand, noting they would no longer be operating on a clock-face frequency. As such, increasing frequencies is not the approach recommended to address the operational impacts of a reduced speed limit.

Overall Impacts

Given the significant resource requirement associated with the detailed analysis, only one route has been assessed. In order to provide an estimated order of magnitude impact on the system as a whole as the result of a reduction in speed limit to 40 km/h, the route assessment conducted on Route 15 will be relied upon below.

There were a total of eight routes that were assessed as “high” in terms of the likelihood of being impacted by the change, all with similar operating characteristics to the Route 15 which was assessed in detail. Applying the same additional required annual hours to each of these routes would result in a total service hour required for all of the eight routes of 33,280 hours. In order to address this within the current operating budget allocations, and assuming no changes would be in place until fall of 2020 given there is no budget allocation to make any schedule adjustments prior to that time, would require the total 18,000 hours budgeted for service improvements in 2020 as well as 15,280 hours from the 2021 service plan. As indicated earlier, in the event the speed limits are reduced, actual schedules would be re-created for all affected routes based on current frequencies, which could result in variations from these estimates.

Alternatively, the annualized budget increase required to address this would be an additional \$3.4 million. In the event this additional funding was available, additional resources would be required in order for administration to complete the schedule rewrites for the 2020 and 2021 service plans as well as those required for the change in speed limit. As set out in Staff Report #1, dated October 30, 2019, significant resources are required to undertake schedule changes of this magnitude, and as such, if the

reduction in speed limit was confirmed by January 1, 2020, the earliest the required changes to schedules could be implemented would be September 2020.

The adjustments above would also require eight expansion buses, given the adjustments to schedules would be required in peak operating periods. The current capital plan calls for four expansion buses in 2020 and five in 2021, all with the exception of one would be required to address this issue. Alternatively, an additional eight expansion buses could be purchased at an estimated cost of \$4.8 million, noting current delivery timelines, these buses would not be available until 2021.

It is recognized that this approach has not provided for a detailed route by route analysis, nor has any attempt at analysis been undertaken for a route that has been assessed as having a medium likelihood of being impacted. However, the assessment undertaken to date clearly indicates the potential for significant impacts to the conventional transit service in relation to a decreased speed limit regardless of the approach taken. If the approach is to request additional operating and capital budget dollars to accommodate the required schedule changes, the request will be substantial, noting prior to making a request of this nature, detailed assessments of each route potentially impacted would need to be undertaken. If the approach is to accommodate the required schedule changes within existing budget requests, 92% of the increased hours for the first two years of the Five Year Service Plan Framework would be required, resulting in no service improvements for 2020 or 2021. Finally, if the approach is to increase frequencies to accommodate the required schedule changes, the result would be the undoing of many of the improvements to the service made over the last number of years, resulting in a less reliable transit service which is counter to the Five Year Service Plan Framework as well as the Commissions 2019-2022 Business Plan.

Once Municipal Council has made a decision with respect to the speed limit reductions on collector roads, administration will prepare a report outlining the recommended options moving forward. In order to ensure Municipal Council is making an informed decision, the following section of the report outlines the key messages that will be shared with civic administration with respect to the proposed speed limit reduction.

Next Steps

Administration will prepare a document to respond to civic administration based on the details included in this report, highlighting the following key points:

- The anticipated impact on the conventional transit service as the result of a reduction in speed limit on area collectors is significant.
 - The manner in which the issue is addressed will result in either significant operating and capital cost increases or significant negative impacts on service (the Route 15 example from this report will be included)
- While not assessed, lower speed limits on area collectors are also likely to have an impact on the productivity of the specialized services, resulting in fewer trips per hour, and less ridership
- A minimum of nine months' notice (prior to the fall service change period) is required prior to the speeds being altered on area collectors in order to provide time for the affected schedules to be changed and implemented. In addition, should additional buses be required to undertake the changes, a minimum one year notice would be required.

Recommended by:

Shawn Wilson, Director of Operations

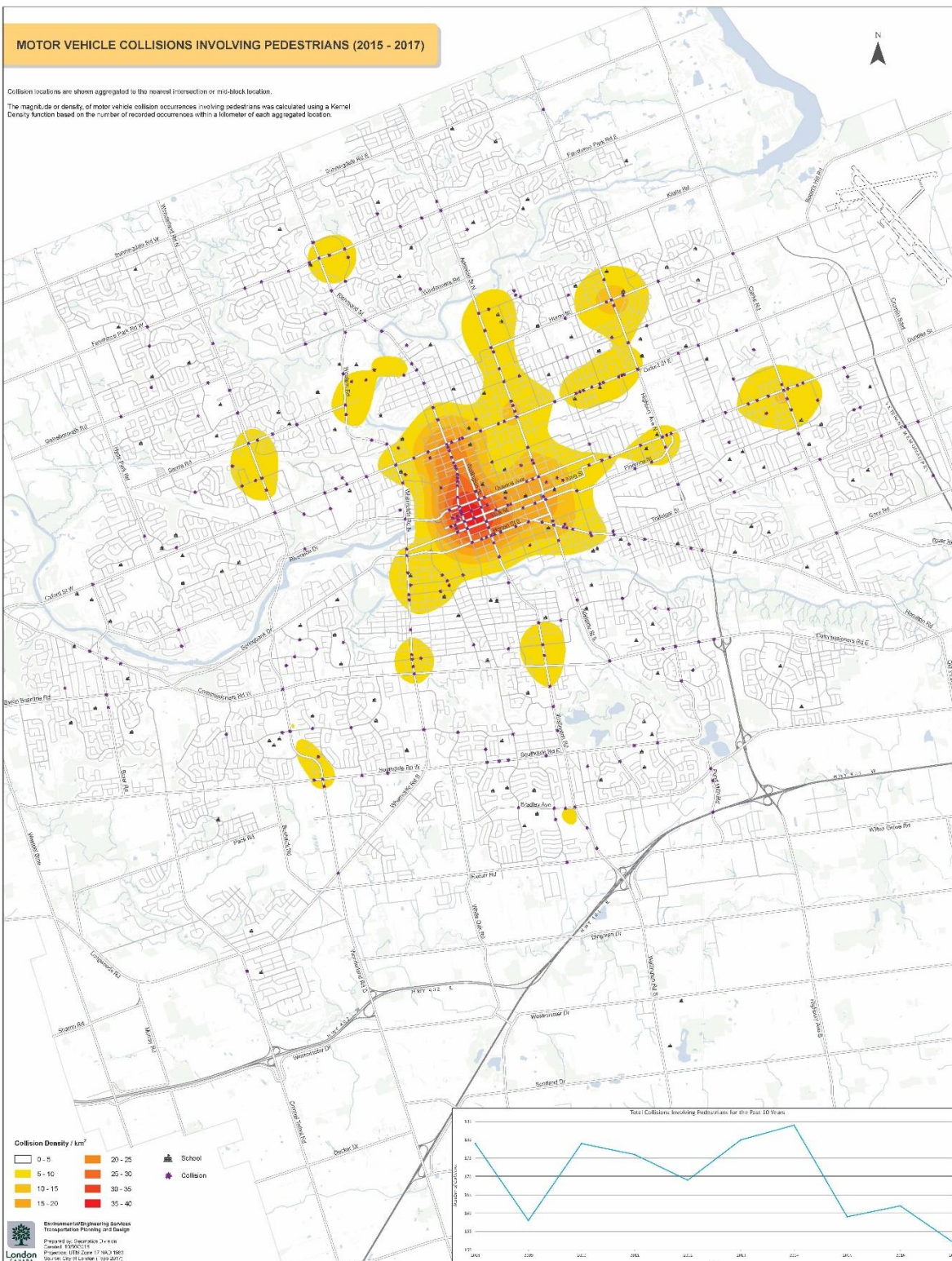
Katie Burns, Director of Planning

Concurred in by:

Kelly S. Paleczny, General Manager

APPENDIX C

PEDESTRIAN COLLISION HEAT MAP (2015 TO 2017)



CYCLIST COLLISION HEAT MAP (2015 TO 2017)

