

SUBJECT: Traffic Calming of Carlton Road, from Kennedy Road to McCowan Road

PREPARED BY: Alina Zhang, Traffic Systems Engineer, Ext. 3131
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RECOMMENDATION:

1. That the report and presentation entitled “Traffic Calming of Carlton Road, from Kennedy Road to McCowan Road” be received; and
2. That Staff proceed with the detailed design of the preferred traffic calming design option; and
3. That staff proceed with the detailed design of new traffic signals at Central Park Drive and a pedestrian cross-over at Fawnbrook Circle to improve pedestrian safety; and further
4. That Staff be authorized and directed to do all things necessary to give effect to this resolution.

PURPOSE:

This report seeks Council endorsement of traffic calming treatments for Carlton Road from Kennedy Road to McCowan Road, developed through a comprehensive feasibility review and safety analysis of the corridor and consideration of feedback received from residents and stakeholders.

EXECUTIVE SUMMARY:

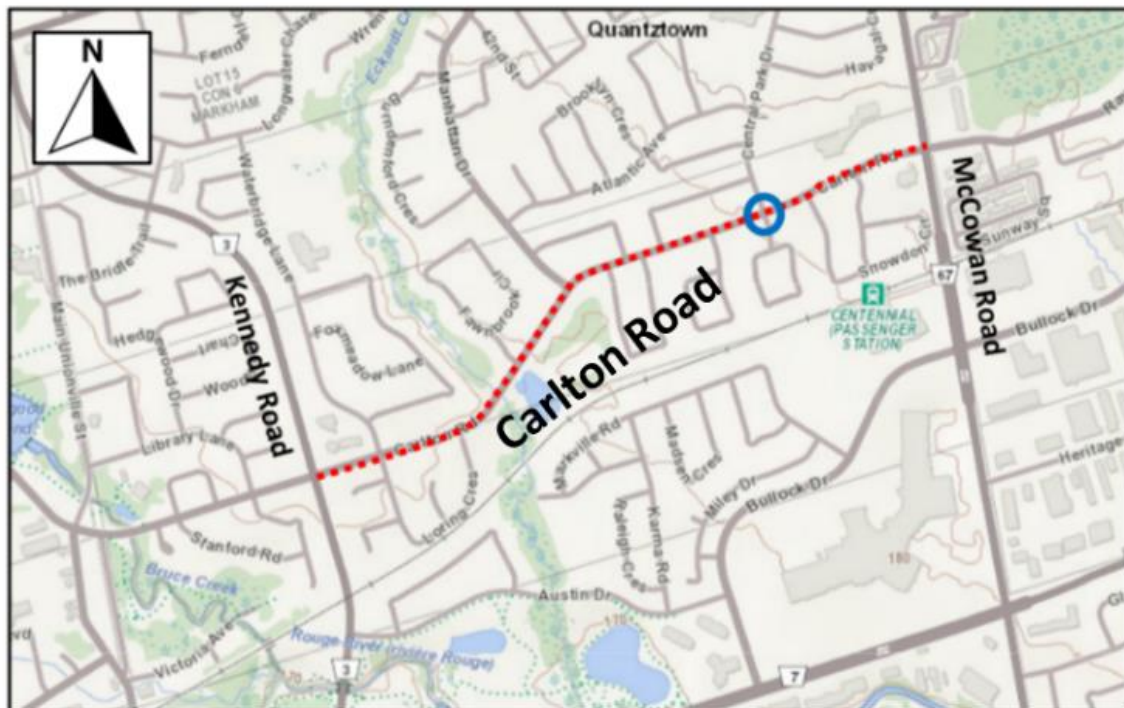
- On-going concerns regarding traffic safety on the subject segment of Carlton Road have persisted for several years;
- Traffic safety programs deployed have not fully addressed those safety concerns, particularly around vehicle speeds;
- The subject section of Carlton Road ranks high in terms of overall priority for safety treatment, as identified in the City’s 2020 Traffic Safety Audit as there are a number of associated roadway design and alignment issues;
- A traffic calming and detailed design study that includes feasibility reviews and safety analysis of the corridor has identified options to address those concerns;
- Traffic calming design options include reducing the number of traffic lanes to one-lane per direction, providing either a two-way centre left-turn lane or on-street parking where appropriate, and dedicated bike lanes;
- Existing conditions, cross-section design options and assessment were presented at the first public information centre (PIC) and on YourVoiceMarkham (YVM) as part of a comprehensive public consultation program;

- Feedback received from the PICs, YVM and emails were reviewed and considered in refining the analysis and recommended design;
- A preliminary design of the preferred option, including further assessment details, were provided during the second PIC;
- The recommended traffic calming design will result in improved safety for residents living directly on Carlton Road, the local community and all road users of the corridor. A technical assessment concluded that there will be a marginal impact (increased travel times) for the AM and PM peak periods;
- A capital budget will be requested for project construction in 2025.

BACKGROUND:

Constructed in the 1980's when the subdivision was developed, Carlton Road, between Kennedy Road and McCowan Road, is a four-lane undivided major collector road with sidewalks on both sides of the road and no dedicated bicycle lanes. The project study area is illustrated in Figure 1.

Figure 1: Carlton Road Study Area



..... Study Area

○ Traffic Signalization: Carlton Road and Central Park Drive Intersection

The posted speed limit is 40 km/h throughout and is designated as a shared cycling route (bicycles must share the road with vehicles). The Average Daily Traffic (ADT) volume is 7,000 vehicles. The land use along Carlton Road is primarily residential with some commercial, recreational, and institutional uses mostly at the western and eastern ends of the corridor. The major trip generators on this corridor are the Markville Secondary School at the eastern end, and the Bridle Post Shopping Centre at the western end. To compare, Carlton Road just west of Kennedy Road, is a 2-lane minor collector with an ADT of 6,300 vehicles.

There are ongoing traffic safety concerns on Carlton Road between Kennedy Road and McCowan Road that have been expressed by the local community. These concerns are primarily associated with high vehicle speeds, excessive levels of traffic volume during peak travel periods, lack of adequate pedestrian crossings and cycling infrastructure and an overall uncomfortable environment for residents. Although past measures, such as speed display boards, additional regulatory and advisory signs, heavy truck prohibitions, police enforcement and promotion of York Regional Police's Road Watch program, have been implemented, they have failed to adequately address safety concerns as complaints and concerns regarding traffic operations continue to be received.

Traffic data confirms resident concerns about traffic speeds and unsafe conditions

Although the posted speed limit is 40 km/h, the operating speed approaches 60 km/h at some sections. Between 2015 and mid-2023, a total of 27 reported collisions occurred throughout the corridor with a frequency of approximately three (3) collisions per year. Although no fatal injuries occurred along the corridor during the analysis period, there have been 8 non-fatal injury vulnerable road user collisions (4 pedestrian and 3 cyclist).

In the early 2000s, however, a fatal collision did occur at the curve east of Waterbridge Lane, resulting from a vehicle departing the road. As the geometrical design of this curve is for a lower design speed, eastbound traffic are prone to cross into the adjacent lane to compensate for the higher operating speed.

This section of Carlton Road ranks high in priority for safety treatment

The City of Markham in 2020 conducted a Traffic Safety Audit for all city streets. The systemic safety analysis entails the prioritization and ranking of the City's road segments and intersections, based on road design and operational collision risk factors (roadway features having a strong correlation with specific collision types). This approach is proactive in nature, as it identifies sites with an elevated risk of collisions before they occur. It also supplements existing collision history when prioritizing safety improvements for implementation. The 2020 analysis identified several high-risk locations along this Carlton Road corridor, as summarized in Table 1.

Table 1: Systemic analysis results of high-risk intersections/road segments on Carlton Road

Intersection	Systemic Safety Ranking (Of 1,570 unsignalized intersections)	Safety Risk Factors
Carlton Rd @ Central Park Dr	1	<ul style="list-style-type: none"> • High traffic volumes during peak hours exacerbate all safety risk factors • Traffic and pedestrian conflicts • Multi-lane approach to all-way stop control causes confusion • Adjacent to transit stops • Proximity to 2 schools • Collision history: 9 reported collisions in past 7 years, including 2 pedestrian collisions and 2 cyclist collisions
Carlton Rd @ Waterbridge Lane	9	<ul style="list-style-type: none"> • High traffic volumes during peak hours exacerbate all safety risk factors • Traffic and pedestrian conflicts • Multi-lane approach to all-way stop control causes confusion • Proximity to Kennedy Road intersection • Proximity to a school • Collision history: 8 reported collisions in past 7 years, including 2 pedestrian collisions
Carlton Rd @ Manhattan Dr	13	<ul style="list-style-type: none"> • High traffic volumes during peak hours exacerbate all safety risk factors • Traffic and pedestrian conflicts • Multi-lane approach to all-way stop control causes confusion • Adjacent to transit stops • Intersection on a horizontal curve • Proximity to Houndsbrook Cres intersection
Road Segment	Systemic Safety Ranking (Of 2,200 road segments)	Safety Risk Factors
Carlton Rd, between Kennedy Rd & Loring Cres (E)	35	<ul style="list-style-type: none"> • 4-lane major collector road • High traffic volumes during peak hours • Significant disparity in vehicle speeds (posted vs. actual) • Vehicles weaving between lanes • Designated cycling route without dedicated lane
Carlton Rd, between Loring Cres (E) & Houndsbrook Cres	98	<ul style="list-style-type: none"> • 4-lane major collector road • High traffic volumes during peak hours • Significant disparity in vehicle speeds (posted vs. actual) • Vehicles weaving between lanes • 2 deficient horizontal curves in the road alignment, just east of Loring Cres. and at Manhattan Dr. • Multiple transit stops • Designated cycling route without dedicated lane

Council approved a 2023 capital budget for this traffic calming project

In response to ongoing concerns from area residents and results from the 2020 Traffic Safety Audit, Council approved a 2023 capital budget (Project #23111) to complete a feasibility review of possible traffic calming measures, conduct public consultations, and prepare a detailed design of the recommended traffic calming option for the corridor.

The main objectives of this project are to identify and document traffic operational safety concerns along the corridor and propose traffic calming strategies to reduce vehicle speeds and enhance safety for all road users.

Traffic signal warrant for Carlton Road/Central Park Drive intersection has been met

In 2023, Council approved a budget to design traffic signals at the intersection of Carlton Road and Central Park Drive as this all-way stop controlled intersection has met the minimum Provincial justification criteria for traffic signals. Specifically, high pedestrian volume and crossing delays at this intersection warrants a traffic signal to improve pedestrian safety.

OPTIONS/ DISCUSSION:**Design options were presented at Public Information Centre #1**

Following completion of the corridor conditions assessment, three conceptual road cross-section design options were developed, as illustrated in Attachment “A”. A technical evaluation was conducted on the three conceptual design options to determine the technically preferred option that prioritizes safety for all road users.

The conceptual design options and evaluation were presented at a PIC #1 on Tuesday, February 6, 2024. Feedback was collected, with primary concerns including, but not limited to the following:

- Carlton Road is too busy. Any reduction of lanes will create congestion and increase delays, including blocking driveways and side streets.
- A centre left-turn lane is needed to accommodate left turning movements.
- Except for weekends near Quantztown Park, current street parking utilization throughout the corridor is very low and there is very little demand.
- Existing delays approaching Kennedy Road and McCowan Road will get worse.
- Traffic signals at Central Park Drive will create additional queuing.
- Adverse impacts to school traffic at Markville Secondary School.

The preferred traffic calming design option best addresses road safety concerns and considers comments received from the public

To account for neighbourhood context and public feedback received, a hybrid of Option 1 (parking lane) and Option 2 (two-way centre left-turn lane) is recommended. The application of these options to the relevant road sections is illustrated in Attachment “B”.

Option 1 is preferred between Loring Crescent (east) and Fawnbrook Circle where residential driveway access is limited, and street parking can be accommodated for the adjacent Quantztown Park. Option 2 is preferred between Fawnbrook Circle and Mansfield Lane, where a two-way centre left turn lane is needed to facilitate turning movements at residential driveways and various intersections. The section between Burdenett Creek and Waterbridge Lane proposes a transition back to the existing two westbound lanes. This is to ensure that additional delays approaching the Waterbridge Lane intersection are minimized.

The existing lane configurations approaching both Kennedy Road and McCowan Road are not recommended to be changed, to avoid further traffic delays at these approaches.

Improvements in road safety should be of the highest priority

As the operating speed for this section of Carlton Road approaches 60 km/h along with the high number of reported collisions that occurred throughout the corridor including one fatal collision in early 2020, reliable traffic calming measures are required. For all design options, the technical assessment concluded that there will be an impact on travel times for the westbound morning peak hour and eastbound afternoon peak hour. With the preferred hybrid option, travel times during the morning peak hour in the westbound direction may see an increase of approximately **one minute**, from 4.5 minutes today to 5.6 minutes with the implementation of the proposed measures. During the afternoon peak hour, the eastbound direction will see an increased travel time of **one minute**, from 4 minutes today to 5 minutes with the implementation of the proposed measures. For all other time periods/directional flows, any additional delay is forecasted to be negligible (under 15 seconds). Travel times are summarized in Table 2.

Table 2: Corridor Travel Times -Preferred Hybrid Option

Corridor Travel Time (in minutes)		Existing	Hybrid Option
Morning Rush Hour	Eastbound	3.8	4.0
	Westbound	4.5	5.6
Afternoon Rush Hour	Eastbound	4.0	5.0
	Westbound	4.0	4.0

The U.S. Federal Highway Administration (FHWA) states that converting a road from four to two lanes with a centre left turn lane can reduce crashes by 19 to 47 percent. A primary factor contributing to reduced collisions is the lower operating speeds. Average operating speed reductions of 5 – 9 km/h can be realized from the lane reduction. A recent local example of this is on Copper Creek Drive (Ward 7), where a lane reconfiguration was implemented in 2021. Subsequent to the lane reduction, operating speeds on Copper Creek Drive decreased by 4 – 11 km/h, depending on the section. These safety benefits, in consideration of the elevated safety risks identified along the Carlton Road corridor, outweigh marginal delays that drivers may experience with the preferred hybrid option.

A pedestrian cross-over (PXO) is proposed on Carlton Road at Fawnbrook Circle to facilitate access to Quantztown Park

Quantztown Park is a neighbourhood park with a playground, trails and soccer field surrounding a stormwater management pond. Access to the neighbourhood park is limited by the lack of controlled crossings of Carlton Road. The closest controlled crossing is at Manhattan Drive to the east and Waterbridge Lane to the west, which is 620 metres apart. As Fawnbrook Circle is directly across from the park, installing a PXO at its intersection with Carlton Road will provide additional access and improve crossing safety for pedestrians on the north side of Carlton Road.

Feedback received from PIC #2 do not require changes to the recommended design

Based on the analysis and feedback received from the first round of public consultation, the preliminary design for the preferred hybrid option was developed and presented at PIC #2, held on May 29, 2024.

The PIC had 34 registered attendees, with 22 formal comments submitted at the PIC and through the project website, as of the writing of this report. Comments received are more supportive of the project than during PIC #1, with a majority (55%) in support of the project and understanding the need to improve safety along the corridor.

Feedback included constructive suggestions that will be considered when refining the final design. Concerns remain consistent with those received at PIC #1, namely, increased congestion/delays and impacts to school traffic operations at Markville Secondary School.

The collective comments and concerns received from both PICs have largely been addressed through refinements, as recommended in the hybrid option. However, there are pre-existing issues at three locations: traffic operations at Markville Secondary School, and traffic delays approaching the Regional intersections (Kennedy Road and McCowan Road). These concerns have been reviewed and refinements made to the preferred design option, where possible. However, such issues have no clear solution and are focused on traffic delays, not safety. It is important to underscore that this project's implementation will not worsen traffic conditions at these three specified locations.

Therefore, staff recommend that Council approve the completion of the detailed design of the preferred traffic calming option, the detailed design of new traffic signals at Central Park Drive and a pedestrian cross-over at Fawnbrook Circle.

Next Steps

1. Council endorsement of recommended design option	June 2024
2. Detailed design completion	Summer 2024
3. Construction budget request & approval	Fall 2024
4. Implementation	Summer 2025
5. Post-project evaluation & monitoring	Fall 2025 – Fall 2026

FINANCIAL CONSIDERATIONS

The total budget for project #23111 (Traffic Calming of Main Street Markham & Carlton Road) is \$182,800, inclusive of HST. The project scope includes the completion of the detailed design, as recommended. Pending completion of the detailed design (anticipated

to be July 2024), a capital budget request to implement the traffic calming treatment will be submitted for the 2025 budget year. Further, through Infrastructure Canada's Active Transportation Fund, the City has been approved for a federal funding grant wherein 60% of the total construction project cost will be covered. However, it must be completed by March 2026, to meet the Federal funding requirement.

The cost estimate for the construction of the project will be provided when the detailed design is completed. The 2025 capital budget request will cover the portion not funded by the federal funding.

HUMAN RESOURCES CONSIDERATIONS

Not Applicable.

ALIGNMENT WITH STRATEGIC PRIORITIES:

In the Building Markham's Future Together Strategic Plan, this report and project aligns with the Transportation/Transit focus by providing for a Safe & Sustainable Community for all road users.

BUSINESS UNITS CONSULTED AND AFFECTED:

Operations Department and Financial Services Department were consulted on the project and in drafting this report.

RECOMMENDED BY:

Frank Clarizio, P.Eng.
Director of Engineering

Arvin Prasad, MPA, RPP, MCIP
Commissioner of Development Services

ATTACHMENTS:

Attachment "A": Traffic Calming Design Options

Attachment "B": Application of Preferred Design Options by Location (Map)