

REVISED PUBLIC AGENDA STANDING POLICY COMMITTEE ON TRANSPORTATION

Tuesday, October 9, 2018, 2:00 p.m. Council Chamber, City Hall Committee Members:

Councillor Z. Jeffries, Chair, Councillor B. Dubois, Vice-Chair, Councillor C. Block, Councillor R. Donauer, Councillor S. Gersher, His Worship Mayor C. Clark (Ex-Officio)

Pages

1. CALL TO ORDER

2. CONFIRMATION OF AGENDA

Recommendation

1. That the following letters be added to Item 7.1.1:

Submitting Comments:

- Sonny Kowbel, dated October 5, 2018;
- Sandra Kowbel, dated October 7, 2018;
- 2. That the following letters be added to Item 7.2.2:

Submitting Comments:

- Anthony Epp, dated October 3, 2018;
- Nolan Courteau, dated October 4, 2018;
- Walter D. Hall, dated October 5, 2018; and
- 3. That the agenda be confirmed as amended.

3. DECLARATION OF CONFLICT OF INTEREST

4. ADOPTION OF MINUTES

Recommendation

That the minutes of regular meeting of the Standing Policy Committee on Transportation held on September 10, 2018 be adopted.

5. UNFINISHED BUSINESS

- 6. COMMUNICATIONS (requiring the direction of the Committee)
 - 6.1 Delegated Authority Matters
 - 6.2 Matters Requiring Direction
 - 6.3 Requests to Speak (new matters)

7. REPORTS FROM ADMINISTRATION

7.1 Delegated Authority Matters

7.1.1 Clarence Avenue and Glasgow Street (south) Intersection 5 - 52 Review [Files CK 6295-018-003 and TS 6350]

Recommendation

That the report of the A/General Manager, Transportation & Utilities Department dated October 9, 2018, be received as information.

7.1.2 Request for Encroachment Agreement – 211 Evergreen Square 53 - 59 [Files CK 4090-2 and PL 4090-2]

Recommendation

- 1. That the proposed encroachment at 211 Evergreen Square (Parcel Y, Plan No. 102064294) be recognized;
- That the City Solicitor be requested to prepare the appropriate encroachment agreement, making provision to collect the applicable fees; and
- 3. That His Worship the Mayor and the City Clerk be authorized to execute the agreement under the Corporate Seal and in a form that is satisfactory to the City Solicitor.

7.1.3 Request for Encroachment Agreement – 880 Broadway Avenue ⁶ [Files CK 4090-2 and PL 4090-2]

Recommendation

- That the proposed encroachment at 880 Broadway Avenue (Lots 15 to 17 inclusive, Block 63, Plan No. B1858) be recognized;
- 2. That the City Solicitor be requested to prepare the appropriate encroachment agreement, making provision to collect the applicable fees; and
- 3. That His Worship the Mayor and the City Clerk be authorized to execute the agreement under the Corporate Seal and in a form that is satisfactory to the City Solicitor.

7.2 Matters Requiring Direction

7.2.1 2019 Neighbourhood Traffic Management Reviews [Files CK 64 - 71 6320-1 and TS 6320-1]

Recommendation

That the Standing Policy Committee on Transportation recommend to City Council:

That the eleven neighbourhoods selected for 2019 traffic reviews, as part of the Neighbourhood Traffic Review Program, include Pacific Heights/Kensington; Holiday Park/King George; Lawson Heights/Lawson Heights Suburban Centre; Nutana Park; Briarwood; Blairmore Suburban Centre; University Heights Suburban Centre and Airport Business Area.

7.2.2 Posted Speed Limit Review [Files CK 6320-1 and TS 6320] 72 - 88

Recommendation

That the Standing Policy Committee on Transportation recommend to City Council:

That the Administration develop a detailed framework for revising posted speed limits on neighbourhood streets including school and playground zones.

8. URGENT BUSINESS

- 9. MOTIONS (Notice Previously Given)
- 10. GIVING NOTICE
- 11. IN CAMERA AGENDA ITEMS
- 12. ADJOURNMENT

Clarence Avenue and Glasgow Street (south) Intersection Review

Recommendation

That the report of the General Manager, Transportation & Utilities Department dated October 9, 2018, be received as information.

Topic and Purpose

This report provides an assessment of traffic signalization at the intersection of Clarence Avenue and Glasgow Street (south).

Report Highlights

- 1. A pilot project testing vertical traffic calming devices is underway and the Administration will be reporting back on the effectiveness of, and community support for, the devices in early 2019.
- 2. The City of Saskatoon (City) is currently in discussion with the Province regarding the potential for expanding the use of Automated Speed Enforcement in the City.
- 3. Four alternatives were assessed for the intersection of Clarence Avenue and Glasgow Street (south).
- 4. The Administration recommends that if the vertical traffic calming pilot project proves successful, and the use of these traffic calming measures are supported by City Council, then Glasgow Street between Broadway Avenue and Clarence Avenue become the priority location for installation.

Strategic Goal

This report supports the Strategic Goal of Moving Around by improving safety for all road users (motorists, pedestrians and cyclists), and helps provide a great place to live, work and raise a family.

Background

City Council, at its Public Hearing Meeting held on June 25, 2018, considered the Proposed Closure of Right-of-Way - Restrict Left-Turns at Clarence Avenue and Glasgow Street report, and resolved:

- "1. That the Administration report back with information as it becomes available with respect to the possible application of speed humps and/or automated speed enforcement in the Avalon area; and
- 2. That the Administration report back with options to mitigate the possible need for traffic signalization at the intersection of Clarence and Glasgow."

Report

Speed Humps Update

In August of 2017, City Council directed the Administration to proceed with the pilot project for vertical traffic calming devices. The pilot project is currently underway with temporary speed humps installed at four locations in the City. The Administration will be reporting back on the effectiveness of, and community support for, the devices in early 2019.

Automated Speed Enforcement Update

The Automated Speed Enforcement (ASE) program is managed by the Saskatchewan Government Insurance and currently includes ten locations in the City with two cameras rotating through the ten locations. Through the current program, the ASE locations are pre-selected and identified in provincial legislation and therefore cannot be modified. The ASE program is currently a pilot project; however, it is widely regarded as a success in reducing operating speeds where implemented and the Province has indicated that it will become permanent January 1, 2019.

The City is currently in discussion with the Province regarding the potential for expanding the use of ASE and will report back when further information is available.

Traffic Signals at Clarence Avenue & Glasgow Street South

A review for the intersection of Clarence Avenue and Glasgow Street (south) was completed and is included as Attachment 1.

Under existing conditions, the eastbound left-turn movements at the intersection experience a reduced level-of-service (LOS) in both the AM and PM weekday peak hours. However, there are very few drivers completing this turn: (eight in the AM weekday peak hour and six in the PM weekday peak hour). This low volume may be indicative of the difficulty of making the turn. Due to the low volume of left-turning vehicles, and the numerous other routes available in this grid-style neighbourhood, traffic signals are not required when considering only the left-turn demand. This is not uncommon in the city, for example at the intersection of Dufferin Avenue and 8th Street, it is difficult to turn left onto 8th Street in the AM and PM weekday peak hours, and therefore very few vehicles complete this movement. The Administration would not consider traffic signals at this location in consideration of other routes available to drivers. Furthermore, installing traffic signals will attract vehicles, increasing the volumes along Glasgow Street.

The westbound left turns at both the Calder Crescent and Clarence Avenue intersection, and the Clarence Avenue and Glasgow Street (north) intersection are experiencing similar delays, but also experience low left-turning vehicles in the AM and PM weekday peak hours.

Several alternatives were assessed for the Clarence Avenue and Glasgow Street (south) intersection, including:

- 1. Do nothing.
- 2. Install traffic signals and no changes along Glasgow Street.
- 3. No traffic signals, and Glasgow Street diverter at MacEachern Avenue and full closure of Turner Avenue at Glasgow Street.
- 4. Install traffic signals, and Glasgow Street diverter at MacEachern Avenue and full closure of Turner Avenue at Glasgow Street.

The following conclusions can be drawn from the assessment:

- 1. Blocking traffic on Glasgow Street through a diverter, and blocking traffic on Turner Avenue through a closure, would significantly reduce short-cutting traffic on Glasgow Street, but increase the demand for the eastbound left-turn from Glasgow Street onto Clarence Avenue.
- 2. If Glasgow Street and Turner Avenue is restricted for through traffic, traffic signals would possibly be required at the intersection of Clarence Avenue and Glasgow Street (south) to enable vehicles to travel north from their residential area.
- 3. If traffic signals are installed at the intersection of Clarence Avenue and Glasgow Street (south), independent of any other changes, the median openings on Clarence Avenue at Glasgow Street (north) and Calder Crescent would require closing due to queuing traffic on Clarence Avenue at the traffic signal. Not closing the medians would create safety and operational issues.
- 4. Closing the medians on Clarence Avenue would require significant consultation with the neighbourhood of Adelaide-Churchill as traffic patterns would be altered in the neighbourhood.
- 5. Installing traffic signals at the intersection of Clarence Avenue and Glasgow Street (south), and not restricting traffic on Glasgow Street and Turner Avenue is not recommended as this will increase the short-cutting traffic on Glasgow Street.
- 6. There are no viable options to mitigate the possible need for traffic signals at the intersection of Clarence Avenue and Glasgow Street (south) other than restricting northbound left turns.

It is recommended that no changes, including installation of traffic signals, are made to this intersection, and that no changes are made to Glasgow Street or Turner Avenue at this time.

Traffic Calming Update

The updated Traffic Calming Policy outlines the process for outstanding speeding and shortcutting concerns for neighbourhoods with a completed Neighbourhood Traffic Review (NTR). NTRs for both the Adelaide-Churchill and Avalon neighbourhoods have been completed and, as such, any outstanding shortcutting and speeding concerns could be addressed through the new Traffic Calming Policy process and program. However, the new policy outlines that at least two years must have passed from the time the traffic calming was implemented prior to consideration for an alternate device.

The Administration recommends that if the Vertical Traffic Calming Pilot Project proves successful, and the use of speed humps are supported by City Council, then Glasgow Street between Broadway Avenue and Clarence Avenue become a priority location for installation of speed humps.

Options to the Recommendation

City Council could direct the Administration to consult with the Adelaide-Churchill and Avalon neighbourhoods regarding median closures on Clarence Avenue at Glasgow Street (north) and Calder Crescent, with the intent of installing traffic signals at the intersection of Clarence Avenue and Glasgow Street (south), installing a diverter on Glasgow Street, and blocking Turner Avenue.

Public and/or Stakeholder Involvement

There has been no engagement specifically regarding the analysis and alternatives summarized in this report.

Environmental Implications

The overall impact of the recommendations on traffic characteristics, including the impacts on greenhouse gas emissions, has not been quantified at this time.

Other Considerations/Implications

There are no communication, policy, financial, privacy, or CPTED considerations or implications.

Due Date for Follow-up and/or Project Completion

The Administration will report back on the results of the speed hump pilot project in early 2019.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Attachment

1. Clarence Avenue and Glasgow Street (south) Intersection Review

Report Approval

Written by: Minqing Deng, Transportation Engineer, Transportation
 Nathalie Baudais, Senior Transportation Engineer, Transportation
 Reviewed by: David LeBoutillier, Acting Engineering Manager, Transportation
 Jay Magus, Acting Director of Transportation
 Approved by: Angela Gardiner, Acting General Manager of Transportation & Utilities Department

Admin Report – Clarence Avenue and Glasgow Street (south) Intersection Review.docx

Clarence Avenue and Glasgow Street (south) Intersection Review

SEPTEMBER 2018



Authorization



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- A: Alternative Solutions
- B: Traffic Signal Warrant Analysis
- C: Alternatives Intersection Capacity Analysis

1 Background

On September 26, 2014, City Council received a petition from over 300 area residents requesting action on speeding and short-cutting traffic on Glasgow Street in the Avalon neighbourhood. This focus on Glasgow Street continued through the public meeting regarding this specific issue in October 2014 and the initial Neighbourhood Traffic Review (NTR) public meeting held in April 2015. In 2015, traffic studies were undertaken and numerous field observations were completed to quantify these concerns.

A review of the traffic data collected at that time indicated two primary traffic shortcut movements:

- Northbound left-turn from Clarence Avenue to Glasgow Street and the westbound right-turn from Glasgow Street onto Broadway Avenue; and conversely,
- Southbound left-turn from Broadway Avenue to Glasgow Street and the eastbound right-turn from Glasgow onto Clarence Avenue.

The traffic data also indicated:

- That the dog park located at the south end of Broadway Avenue was not the main traffic generator
- Glasgow Street traffic volume was 3,700 vehicle trips per day (vpd)
- Wilson Crescent traffic volume was 2,300 vpd
- 85th percentile vehicle speeds on Glasgow Street ranged between 49 kilometres per hour (kph) and 54 kph

A detailed review of the 2015 traffic data confirmed short-cutting traffic on Glasgow Street. Pinch points were installed on Glasgow Street to address the amount of short cutting traffic. Traffic volumes on Glasgow Street dropped slightly (3,700 to 3,400 vpd), but the vehicle travel speeds were not significantly impacted.

Based on community feedback and City Council direction, the pinch points were removed on Glasgow Street after a ten-month trial period.

In September 2017, the median opening at Glasgow Street (south) was closed and the left-turn movements were restricted, in order to reduce short-cutting traffic on Glasgow Street.

City Council, at its public hearing meeting on June 25, 2018 received a report on the effectiveness of the pilot project restricting the left-turning movements at the intersection of Clarence Avenue and Glasgow Street (south). The pilot project was effective in reducing short-cutting traffic as a significant reduction of traffic on Glasgow Street was realized, dropping from 3,700 vpd to 1,900 vpd. However, City Council did not resolve to make the left-turn restrictions permanent, and accordingly the Administration removed the restrictions at the Clarence Avenue and Glasgow Street (south) intersection.

At the June 25th, 2018 meeting, City Council resolved, in part:

"2. That the Administration report back with options to mitigate the possible need for traffic signalization at the intersection of Clarence Avenue and Glasgow Street (south)."

This technical report is in response to this Council resolution.

2 Study Scope and Objective

The primary objective is to assess various traffic control options at the intersection of Clarence Avenue and Glasgow Street (south) and along Glasgow Street with the intent of mitigating the need for traffic signals, reducing short-cutting traffic on Glasgow Street and not significantly impacting adjacent residential areas.

The scope of the assessment is as follows:

- AM and PM weekday peak hours
- Intersection of:
 - o Clarence Avenue and Glasgow Street (north)
 - Clarence Avenue and Glasgow Street (south)
 - o Clarence Avenue and Calder Crescent
- Segment of Glasgow Street between Broadway Avenue and Clarence Avenue.

3 Methodology

To achieve the objective outlined above, the methodology included the following tasks:

- Collect traffic and pedestrian data at the intersection;
- Review the collision history at the intersection over the past five years (2013 to 2017);
- Review transit stops and driveways;
- Undertake field observations during peak periods;
- Complete traffic signal warrant analysis in accordance with *The Traffic Signal and Pedestrian Signal Head Warrant Handbook* (Transportation Association of Canada, 2014);
- Analyze the intersection considering two separate measures of performance:
 - The volume to capacity ratio, and
 - The level of service (LOS) for each turning movement, based on the average control delay per vehicle.
- Identify operational and safety issues for existing conditions;
- Develop alternative solutions to address operational and safety issues;
- Evaluate alternative solutions using multiple criteria (including traffic operations, property impacts, costs, etc.); and
- Identify preferred solution, if feasible.

4 Study Area

The study area includes Clarence Avenue between Glasgow Street (north) and Calder Crescent, and Glasgow Street between Broadway Avenue and Clarence Avenue.

The focus of the study will be on the intersection of Clarence Avenue and Glasgow Street (south) which is illustrated in Figure 4.1 and includes the following intersections:

- Clarence Avenue and Glasgow Street (north) intersection;
- Clarence Avenue and Glasgow Street (south) intersection; and
- Calder Crescent and Clarence Avenue intersection.

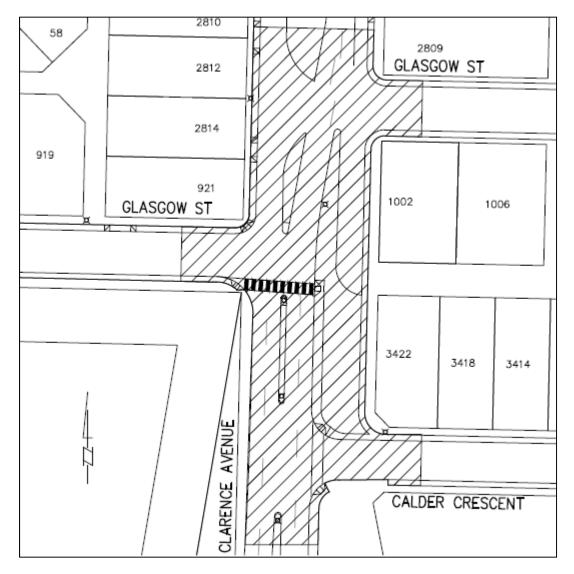


Figure 4.1 Focus of Study

5 Existing Conditions

Driving north on Clarence Avenue away from Circle Drive, there are three intersections in close proximity as follows:

Intersecting Street with Clarence Avenue	Distance between
Glasgow Street (north)	
	40 metres
Glasgow Street (south)	
	55 metres
Calder Crescent	
	235 metres
Circle Drive interchange north	
ramp	

Glasgow Street (south) intersection is located at the end of a downward grade north from the interchange.

The characteristics for the study area roads are provided below in Table 5-1.

Table 5-1 Study Area Road Characteristics

Street	Classification	Posted Speed (kph)	# of lanes	Traffic Control
Clarence Avenue	Minor arterial	50	 2 northbound 1 southbound approaching Glasgow Street (south) 2 southbound departing Glasgow Street (south) 	Free
Glasgow Street (north and south)	Local	50	 1 eastbound approaching Clarence Avenue 1 westbound approaching Glasgow Street 	Stop
Calder Crescent	Local	50	 1 westbound approaching Clarence Avenue 1 eastbound approaching Calder Crescent 	Stop

5.1 Collision Analysis

The most recent available five year collision data from Saskatchewan Government Insurance (SGI) is from 2012 to 2016. This data was reviewed for different types of collisions at the three intersections in the study area. This data is presented in Table 5-2.

Table 5-2 Collision History

Veer	Number of Collisions	Type of Collision					
Year	Number of Collisions	Left Turn	Right Angle	Rear End	Other		
2013	5	1		2	2		
2014	3			2	1		
2015	4		1	1	2		
2016	6			4	2		
2017	1			1			

The above table indicates that 53% of the collisions at intersections within the study area are rear end type collisions.

In addition to the above information, the following details were provided within the SGI information:

- No fatalities have been reported in the period.
- The majority (80%) of collisions resulted in property damage only. Four collisions resulted in personal injury. One of the collisions resulting in personal injury was a right angle collision type.
- Approximately 33%, 50% and 17% of the collisions occurred during daylight, dark and dusk hours respectively.
- Approximately 57% of the collisions occurred with dry road conditions, and 43% of the collisions occurred with packed snow road conditions.
- The "Other" collision types include: 1 fixed / movable object collision, 2 lost control – left ditch, 4 – lost control – right ditch, 2 – left turn / straight in same direction collision, 1 – left turn / straight in opposite direction collision.

A conclusion drawn from the collision history review is that no significant safety issue currently exists.

5.2 Current Traffic Volumes

Traffic and pedestrian counts were collected at this intersection on August 28, 2018. Data was collected during the weekday peak periods (7:00 AM to 9:00 AM; 11:30 AM to 1:30 PM; and 3:00 PM to 6:00 PM). The weekday AM and PM peak hour traffic volumes are illustrated in Figure 5.1.

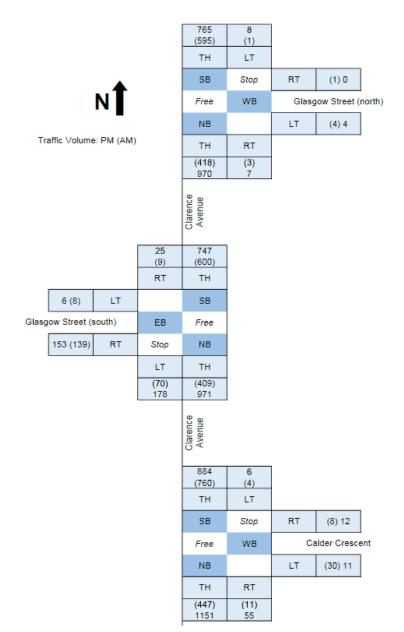


Figure 5.1 Existing Peak Hour Traffic

5.3 Intersection Capacity Analysis

Intersection capacity analysis was completed for the study intersection using Synchro 10.0, a traffic analysis software package based on the methods outlined in the Highway Capacity Manual (HCM) 2000. The software uses standard procedures to determine the volume to capacity ratio (v/c) and the corresponding delay-based traffic level of service (LOS) for movements at each intersection in the study network.

For design purposes, the Administration generally considers as acceptable a LOS D or better for all movements. For LOS E and higher, mitigation measures may be explored; however, individual approaches and/or turning movements experiencing LOS E or LOS F may be considered acceptable depending on their respective v/c ratios, queue lengths, traffic volumes, and overall intersection LOS.

For unsignalized intersections, the LOS methodology considers intersection geometry, traffic volumes, speed limit, and type of intersection control. For signalized intersections, the LOS methodology considers intersection geometry, traffic volumes, speed limit, and signal timing plan. Delays range from LOS 'A' conditions with minimal delay to LOS 'F' representing longer delay. The LOS criteria for unsignalized and signalized intersections are summarized in Table 5-3.

Level of Service (LOS)	Average Delay for Unsignalized Intersection (seconds per vehicle)	Average Delay for Signalized Intersection (seconds per vehicle)	
А	0 -10	0 -10	
В	> 10 - 15	> 10 - 20	
С	> 15 - 25	> 20 - 35	
D	> 25 - 35	> 35 - 55	
E	> 35 - 50	> 55 - 80	
F	> 50	> 80	

Table 5-3 HCM Level of Service Summary

The v/c ratio provides a quantitative value as to how much capacity of a specific movement through an intersection is being used. If the ratio is greater than one, the available capacity has been exceeded and traffic conditions may begin to break down. Typically, a v/c ratio of 0.9 or lower for all intersection movements is accepted in urban areas. However significant engineering judgement is required when reviewing v/c ratios.

Operating conditions at the studied intersection were assessed based on the road network, intersection configuration, existing traffic controls, and the existing traffic volumes shown previously in Figure 5.1. The results are summarized in Table 5-4.

	Movement			AM Pe	ak Hour			PM Pea	ak Hour	
Intersection			Measure of Effectiveness							
Intersection			v/c Ratio	Delays (s)	LOS	Queue 95th (m)	v/c Ratio	Delays (s)	LOS	Queue 95th (m)
	WB	LT	0.24	31.6	D	7.1	0.2	40.1	E	5.6
Claranaa Avanua	VVD	RT	0.24	31.6	D	7.1	0.2	40.1	E	5.6
Clarence Avenue and Calder	NB	RT	0.19	0	А	0	0.49	0	Α	0
Crescent	IND	TH	0.1	0	А	0	0.28	0	Α	0
Clesceni	SB	LT	0	0.1	А	0.1	0.01	0.2	Α	0.3
	30	TH	0	0.1	А	0.1	0.38	0.1	Α	0.3
Intersection S	ummary	/	0.24	1	А	-	0.49	0.5	Α	-
	EB	LT	0.04	22.9	С	1.1	0.12	73.9	F	3
Clarence Avenue		RT	0.37	18.9	С	13.4	0.53	28.4	D	23.1
	NB SB	LT	0.08	0.8	А	2.1	0.24	3.4	Α	7.6
and Glasgow		TH	0.17	1.2	А	2.1	0.41	2	Α	7.6
Street (south)		RT	0.39	0	А	0	0.49	0	Α	0
		TH	0.39	0	А	0	0.49	0	Α	0
Intersection S	ummary	/	0.39	2.9	А	-	0.53	3.8	Α	-
	WB	LT	0.02	20.3	С	0.5	0.07	70	F	1.7
Clarence Avenue	VVD	RT	0.02	20.3	С	0.5	-	-	-	-
	NB	RT	0.18	0	А	0	0.41	0	Α	0
and Glasgow Street (north)	IND	TH	0.09	0	А	0	0.21	0	Α	0
	SB	LT	0	0	А	0	0.01	0.3	Α	0.3
	28	TH	0	0	А	0	0.01	0.4	Α	0.3
Intersection S	ummary	/	0.18	0.1	А	-	0.41	0.3	Α	-

Table 5-4 Existing Operation Conditions

As shown in the table, all intersections are operating at an overall LOS of A during the AM and PM weekday peak hours. However several individual intersection movements were at a LOS E or worse as follows:

- Clarence Avenue and Calder Crescent: Westbound left and right turns experience a LOS E during the PM peak hour.
- Clarence Avenue and Glasgow Street (south): Eastbound left turns experience a LOS F in the PM peak hour.
- Clarence Avenue and Glasgow Street (north): Westbound left turn experiences a LOS F in the PM peak hour.

In consideration of the following it is concluded that no changes are required in the existing condition:

• Under existing conditions, the eastbound left turn movements at the intersection of Clarence Avenue and Glasgow Street (south) experience a poor LOS in both the AM and PM weekday peak hours. However, there are very few drivers

completing this turn: eight in the AM weekday peak hour and six in the PM weekday peak hour. This low volume may be indicative of the difficulty of making the turn. Due to the low volume of left-turning vehicles, and the numerous other routes available in this grid-style neighbourhood, traffic signals are not required when only considering the left-turn demand. This is not uncommon in the City, for example at the intersection of Dufferin Avenue and 8th Street, it is difficult to turn left onto 8th Street in the AM and PM weekday peak hours, and therefore very few vehicles complete this movement. The Administration would not consider traffic signals at this location in consideration of other routes available to drivers.

- The westbound left turns at both the Calder Crescent and Clarence Avenue intersection, and the Clarence Avenue and Glasgow Street (north) intersection are experiencing similar delays, but also experience low left-turning vehicles in the AM and PM weekday peak hours.
- There is minimal queuing on Clarence Avenue at any of the intersections.
- There is queuing of approximately 25 metres in the eastbound direction of vehicles waiting to turn right from Glasgow Street (south) onto Clarence Avenue. The queueing is not an issue as it does not spillback into an upstream intersection, and on the south of Glasgow Street at this location there are no residential driveways.

5.4 Field Observations

At the intersection of Clarence Avenue and Glasgow Street (south), the following was observed:

- Westbound drivers completing the left-turn movement at Calder Crescent in the AM and PM peak hours nose into the northbound through lane forcing northbound traffic to stop.
- Westbound drivers completing the left turn movement at Glasgow Street (north) in the PM peak hour nose into the northbound through lane forcing northbound traffic to stop.

Although not ideal, the number of vehicles completing this movement is not large. The solution to mitigate this issue would be to close the medians on Clarence Avenue. It is concluded that there are no significant observed issues.

6 Alternatives

Several alternatives were developed and analyzed for improvements at the intersection of Clarence Avenue and Glasgow Street (south), and also to reduce short-cutting on Glasgow Street. These alternatives include:

- 1. Do nothing;
- 2. Install traffic signals with no changes along Glasgow Street;
- 3. Do not install traffic signals, and install a diverter on Glasgow Street and full closure of Turner Street; and
- 4. Install traffic signals plus install a diverter on Glasgow Street and full closure of Turner Street.

To help determine the feasibility of each alternative, a functional design was developed for each alternative based on the Transportation Association of Canada (TAC) *Geometric Design Guide for Canadian Roads* (2017), *Manual on Uniform Traffic Control Devices Guide* (MUTCD), and *Design and Development Standards Manual* (2018), City of Saskatoon. Designs for each alternative are included in Appendix A.

6.1 Traffic Signal Analysis

Two of the proposed alternatives include traffic signals at the intersection of Clarence Avenue and Glasgow Street (south). For completeness, at all studied intersections a traffic signal warrant calculation was also completed in accordance with *The Traffic Signal and Pedestrian Signal Head Warrant Handbook*, Transportation Association of Canada, 2014, and using the recently captured traffic data.

Based on the inputs required for the Traffic Signal Warrant (traffic and pedestrian counts, distance to nearest signalized intersection, and lane configuration), the resulting point value were as follows:

- Clarence Avenue and Glasgow Street (north) intersection = 5 points
- Clarence Avenue and Glasgow Street (south) intersection = 84 points
- Clarence Avenue and Calder Avenue intersection = 16 points.

Consideration for the implementation of traffic signals is typically a warrant value of 100 points or more. The warrant calculations are provided in Appendix B.

To design urban intersections to accommodate all road users and transportation modes in a safe manner, it is important to accommodate and/or control the effects of traffic access adjacent to intersections. Installing traffic signals at the intersection of Clarence Avenue and Glasgow Street (south) would require the following revisions:

- Removal of the existing Rapid Rectangular Flashing Beacons (RRFBs); currently the pilot project installation is just south of Glasgow Street.
- Raised median through the intersection of Clarence Avenue and Glasgow Street (north);
- Raised median through the intersection of Clarence Avenue and Calder Crescent;
- Revisions to the north median at the intersection of Clarence Avenue and Glasgow Street (south), to accommodate a pedestrian crosswalk; and
- Sidewalks to connect pedestrian traffic to transit stops.

The inclusion of the raised median islands through the intersections of Clarence Avenue and Glasgow Street (north) and Clarence Avenue and Calder Crescent would be required to:

- Physically restrict certain traffic movements to reduce conflict points and ensure safe operations of the traffic signal. According to results from traffic signal operations simulated in Synchro (see Appendix C), the traffic queue at the Clarence Avenue and Glasgow Street (south) intersection would spillback approximately:
 - o 50 metres in the AM peak hour for southbound traffic
 - o 70 metres in the PM peak hour for northbound traffic
 - o 76 metres in the PM peak hour for southbound traffic
- Prevent left turns into driveways near intersections; and
- Reduce the number of turning movements at intersections.

The current intersection spacing between the Glasgow Street south and north is 40 metres and therefore the southbound queue will create safety and operational issues for Glasgow Street (north) intersection. The current intersection spacing between Glasgow Street (south) and Calder Crescent is 55 metres and therefore the northbound queue will create safety and operational issues for the Calder Crescent intersection.

Finally, installing traffic signals at the intersection of Clarence Avenue and Glasgow Street (south), and not doing anything else, will increase the amount of short-cutting traffic along Glasgow Street (south) by providing ease of turns to and from Clarence Avenue.

In summary the following conclusions can be drawn:

• The installation of traffic signals at the intersection of Clarence Avenue and Glasgow Street (south) would require the closure of the medians at Glasgow Street (north) and Calder Avenue.

- Closing the medians along Clarence Avenue would cause traffic to be re-directed in the neighbourhood of Adelaide-Churchill. Analysis of this impact of the re-directed traffic was not completed.
- If traffic signals are installed, Glasgow Street west of Clarence Avenue requires blocking, as well as Turner Street to mitigate short-cutting traffic on Glasgow Street.

7 Evaluation

The alternatives were evaluated according to the following evaluation criteria:

- Property impact;
- Traffic operations;
- Neighbourhood access;
- Pedestrian & cyclist accommodation;
- Traffic safety;
- Driveway impacts;
- Environmental; and
- Costs

The evaluation scale is illustrated below:

Very Poor	Poor	Fair	Good	Excellent
\bigcirc				
0.00	0.25	0.5	0.75	1.0

The evaluation of alternatives is shown in Table 7-1. The Synchro analysis is included in Appendix C.

Table 7-1 Evaluation Matrix

		Alternatives				
Criteria	Measures	1 Do Nothing	2 Traffic Signal	3 Glasgow Street Diverter Full Closure of Turner Street	4 Traffic Signals Glasgow Street Diverter Full Closure of Turner Street	
Property Impact	Amount of property	None	None	None	None	
	acquisition required					
	AM and PM weekday peak hours LOS and v/c ratio	AM: LOS: A v/c: 0.37 PM: LOS: A v/c: 0.5	AM: LOS: A v/c: 0.54 PM: LOS: A v/c: 0.74	AM: LOS: A v/c: 0.37 PM: LOS: A v/c: 0.62	AM: LOS: A v/c: 0.43 PM: LOS: A v/c: 0.63	
Traffic Operations	Addresses shortcutting concerns on Glasgow Street	No change	Shortcutting traffic expected to increase as signals facilitate northbound left turn	Shortcutting traffic eliminated; no through route from Glasgow Street	Shortcutting traffic eliminated; no through route from Glasgow Street	
			\bigcirc			

			Alternatives					
Criteria	Measures	1 Do Nothing	2 Traffic Signal	3 Glasgow Street Diverter Full Closure of Turner Street	4 Traffic Signals Glasgow Street Diverter Full Closure of Turner Street			
Neighbourhood Access	Impacts to neighbourhood access for Avalon and Adelaide- Churchill	No change	Restricted access to Clarence Avenue from Glasgow Street (north) and Calder Crescent. Improved access to Clarence Avenue from Glasgow Street (south)	Restricted access from Broadway Avenue left-turn to Glasgow Street; restricted access from Glasgow Street right-turn to Broadway Avenue; Improved access to Clarence Avenue from Glasgow Street (south)	Restricted access to Clarence Avenue from Glasgow Street (north) and Calder Crescent. Improved access to Clarence Avenue from Glasgow Street (south)			
					\bigcirc			
Pedestrian & Cyclist	Rating of the impact on cyclists and pedestrians, and how well	No change; difficult for pedestrian to cross Clarence Avenue; currently testing RRFBs	Fully protected pedestrian access	No change; difficult for pedestrian to cross Clarence Avenue; currently testing RRFBs	Fully protected pedestrian access			
Accommodation	the alternative will accommodate cyclists and pedestrians							

			ŀ	Alternatives	
Criteria	Measures	1 Do Nothing	2 Traffic Signal	3 Glasgow Street Diverter Full Closure of Turner Street	4 Traffic Signals Glasgow Street Diverter Full Closure of Turner Street
Traffic Safety	Crash severity and rate; number of conflict points; speed reduction	May increase crashes due to driver frustration or lead motorists to increase their speed to regain time spent at the stop	Reduces the frequency of certain types of crashes (i.e. right-angle); higher crash rate than do nothing due to increase in rear end collisions	Aims at reduce the shortcut movement to Broadway, and therefore decrease the traffic volume on south Glasgow Street; conflict points remains at Clarence Ave	Reduce the shortcut movement to Broadway Avenue, decreasing traffic volumes on Glasgow Street (south); traffic signal reduces conflict points for left turns onto Clarence Avenue
Driveways	Existing driveway impacts Construction cost	No impact	Minor impact due to traffic queuing during red phase in signals	No impact	Minor impact due to traffic queuing during red phase in signals
Costs		No cost	High cost >\$250,000 for traffic signals and raised median islands	Low cost	High cost >\$250,000 for traffic signals and raised median islands
					\bigcirc
Total Relati	Total Relative Score:		4.25	6.00	5.00

The following conclusions can be drawn from the detailed assessment of the alternatives:

- It should be noted that the criteria are not weighted against each other. For example Neighbourhood Access is weighted the same as Property Impact. For this reason the results of the assessment are used an indicative tool and not a precise quantitative assessment.
- Not closing the medians would create safety and operational issues.
- Closing the medians on Clarence Avenue would require significant consultation with the neighbourhood of Adelaide-Churchill as traffic patterns would be altered in the neighbourhood.

8 Conclusions

Based on the traffic and pedestrian data, field reviews, traffic assessments, and analysis, the following conclusions are drawn:

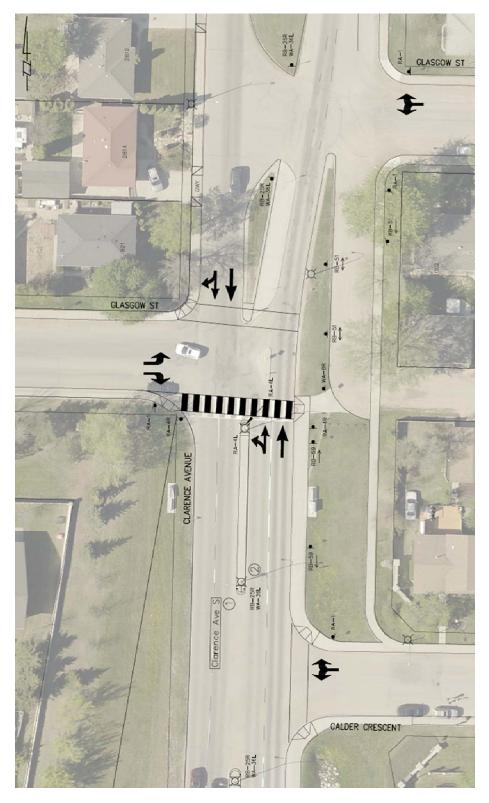
- 1. No changes are required to improve the existing condition.
- 2. Blocking traffic on Glasgow Street through a diverter, and blocking traffic on Turner Avenue through a closure, would significantly reduce short-cutting traffic on Glasgow Street, but increase the demand for the eastbound left-turn from Glasgow Street onto Clarence Avenue.
- If Glasgow Street and Turner Avenue is restricted for through traffic, traffic signals would most likely be required at the intersection of Clarence Avenue and Glasgow Street (south) to enable people to travel north from their residential area.
- 4. If traffic signals are installed at the intersection of Clarence Avenue and Glasgow Street (south), independent of any other changes, the median openings on Clarence Avenue at Glasgow Street (north) and Calder Crescent would require closing due to queuing traffic on Clarence Avenue at the traffic signal.
- 5. Not closing the medians would create safety and operational issues.
- 6. Closing the medians on Clarence Avenue would require significant consultation with the neighbourhood of Adelaide-Churchill as traffic patterns would be altered in the neighbourhood.
- 7. Installing traffic signals at the intersection of Clarence Avenue and Glasgow Street (south), and not restricting traffic on Glasgow Street and Turner Avenue is not recommended as this will increase the short-cutting traffic on Glasgow Street.
- 8. There are no viable options to mitigate the possible need for traffic signals at the intersection of Clarence Avenue and Glasgow Street (south) other than restricting northbound left turns.

9 Recommendations

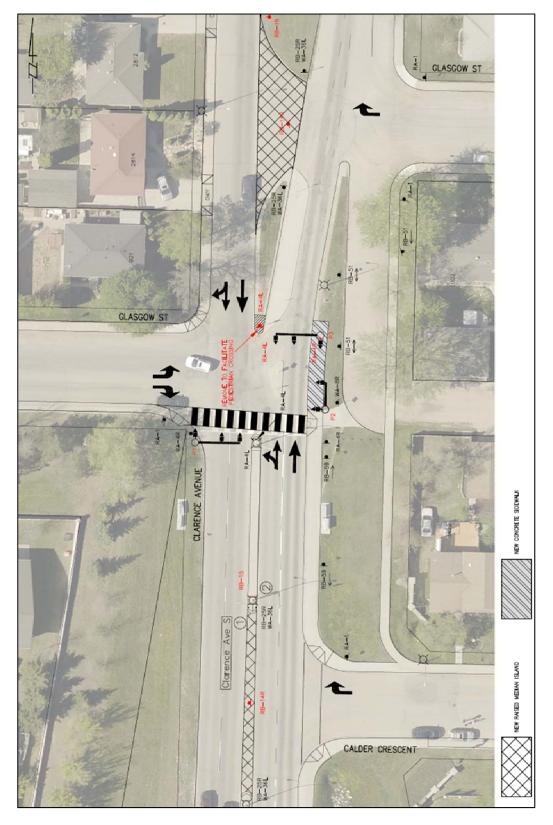
Based on the traffic assessments on different alternatives it is recommended that no changes, including the installation of traffic signals, are made to the intersection, and that no changes are made to Glasgow Street or Turner Avenue.

Appendix A Alternatives

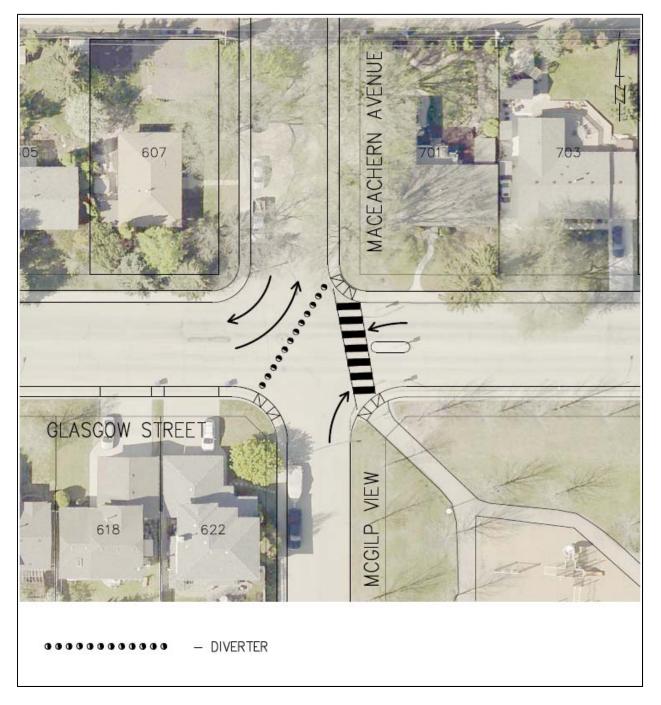
Do Nothing Alternative



Traffic Signals Alternative



Glasgow Street South Diverter



Turner Street Closure



Appendix B Traffic Signal Warrant Analysis

Road Authority: City of Saskatoon Main Street (name) Clarence Ave S Direction (EW or NS) NS Glasgow St (north) Direction (EW or NS) Saskatoon EW Side Street (name) City: APC is warranted and new data is requested for full signal warrant calculations 2018 Sep 05, Wed Quadrant / Int # Comments Analysis Date CHECK SHEET 2017 Aug 28, Mon for Warrant Calculation Results, please hit 'Page Down' Count Date: Date Entry Format: (yyyy-mm-dd) +RT+LT Lanc Configuration od LT & LT A RT R of Thru gnal. 200 Clarence Ave S Clarence Ave S NB SB Demographics Elem. School/Mobility 213 (y/n) Glasgow St (north) WB EB Senior's Complex (v/n) Glasgew St (north) EB 1 Are the Glasgew St (north) WB right turns significantly impeded by through movements? Pathway to School (y/n) 210,000 (y/a) n Metro Area Population (iii) ntral Business Distric (m/m) Median Other input Speed Truck Bus Rt (Km/h) 16 (yiz) (=) Clarence Ave S Glasgow St (north NS EW 50 2.0% 2.0 Sct Peak Hours Ped1 Ped2 Ped3 Ped4 WB Traffic Input NB SB EB NS NS EW EW LT Th RT LT Th RT LT Th RT LT Th RT W Side E Side N Side S Side 7:00 - 8:00 280 505 2 6 2 8:00 - 9:00 414 3 552 3 0 11:30-12:30 601 503 6 2 2 0 2 12:30-13:30 597 6 625 s 3 0 1 15:00-16:00 872 9 744 -0 4 s 0 17:00-18:00 887 4 694 2 4 0 6 1 0 Total (6-hour peak) 3,651 25 14 3,623 29 20 Average (6-hour peak) 609 604 5 . 0 4 2 0 0 3 Glasgow St (north) Average 6-hour $W = [C_{bt}(X_{v,v}) / K_1 + (F(X_{v,p}) L) / K_2] \ge C_i$ Peak Turning Movements MB ۸ W = 5 6 EB 4 1 Ped3 呂 Veh Ped 퉖 5 ь. 0 -0 ŝ Not Warranted - Vs<75 RESET SHEET 4 RT <-- North NB 610 609 TH 613 NB 0 Clarence Ave S LT LT 2 Clarence Ave S 609 SB > SB 606 TH 604 RT 0 0 0 0 0 Ped4 0 5 臣 퉖 WB 0 v E

City of Saskatoon Canadian Matrix Traffic Signal Warrant Analysis

Clarence Ave S City of Saskatoon Main Street (name) Direction (EW or NS) NS Road Authority: Glasgow St (south) Direction (EW or NS) EW Saskatoon City Side Street (name) APC is warranted and new data is requested for full signal warrant calculations 2018 Sep 05, Wed Quadrant / Int # Analysis Date: Comments CHECK SHEET for Warrant Calculation Results, please hit 'Page Down' 2017 Aug 28, Mon Count Date: Date Entry Format: (yyyy-mm-dd) +RT+L1 Lanc Configuration Ē, Th & RT MelLT & LT ofThu Þ ignal ignal NB SB Demographics Elem. School Mobility Challenged (y(n) Clarence Ave S 380 Clarence Ave S 1 295 Senior's Complex Pathway to School Glasgow St (south) WB (yiz) EB (y/a) Glasgow St (south) Metro Area Population (#) 210,000 Are the Glasgow St (south) EB right (Central Business District signific ded by th 27 (v/s (yr/a) Other input Truck Bus Rt Median Speed (Kmh) ¥. (m) 2.0 (y/a) Clarence Ave S Glasgow St (south) NS 50 2.0% EW 2.0% Sct Peak Hours Pedi Ped2 Ped3 Ped4 NB SB WB EB NS NS EW EW Traffic Input LT Th RT LT Th RT LT Th RT LT Th RT W Side E Side N Side S Side 7:00 - 8:00 51 280 522 6 4 112 ٥ 0 6 8:00 - 9:00 67 411 \$40 11 7 136 0 0 3 11:30-12:30 117 600 484 15 4 114 2 s 12:30-13:30 106 598 625 14 9 133 3 15:00-16:00 133 707 618 17 8 109 6 3 17:00-18:00 168 858 663 25 6 143 2 12 Total (6-hour peak 642 3,454 3,452 88 38 747 11 39 Average (6-hour peak) 107 576 575 15 0 125 2 0 0 0 0 6 0 0 Û \overline{a} Glargew St (south) Average 6-hour $W = [C_{bt}(X_{v-v}) / K_1 + (F(X_{v-p}) L) / K_2] \ge C_i$ Peak Turning Movements 8 ۸ W = • 8 84 73 11 Ped3 提 Ē Veh Ped 5 0 NOT Warranted 0 0 0 0 RESET SHEET 0 RT <-- North NB 582 576 TH 683 NB 107 LT Clarence Ave S 0 LT Clarence Ave S SB 590 TH 575 700 SB > 15 RT 3 0 10 122 5 臣 멅 Ped 5 131 v 8

City of Saskatoon Canadian Matrix Traffic Signal Warrant Analysis

Clarence Ave S Direction (EW or NS) NS Road Authority: City of Saskatoon Main Street (name) Side Street (name) Calder Crescent Direction (EW or NS) EW City: Saskatoon APC is warranted and new data is requested for full signal warrant calculations 2018 Sep 05, Wed Quadrant / Int # Analysis Date: Comments for Warrant Calculation Results, please hit 'Page Down' CHECK SHEET 2018 Aug 28, Tue Count Date: (yyyy-mm-dd) Date Entry Format: +RT+L1 pStream ignal (m) anc Configuration & LT RT tel LT RT of Thra 10 10CS 3 Demographics Elem. School Mobility Challenged Senior's Complex 315 Clarence Ave S NB 1 - 2 SB WB EB Clarence Ave S Calder Crescent 1 235 (y/n) (y/n) Calder Crescent 1 Pathway to School (y/n) Are the Calder Creacent WB right turna aignifica ntly impeded by through mover nta? (v/r Metro Area Population Central Business Distric (ii) 210,000 n (y/n) Other input Bus Rt Median Speed Truck (m) 2.0 (Km/h) ¥. (yiz) Clarence Ave S NS - 50 2.0% Calder Creacer EW 2.014 Set Peak Hours Ped1 Ped2 Ped4 Ped3 WB EB EW EW NB SB Traffic Input NS NS Th LT Th RT LT Th RT LT Th RT LT RT W Side E Side N Side S Side 7:00 - 8:00 328 9 633 23 6 2 0 8:00 - 9:00 472 8 4 679 25 9 2 0 0 707 11:30-12:30 26 4 589 14 8 0 0 12:30-13:30 701 751 9 4 11 6 s 0 0 16:00-17:00 1043 858 46 4 14 11 0 0 17:00-18:00 783 10 1036 44 6 5 14 0 Total (6-hour peak) 4,287 142 23 4,293 97 45 31 715 24 16 Average (6-hour peak) 4 716 0 Calder Crescent Average 6-hour Peak Turning $W = [C_{bt}(X_{y,y}) / K_1 + (F(X_{y,y}) L) / K_2] x C_i$ Movements ŝ ٨ 54 EB W = 16 16 0 Ped3 퉖 呂 5 28 Veh Ped 10 Not Warranted - Vs<75 0 60 Ö RESET SHEET 24 RT <-- North NB 715 TH 722 738 NB 0 LT Clarence Ave S LT 4 Clarence Ave S SB 719 TH 716 732 SB > RT 0 0 0 0 0 Ped4 5 百 R 0 WB 0 v EB

City of Saskatoon Canadian Matrix Traffic Signal Warrant Analysis

Appendix C

Alternatives Intersection Capacity Analysis

Alternative 1: Do nothing at Clarence Avenue and Glasgow Street (south)

Traffic count completed in August 2018 is summarized in Figure C-1. The intersection capacity analysis for Clarence Avenue and Glasgow Street (south), is summarized in Table C-1.

			25 (9)	747 (600)
			RT	ТН
N	6 (8)	LT		SB
-	Glasgow Street (south)	EB	Free
Traffic Volume: PM (AM)	153 (139)	RT	Stop	NB
			LT	тн
			(70) 178	(409) 971
				Clarence Avenue

Figure C-1 2018 August traffic volume at Clarence Avenue and Glasgow Street (south)

Table C-1 Alternative 1 2018 August Intersection Capacity Analysis (Glasgow Street - stop-control)

			AM Peak Hour			PM Peak Hour					
0	Movor	nont		Measure of Effectiveness							
С	Movement		v/c Ratio	Delays (s)	LOS	Queue 95th (m)	v/c Ratio	Delays (s)	LOS	Queue 95th (m)	
	EB	LT	0.04	22.9	С	1.1	0.12	73.9	F	3	
Clarance Avenue	ED	RT	0.37	18.9	С	13.4	0.53	28.4	D	23.1	
Clarence Avenue	NB	LT	0.08	0.8	А	2.1	0.24	3.4	А	7.6	
and Glasgow Street (south)		TH	0.17	1.2	А	2.1	0.41	2	А	7.6	
Stieet (South)	SB	RT	0.39	0	А	0	0.49	0	А	0	
	30	TH	0.39	0	А	0	0.49	0	А	0	
Intersection Summary		0.39	2.9	А	-	0.53	3.8	А	-		

The following was noted from the Synchro analysis for this alternative:

• The eastbound left and right turns experience a level of service LOS F and D in the PM peak hour.

Alternative 2: Traffic Signals at Clarence Avenue and Glasgow Street (south)

The traffic volumes for this alternative are the same as those shown in alternative 1.

The intersection capacity analysis for a signalized Clarence Avenue and Glasgow Street (south) is summarized in Table C-2.

			AM Peak Hour				PM Peak Hour				
Intersection	Movor	mont		Measure of Effectiveness							
Intersection	Movement		v/c Ratio	Delays (s)	LOS	Queue 95th (m)	v/c Ratio	Delays (s)	LOS	Queue 95th (m)	
	EB	LT	0.04	16	В	3.4	0.04	27.5	С	4.3	
Claranae Avenue		RT	0.43	8.1	А	11	0.52	11.8	В	15.9	
Clarence Avenue		LT	-	-	-	-	-	-	-	-	
and Glasgow Street (south)	NB	TH	0.25	3.5	А	15.1	0.73	7.9	А	70.1	
Street (South)	SB	RT	-	-	-	-	-	-	-	-	
	SВ	TH	0.49	5.7	А	51.2	0.6	6.1	А	75.6	
Intersection Summary		0.49	5.2	А	-	7.6	7.6	А	-		

 Table C-2 Alternative 2 Intersection Capacity Analysis (traffic signal)

The following was noted based on the Synchro analysis for conditions after traffic signal implementation occurs:

- The eastbound left and right turns experience a level of service (LOS) B and A delay in the AM peak, and LOS C and B in the PM peak.
- During PM peaks, traffic queues on Clarence Avenue tend to exceed 70 m for both northbound and southbound

Alternative 3: Glasgow Street Diverter and Full Closure of Turner Street

The installation of the diverter on Glasgow Street at MacEachern Avenue and full closure of Turner Avenue will change traffic patterns in the neighbourhood. To estimate the volumes at the intersection of Clarence Avenue and Glasgow Street (south), the traffic volumes from 2015 were adjusted, according to the following:

- 2015 volumes were selected since these volumes reflected travel patterns prior to the installation of any NTR recommendations;
- ITE 10th Edition Trip Generator Manual, AM and PM Peak hour trip generation for single-family detached housing (210) is 0.74 and 0.99 trips per dwelling units respectively.
- ITE 10th Edition Trip Generator Manual, for single-family detached housing (210), the AM peak hour trip distribution is 25% in and 75% out and the PM peak hour trip distribution is 63% in and 37% out.
- Traffic count taken at Broadway Avenue and Glasgow Street in 2015 was used to generate a percentage change in traffic volumes.
- After the full closure and diverter installation, direct trips from Broadway Avenue onto Glasgow Street will be generated by the 10 households on Glasgow Street, between McGilp View and Broadway Avenue.
- Based on the ITE assumptions outlined above, the 10 households in this area generate 6 entering trips and 4 exiting trips. These trip generation numbers were compared to the August 2018 traffic count to estimate percentage reduction in traffic volumes.
- The percentage reduction estimated for the intersection of Broadway Avenue and Glasgow Street was assumed to be proportional to the percentage reduction that would be applicable to the Clarence Avenue and Glasgow Street (south) intersection.
- Northbound and southbound through traffic volumes were assumed to remain constant; they would not be affected by the closure of Glasgow Street.

				13 (2)	747 (600)
				RT	тн
N	5	57 (20)	LT		SB
-	Glasgow	Street (s	south)	EB	Free
Traffic Volume: PM (AM)	1	06 (19)	RT	Stop	NB
				LT	тн
				(15) 86	(409) 971
					Clarence Avenue

The traffic volume projections are shown in Figure C-3.

Figure C-3 Projected traffic volume at Clarence Avenue and Glasgow Street (south)

The intersection capacity analysis for alternative 3 is summarized in Table C-3. Glasgow Street is stop controlled.

Table C-3 Alternative 3 Intersection Capacity Analysis (Glasgow with diverter and closure)

	Movement			AM Pea	ak Hour			PM Pea	ak Hour	
Intersection			Measure of Effectiveness							
Intersection			v/c Ratio	Delays (s)	LOS	Queue 95th (m)	v/c Ratio	Delays (s)	LOS	Queue 95th (m)
	EB	LT	0.08	19.5	С	2.1	0.65	90.3	F	25.5
		RT	0.05	14.3	В	1.3	0.36	22.2	С	12.8
Clarence Avenue	NB	LT	0.02	0.2	А	0.4	0.12	1.5	А	3.1
and Glasgow Street (south)	IND	TH	0.17	0.3	А	0.4	0.41	1.1	А	3.1
Sileer (Souil)	SB	RT	0.38	0	А	0	0.49	0	А	0
		TH	0.38	0	А	0	0.49	0	А	0
Intersection Summary		0.38	0.8	А	-	0.62	4.5	А	-	

The following was noted based on the Synchro analysis for conditions after diverter and closure implementations occur:

• The eastbound left and right turns experience LOS C and B in the AM peak, and experience LOS F and C in the PM peak

Alternative 4: Traffic Signals and Glasgow Street Diverter and Full Closure of Turner Street

The traffic volumes for this alternative are the same as those shown in alternative 3.

The intersection capacity analysis for alternative 4 is summarized in Table C-4.

Table C-4 Alternative 4 Intersection Capacity Analysis (traffic signal with diverter and closure)

	Movement			AM Peak Hour			PM Peak Hour				
Intersection				Measure of Effectiveness							
Intersection			v/c Ratio	Delays (s)	LOS	Queue 95th (m)	v/c Ratio	Delays (s)	LOS	Queue 95th (m)	
	EB	LT	0.1	19.6	В	6.7	0.22	20.5	С	13.5	
		RT	0.1	10.8	В	4.8	0.34	7.9	А	10.6	
Clarence Avenue	NB	LT	-	-	-	-	-	-	-	-	
and Glasgow Street (south)	IND	TH	0.15	1.1	А	10.5	0.53	5.4	А	41.7	
Street (South)	SB	RT	-	-	А	-	-	-	А	-	
		TH	0.38	2.1	А	41.1	0.6	7.2	А	73.6	
Intersection Summary		0.38	2.2	А	-	0.6	6.7	А	-		

The following was noted based on the Synchro analysis for conditions after diverter, closure and traffic signal implementations occur:

- The eastbound left and right turns experience LOS B and B in the AM peak, and experience LOS C and A in the PM peak
- During PM peaks, traffic queues on Clarence Avenue tend to exceed 40 m and 70 m for northbound and southbound respectively
- During PM peaks, traffic queues on Clarence Avenue tend to exceed 40 m for southbound

From: Sent: To: Subject: City Council Friday, October 05, 2018 9:15 AM City Council Form submission from: Write a Letter to Council



6295-018-003

Submitted on Friday, October 5, 2018 - 09:14 Submitted by anonymous user: 68.179.26.161 Submitted values are:

Date: Friday, October 05, 2018 To: His Worship the Mayor and Members of City Council First Name: Sonny Last Name: Kowbel Email: Address: Glasgow St City: Saskatoon Province: Saskatchewan Postal Code: S7J Name of the organization or agency you are representing (if applicable): Subject: Glasgow Street Meeting (if known): Glasgow Street Comments: It took 5 years to get something done on Glasgow street and 3 days to get rid of it . I am greatly

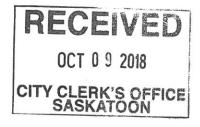
disappointed in the lack of concern for the safety of the residents of Glasgow. I have written to many letters to list on my concerns of the danger on this street. My vehicle has been hit 3 separate times parked in front of my house on Glasgow street this has cost me \$2100.00 in insurance costs. Its a miracle that no one has be killed on this street. We should not have to wait any longer for something to be done we need action now. The street is back up to its old numbers over 4000 cars a day and with the opening of the Victoria Bridge this number will only climb. I have attended all meeting's and was told the residential street should have no more than 1000 cars a day I pay tax on a residential street if nothing is done I will be looking for a tax reduction and compensation for back taxes that I have over paid for the last 10 years minimum. We need traffic reduction measures immediately before someone is seriously injured please this administration needs to act now! before its too late!

Attachments:

The results of this submission may be viewed at: https://www.saskatoon.ca/node/398/submission/260647

6295-013-00

From: Sent: To: Subject: City Council Sunday, October 07, 2018 11:40 AM City Council Form submission from: Write a Letter to Council



Submitted on Sunday, October 7, 2018 - 11:40 Submitted by anonymous user: 204.83.78.131 Submitted values are:

Date: Sunday, October 07, 2018 To: His Worship the Mayor and Members of City Council First Name: Sandra Last Name: Kowbel Email: Address: Glasgow St City: Saskatoon Province: Saskatchewan Postal Code: S7J Name of the organization or agency you are representing (if applicable): Subject: Glasgow and Clarence Intersection Review Meeting (if known): Tuesday, October 9th Comments: Hi, I just wanted to say that since the boulevard was removed on Clarence now allowing traffic to turn onto Glasgow from Clarence Ave things have been great! Traffic is moving smoothly and calmly through

Comments: Hi, I just wanted to say that since the boulevard was removed on Clarence now allowing traffic to turn onto Glasgow from Clarence Ave things have been great! Traffic is moving smoothly and calmly through our neighbourhood again. I have no issues backing out of my driveway or turning on to it. I believe some of the reduced traffic is because of the opening of the new Stonebridge schools, less kids are needing to come to John Lake and George Vanier. Most people are driving at the proper speeds, the odd time someone appears to be driving faster but I'm sure this happens in all areas of the city. My vote is to leave things as they are now and let this subject die. I hope whoever complained in the first place is happy with all the efforts that have been put in to this matter. Thank you for your time. Attachments:

The results of this submission may be viewed at: https://www.saskatoon.ca/node/398/submission/260884

Request for Encroachment Agreement – 211 Evergreen Square

Recommendation

- 1. That the proposed encroachment at 211 Evergreen Square (Parcel Y, Plan No. 102064294) be recognized;
- 2. That the City Solicitor be requested to prepare the appropriate encroachment agreement, making provision to collect the applicable fees; and
- 3. That His Worship the Mayor and the City Clerk be authorized to execute the agreement under the Corporate Seal and in a form that is satisfactory to the City Solicitor.

Topic and Purpose

The purpose of this report is to seek approval for a future encroachment for the portions of the building façade and structural canopies located at 211 Evergreen Square.

Report Highlights

- 1. The proposed encroachment area is 40.38 square metres.
- 2. The building façade and structural canopies will extend onto the Evergreen Square sidewalk by up to 1.59 metres.

Strategic Goals

This report supports the City of Saskatoon's Strategic Goals of Sustainable Growth and Quality of Life by ensuring that designs of proposed developments are consistent with planning and development criteria and that these designs do not pose a hazard for public safety.

Background

Building Bylaw No. 9455, The Building Bylaw, 2017 states, in part, that:

"The local authority shall not issue a permit for the construction or alteration of any building or structure the plans of which show construction of any kind on, under, or over the surface of any public place until approval of such encroachment is granted by Council."

Report

The owner of the property located at 211 Evergreen Square has requested approval to enter into an encroachment (see Attachment 1). As shown on the Site Plan (see Attachment 2), the proposed new building façade and structural canopies will encroach onto the Evergreen Square sidewalk by up to 1.59 metres. The total area of the encroachment is approximately 40.38 square metres; therefore, it will be subject to an annual charge of \$67.33.

Public and/or Stakeholder Involvement

There is no public or stakeholder involvement.

Other Considerations/Implications

There are no options, policy, financial, environmental, privacy, or CPTED implications or considerations; a communication plan is not required at this time.

Due Date for Follow-up and/or Project Completion

There is no follow-up report planned.

Public Notice

Public notice, pursuant to Section 3 of Policy No. C01-021, Public Notice Policy is not required.

Attachments

- 1. Request for Encroachment Agreement dated September 7, 2018
- 2. Copy of Site Plan Detailing Proposed Encroachment

Report Approval

Written by:Tanda Wunder-Buhr, Commercial Permit Supervisor, Building StandardsReviewed by:Daisy Harington, Senior Building Code Engineer, Building StandardsApproved by:Randy Grauer, General Manager, Community Services Department

S/Reports/2018/BS/TRANS - Request for Encroachment - 211 Evergreen Square/ks



ENCROACHMENT AGREEMENT REQUEST APPLICATION

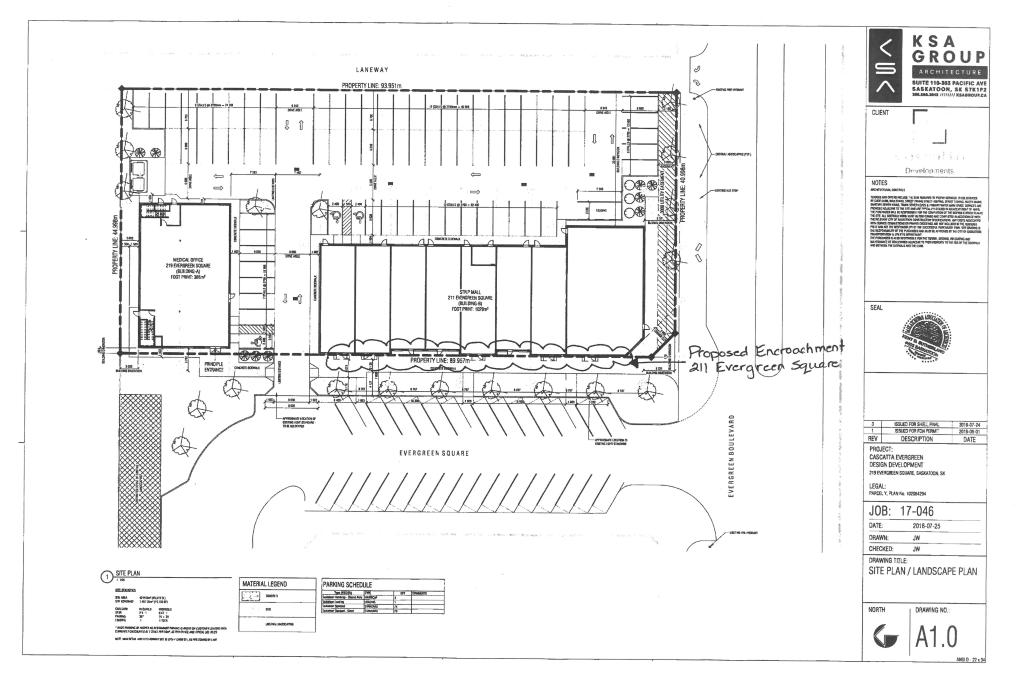
BUILDING STANDARDS

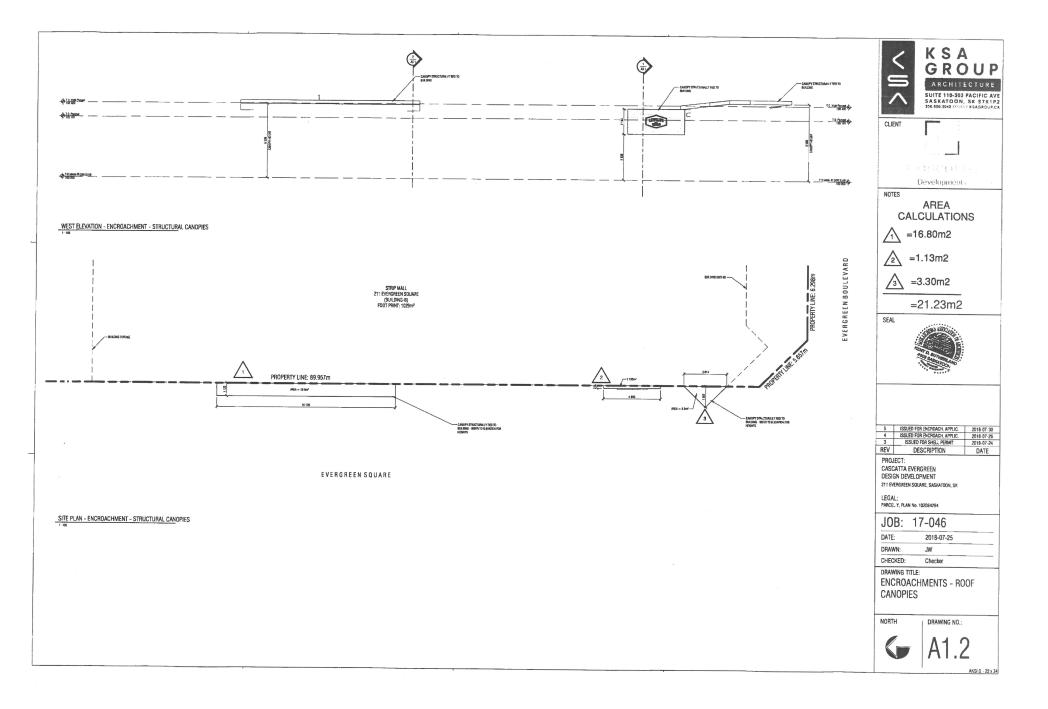
222-3" AVE NORTH, SASKATOON, SK S7K 0J5

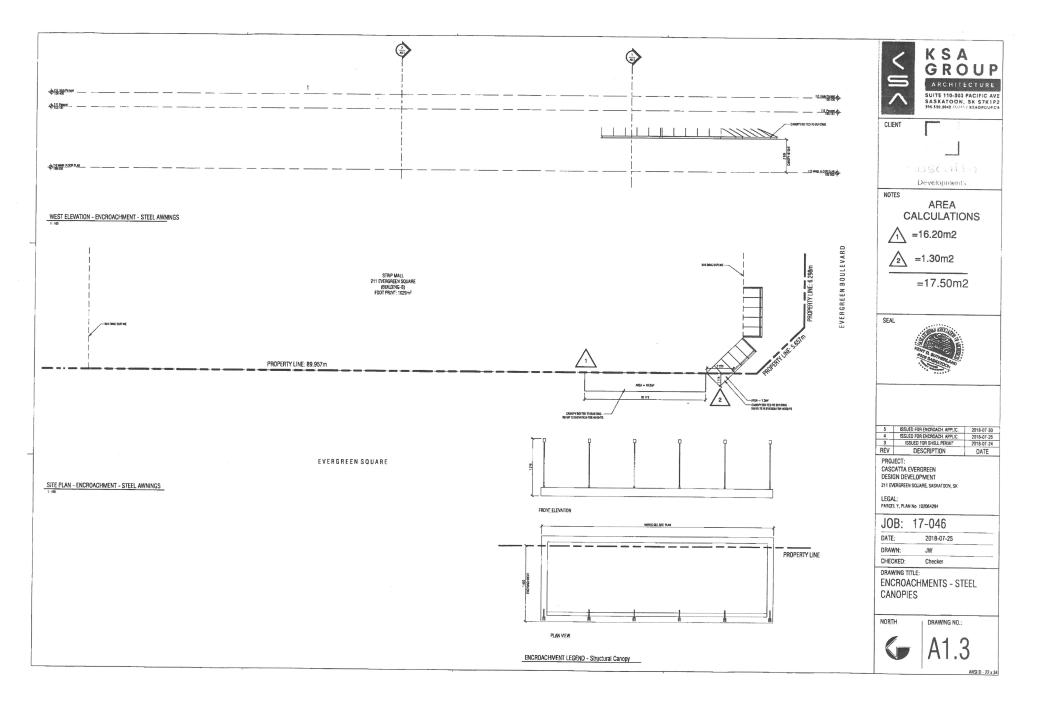
PROJEC	TADDRESS					
211	Evergreen Square					
Legal De		Address rcel Y, Plan 1020642		16602519		
	Lot(s)	Block(s)	Plan Number	Surface Pa	rcel Number	
TYPE O	FENCROACHMENT					
1 (Awning # of awnings Dutlined in Building Bylav) Site Plan A det	onetime fee of \$150/awnir ailed site plan of the encroa			
	No.9455 Part III	U Detailed Drawi surface.	ings including construction			
	Structure (including Canopies)	application.	on Fee A nonrefundable \$^ al Property Report that cl			
	Dutlined in Building Bylav No.9455 Part III		dimensions of all areas that			
		ation is required for each Type				
requir There	ements of Section 30 of Bui is an annual fee for approve	ed Type 1 Awning encroachme Iding Bylaw No. 9455. ed Type 2 Structural encroachn 55 Schedule "A". Type 2 applica	nent applications. The annual t	fee will be applied to the pro		
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		lame: Cascatta Deve	lonments inc		<u>_</u>	
Applica				Sk.	S7K 2P5	
	Address: <u>3-320</u> Unit Number	5th Ave. N. Saskato	City	Province	Postal Code	
	_{Email:} parker@c	ascatta.ca		Phone/Cell#: 306-88	31-7888	
	Name: SAM	IE AS ABOVE				
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Owner	Address: Unit Number	Street	City	Province	Postal Code	
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		hment Agreement does not relieve t of the National Building Code of Ca ibility Standards Act.				
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I certify that I have read and agree to abide by the conditions above, and all information contained within this application is correct.					Standards	
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	Applicant's Signature Date Signed					
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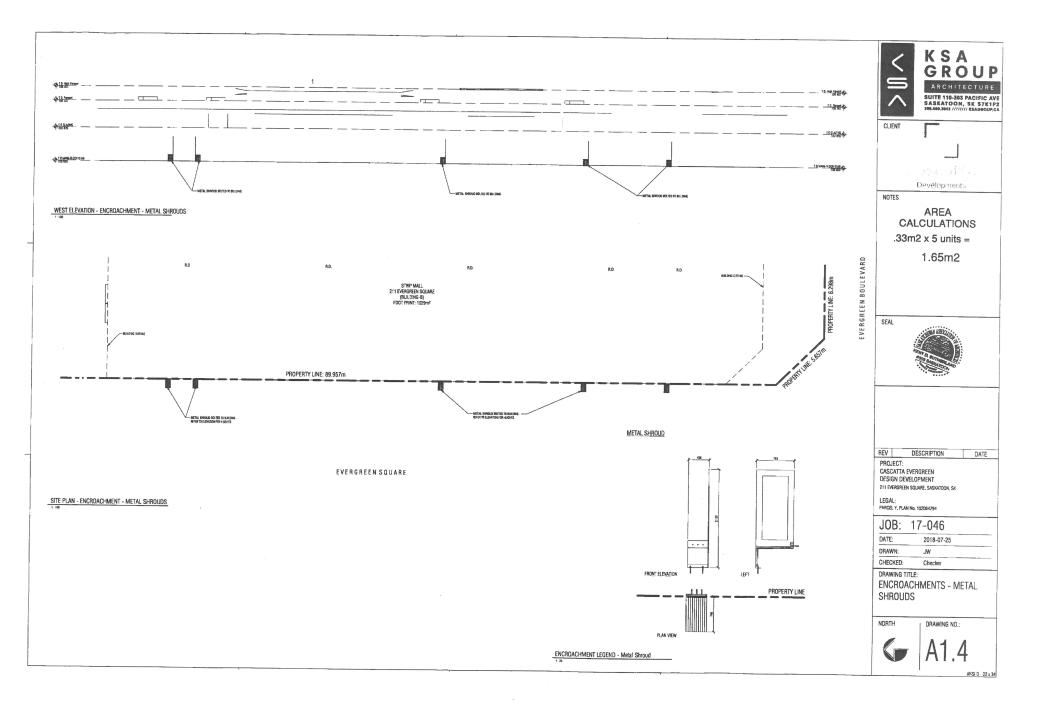
1

Copy of Site Plan Detailing Proposed Encroachment









Request for Encroachment Agreement – 880 Broadway Avenue

Recommendation

- 1. That the proposed encroachment at 880 Broadway Avenue (Lots 15 to 17 inclusive, Block 63, Plan No. B1858) be recognized;
- 2. That the City Solicitor be requested to prepare the appropriate encroachment agreement, making provision to collect the applicable fees; and
- 3. That His Worship the Mayor and the City Clerk be authorized to execute the agreement under the Corporate Seal and in a form that is satisfactory to the City Solicitor.

Topic and Purpose

The purpose of this report is to seek approval for a future encroachment for the portions of the building façade located at 880 Broadway Avenue.

Report Highlights

- 1. The proposed encroachment area is 116.43 square metres.
- The building façade will extend onto the Main Street sidewalk by up to 1.70 metres; onto the Broadway Avenue sidewalk by up to 1.70 metres, and onto the west adjacent lane by up to 0.34 metres.

Strategic Goals

This report supports the City of Saskatoon's Strategic Goals of Sustainable Growth and Quality of Life by ensuring that designs of proposed developments are consistent with planning and development criteria and that these designs do not pose a hazard for public safety.

Background

Building Bylaw No. 9455, The Building Bylaw, 2017 states, in part, that:

"The local authority shall not issue a permit for the construction or alteration of any building or structure the plans of which show construction of any kind on, under, or over the surface of any public place until approval of such encroachment is granted by Council."

Report

The owner of the property located at 880 Broadway Avenue has requested approval to enter into an encroachment (see Attachment 1). As shown on the Site Plan (see Attachment 2), the proposed new building façade will encroach onto the Main Street sidewalk by up to 1.70 metres; onto the Broadway Avenue sidewalk by up to 1.70 metres, and onto the west adjacent lane by up to 0.34 metres. The total area of the encroachment is approximately 116.43 square metres; therefore, it will be subject to an annual charge of \$186.43.

Public and/or Stakeholder Involvement

There is no public or stakeholder involvement.

Other Considerations/Implications

There are no options, policy, financial, environmental, privacy, or CPTED implications or considerations; a communication plan is not required at this time.

Due Date for Follow-up and/or Project Completion

There is no follow-up report planned.

Public Notice

Public notice, pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Attachments

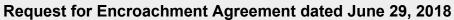
- 1. Request for Encroachment Agreement dated June 29, 2018
- 2. Copy of Site Plan Detailing Proposed Encroachment

Report Approval

Written by:Tanda Wunder-Buhr, Commercial Permit Supervisor, Building StandardsReviewed by:Daisy Harington, Senior Building Code Engineer, Building StandardsApproved by:Randy Grauer, General Manager, Community Services Department

S/Reports/2018/BS/TRANS - Request for Encroachment Agrmt - 880 Broadway Ave/ks

ATTACHMENT 1



City of Saskatoon BUILDING STANDARDS 222-3rd AVE NORTH, SASKATOON, SK S7K 0J5

ENCROACHMENT AGREEMENT REQUEST APPLICATION

PROJ	ECT ADDRESS				
880 B	Broadway Avenue				
Legal	Description	Address		Unit Number	
Lot(s) Block(s) Plan Number Surface Parcel Number					
TYPE	OF ENCROACHMENT				
Type 1	Awning (# of awnings)	D Site Plan A detail		equired at time of application. g area(s) incl. dimensions and	
	Outlined in Building Bylaw No.9455 Part III	property lines. Detailed Drawing surface.	s including construction of aw	ning(s) and height off sidewalk	
Type 2	Structure (including Canopies)	10 \$100 Application application.	Fee A nonrefundable \$100 ap	oplication fee is required at time of	
\checkmark	Outlined in Building Bylaw No.9455 Part III		nensions of all areas that enci	outlines the encroaching areas, roach onto public space.	
Ple	ease note that a separate application	is required for each Type (1	or 2) of encroachment.		
req The	uirements of Section 30 of Building E	Bylaw No. 9455. De 2 Structural encroachmer	t applications. The annual fee wil	bachments shall conform to the design I be applied to the property tax roll as ocess.	
CONT					
	Name: Skyler Jones				
Applic	Registered Business Name:		rporation		
hbbuc	Address 36-102 Cope Ci	rescent			

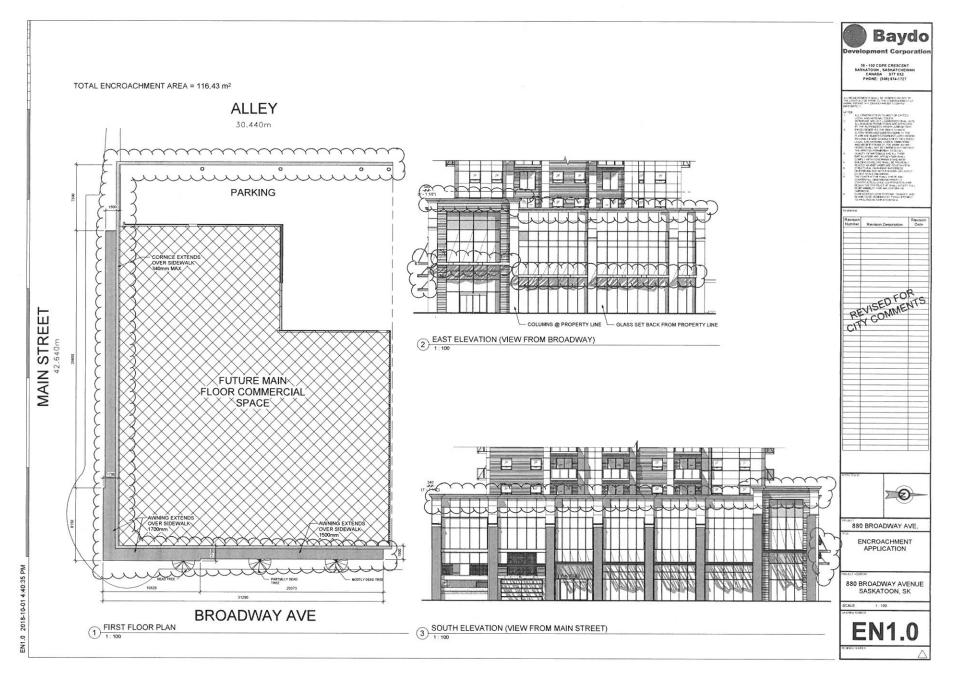
	Unit Number Street	City	Province	Postal Code
	_{Email:} skyler.jones@baydo.ca		Phone/Cell#: 306-291	-9385
	Name: C & L Investments			
Property	Registered Business Name:			
Owner	Address: 205 728 Spadina Cresc East	t, Saskatoon SK, S7K 3H2		
	Unit Number Street	City	Province	Postal Code
	Email: mcclock@saskte.net		Phone/Cell#: 306-244	-8901

SIGNING BELOW IS AGREEANCE TO THE FOLLOWING:	Date Received (office use only)
 That the issuance of an Encroachment Agreement does not relieve the owner and authorized agents from complying with the requirements of the National Building Code of Canada, as amended and within the scope of the Uniform Building and Accessibility Standards Act. That the submission of this application does not give permission for encroachment of any portion of the building, and that appropriate building permits are required to be obtained prior to the construction of the encroachment. Use/disclose personal information in accordance with <i>The Local Authority Freedom of Information and Destruction of Construction and Destruction of Construction and Destruction and Construction and Constructi</i>	JUN 2 9 2018
Protection of Privacy Act. I certify that I have read and agree to abide by the conditions above, and all information contained within this application is correct. 29 June 2018 Applicant's Signature	CITY OF SASKATOON COMMERCIAL PERMIT OFFICER
Amount Paid / CO. Method of Payment (if known at time of application):(office use only) Cash/Debit/Cheque/Credit SAR ID	ENA Number: (office use only) (Type 2) Payment Received by: (office use only) S-2018 Jayleen

THIS IS NOT AN ENCROPACHMENT AGREEMENT

ATTACHMENT 2

Copy of Site Plan Detailing Proposed Encroachment



2019 Neighbourhood Traffic Management Reviews

Recommendation

That the Standing Policy on Transportation recommend to City Council: That the eleven neighbourhoods selected for 2019 traffic reviews, as part of the Neighbourhood Traffic Review Program, include Pacific Heights/ Kensington; Holiday Park/King George; Lawson Heights/Lawson Heights Suburban Centre; Nutana Park; Briarwood; Blairmore Suburban Centre; University Heights Suburban Centre and Airport Business Area.

Topic and Purpose

This report identifies eleven neighbourhoods selected for traffic reviews in 2019. The traffic reviews are intended to address local traffic concerns such as speeding, shortcutting, pedestrian accommodation, and parking.

Report Highlights

- 1. The eleven neighbourhoods selected for traffic reviews include Pacific Heights/ Kensington; Holiday Park/King George; Lawson Heights/Lawson Heights Suburban Centre; Nutana Park; Briarwood; Blairmore Suburban Centre; University Heights Suburban Centre and Airport Business Area.
- 2. These neighbourhoods have been selected based on collision history, number of concerns received, Councillor feedback and the number of existing temporary traffic calming devices.

Strategic Goal

This report supports the Strategic Goal of Moving Around as it improves the safety of all road users (pedestrians, cyclists, and drivers), and helps provide a great place to live, work, and raise a family.

Background

City Council, at its meeting held on August 14, 2013, approved a new process within the Neighbourhood Traffic Management Program. This process includes a strategy to review concerns on a neighbourhood-wide basis by engaging the community and stakeholders in first identifying specific traffic issues, and secondly, developing joint recommendations that address the issues. The progress to date is illustrated in Attachment 1 and summarized below.

Neighbourhood Traffic Plans Developed (Year)	No. Completed	Loca	tions
2014	11	 Varsity View Westmount Brevoort Park Holliston Haultain 	 Hudson Bay Park Caswell Hill City Park Kelsey-Woodlawn Mayfair Nutana
2015	8	 Mount Royal Adelaide-Churchill Lakeview Meadowgreen 	 Montgomery Place Confederation Park Avalon Greystone Heights
2016	8	 Stonebridge Willowgrove Hampton Village Silverspring 	 Grosvenor Park Lakeridge Sutherland Parkridge
2017	11	 Queen Elizabeth Exhibition Buena Vista Erindale Arbor Creek 	 Pleasant Hill Dundonald North Park Richmond Heights Silverwood Heights Wildwood
2018	10	 College Park College Park East Riversdale Eastview Nutana Suburban Centre 	 Westview Massey Place Fairhaven River Heights Forest Grove

The NTR's completed from 2014 to 2018 are summarized in the following table:

The Neighbourhood Traffic Review (NTR) program is expected to complete all of the developed residential and industrial neighbourhoods in 2020. Upon completion of the NTR process for all neighbourhoods, reviews will be transitioned to a Community Transportation Review (CTR), a safety-driven, evidence-based process to address broader community level concerns including collector and arterial roadways.

Report

Neighbourhoods are prioritized based on the following criteria:

- Councillor priorities as advanced by Councillors (3 points per selection);
- Collisions (0 points for low, 1 point for medium, 2 points for high);
- Number of outstanding concerns (1 point per concern); and
- Number of temporary traffic calming devices in place (1 point per device).

In three instances, adjacent neighbourhoods were grouped together to maximize efficiencies and to accommodate more people and neighbourhoods, resulting in eight separate traffic reviews.

Based on the above criteria the following neighbourhoods have been selected for 2019 traffic reviews:

- 1. Pacific Heights/Kensington (Ward 3);
- 2. Holiday Park/King George (Ward 2);
- 3. Lawson Heights/Lawson Heights Suburban Centre (Ward 5);
- 4. Nutana Park (Ward 7);
- 5. Briarwood (Ward 8);
- 6. Blairmore Suburban Centre (Ward 3);
- 7. University Heights Suburban Centre (Ward 10); and
- 8. Airport Business Area (Ward 5).

Speeding concerns in other neighbourhoods will continue to be addressed on a case-by-case basis.

The prioritization of the neighbourhoods is outlined in Attachment 2.

The neighbourhood traffic reviews for the Rosewood, Lakewood Suburban Centre, Evergreen, and Aspen Ridge neighbourhoods will not proceed in 2019 as the traffic patterns in these neighbourhoods will continue to evolve until development is complete.

Public and/or Stakeholder Involvement

Public meetings will be held for each of the eight reviews, including an initial meeting with residents and stakeholders in the spring of 2019, to identify specific traffic concerns and potential improvements, and a second meeting to present a draft neighbourhood traffic plan for discussion will be held in the fall of 2019. A third meeting may be held if significant changes of the draft traffic plan are proposed. The neighbourhoods grouped together will attend a combined meeting.

Residents and business owners who cannot attend the meetings will be able to provide feedback via the City of Saskatoon's (City) online neighbourhood traffic concerns form, Saskatoon.ca/engage website, or by phone, email, or mail.

The City's internal departments will have an opportunity to provide input on the plan pertaining to the impact on their operations.

Communication Plan

Residents and stakeholders in each neighbourhood will be invited to attend both meetings. The meeting invitations will be provided as follows:

- A flyer delivered to each residence in the neighbourhood;
- Through the City of Saskatoon Events Calendar at saskatoon.ca/events;
- Through the saskatoon.ca/engage website;
- Billboards centrally placed within the neighbourhoods;
- Through requesting the neighbourhood community associations and schools to post the information on their website or social media pages; and
- By notifying the appropriate Councillor.

The collection of issues and potential improvements will be compiled through the following:

- The saskatoon.ca/engage website;
- Written submissions at the meetings;
- Written notes taken by the Administration at the meetings; and
- Written, verbal, and e-mail submission to the Administration.

Financial Implications

The resources required to undertake the neighbourhood traffic reviews outlined in this report are estimated at \$300,000, and will be submitted for approval as part of the 2019 Business Plan and Detailed Budget under Capital Project #1512 – Neighbourhood Traffic Management funded from the Traffic Safety Reserve. Temporary traffic calming measures installed from recommendations with individual reviews are also included in this funding.

Improvements identified in the traffic plans are funded through the Traffic Safety Reserve. The purpose of the Traffic Safety Reserve is to provide funding for vehicular traffic, pedestrian, and safety related projects, including traffic calming. It is funded from the City's share of the fine revenue generated from red light cameras and Automated Speed Enforcement.

Environmental Implications

Neighbourhood traffic reviews are expected to have positive greenhouse gas emissions implications, as the goal is to reduce total vehicle mileage in a neighbourhood by reducing speeds and improving conditions for walking, cycling, and transit use.

Other Considerations/Implications

There are no options, policy, privacy, or CPTED considerations or implications.

Due Date for Follow-up and/or Project Completion

A report presenting the recommended traffic plan will be prepared for each neighbourhood and brought to SPC on Transportation for information prior to implementation.

An annual report outlining the following years' selections will be brought to City Council in preparation for the 2020 Capital Budget.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Attachments

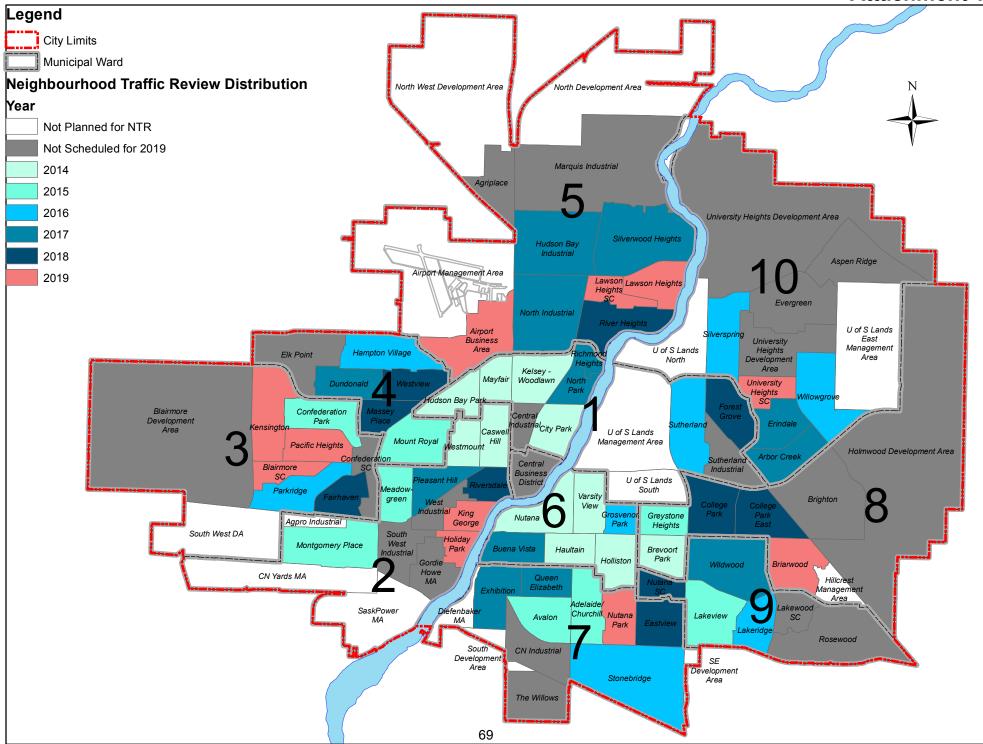
- 1. Neighbourhood Traffic Review Distribution (Map)
- 2. Neighbourhood Prioritization List

Report Approval

Written by:	Nathalie Baudais, Senior Transportation Engineer, Transportation
Reviewed by:	David LeBoutillier, Acting Engineering Manager, Transportation
	Jay Magus, Acting Director of Transportation
Approved by:	Angela Gardiner, Acting General Manager, Transportation &
	Utilities Department

Admin Report - 2019 Neighbourhood Traffic Management Reviews.docx

Attachment 1



Neighbourhood	# of Concerns	Temporary Traffic Calming Devices	Collisions	Councillor Selection	TOTAL SCORE	Year of Review	Ward
Pacific Heights / Kensington	13		1	3	17		3
Evergreen	13		0		13		10
Rosewood / Lakewood SC	11		2		13		9
Holiday Park / King George	9	1	0	3	13		2
Lawson Heights / Lawson Heights SC	10		2		12		5
Nutana Park	5		0	3	8		7
Briarwood	4		0	3	7		8
Airport Business Area	3		2		5		5
Blairmore SC	4		0		4		3
University Heights SC	4		0		4		10
Southwest Industrial	3		0		3		2
Marquis Industrial	3		0		3		5
Sutherland Industrial	2		0		2		1
West Industrial	1		1		2		2
Confederation SC			0		0		3
Aspen Ridge	1		0		1		10
Brighton			0		0		8
The Willows	1		0		1		7
CN Industrial			0		0		7
Gordie Howe MA			2		2		2
Agriplace			0		0		5
Brevoort Park			<u> </u>		Ű	2014	8
Caswell Hill	1					2014	2
City Park						2014	2
Haultain						2014	1
Holliston						2014	6
Hudson Bay Park						2014	6
Kelsey-Woodlawn						2014	1
Mayfair						2014	1
Nutana						2014	6
Varsity View						2014	6
Westmount						2014	4
Confederation Park						2015	3
Montgomery Place						2015	2
Greystone Heights						2015	8
Avalon						2015	7
Lakeview	1 1					2015	9
Meadowgreen						2015	2
Mount Royal						2015	4
Adelaide-Churchill	1 1					2015	7
Stonebridge	1 1					2016	7
Willowgrove	1 1					2016	10
Hampton Village	1 1					2016	4
Sutherland						2016	1
Silverspring	1 1					2016	10
Grosvenor Park						2016	6
Lakeridge						2016	9
Parkridge						2016	3
Queen Elizabeth / Exhibition						2017	7
Buena Vista						2017	6

Neighbourhood	# of Concerns	Temporary Traffic Calming Devices	Collisions	Councillor Selection	TOTAL SCORE	Year of Review	Ward
Erindale / Arbor Creek						2017	10
Pleasant Hill						2017	2
Dundonald						2017	4
North Park / Richmond Heights						2017	1
Silverwood Heights						2017	5
Wildwood						2017	9
College Park / College Park East						2018	8
Riversdale						2018	2
Eastview / Nutana SC						2018	7
Westview						2018	4
Massey Place						2018	4
Fairhaven						2018	3
River Heights						2018	5
Forest Grove						2018	1

Posted Speed Limit Review

Recommendation

That the Standing Policy Committee on Transportation recommend to City Council: That the Administration develop a detailed framework for revising posted speed limits on neighbourhood streets including school and playground zones.

Topic and Purpose

This report provides City Council with information on trends and best practices other municipalities are utilizing in setting posted speed limits on neighbourhood streets and addressing school and playground zones.

Report Highlights

- 1. The posted speed limit may not align with current individual and neighbourhood community values, or expectations.
- 2. Traffic collisions with vehicle operating speeds of 50 kph result in an 80% chance of severe injury or death for vulnerable road users.
- 3. Many municipalities have reduced, or are considering reducing the posted speed limit on neighbourhood streets.
- 4. There are national guidelines for establishing school and playground areas and zones; several municipalities establish playground zones with reduced speed limits.
- 5. The impact on commute time of reducing posted speed limits on neighbourhood streets is minimal.
- 6. A preliminary scope for developing the detailed framework has been identified.

Strategic Goals

This report supports the Strategic Goals of Moving Around and Quality of Life by investigating revisions, including reductions, to posted speed limits on neighbourhood streets which improve safety for all modes of transportation and creates a more people-focused atmosphere in residential, school, and playground environments.

Background

In April 2003, City Council approved Policy C07-015, Reduced Speed Zones for Schools. There is currently no policy regarding playground zones in the City of Saskatoon. The posted speed limits are governed by Bylaw No. 7200, The Traffic Bylaw. The bylaw states that the posted speed limit is 50 kph, with exceptions being specifically listed within Schedule 4 of the bylaw.

City Council, at its meeting held on May 28, 2018, considered the Motion - Councillor A. Iwanchuk (April 4, 2017) Neighbourhood Traffic Reviews report, and resolved, in part:

"2. That the Administration report back on how posted limits on residential streets may be achieved, including a review of other municipalities with regard to posted speed limits, and how school zones and playground zones are being considered."

Report

Speeding Issue

Since 2013, the Administration has been working closely with local residents, community associations, and area Councillors to complete 40 Neighbourhood Traffic Reviews (NTR)'s, with another 10 currently underway. The major concern raised by residents is vehicles speeding on neighbourhood streets. Approximately 500 speed studies or assessments have occurred in direct response to vehicle speeds in neighbourhoods.

The Administration uses the 85th percentile vehicle speed to confirm a speeding issue. If the 85th percentile speed is greater than the posted speed limit plus 10% (i.e. 55 kph on a residential street), then the street is eligible for traffic calming.

However, frequently the 85th percentile speed does not exceed the posted speed limit, let alone the posted speed limit plus 10%, and as a result is not eligible for traffic calming. This perception of speeding is a result from the vehicle operating speeds 'feeling' too fast for residents. This indicates that the posted speed limit is an issue, as it does not align with current individual and neighbourhood community values or expectations.

In 2018, the Saskatoon Police Service Traffic Unit (18 police officers) issued over 6,300 speeding tickets in the seven months between January 1 and July 31.

Traffic Safety

Approximately 15,000 people die or are severely injured each year on Canada's roads. In Saskatoon, between 2007 and 2016, 69 people have been killed and 12,666 people have been injured on City roads. Vulnerable road users (pedestrians and cyclists) are most at risk for severe injury or death due to traffic collisions. The number of fatal and severe injury collisions in Saskatoon between 2012 and 2016 for vulnerable road users is illustrated in Attachment 1.

There is a direct relationship between a vulnerable road user's ability to survive and the severity of injury with vehicle speed when involved in a collision as shown in Attachment 2. By lowering the speed limit from 50 kph to 40 kph, the survival rate would improve by 40%.

Lowering the posted speed limit in neighbourhoods and acknowledging the vulnerability of road users is aligned with the safe systems approach which recognizes that system designers (i.e. transportation engineers), road users (i.e. all modes) and system operators (i.e. roadways and operations, traffic signal specialists, police, transit operators) must work together on safety. At the core of the safe systems approach is the fact that the human body has limited capacity to tolerate the impact from collisions.

Municipalities Speed Limit Trends for Residential Streets

A jurisdictional review regarding posted speed limits on residential streets in 12 other municipalities was completed and is summarized in Attachment 3. Some municipalities have already reduced residential speed limits (including Okotoks, Alberta who reduced residential speed limits to 40 kph in 2015 and saw a 31% reduction in total vehicle collisions) and others are considering speed limit reductions on neighbourhood streets to improve safety for vulnerable users.

Speed Limit Trends for School and Playground Areas and Zones

Council Policy C07-015, Reduced Speed Zones for Schools (April 7, 2003) guides the City's current practice for the creation of school zones. Highlights of the policy include:

- A posted speed limit of 30 kph is installed at all elementary and high schools;
- In effect from 8 a.m. to 5 p.m., Monday to Friday from Sept. 1st to June 30th; and
- End of school zone is marked with a sign indicating maximum speed.

Playground areas (i.e. awareness signs only) are installed based on requests and an engineering review of the conditions for the playground, however, the posted speed limit is not reduced.

A national guidebook, <u>School and Playground Areas and Zones: Guidelines for</u> <u>Application and Implementation</u>, was published in October 2006 by the Transportation Association of Canada (TAC). This document outlines best practices and includes the following descriptions:

- Area A section of roadway adjacent to a school or playground that is denoted by school area or playground area signage only to create awareness.
- Zone A section of roadway adjacent to a school or playground that is denoted by school area or playground area signage with a reduced speed limit sign.

A summary of the TAC best practices is included as Attachment 4. Saskatoon's approach to school and playground areas and zones differs slightly as follows:

City of Saskatoon's Approach	TAC Guidelines
Denotes end of school zone with a '50 kph	'End School Zone' sign permitted
maximum speed' sign	
Very few playground areas	Promotes use of and provides detailed guidelines
	for implementing playground areas and zones
Reduced speed school zones adjacent to all	School zones are generally discouraged for high
elementary and high schools	schools due to the student's ability to understand
	traffic and to control their own movements

A jurisdictional review regarding school and playground areas and zones in seven municipalities was completed and is summarized in Attachment 5. Highlights include:

- Hamilton, Regina, Red Deer, Edmonton, and Calgary have playground zones with reduced speed limits.
- All have school zones with the exception of Toronto, which has many streets with 30 kph as the posted speed limit. However, schools are still able to request a school zone be implemented.
- There are various times of day that the playground and school zones are in effect, with a trend of the playground zones being in effect every day and for longer.
- Calgary has recently harmonized school and playground zones, and the evaluation study indicated significant safety benefits: the mean speed decreased from 36 kph to 30 kph; overall the number of collisions involving pedestrians within school and playground zones decreased 33%; and the collection rate also decreased.

Impact to Commuter Travel Time

According to Statistics Canada, the average Saskatoon commute is 3.95 kilometres and 19.7 minutes, which typically includes less than one kilometre of travel on neighbourhood streets. Travelling at 30 kph instead of 50 kph on the neighbourhood street portion of the commute would add less than a minute to the average travel time.

Summary of Review and Proposed Framework Outline

The Administration recommends developing a detailed framework for revising posted speed limits on neighbourhood streets, including school and playground zones. A preliminary scope of work specific to the City of Saskatoon is as follows:

Type of Street	Considerations			
Type of Street	Posted Speed Limit	Schools	Playgrounds	
Neighbourhood Streets		 If posted speed limit is reduced to 30 or 40 kph how are school areas 	 Should playground zones with a reduced speed limit be considered? What defines a playground? Are playground zones harmonized with school zones? If posted speed limit is reduced to 30 or 40 kph, how do we address playground areas and zones? 	
Collector Streets (i.e. Kingsmere Boulevard, Stensrud Road)	 Consider reducing posted speed limits 	 and zones addressed? Are school zones for high schools maintained? Should the time of day and days of the week be changed? 		
Arterial Streets (i.e. Taylor Street, Clarence Avenue) with schools or playgrounds	 Do not consider posted speed limit reductions Consider traffic calming at high priority locations 	 Are school zones for high schools maintained? 	 If playground zones are introduced, should playground zones on arterials be implemented? 	
Arterial Streets (i.e. 8 th Street, 22 nd Street) with no schools or playground	Do not consider posted	Not applicable	Not applicable	
Expressway/Freeway (i.e. Circle Drive, Idylwyld Drive)	speed limit reductions	Not applicable	Not applicable	

An implementation strategy including the estimate costs would also be provided.

Options to the Recommendation

- 1. City Council could direct the Administration to take no further action. This is not recommended since there is a significant amount of data demonstrating speeds of 50 kph with higher incidence of severe injury and fatality for pedestrians and cyclists, and many residents have concerns with speeding in the city and have expressed an interest in reducing speed limits on residential streets.
- 2. City Council could direct the Administration not to develop the framework for a reduced posted limit, but to develop recommendations for school and playground areas and zones.

Public and/or Stakeholder Involvement

A detailed community engagement plan will be developed as part of the framework for reducing posted speed limits on residential streets. The Administration will undertake a statistically relevant survey of the residents of Saskatoon to obtain their opinion on reducing speed limits on neighbourhood streets. The results of the survey will be one factor considered to help form an Administrative recommendation for City Council.

In addition to outlining engagement opportunities for residents, the plan will identify stakeholders to engage, including (at minimum) the School Divisions, Saskatoon Police Service, Saskatchewan Government Insurance, Age Friendly Saskatoon Initiative, and Community Associations.

Communication Plan

A detailed communication plan will be developed in conjunction with the community engagement plan.

Policy Implications

A speed limit reduction would require revisions to Bylaw No. 7200, The Traffic Bylaw. The development of playground zones and areas would require the development of a Council Policy.

Financial Implications

The cost of completing the development of the framework is estimated at \$50,000 and will be funded through Capital Project #0631 – Transportation Safety, if approved during the 2019 Budget Deliberations.

Other Considerations/Implications

There are no environmental, privacy or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

The Administration will plan to bring forward a report in the third quarter of 2019.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Attachments

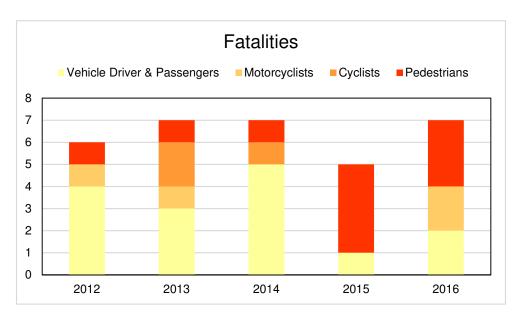
- 1. Saskatoon Severe Injury and Fatal Collision Summary
- 2. Vulnerable Road User Survival Rate
- 3. Jurisdictional Review of Residential Posted Speed Limits
- 4. School and Playground Areas and Zones TAC Guidelines
- 5. Jurisdictional Review of Playgrounds and School Areas and Zones

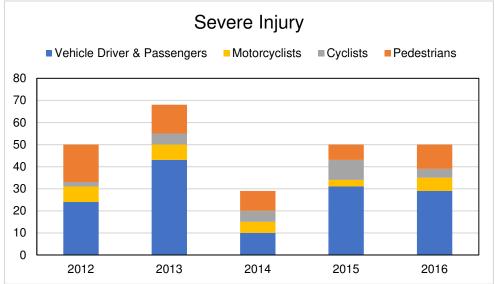
Report Approval

Written by:	Sheliza Kelts, Transportation Engineer, Transportation
Reviewed by:	David LeBoutillier, Acting Engineering Manager, Transportation
	Nathalie Baudais, Senior Transportation Engineer, Transportation
	Jay Magus, Acting Director of Transportation
Approved by:	Angela Gardiner, Acting General Manager, Transportation &
	Utilities Department

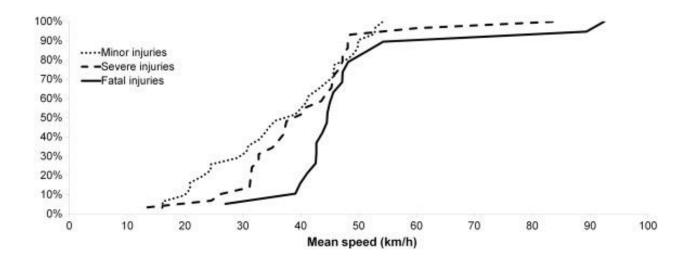
Admin Report - Posted Speed Limit Review.docx

Saskatoon Severe Injury and Fatal Collision Summary





Vulnerable Road User Survival Rate



(Vulnerable road user risk of severe injury or death vs mean speed)

As shown by the graph, the vulnerable road user risk of death drops significantly at 40 kph and the vulnerable road user risk of severe injury drops significantly at 30 kph.

At 30 kph, there is a 90% chance of surviving the collision.

At 40 kph, there is a 60% chance of surviving the collision.

At 50 kph, there is a 20% chance of surviving the collision.

At 60 kph, there is a 0% chance of surviving the collision.

Jurisdictional Review of Residential Posted Speed Limits

Municipality	Current Practice in Residential Areas	 Discussion Provincial regulations now allow Cities to determine speed limits. Administration is analyzing the potential of reducing speed limits. It is the number one complaint received by City Councillors. 		
Calgary	 Speed limit is 50 kph 			
Okotoks	 Speed limit is 40 kph 	 Lowered speed limit to 40 kph in 2015. There has been a 31% reduction in total vehicle collisions, as a result of the speed limit reduction. 		
Edmonton	 Speed limit is 50 kph for majority 3 neighbourhoods have a posted speed limit of 40 kph 	 2010 pilot project for six neighbourhoods to lower posted speed limit to 40 kph to study the impact on overall safety and quality of life. Following the pilot project, Council approved a bylaw amendment for three of the neighbourhoods to permanently reduce the speed to 40 kph. In 2013, Council adopted a speed reduction policy to allow neighbourhoods to request a review of speed limits of residential roadways within their community for consideration to reduce the speed limit to 40 kph. Administration is currently considering a city-wide reduction to the posted speed limit in residential areas, a report to Council is expected in 2019. 		
Red Deer	Speed limit is 50 kph	 Not currently investigating a reduced residential speed limit. City has one street that is 30 kph. 		
Saskatoon	 Speed limit is 50 kph for majority Montgomery neighbourhood speed limit is 40 kph 			
Regina	Speed limit is 50 kph	 Not currently investigating a reduced residential speed limit. 		
Prince Albert	 Speed limit is 40 kph 	Not currently investigating a further reduced residential speed limit.		
Hamilton	 Speed limit is 50 kph and 40 kph 	 The City has been reducing speed limits on local residential roadways to 40 kph, installing posted speed limit signs on each neighbourhood block. Speed limit reductions are currently on hold because the Province of Ontario has brought forward Bill 65, which will allow municipalities to identify neighbourhoods for speed limit reductions. This would allow posted speed limit signs to be installed at the entrance points to the neighbourhood off of the arterial road network, rather than each block. 		

Mississauga	 Speed limit is 50 kph, 40 kph and 30 kph 	 40 kph roadways are normally roads within established neighbourhoods without curbs or sidewalks. 30 kph roadways were designed and constructed for this speed. City currently investigating lowering speed limits. Three options they are considering are: Somewhat relax current approach to 40 kph speed limits and recommend a lower speed limit on any roadway where operating speeds are less than 50 kph. Individual roadway reviews only and no neighbourhood speed limits; Individual or neighbourhood speed limits where operating speeds are less than 50 kph (all roadways would require a review). All neighbourhoods to become 40 kph and neighbourhoods defined by Major collector/Arterial roads (with an implementation timeline, something
Toronto	 Speed limit is 50 kph, 40 kph and 30 kph 	 like 10 neighbourhoods each year). City is currently in second year of lowering residential speed limits to either 30 kph and 40 kph
Halifax	Speed limit is 50 kph	• City Council currently pushing the provincial government to either change the default speed limit within residential areas in the Motor Vehicle Act to 40 kph (from 50 kph) or alternatively give the City the power to set their own speed limit.
Seattle	• Speed limit is 20 mph (32 kph)	• In 2016 as part of Seattle's Vision Zero plan the speed limit was lowered from 25 mph (40 kph) to 20 mph (32 kph).
Portland	Speed limit is 20 mph (32 kph)	• As of April 1, 2018, as part of Portland's Visio Zero plan, the speed limit on residential streets was dropped to 32 kph (20 mph).

School and Playground Areas and Zones - Transportation Association of Canada Guidelines

A national guidebook, *School and Playground Areas and Zones: Guidelines for Application and Implementation*, was published in October 2006 by the Transportation Association of Canada (TAC). This document outlines best practices around the application and implementation of school areas and zones and playground areas and zones and includes the following descriptions:

- Area A section of roadway adjacent to a school or playground that is denoted by school area or playground area signing only.
- Zone A section of roadway adjacent to a school or playground that is denoted by school area or playground area signing and a reduced speed limit sign.
- 1. The TAC guideline provides the following guidance on signing for school area and zones and playground areas and zones:
 - In addition to the appropriate area warning sign, all school zones and playground zones are to be marked with:
 - A sign denoting:
 - Reduced speed limit
 - Effective times and applicable days
 - A sign denoting the end of the zone:
 - For local roads in residential areas only, an "End School Zone" or "End Playground Zone" sign may be provided. This should be considered where there is a greater risk of vehicles accelerating to an unsafe speed at the end of the zone.
 - Alternatively, a maximum speed sign reinstating the original speed limit may be used (COS current practice)
 - Length of School Zones and Playground Zones:
 - The length of a school zone or playground zone should generally be no less than 100 metres in an urban environment.
 - Guidelines for adjacent School Areas and Zones and Playground Areas and Zones:
 - Schools and playgrounds are frequently located adjacent to one another.
 If a school zone and a playground zone are necessary for adjacent sections of the same roadway, a single zone should be provided.
 - In general, it is suggested that a playground zone be installed to provide coverage over a longer period of the school day as well as on non-school days.
 - For playgrounds for which the utilization and access is closely tied to the school operation, a school zone can be considered to cover both the school and the playground.
 - Where two schools are located adjacent to one another and both require school zones, then it is suggested that a single zone be provided.
- 2. The TAC guideline outlines the following for school areas and zones:
 - School areas can be considered for roadways near elementary and middle schools, where there is a possibility of children entering the roadway.

- School areas are generally discouraged for high schools due to the student's ability to understand traffic and to control their own movements.
- School zones are generally discouraged along "walk-to-school routes" away from the school vicinity, and on roadways where any of the following conditions exist:
 - School is located on an arterial road or freeway;
 - School grounds are fully fenced;
 - School is located an appreciable distance (e.g. greater than 50 metres) from an intersecting roadway;
 - The candidate roadway does not have a school entrance; and
 - The length of the school frontage is minimal (e.g. less than 50 metres).
- School zones or areas are unnecessary at post-secondary institutions.

Jurisdictional Review of Playgrounds and School Areas and Zones

Municipality	Current Practice	Discussion
Calgary	 Posted speed limit of 30 kph in playground zones (schools included in playground zones) 7:30 am to 9 pm each day 	 Recently harmonized school and playground zones. Evaluation study indicated: The mean speed decreased from 36 kph to 30 kph. Reduction in speeds with an increase in speed compliance for all categories (8 a.m.–9 p.m., 7 a.m.–9 a.m., 2 p.m.–5 p.m.) except school zones between 6 p.m. and 9 p.m. The compliance decrease of 5% was accompanied by a decrease of average speeds from 45 kph to 32 kph, showing that most drivers are aware of the changes and adhering to the new zone timing. Overall, the number of collisions involving pedestrians within school and playground zones decreased by 33%, with a 70% decrease between 5:30 p.m. and 9 p.m. The collision rate decreased from 0.049 to 0.011 collisions per million vehicle kilometers of travel per year.
Edmonton	 Posted speed limit of 30 kph in playground zones 7:30 am to 9 pm each day Posted speed limit of 30 kph in school zones 8 am to 4:30 pm each school day 	 Recently created playground zones. Previous school zones have been converted to playground zones if the zone included a school's playground area or sports field. This change is a part of Vision Zero Edmonton. In the last five years: 65 injury collisions involving children have occurred in areas that are now covered by playground zones; and 4 of the injury collisions in playground areas involving children pedestrians occurred between 8 and 9 p.m.
Red Deer	 Posted speed limit of 30 kph in playground zones 8 am to 9 pm each day Posted speed limit of 30 kph in school zones 8 am to 4:30 pm each school day 	 Recently changed zone times. Combined zones are converted to playground zones.
Saskatoon	Posted speed limit of 30 kph in school zones	

	 8:00 am to 5:00 pm each weekday between Sept 1 and June 30 No playground zones 	
Regina	 Posted speed limit is 40 kph in playground zones and school zones 8:00 am to 10:00 pm every day 	 Considering changes to the speed limit and applicable hours.
Hamilton	 Posted speed limit of 40 kph in playground zones and school zones All day, every day 	 Planning to implement 30 kph in designated school zones located on local roadways
Mississauga	 Posted speed limit of 40 kph in school zones 7:45 am to 5:00 pm each weekday between Sept 1 and June 30 No playground zones 	
Toronto	Posted speed limit of 30 kph or 40 kph	Schools can request a school zone

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From: Sent: To: Subject: Anthony Epp < Wednesday, October 03, 2018 8:39 PM Web E-mail - City Clerks Review of slower speed limits in the city neighborhoods

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SASKATOON

6320-

Submitted on Wednesday, October 3, 2018 - 20:39 Submitted by user: Anonymous Submitted values are:

First Name: Anthony Last Name: Epp Email: Confirm Email: Neighbourhood where you live: Adelaide/Churchill Phone Number: (306) ==Your Message== Service category: City Council, Boards & Committees Subject: Review of slower speed limits in the city neighborhoods Message: I would love to have a one on one conversation/dialogue about why we need to review residential/neighborhood speed limits?When there is no speed enforcement by city police in the neighborhood especially the one I live in. If there is no enforcement let alone a visible present. Then changing the speed limit is meaningless and a short term bandaid fix to bigger problem. Not to mention a visible present would fix alot other issues. Don't get me wrong I'm all for policy and rule change to meet with the times. Attachment:

Would you like to receive a short survey to provide your feedback on our customer service? The information you share will be used to improve the service we provide to you and all of our customers.: No

For internal use only : https://www.saskatoon.ca/node/405/submission/260352

6320-1

From: Sent: To: Subject: City Council Thursday, October 04, 2018 4:53 PM City Council Form submission from: Write a Letter to Council

Submitted on Thursday, October 4, 2018 - 16:53 Submitted by anonymous user: 142.165.166.218 Submitted values are: RECEIVED OCT 0 4 2018 CITY CLERK'S OFFICE SASKATOON

Date: Thursday, October 04, 2018 To: His Worship the Mayor and Members of City Council First Name: Nolan Last Name: Courteau Email Address Tobin Terrace City: Saskatoon Province: Saskatchewan Postal Code: s7k Name of the organization or agency you are representing (if applicable): Subject: Residential Speed Limits Meeting (if known): Comments: I support the movement towards reducing residential speed limits.

As a specific example, Redberry Road, in the Lawson Heights neighbourhood currently has a 50km/h speed limit. Given the presence of 2 elementary schools on this road and associated pedestrian traffic to and from the schools, the 50km/h limit is too high for this area. A 40km/h would be more appropriate for this residential area, for example, but a 30km/h hour limit would also be appropriate.

This is of course one example, and there are many more. A movement toward a lower and calmer traffic conditions in residential neighborhoods is a welcome addition to our city. It is also fully supported by new evidence contained in expert reports, as the committee rightly points out.

Attachments:

The results of this submission may be viewed at: https://www.saskatoon.ca/node/398/submission/260560

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CONSULTING ENGINEER

PHONE: (306)664-2772

E MAIL: hall.eng@shaw.ca

SASKATOON CITY COUNCIL CITY HALL SASKATOON, SASK.

Attention: Hon. Mayor Charlie Clark, Chairman

Dear Sir:

Re: Life Safety Traffic Issues

I'm totally in agreement with the current proposal to reduce speed limits in residential and business areas to 40 km/hr and 30 km/hr in areas such as next to swimming pools, etc. where children can congregate.

One other major <u>life safety item</u> is the location of vehicles parked near intersections. From several of my random counts, 90% of vehicles on the street are either SUVs or trucks. Such vehicles are allowed to park near intersections (both street & lane) obstructing the view of on coming vehicles as these vehicles are much higher than a standard car. I have witnessed some major near T-bone accidents at intersections and I personally have had some close calls.

I respectfully request that a bylaw be issued specifying the minimum distance of 15 m (49.2 ft.) than any vehicle that is more than 1524mm (60") in height can park from any intersection (street or lane).

Regards,

W. D. Hall

Walter D. Hall, P. Eng., Sk., Ab., Mb.

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