PUBLIC AGENDA
STANDING POLICY COMMITTEE
ON TRANSPORTATION

Monday, September 10, 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 Item 7.2.1 be brought forward and considered following Item 7.1.1;
2. That Items 7.2.2 and 7.2.3 be considered following Item 7.1.2; 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 August 13, 2018 be adopted.

5. UNFINISHED BUSINESS

6. COMMUNICATIONS (requiring the direction of the Committee)

6.1 Delegated Authority Matters

6.1.1 Henry Dayday - Future Bike Lanes [File No. CK 6000-5] 5 - 5

A letter dated August 16, 2018 from Henry Dayday is provided.

Recommendation

That the information be received.

6.2 Matters Requiring Direction

6.3 Requests to Speak (new matters)

7. REPORTS FROM ADMINISTRATION

7.1 Delegated Authority Matters

7.1.1 Strategic Traffic Safety Action Plan – Final Report [Files CK 6320-1 and TS 6320-1] 6 - 9

Recommendation
That the report of the A/General Manager, Transportation & Utilities Department dated September 10, 2018, be received as information.

7.1.2 Community Transportation Review Program [Files CK 6320-1 and TS 6320-1] 10 - 16

A PowerPoint presentation will be provided.

Recommendation
That the report of the A/General Manager, Transportation & Utilities Department dated September 10, 2018, be received as information.

7.2 Matters Requiring Direction

7.2.1 Vision Zero [Files CK 6320-1 and TS 6330-8] 17 - 33

A PowerPoint presentation will be provided.

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

That Vision Zero be adopted in principle committing Saskatoon to become a community with zero transportation-related deaths and severe injuries.

7.2.2 Traffic Calming Policy [Files CK 6320-0 and TS 6350] 34 - 79

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

That the proposed Traffic Calming Policy be approved.

7.2.3 Traffic Control at Pedestrian Crossings Policy Update [Files CK 6150-0 and TS 6150] 80 - 110

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

That the Council Policy 07-018, Traffic Control at Pedestrian Crossings updates based on the TAC Guide as outlined in the report of the A/General Manager, Transportation & Utilities Department dated September 10, 2018, be approved.

7.2.4 88 King Street Equipment Storage Facility – 2018 Budget Adjustment Request [Files CK 665-1, x1702-1 and 634-10] 111 - 112

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

That a budget adjustment of $50,000 to Capital Project #2269 – TU Accommodation Construction funded from the Public Works Buildings Civic Facilities Reserve and the TU Department Capital Reserve be approved to install safety retrofits on the 88 King Street property for winter equipment storage.

8. URGENT BUSINESS

9. MOTIONS (Notice Previously Given)

10. GIVING NOTICE

11. IN CAMERA AGENDA ITEMS

12. ADJOURNMENT

6000-5

From: henry dayday <[redacted]
Sent: Thursday, August 16, 2018 1:28 PM
To: City Council
Subject: BIKE LANES

August 16. 2018

Your Worship & Members of City Council

Please accept this letter of concern that a number of taxpayers have related to me regarding future bike lanes in the city.There first concern is why city council would even consider closing a traffic lane on Idylwyld Drive and replace it with a bike lane at a cost of millions of dollars to be funded by the city taxpayers when we already have huge debts.

The second concern is Idylwyld Drive is one of our busiest streets and we would be closing a lane for traffic and for all our emergency vehicles , namely police, fire and ambulance.

The third concern is since the city taxpayer will have to pay for the bike lane which is a new and costly project and the 2019 budget has not been approved, many are saying that common sense should prevail and a plebiscite should be held during the next civiic election so the city taxpayer can participate and let the next city council know how they want their tax dollar spent.

I do hope you will place this letter on the next city council meeting so the public can hear the debate.I thank you for your consideration of this matter.

Sincerely
Henry Dayday

Strategic Traffic Safety Action Plan – Final Report

Recommendation
That the report of the General Manager, Transportation & Utilities Department dated September 10, 2018, be received as information.

Topic and Purpose
This report provides a final report on the Strategic Traffic Safety Action Plan as the City considers moving towards Vision Zero.

Report Highlights
1. Based on a review of collision data from 2007 to 2016, additional effort should be taken to continue to achieve downward trends.
2. The Strategic Traffic Safety Action Plan adopted in 2014 was planned as a continuous effort updated every four-to-five years.
3. Consideration should be given to formally adopt Vision Zero as the City of Saskatoon's road safety policy, replacing the Strategic Traffic Safety Action Plan.

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

Background
At its meeting held on September 29, 2014, City Council considered the Strategic Traffic Safety Action Plan report, and resolved:

"1. That the Strategic Traffic Safety Action Plan be received; and
2. That the Strategic Traffic Safety Action Plan provide input into the decision making in the delivery of Transportation programs and projects."

The Strategic Traffic Safety Action Plan was a high-level traffic safety policy that provided a four-to-five year comprehensive safety document for the City of Saskatoon. The road safety document contains scientific, data-driven information that was designed to identify and address traffic safety issues to direct the allocation of budget dollars in the most efficient way.

The Strategic Traffic Safety Action Plan was developed with support from the following stakeholders:
1. City of Saskatoon – Transportation division
2. City of Saskatoon – Traffic Safety Committee
3. Saskatoon Board of Education
4. Saskatchewan Government Insurance

5. Saskatoon Health Region
6. Saskatoon Police Service
7. Saskatchewan Centre of Excellence in Transportation and Infrastructure
8. Department of Civil and Geological Engineering, U of S

Report

The most recent ten-year collision data from 2007 to 2016 was reviewed. The trend for collisions resulting in injuries and fatalities is shown in Attachment 1. Although the number of collisions resulting in injuries and fatalities shows a clear decreasing trend from 2012 to 2015, there is an increase in collisions from 2015 to 2016. Therefore, additional effort should be taken to continue to achieve downward trends. Progress has been made to improve communication and coordination between stakeholders but further improvements are needed to develop more focused strategies and programs.

Many Canadian jurisdictions are moving towards a Vision Zero initiative for road safety, which is a strategy to eliminate all transportation related deaths and severe injuries. Canada adopted Vision Zero as a federal strategy in January 2016 and released Road Safety Strategy 2025. The Strategic Traffic Safety Action Plan is a step towards Vision Zero as it includes a number of important components namely:

- Using data-driven information to identify and address traffic safety issues to allocate the City's safety budget in the most efficient way.
- Collaborating and coordinating between multidisciplinary stakeholders.
- Selecting target safety goals based on what should be achieved rather than what can be achieved.
- Pursing zero fatal or injury collisions (or zero fatalities and injuries) as a long-term goal.

The Strategic Traffic Safety Action Plan was intended to be updated every four-to-five years. The Administration is recommending that the City consider formally moving towards Vision Zero as the City of Saskatoon's new road safety policy. Vision Zero would continue on with the progress the Strategic Traffic Safety Action Plan has to date, and would further increase the level of safety for all road users on Saskatoon's streets.

Public and/or Stakeholder Involvement

Sessions have been held to introduce and discuss Vision Zero with potential stakeholders. Various civic departments were represented. Members of City Council, the Mayor's Office, the Traffic Safety Committee, Medavie Health Services West, Saskatoon Police Service, Saskatoon Health Region, and the Saskatoon Public and Greater Saskatoon Catholic School divisions all participated in these early introductory sessions.

Other Considerations/Implications

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

Due Date for Follow-up and/or Project Completion

This is the final report on the Strategic Traffic Safety Action Plan. No follow-up is planned. Further reporting on traffic safety will occur as part of Vision Zero.

Public Notice

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

Attachment

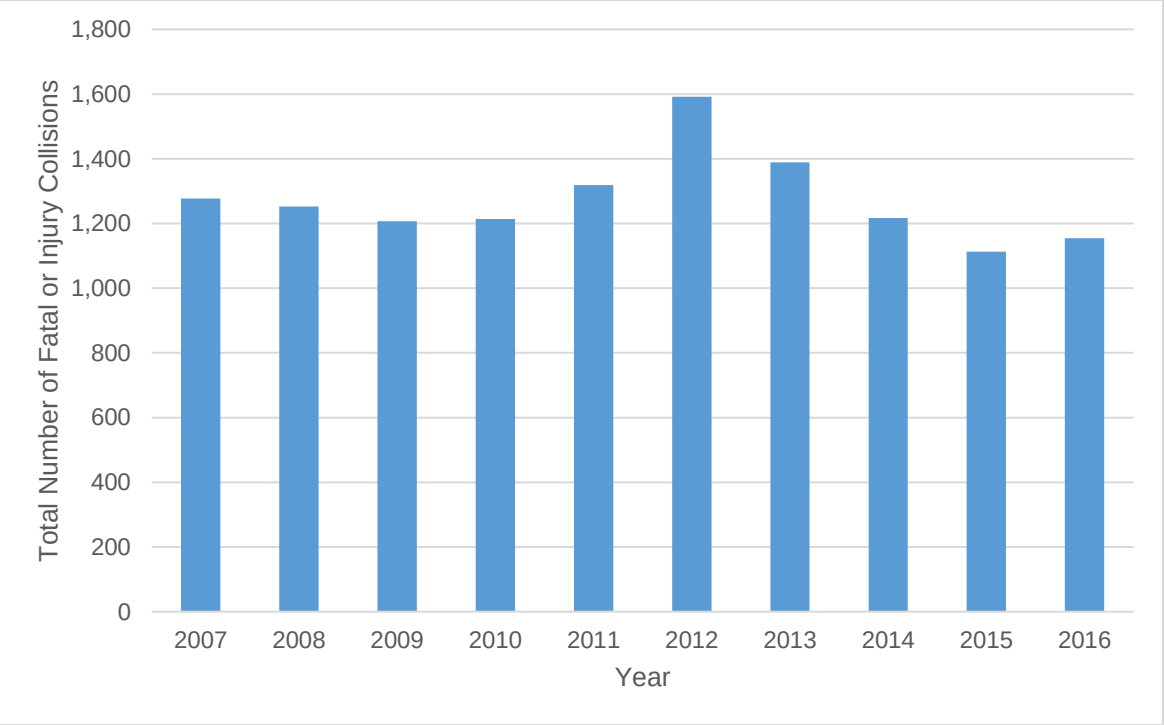
1. Collision Data (2007-2016)

Report Approval

Written by:	Mariniel Flores, 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 - Strategic Traffic Safety Action Plan – Final Report.docx

Collision Data (2007-2016)



Community Transportation Review Program

Recommendation
That the report of the General Manager, Transportation & Utilities Department dated September 10, 2018, be received as information.

Topic and Purpose
The purpose of this report is to provide an overview of a future approach for transportation safety reviews.

Report Highlights
1. The Neighbourhood Traffic Review (NTR) program is expected to complete all of the developed residential and industrial neighbourhoods in 2020.
2. 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.

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 the Neighbourhood Traffic Management Program that includes a strategy to review concerns on a neighbourhood-wide basis by engaging the community and stakeholders in identifying specific traffic issues, and developing joint recommendations to address those issues.

The NTR program for residential and industrial neighbourhoods is scheduled for completion by 2020. To date, 40 neighbourhoods have been completed, 10 are underway, and 22 will be completed in 2019 and 2020. The NTR progress is included as Attachment 1.

Report
Upon completion of the NTR program, the traffic review process will be transitioned to a CTR program, a new process of traffic reviews at a broader community level than the current NTR program.

The intent of reviewing a larger area than strictly the neighbourhood is to address transportation safety issues along major collectors and arterials and the neighbourhood connections bounding neighbourhoods to these streets.

Although these concerns are frequently identified during the NTR community meetings, they are not specifically addressed at the neighbourhood level and are deferred for further review.

The CTR program will include 12 communities throughout the city based on suburban development areas, as shown in Attachment 2. These areas were selected as the basis for the CTR program since they correspond to the city's transportation network and group together adjacent collector and arterial roads. This grouping should permit synergies of review to explore linkages and interactions between neighbourhoods to be incorporated into the process.

The CTR program will focus on evidence-based traffic, cyclist, and pedestrian safety issues and trends (through collision data or other research studies). This program will align well with the Vision Zero initiative to eliminate transportation-related deaths and severe injuries while increasing safe, healthy and equitable mobility for all road users.

Attachment 3 illustrates the arterial and major collector roadways (2012-2016) with the highest number of average annual collisions resulting in injuries or fatalities by location, and supports the need to study the arterial and major collector roadways to have a safety-driven focus.

The CTR program will mainly focus on transportation safety and will include the following elements:

- Screen each of the 12 communities for safety based on collision data;
- Review collision history and identify collision patterns which may be possible to correct through engineering best practices;
- Conduct road safety audits for school zones;
- Review signage in the field to identify missing or confusing signage;
- Identify barriers to walking and cycling; and
- Prioritize locations for implementation.

The CTR process will support improving safety within communities and align well with the Vision Zero initiative as both have a mechanism to compile and review transportation safety concerns and provide mitigation or design recommendations. The CTR program will be fully developed prior to the completion of the NTR program.

Options to the Recommendation

City Council could choose to not endorse the CTR process, and direct the Administration to develop other options. This option is not recommended as the proposed CTR process was developed in consideration of the best practices, lessons learned, and a scan of what other municipalities are doing.

Public and/or Stakeholder Involvement

Public and stakeholder involvement will be required for the CTR program. The format for this involvement will be formalized as part of the CTR program development.

Communication Plan

It is anticipated that an annual meeting will be held with each of the 12 communities of the CTR program to:

- Discuss ongoing or upcoming transportation initiatives and projects;
- Present the CTR program and priorities;
- Identify barriers to walking and cycling; and
- Listen to public input, and, where appropriate, refer them to other ongoing programs (i.e. Traffic Calming Policy, Traffic Control Policies, etc.), or otherwise incorporate their concerns into the CTR review prioritization.

There may be significant changes in engagement strategies over the next few years. Therefore, detailed communication plans will be developed for the CTR program at the time of implementation (estimated to begin in 2021).

Policy Implications

It is expected that additional policies and guidelines will be developed to support the implementation of the CTR program.

Financial Implications

The financial implications of the CTR program have not been quantified at this time. The costs associated with the engagement is expected to be reduced (compared to the existing NTR Program) since a single meeting will be held with each community per year of review. It is anticipated that the required traffic safety measures will have an increase in cost from the traffic calming measures that have been previously implemented through the NTR program since arterials, collectors and intersections reviewed through the CTR program will be wider and more complex with higher traffic volumes.

Other Considerations/Implications

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

Due Date for Follow-up and/or Project Completion

The Administration will report further on the CTR program prior to the completion of the NTR program and implementation of the CTR program. It is anticipated that this report will include final details on the scope, schedule and costs of the program, and will request City Council approval to proceed at that time.

Public Notice

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

Attachments

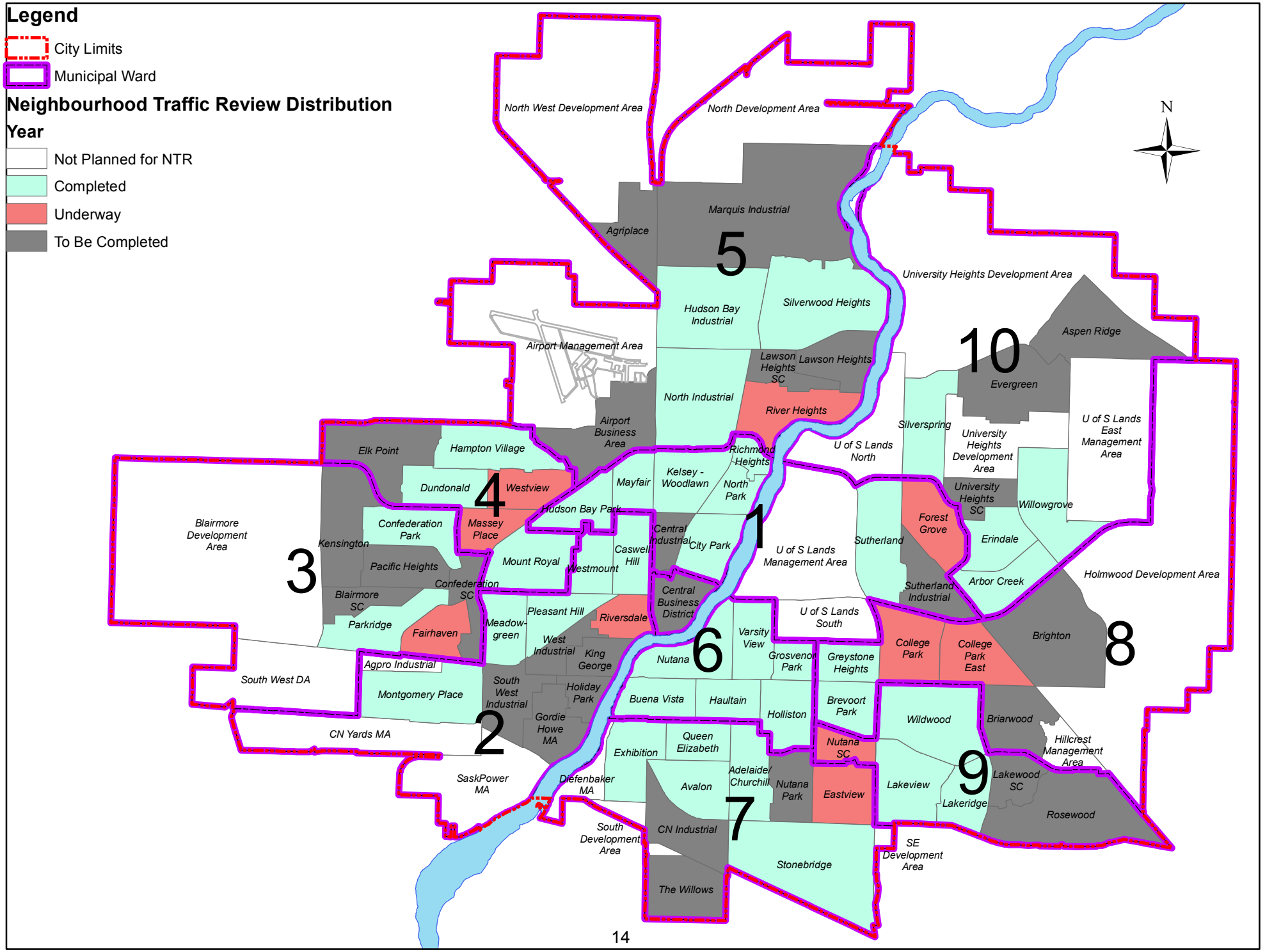
1. NTR Distribution Map
2. Community Traffic Review Areas Map
3. Community Traffic Review Areas – Number of Severe Injuries & Fatalities Map

Report Approval

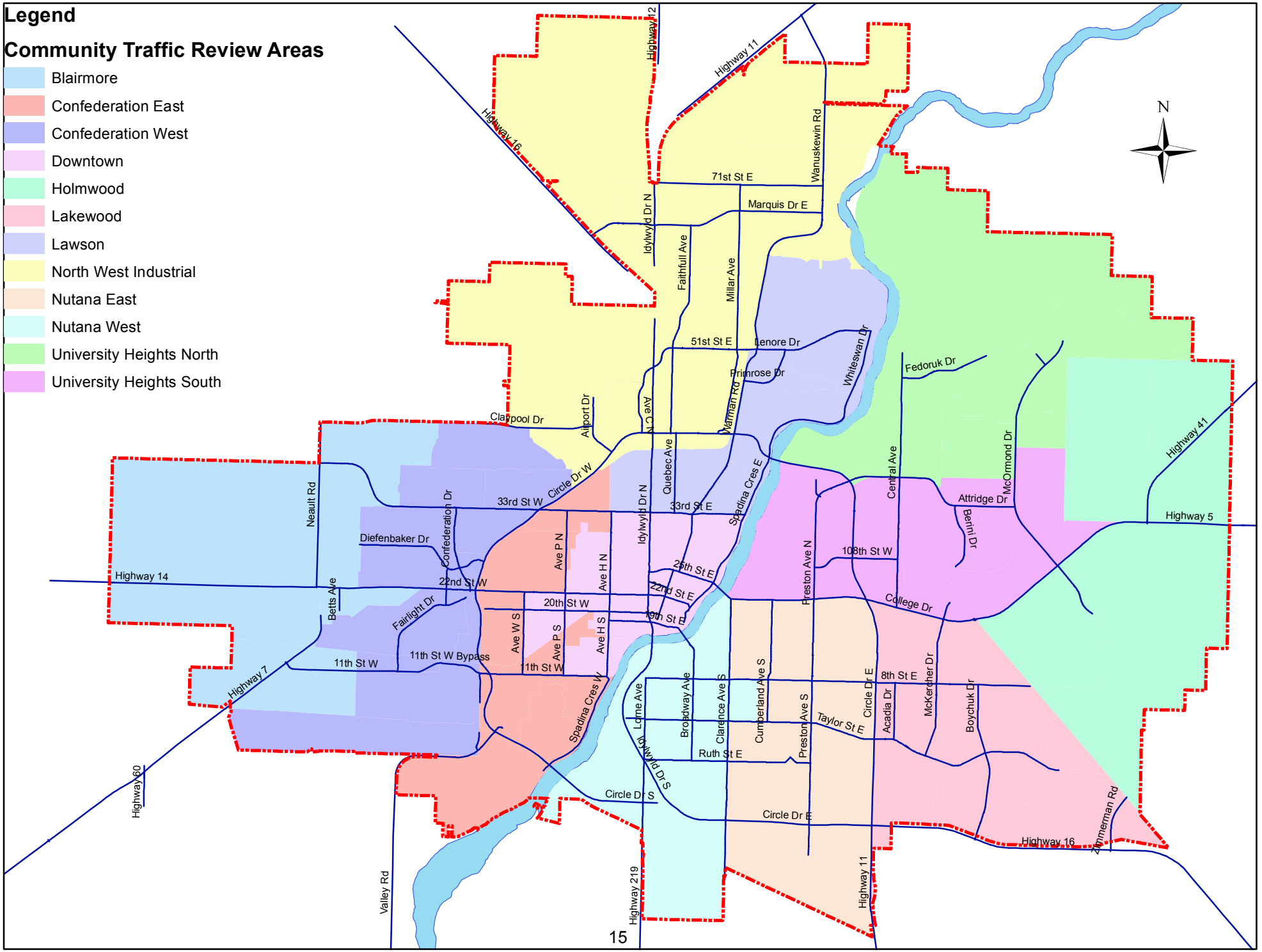
Written by:	Nathalie Baudais, Senior Transportation Engineer, Transportation
Reviewed by:	David LeBoutillier, Acting Engineering Manager, Transportation Jay Magus, Acting Director of Transportation
Approved by:	Angela Gardiner, Acting General Manager, Transportation & Utilities Department

Admin Report - Community Transportation Review Program.docx

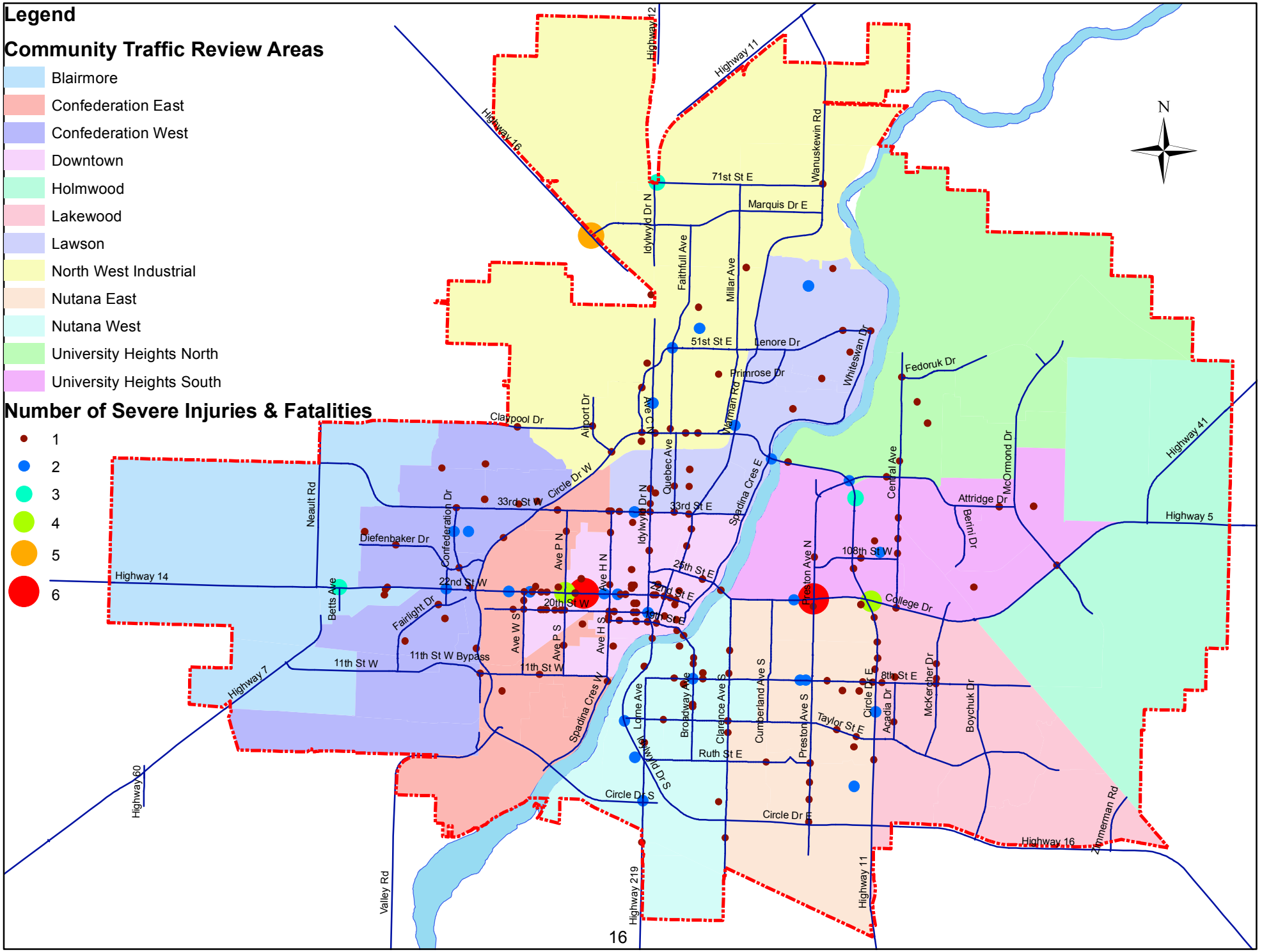
Attachment 1



Attachment 2



Attachment 3



Vision Zero

Recommendation
That the Standing Policy Committee on Transportation recommend to City Council:
That Vision Zero be adopted in principle committing Saskatoon to become a community with zero transportation-related deaths and severe injuries.

Topic and Purpose
The purpose of this report is to provide the framework for Vision Zero and to request adoption in principle for developing a Vision Zero strategy for Saskatoon.

Report Highlights
1. Vision Zero is a strategy to eliminate all transportation-related deaths and severe injuries, while increasing safe, healthy, and equitable mobility for all.
2. Vision Zero utilizes a collaborative and multi-disciplinary approach and several partner agencies are supportive of implementing a Vision Zero approach for Saskatoon.
3. Resource requirements to successfully implement Vision Zero are outlined in this report.

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 2018 Preliminary Business Plan and Budget meeting held on November 27 and 28, 2017 approved funding for Capital Project #0631 – Transportation Safety Improvements, which included $40,000 for Vision Zero (i.e. launching the Vision Zero initiative and Vision Zero education campaign).

The Administration hosted a Planning Session for Vision Zero in May 2018, facilitated by the Vision Zero Advocate Institute. The workshop provided an overview of Vision Zero and explored potential strengths, weaknesses, opportunities, and threats for Vision Zero implementation in Saskatoon. The workshop attendees included Saskatchewan Health Authority, Saskatoon Police Service, Saskatoon Public Schools, Medavie Health Services West, Saskatoon and District Safety Council and Saskatoon Board of Education Driver Education. Other agencies that did not attend the session but have expressed interest in and support for Vision Zero include the Greater Saskatoon Catholic Schools, Saskatoon Fire Department, and Saskatchewan Government Insurance (SGI).

At the planning session, the group developed the following draft Vision Statement:

> "Saskatoon will become a community with zero transportation-related deaths or severe injuries."

If Vision Zero is endorsed by City Council, the Vision Zero Steering Committee will refine and finalize the draft statement.

Report

Vision Zero Overview

Vision Zero is a strategy to eliminate all transportation-related deaths and severe injuries, while increasing safe, healthy, equitable mobility for all road users. It was first implemented in Sweden in 1997 and is gaining momentum worldwide. Vision Zero recognizes that traffic deaths are preventable. This is a fundamental change in the way people think about the transportation network and system. Vision Zero uses a safe systems approach for road design to reduce conflict points and the severity of collisions when they do occur. A brief explanation of Vision Zero is included in Attachment 1.

The safe systems approach 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. It is a shared responsibility with everyone focused 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. According to the Vision Zero philosophy, "In every situation a person might fail. The road system should not."

The safe systems approach also recognizes the need for safe roads, safe speeds, safe people, and safe vehicles.

- Safe roads – We are all human. It is expected that we will make mistakes. The transportation system must be forgiving so that mistakes do not result in tragedy.
- Safe speeds – The largest number of people killed on roads are vulnerable road users (i.e. pedestrians and cyclists). A graph showing the vulnerable road user risk of injury and fatality versus mean speed is shown in Attachment 2. The percentage risk varies according to age, physical fitness, etc. (children and seniors are more vulnerable than the average adult); however, despite the variation, there is a 90% chance of survivability for speeds at 30 kph or less.
- Safe people – All road users obey traffic laws and pay attention to their surroundings.
- Safe vehicles – Vehicle technology can save lives. (i.e. antilock braking system, air bags, crumple zones, and so on).

Approximately 15,000 people die or are severely injured each year on Canada's roads. The Canadian Council of Motor Transport Administrators' most recent Road Safety Strategy 2025 retains the long-term vision of making Canada's roads the safest in the world but combines this with the vision of Towards Zero.

The Road Safety Strategy 2025 is intended to encourage road safety stakeholders from all levels of government as well as private sector and non-governmental stakeholders to collaborate in making Canada's roads the safest in the world, and to unite efforts to reach the long-term vision of zero fatalities and serious injuries on Canadian roads.

Between 2007 and 2016, 69 people have been killed and 12,666 people have been injured on Saskatoon roads. To address this significant level of injury and death, safety must become a priority over speed and convenience in both the design and operation of Saskatoon's roads, the configuration of work zones and all the ancillary civic functions that impact all road users.

Vision Zero is becoming a global movement that is gaining recognition. There are many resources, tools and best practices available in the Vision Zero realm. Undertaking a safety approach without Vision Zero could result in lost opportunities.

Collaborative and Multidisciplinary

To implement Vision Zero successfully, a collaborative and multidisciplinary approach is needed. All key agencies need to be involved in rolling out the initiative. Maximizing each agency's skill set for different components of the Vision Zero initiative will leverage success. Letters of support and commitment from interested partner agencies are included in Attachment 3.

A multidisciplinary approach to Vision Zero is required for success; many municipalities use the following "E's":

- Engineering
- Enforcement
- Education
- Engagement
- Evaluation
- Environment
- Equity
- Leadership

A jurisdictional review of Vision Zero communities across Canada is included in Attachment 4. Vision Zero implementation is uniquely tailored for each municipality. The Steering Committee will be responsible for identifying the appropriate implementation for Saskatoon. A draft project charter outlining next steps for Vision Zero is included in Attachment 5.

Resource Requirements

At its meeting held on June 18, 2018, the Governance and Priorities Committee received a report regarding the 2019 Business Plan and Budget Options. Provided in this report was $7.78 million in options for the Governance and Priorities Committee to consider for implementation as part of the 2019 Business Plan and Budget process. An option provided was $100,000 in funding that would be utilized for a Vision Zero Program Manager required to manage the program, coordinate various stakeholders and be the primary point of contact for this initiative. Subsequent funding requests would follow for future years.

Options to the Recommendation

The Transportation division could continue making recommendations for transportation investments based on the current priority lists and warrant criteria. This option is not recommended. Although collision rates are considered in the existing analyses, the primary focus is on optimizing flow and efficiency on the road network. The status quo does not distinguish between collision severity types (i.e. property damage, injury or fatality), instead focuses on aggregate numbers of all collisions, and effectively is focused on vehicle collisions.

The Transportation division could begin to make recommendations for transportation investments with a safety-oriented focus without using the Vision Zero approach. This option is not recommended. Approaching safety without specific goals or targets will not address the importance and societal costs associated with deaths and severe injuries.

Public and/or Stakeholder Involvement

Engagement is one of the E's of the Vision Zero approach. If Vision Zero is endorsed, an engagement plan will be developed. It is anticipated that several committees will be established to implement Vision Zero. The following partners will make up the Vision Zero Steering Committee:

- Saskatchewan Health Authority
- Saskatoon Police Service
- Saskatoon Public Schools and Greater Saskatoon Catholic Schools
- Transportation division

The following agencies will be involved as stakeholders and could make up subcommittees for specific implementation initiatives:

- Medavie Health Services West
- Saskatoon and District Safety Council
- Saskatoon Board of Education Driver Education
- Saskatoon Fire Department
- Saskatchewan Government Insurance

The Vision Zero Steering Committee will replace the Traffic Safety Committee that will be disbanded at the end of 2018.

Communication Plan

A communication plan for Vision Zero will be developed if the strategy is endorsed by City Council.

Policy Implications

A Vision Zero approach will require revisions to:

- Council Policy C07-023, Corridor Study Selection Process
- Council Policy C07-024, Intersection Improvement Project Selection Process

Both policies would need to be revised to reflect new prioritization criteria to move away from crash rates (i.e. all collisions, traffic volumes) to fatality rates (i.e. fatal and severe injury collisions, population).

Financial Implications

A new capital program will be required to fund the Vision Zero initiative. The following funding estimates are required to initiate a Vision Zero strategy for Saskatoon. Funding will be requested as part of the 2019 budget. Long-term, operating program funding should be directed from the Traffic Safety Reserve.

Resource	Task	2019 Budget	2020 Budget
Program Manager (New FTE)	• Finalize project charter, coordinate and chair steering group meetings, oversee the program, etc.	$100,000	$100,000
Data Analyst (New FTE)	• Compile and analyze existing collision data (i.e. SGI, Health Authority) • Identify data gaps • Identify hot spots/trends	--	$ 80,000
Graphics	• Tailor Vision Zero graphics for Saskatoon (logo, brochure, graphs, etc.)	--	$ 40,000
Communication	• Develop public education campaign strategy and media messaging	--	$ 30,000
Total		$100,000	$250,000

If funding is not available in the 2019 budget, the Administration recommends deferring the formal implementation of Vision Zero until 2020.

Implementation costs of the Vision Zero initiative will be developed as the program progresses. Current budgets will be reallocated to support Vision Zero and new funding requirements will be identified.

Other Considerations/Implications

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

Due Date for Follow-up and/or Project Completion

A Vision Zero Action Plan report will follow in 2019.

Public Notice

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

Attachments

1. What it Vision Zero?
2. Vulnerable Road User Risk of Severe Injury or Death vs. Mean Speed
3. Letters of Support – Saskatoon Police Service; Greater Saskatoon Catholic Schools; Medavie Health Services West; Saskatchewan Health Authority
4. Vision Zero Jurisdictional Review
5. Vision Zero – Draft Project Charter

Report Approval

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

Admin Report - Vision Zero.docx

What is Vision Zero?

Vision Zero is a road safety approach with the goal of zero traffic related fatalities or severe injuries. Canada adopted Vision Zero as a federal strategy in January 2016.

Vision Zero is a collaborative, multi-disciplinary approach and reflects multiple community partners and stakeholders.

How is Vision Zero different than our current approach?

Vision Zero is based on the simple fact that we are human and make mistakes. The road system needs to keep us moving and must be designed to protect us at every turn to prevent tragedy when human errors are made.

Vision Zero	Traditional thinking
• Focus on fatalities and serious injuries	• Focus on overall collision rates
• Flaws in the transportation system identified as cause of collisions	• Human error identified as cause of collisions
• Focus on perfecting road system for imperfect human behavior	• Focus on perfecting human behavior on an imperfect road system
• Safety initiatives reduce societal costs	• Safety initiatives are costly

Vision Zero Principles

- No loss of life is acceptable
- Traffic fatalities and serious injuries are preventable
- We all make mistakes
- We are physically vulnerable when involved in motor vehicle collisions
- Eliminating fatalities and serious injuries is a shared responsibility between road users and those who design and maintain our roadways
- We have a right to a safe transportation system

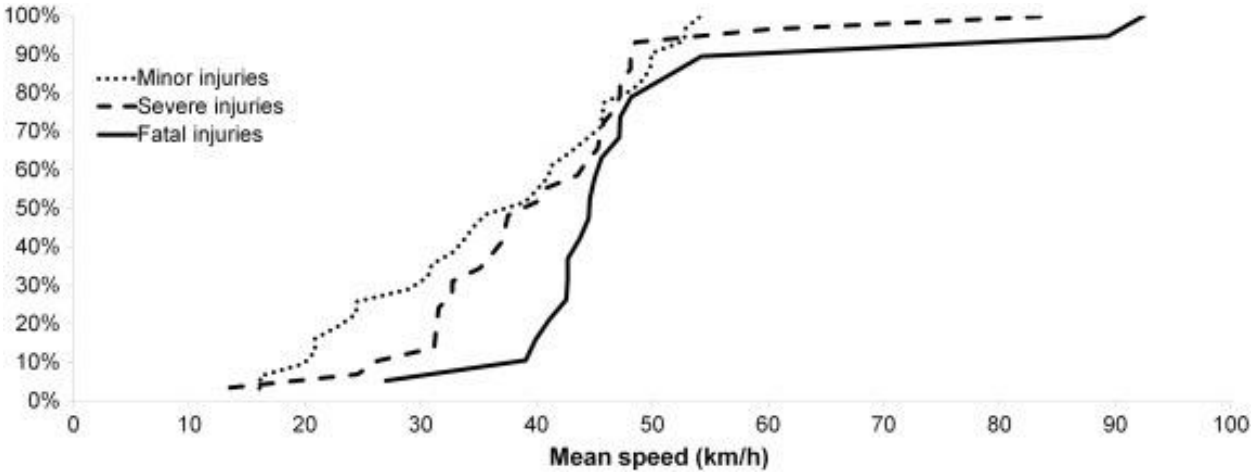
Vision Zero Terminology

- **Zero:** Zero road-related deaths and serious injuries
- **Safe Systems Approach:** safe speeds, safe roads, safe vehicles and safe road users.
- **System Designers:** transportation engineers
- **Road Users:** all modes of travel: pedestrians, cyclists, motorists and transit.
- **System Operators:** roadways and operations, traffic signal specialists, etc.
- **Equity:** geographic, social, economic and physical ability

VISION ZERO IS ABOUT RECOGNIZING THAT TRAFFIC DEATHS AND INJURIES ARE PREVENTABLE, AND IMPROVING THE SAFETY OF ROADWAYS THROUGH EDUCATION, ENFORCEMENT, ENGINEERING, EVALUATION AND ENGAGEMENT.

City of Hamilton, ON

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.

July 17, 2018

Nathalie Baudais
Senior Transportation Engineer
City of Saskatoon
222 Third Ave N
Saskatoon, SK S7K 0J5

Dear Ms. Baudais:

Re: Letter of Support for Vision Zero

The Saskatoon Police Service is a strong advocate for traffic safety. Our members witness needless loss of life and personal injury on a daily basis.

The Service has long advocated for the need to rethink the culture of traffic safety with the realization that even the best enforcement plan has its limitations. Enforcement is an important part of the equation to save lives, but it is just one part.

We believe that not a single loss of life is acceptable and, for that reason, we are happy to endorse the City of Saskatoon's aspirations to become a "Vision Zero" city.

Vision Zero is a bold plan aimed at zero road user deaths or serious injuries. Without a bold plan, that goal will not be achievable.

The Saskatoon Police Service looks forward to partnering with other stakeholders in the pursuit of Vision Zero.

Yours truly,

Troy Cooper, M.O.M. MBA
Chief of Police
/clt

GREATER SASKATOON CATHOLIC SCHOOLS

GREATER SASKATOON CATHOLIC SCHOOLS
ST. PAUL'S RCSSD #20
420 - 22ND STREET EAST SASKATOON SK S7K 1X3 CANADA
306.659.7000 INFO@SCS.SK.CA WWW.SCS.SK.CA

July 18, 2018

VIA EMAIL

Nathalie Baudais, P.Eng.
Senior Transportation Engineer
City of Saskatoon
222 3rd Avenue North
Saskatoon, SK S7K 0J5

Dear Ms. Baudais,

Re: Vision Zero Support

Representatives from our school division attended planning sessions for Vision Zero and we very much support the work that this group has undertaken. Safer travel within our city will ensure our students arrive safe each day. Our school division transports 5,100 students daily and 11,000 students walk, bike, drive, or take public transit. Safety of our students is always a top priority for our Board of Education.

Thank you to City Council for supporting such a great initiative.

Sincerely,

Laurier Langlois,
Manager, Corporate Services
Greater Saskatoon Catholic Schools

cc: Mr. Joel Lloyd – Superintendent of Administrative Services

MEDAVIE HEALTH SERVICES West

July 17, 2018

Nathalie Baudais, P.Eng.
Senior Transportation Engineer
Transportation Division
City of Saskatoon
222 3rd Avenue North
Saskatoon, Saskatchewan
S7K 0J5

Dear Ms. Baudais,

RE: Vision Zero Support

Medavie Health Services West (M.D. Ambulance Care Ltd.) will be honoured to support the **"Vision Zero"** initiative. Of course our system continually deals with injuries and deaths as a result of motor vehicle collisions. Any assistance we can contribute to decrease these occurrences is time and energy well spent.

Please utilize Mr. Weeks as your primary contact with Medavie Health Services West.

Please ensure all literature both written and electronic reflect our new brand of **Medavie Health Services West.**

Feel free to reach out at any time should your require anything further.

Best Regards,

Gerry Schriemer
Chief of EMS
Medavie Health Services West

c. Bill Weeks
Andrew Williamson

Office of the Medical Health Officers
Idylwyld Centre
204 - 310 Idylwyld Drive North
SASKATOON SK S7L 0Z2
P: 306-655-4338 | F: 306-655-4414

July 13, 2018

To His Worship the Mayor and Members of City Council:

We are pleased to provide this letter of support on behalf of the Office of the Medical Health Officers in the Saskatchewan Health Authority, Saskatoon Area for the Vision Zero initiative.

For a number of years, a representative from Population and Public Health in the former Saskatoon Health Region (now Saskatchewan Health Authority) has been a member of the Traffic Safety Committee as transportation safety of all modes is important to the health of the population. As of January 2019, this committee is being disbanded as the transportation safety focus turns to a Vision Zero process and our staff has engaged in the Vision Zero starter and planning sessions.

In 2016, the Saskatoon Health Region released an Unintentional Injury Report that reported in Saskatoon and area:

- Falls are the leading cause of unintentional injury in Saskatoon and area.
- Vehicles involved in over 80% of pedestrian injury hospitalizations.
- Transportation-related injury is the second leading cause of hospitalization in Saskatchewan.
- Approximately half of all transport-related deaths, hospital discharges and emergency department visits are due to motor vehicle collisions.
- Equity is a major concern especially in motor vehicle collision and pedestrian injuries as those in the lowest income quintile have the highest hospitalization rates.
- In 2012, the difference in rates of motor vehicle injury hospitalizations between those living in the lowest and highest income levels was greatest in Saskatchewan compared to any other province in Canada.

The aforementioned report includes recommendations from the Chief Medical Health Officer. Along with the recommendation to address community environments to decrease risk of injuries due to falls, it was recommended that municipalities, including the City of Saskatoon, should adopt a Vision Zero goal for deaths and serious injuries among all transportation modes.

On behalf of the Medical Health Officers and our practitioners involved in this work, we are excited to partner further with the City of Saskatoon on the Vision Zero initiative. Creating a transportation system that is safe for all modes of transportation as well as all ages, abilities and income levels is imperative. A process such as Vision Zero that integrates policy-level interventions, infrastructure, enforcement and education are part of a comprehensive strategy to accomplish this goal.

Sincerely,

Cordell Neudorf
B.Sc., M.D., M.H.Sc., FRCPC
Lead Medical Health Officer

Vision Zero Jurisdictional Review

Vision Zero is fairly new to Canada. The City of Edmonton was the first to launch this initiative in 2015. The measures implemented by Canadian municipalities vary since they are tailored for each community and implementation location.

The following table outlines measures used by some Vision Zero municipalities in Canada as an example of implementation measures that could be considered for Saskatoon. This is not an extensive list of measures that are implemented; these municipalities may be implementing additional programs not captured in this table. The Saskatoon specific measures would be identified once the data is compiled and hot spots/trends are identified.

Item	Edmonton	Toronto	Calgary	Vancouver	Montreal
Senior Safety Zones		●			
Pedestrian Crossing Devices	●	●	●	●	●
Speed Display Boards	●	●	●		
Red-light Automated Enforcement	●	●	●		
Speed-on-green Automated Enforcement	●		●		
Radar Speed Enforcement		●	●		●
Right Turn on Red	●		●		
Protected Left Turns	●		●	●	●
Protected Bike Lanes	●	●	●		●
School Zones	●	●	●	●	●
Playground Zones	●		●		
Traffic Calming	●	●	●	●	●
Intersection Geometric Changes	●	●	●	●	●
LED Lighting				●	
Countdown Timers	●	●	●	●	●
Reduced Speed Limits		●			●
Pedestrian Lead Traffic Signal Interval		●	●	●	
Education Initiatives	●	●	●	●	●
Engagement	●		●		

Vision Zero – Draft Project Charter

Project Definition

Vision Zero is a road safety approach with the goal of zero traffic related fatalities or severe injuries. Canada adopted Vision Zero as a federal strategy in January 2016.

Vision Zero is based on the simple fact that we are human and make mistakes. The road system needs to keep us moving. But it must also be designed to protect us at every turn to prevent tragedy when human errors are made.

Vision Zero	Traditional thinking
• Focus on fatalities and serious injuries	• Focus on overall collision rates
• Flaws in the transportation system identified as cause of collisions	• Human error identified as cause of collisions
• Focus on perfecting road system for imperfect human behavior	• Focus on perfecting human behavior on an imperfect road system
• Safety initiatives reduce societal costs	• Safety initiatives are costly

Vision Zero Principles

- No loss of life is acceptable
- Traffic fatalities and serious injuries are preventable
- We all make mistakes
- We are physically vulnerable when involved in motor vehicle collisions
- Eliminating fatalities and serious injuries is a shared responsibility between road users and those who design and maintain our roadways
- We have a right to a safe transportation system

Vision Statement

Saskatoon will become a community with zero transportation related deaths or severe injuries.

Purpose

To provide a safe and equitable transportation network for all road users. To eliminate the incidence of fatal and severe injury collisions.

Scope/Schedule

1. Vision Zero Framework (September 2018 – November 2018)
    a. Steering Committee mandate, scope and responsibilities
    b. Advisory Committee to Standing Policy Committee for Transportation
2. Data Collection (October 2018 – March 2019)
    a. Review existing collision data from all available sources (e.g. SGI collision information, Saskatchewan Health Authority records)
    b. Identify data gaps (e.g. duplicate records, minor versus severe injury classification, coding the collision location)
    c. Compile collision data
    d. Identify hot spots / trends
3. Program Identification
   Identify programs to reduce fatal and severe injury collisions incorporating the following E's of traffic safety:
    a. Engineering
    b. Enforcement
    c. Education
    d. Engagement
    e. Equity
    f. Environment
    g. Leadership
4. Evaluation and Monitoring Strategy
5. Vision Zero Action Plan
6. Vision Zero Declaration and Launch for Saskatoon

Deliverables

1. Vision Zero Action Plan Report to SPC Transportation Committee and Council

Meetings

1. Steering Committee meetings
2. Stakeholder meetings
3. Meeting frequency will vary depending on phase of roll out and effort required.

Project Team

The Project Manager for the Vision Zero initiative will be identified as part of the project. Nathalie Baudais, Transportation Engineer with the City's Transportation Division, will be the interim Project Manager.

Steering Committee

It is anticipate that the Steering Committee would include the following:

Agency	Name
Greater Saskatoon Catholic Schools	Laurier Langlois, Corporate Services Manager
Saskatoon Public School Division	Jillian Flath, Safe and Caring Schools Consultant
Saskatchewan Health Authority	Cora Janzen, Health Promotion
Saskatoon City Council	Bev Dubois
Saskatoon Police Service	Patrick Barbar, Traffic Unit Staff Sergeant
Transportation & Utilities Department	David LeBoutillier, Acting Engineer Manager
Transportation & Utilities Department	Nathalie Baudais, Transportation Engineer

Stakeholders

The following Stakeholders will be invited to participate in the development of the Vision Zero initiative and provide input to the Steering Committee:

Agency	Name
Saskatoon Health Region	Kaitlyn Kwasney
Saskatoon Fire Department	
Medavie Health Services West	Bill Weeks
Transportation & Utilities	Todd Harms, Detour Operations Superintendent
Saskatoon Transit	Jim McDonald
SGI	Shannon Ell

Budget

The estimated costs for Vision Zero are outlined below:

Resource	Task	Budget
New FTE Program Manager	Develop project charter, coordinate and chair steering group meetings, oversee the program, etc.	$100,000
New FTE Data Analyst	Compile and analyze existing collision data (i.e. SGI, Health Authority) Identify data gaps Identify hot spots / trends	$ 80,000
Graphics	Tailor Vision Zero graphics for Saskatoon (logo, brochure, graphs, etc.)	$ 40,000
Communication	Develop public education campaign strategy and media messaging	$ 30,000
	TOTAL	$250,000

Risks

Potential risks to the Vision Zero initiative include:

- Lack of provincial support
- Lack of community buy-in
- Lack of funding
- Potential change in Council members at the next election
- Time and priorities of other responsibilities for Steering Committee members
- Infrastructure and data collection challenges
- Limited traffic safety toolkit currently available for use under existing policies

Project Acceptance

Through signature below, the following team members approve this Project Charter and demonstrate their commitment to delivering this project.

Nathalie Baudais, Interim Project Manager	Date
Laurier Langlois, Steering Committee Member	Date
Jillian Flath, Steering Committee Member	Date
Cora Janzen, Steering Committee Member	Date
Bev Dubois, Steering Committee Member	Date
Patrick Barbar, Steering Committee Member	Date
David LeBoutillier, Steering Committee Member	Date

Traffic Calming Policy

Recommendation
That the Standing Policy Committee for Transportation recommend to City Council:
That the proposed Traffic Calming Policy be approved.

Topic and Purpose
The purpose of this report is to request City Council approval of a newly proposed Traffic Calming Policy to replace the existing Neighbourhood Traffic Review (NTR) program upon completion.

Report Highlights
1. The NTR program is expected to wrap up in 2020 after completing all existing residential and industrial neighbourhoods.
2. Traffic calming needs of neighbourhoods that have completed a NTR will be addressed through a citizen-driven process, organized similarly to the Residential Parking Permit program.
3. A proposed Traffic Calming Policy has been drafted as a means to establish a process to address resident concerns with speeding and shortcutting that have not already been addressed through a completed NTR.

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 the NTR Program which includes a strategy to review concerns on a neighbourhood-wide basis by engaging the community and stakeholders in identifying specific traffic issues, and developing joint recommendations that address the issues.

Report
The NTR program was designed to involve the community in identifying traffic problems and in selecting solutions. The traffic review and analysis has currently been completed within the NTR program only addresses locations of concern brought forward by the community.

The NTR program is anticipated to continue until 2020 to complete the residential and industrial neighbourhoods (40 completed, 10 underway, and 22 to be completed).

Residents' traffic concerns regarding speeding and shortcutting are typically reviewed and addressed during the NTR for that neighbourhood.

The Administration has received several requests for traffic calming in neighbourhoods that have completed a NTR previously. This may be due to the length of time that has passed since the NTR was completed or due to changes in the neighbourhood that could have affected the traffic patterns since the NTR was completed.

This Traffic Calming Policy (Attachment 1) has been developed to provide residents with an ongoing mechanism to address neighbourhood traffic safety concerns once a NTR is complete.

A Traffic Calming Guide (Attachment 2) has been prepared to educate residents on the different measures available and includes estimated costs and information on how to request traffic calming, and the process to be followed. This Guide will replace the Neighbourhood Traffic Management Guidelines and Tools document.

A petition mechanism, similar to the existing Residential Parking Permit program, will form the basis for traffic calming requests.

There are several municipalities that use similar processes to address traffic safety concerns and requests for traffic calming. The Administration has completed a review of other municipalities' approaches to traffic calming, summarized in Attachment 3.

The proposed traffic calming process includes the following steps:
Phase 1: Application & Data Collection
1. Traffic calming request
2. Preliminary screening
3. Community support assessment

Phase 2: Traffic Calming Plan
1. Point assessment
2. Develop traffic calming concept
3. Community ballot

Phase 3: Final Design & Approval
1. Traffic calming design
2. Rank project for budget deliberation

Phase 4: Implementation & Evaluation
1. Funding decision
2. Implementation
3. Evaluation

Options to the Recommendation

City Council could direct the Administration to continue with the existing NTR process to complete a second round of NTRs for each neighbourhood. This would need to begin in 2021 and would require an additional 9 to10 years to complete.

This option is not recommended as the majority of resources would continue to be allocated to neighbourhood concerns on local and collector roads with less resources to focus on traffic safety issues at a city-wide level.

City Council could direct the Administration to complete the NTR program before adopting the Traffic Calming Policy. While this approach would allow staff resources to remain focused on completing the remaining neighbourhood reviews, it would delay addressing outstanding speeding and shortcutting concerns in neighbourhoods with a completed NTR and therefore is not recommended.

Public and/or Stakeholder Involvement

The public and stakeholders will continue to raise traffic concerns with speeding and shortcutting by way of various communication methods available: calls, emails, community meetings, neighbourhood traffic reviews, etc.

Communication Plan

If approved, this policy will be posted to the City website, and shared with key internal City agencies that handle special applications and liaise with the Community Associations.

In addition, an information sheet summarizing the guide will be made available to inquiring residents and in the customer service area of City Hall, and a news release and/or news conference may held at the time of the policy's introduction.

Policy Implications

City Council approval is sought for the establishment of the new Traffic Calming Policy.

Financial Implications

The traffic calming measures identified through the revised process are expected to be similar in cost to those implemented through the existing NTR program. However there should be fewer locations requiring installation after completion of the NTR program and conversion of the temporary measures to permanent installation city-wide. Locations for implementation will be prioritized annually and are expected to be funded through Capital Project #1504 – Neighbourhood Traffic Review Permanent Installations.

Environmental Implications

Traffic calming measures typically have positive greenhouse gas emissions implications as they tend to reduce total vehicle mileage in an area by reducing speeds and improving conditions for walking, cycling and transit use.

Other Considerations/Implications

There are no privacy or CPTED considerations or implications.

Due Date for Follow-up and/or Project Completion

A priority list of traffic calming measures to be implemented will be submitted annually for Budget Deliberations.

Public Notice

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

Attachments

1. Traffic Calming Policy
2. Traffic Calming Guide
3. Jurisdictional Review of Traffic Calming Programs

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 - Traffic Calming Policy.docx

CITY OF SASKATOON
COUNCIL POLICY

NUMBER

POLICY TITLE *Traffic Calming Policy*	**ADOPTED BY:**	**EFFECTIVE DATE**
ORIGIN/AUTHORITY **xxx**	**CITY FILE NO.** TS 6350-1	**PAGE NUMBER** 1 of 2

1. PURPOSE

To establish a uniform and consistent approach for the initiation, assessment, public engagement, implementation and evaluation of Traffic Calming requests that address vehicular speeding and excessive vehicle volumes within the City of Saskatoon.

2. DEFINITIONS

For the purposes of this policy, the traffic calming terms and definitions are identified in the City of Saskatoon Traffic Calming Guide.

3. POLICY

Traffic Calming will be used to enhance the safety and functionality of the City's roadways, while ensuring access to properties and accommodating all modes of travel in a safe and appropriately designed environment.

3.1 Principles - The guiding principles for Traffic Calming are:

3.1.1 Identify the actual conditions: Traffic Calming is applicable upon confirmation of identifiable neighbourhood needs; through evaluation of recorded data for roadway operations (speed / volume / short-cutting) against required criteria and community support.

3.1.2 Quantify the problem: Prioritization of implementation of Traffic Calming shall be evidence based through data collection and survey results used with a Priority / Severity Point System.

3.1.3 Involve the Community: Public engagement and community support is a requirement throughout multiple stages of the process.

3.1.4 Consider the source of the problem: Most motorists will not shortcut through a neighbourhood unless there is a reason to and the reason is often related to congestion on adjacent major roads. Improvements to the major road network should be considered first, as these might prevent or reduce the need for traffic measures on the neighbourhood streets.

3.1.5 Apply traffic calming measures on an area-wide basis: Potential effects on adjacent streets must be considered. If local effects are not considered in advance, a traffic calming solution might simply create or exacerbate problems elsewhere in the community.

3.1.6 Avoid access restrictions: Neighbourhood traffic management measures that restrict access or egress should be carefully considered and should be accompanied by public consultation. Often there are as many residents opposed to these types of measures as those in support. Measures which restrict access might also divert traffic to other streets, creating or exacerbating problems elsewhere in the neighbourhood.

3.1.7 Use self-enforcing measures: Measures that maintain a 24-hour presence and do not require police enforcement to be effective are preferable.

3.1.8 Accommodate and consider all users: Mitigation measures shall avoid restricting access and ensure continued accommodation of active modes of transportation, as well as service and emergency vehicles.

3.1.9 Consider all services: Neighbourhood traffic management measures should not impede emergency, transit, and maintenance service access unless alternate measures are agreed upon. Monitor and follow-up: Neighbourhoods shall be monitored for effectiveness of implemented measures (against representative "pre" and "post" data), and residents communicated with to evaluate applied traffic calming actions as well as the process itself. Appropriate actions shall be taken to update and improve field operations and the guidelines.

3.2 Initiation - Traffic calming reviews may be initiated by residents of a neighbourhood, City Council or Administration; however the actions for evaluation and criteria used to continue through the process shall be consistent and as per identified requirements of the Traffic Calming Guide.

3.3 Eligibility - Traffic calming may present solutions to address neighbourhood level concerns surrounding motor vehicle speeds or volumes of vehicles shortcutting through communities. Eligibility of roadways for the Traffic Calming process shall be identified through Preliminary Screening requirements.

3.4 Applicability - Traffic calming devices or techniques shall align with best practices identified within the latest edition of the Transportation Association of Canada (TAC) Canadian Guide to Neighbourhood Traffic Calming.

3.5 Process - The traffic calming process outlined in the Traffic Calming Guide will be followed.

4. RESPONSIBILITIES

4.1 General Manager, Transportation & Utilities Department

a) Receive and respond to traffic-related concerns and requests for traffic calming.

b) Establish a system that outlines a process and criteria for a Traffic Calming Program (Traffic Calming Guide).

c) Collect and manage traffic data.

d) Identify potential traffic calming opportunities in new/planned developments and coordinate with development for implementation through design standards.

e) Review and evaluate Traffic Impact Assessments (TIAs) of new/planned development to identify potential transportation impacts to existing communities.

f) Update and maintain city guidelines or standards involving traffic calming.

g) Complete and present to Council, funding requests associated with traffic calming projects.

4.2 Standing Policy Committee on Transportation

a) Recommend to City Council any changes to this policy required to reflect changing priorities.

4.3 City Council

a) Review and approve amendments to this policy.

b) Review, as part of the annual budget process, funding requests associated with traffic calming projects.

Traffic Calming Guide

City of Saskatoon 2018

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2 INTRODUCTION

The City of Saskatoon is responsible for ensuring roadways serve the needs of all road users in a safe and efficient manner. Traffic calming presents an opportunity to reduce negative impacts of motor vehicles and improve safety for all road users.

The purpose of this guide is to provide an overview of what traffic calming is, when and where it can be used, and what the positive and negative impacts of applying traffic calming measures can be. It also contains a description of the different traffic calming measures available in the City, their estimated costs, information on how to request traffic calming, and the process which must be followed.

By following this process, the City shall ensure a consistent action plan is performed that results in necessary customized mitigation measures to individual neighbourhoods and appropriate evaluation is performed prior to, and following implementation of calming measures.

2.1 What is Traffic Calming?

Traffic calming is the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for all road users including non-motorized street users. Traffic calming measures are a means to address traffic and safety issues such as speeding and shortcutting. Physical features such as speed humps, curb extensions and pinch points are often associated with traffic calming measures.

2.2 Why use Traffic Calming?

Traffic calming is the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for all road users including non-motorized street users. Traffic calming measures are a means to address traffic and safety issues such as speeding and shortcutting. Physical features such as speed humps, curb extensions and pinch points are often associated with traffic calming measures.

2.3 Why is a Traffic Calming Policy Needed?

When traffic calming measures are applied without a governing policy, new problems may be created just as old problems are solved. Examples of these potential problems include:

- Traffic may divert into a different neighbourhood;
- Improperly designed measures may need to be removed shortly after installation;
- Minor problems may be addressed, while a major problem discovered later has no funding available for mitigation.

The City has developed a Traffic Calming Policy to:

- Provide a standardized process to address concerns regarding speeding and safety concerns;
- Provide this process in a manner that is fair, reasonable, consistent and cost-effective;
- Provide a proactive tool to address concerns before they become complaints;
- Reduce staff workload and duplication of effort when responding to requests;
- Encourage public involvement in the traffic calming activities; and
- Avoid the above mistakes and inconsistencies.

2.4 Resources

2.4.1 Canadian Guide to Traffic Calming

The Canadian Guide to Neighbourhood Traffic Calming is a document developed jointly by the Transportation Association of Canada and the Institute of Transportation Engineers. Since the first edition (December 1998), municipalities and consultants throughout Canada and abroad have used the Guide for traffic calming guidance and application. From the foreword of the Guide, its purpose is to:

- Assist practitioners;
- Achieve an appropriate level of national standardization;
- Maximize safety; and
- Minimize liability.

To that end, the Guide provides a detailed introduction to traffic calming, discusses community involvement, the applicability and effectiveness of traffic calming, and offers technical guidelines.

Many municipalities have adapted its guidelines to suit their own traffic calming needs and goals. The City of Saskatoon shall adopt the traffic calming guidelines contained within the Guide, except where it differs from this document and in specific, case-by-case installations where local conditions dictate.

3 TRAFFIC CALMING IN SASKATOON

3.1 Goals and Objectives

The overall objectives of the Traffic Calming Policy are to maintain the livability and environmental quality of our neighbourhoods while ensuring the safe, efficient and economical movement of persons and goods.

The objective of the policy is to restore traffic calmed roads to their intended functionality and restore motorist behaviour to acceptable and appropriate levels of compliance within the system.

Specific objectives include:

- Slower vehicular speeds;
- Fewer, less severe collisions;
- Increased safety for all road users, particularly pedestrians and cyclists;
- Reduced reliance on police enforcement;
- Enhanced roadway environment and streetscape;
- Improved access to all modes of transportation; and
- Reduced ‘cut-through’ or non-local traffic for local streets.

Collectively, these factors determine how ‘liveable’ a street or community is.

3.2 Principles

The following guiding principles form the basis for traffic calming and will be taken into consideration when investigating, selecting, and implementing appropriate measures. These principles provide overall direction and guidance in the application of traffic calming measures and applying them will maximize the effectiveness of the installed measures and help build community support by ensuring their needs are met.

1. **Identify the actual conditions**: Traffic Calming is applicable upon confirmation of identifiable neighbourhood needs: evaluation of recorded data for roadway operations (speed / volume / short-cutting) against required criteria and community support.

2. **Quantify the real problem**: Prioritization of the implementation of Traffic Calming shall be evidence based through data collection and survey results. A Priority / Severity Point System is established in this Guide.

3. **Involve the Community**: Public engagement and community support is a requirement throughout multiple stages of the process.

4. **Consider the source of the problem**: Most motorists will not shortcut through a neighbourhood unless there is a reason to, and the reason is often related to

congestion on adjacent major roads. Improvements to the major road network should be considered first, as these might prevent or reduce the need for traffic measures on the neighbourhood streets.

5. **Apply traffic calming measures on an area-wide basis**: Potential effects on adjacent streets must be considered. If local effects are not considered in advance, a traffic calming solution might simply create or exacerbate problems elsewhere in the community.

6. **Start with the least restrictive measures**: Neighbourhood traffic management measures that restrict access or egress should be carefully considered and should be accompanied by public consultation. Measures which restrict access might also divert traffic to other streets, creating or exacerbating problems elsewhere in the neighbourhood.

7. **Use self-enforcing measures**: Measures that maintain a 24-hour presence and do not require police enforcement to be effective are preferable.

8. **Accommodate and consider all users**: Mitigation measures shall avoid restricting access and ensure continued accommodation of active modes of transportation, as well as service and emergency vehicles.

9. **Consider all services**: Neighbourhood traffic management measures should not impede emergency, transit, and maintenance service access unless alternate measures are agreed upon.

10. **Monitor and follow-up:** Neighbourhoods shall be monitored for effectiveness of implemented measures (against representative “pre” and “post” data), and resident feedback incorporated to evaluate applied traffic calming actions as well as the process itself. Appropriate actions shall be taken to update and improve field operations and the guidelines.

3.3 Application

The focus of traffic calming is to address traffic and safety problems on City streets. This means, for example, speeding problems, short-cutting traffic through neighbourhood streets, and pedestrian and cyclist safety issues. Although the primary focus of traffic calming is residential streets, traffic calming can be used on almost all types of streets.

There are other uses of traffic calming measures which are not encompassed by this policy, including:

- **New developments:** Developers sometimes wish to include traffic calming devices in new developments, either as a means of preventing traffic problems from occurring in future, to mitigate known impacts of development, or as an aesthetic enhancement. Examples include traffic circles, roundabouts, curb

extensions and raised crosswalks. The use of traffic calming devices in new developments may be appropriate, provided that they would not unduly affect access for emergency vehicles, transit buses, trucks and other vehicles, and would not create safety concerns.

- **Future problems:** Traffic calming measures should generally only be used for existing traffic problems. Using traffic calming to address potential future problems should only be considered as part of an area-wide traffic calming plan as a means of avoiding problems which might be created by traffic diverted from other streets as a result of traffic calming measures implemented on those streets. In some cases, traffic calming measures which have no significant negative implications - such as curb extensions – can be used to prevent future problems.

- **Project-related works:** Traffic issues sometimes arise as a result of road construction and other transportation projects. Traffic calming measures may be used as part of these projects, during construction to mitigate impacts of detoured traffic or congestion.

Application limitations exist, as follows:

- **Grade:** Traffic calming shall not be permitted if the grade of the subject segment of roadway is equal to or greater than 5%, due to the fact that traffic calming devices implemented on steep grades may cause safety concerns, particularly during winter.

- **Transit and Emergency Routes:** Traffic calming devices shall be permitted on local roads or collectors that serve as transit routes or emergency routes. However, since vertical traffic calming measures such as speed humps and raised crosswalks increase emergency vehicle response times, create uncomfortable rides for transit passengers and potentially increase the maintenance required to keep these vehicles operational, such devices shall be limited to horizontal measures and signing only.

- **Cross Section:** Roads with rural cross-sections within urbanized areas should be given the same traffic calming consideration as those with urban cross-sections; however, the available options are limited due to the absence of a curb and gutter system. Horizontal deflection treatments such as median islands, traffic circles and lane narrowing shall be considered appropriate for all rural cross-sections, while vertical traffic calming measures may be appropriate on a case-by-case basis and in accordance with the remainder of the traffic policy.

- **Posted Speed Limit:** Traffic calming shall only be applied to roads with posted speeds of 50 km/h or below. Roads posted at 60 km/h or greater may be candidates for greater police enforcement or changes to design in order to reduce speeding or collision.

- **Arterial Roads:** This traffic calming policy is targeted for Local Roads and Collectors. The logic behind the decision to limit the application of the traffic calming policy is based on the function of higher order arterials to move large volumes of people and goods and the understanding that restrictive measures taken on Arterials are likely to shift traffic onto lower-order roads and into neighbourhoods. If there are speeding issues that can be addressed with appropriate traffic calming measures, these will be considered outside of this process.

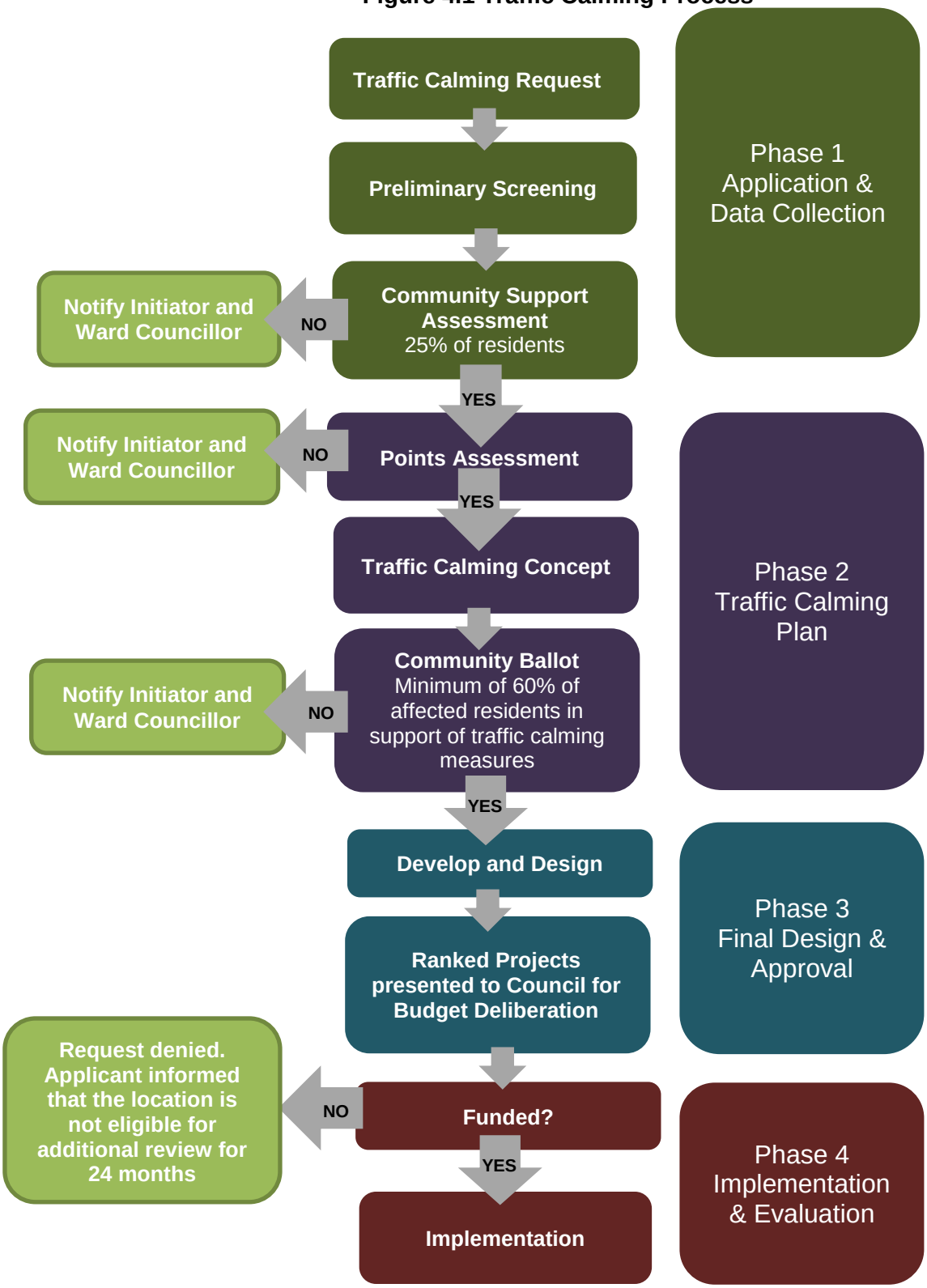
4 TRAFFIC CALMING PROCESS

The following sections describe the four-phase process for the implementation of traffic calming measures on City roads, beginning with a request for traffic calming and ending with design, approval, implementation and evaluation.

Phase 1: Application and Data Collection
Phase 2: Traffic Calming Plan
Phase 3: Final Design and Approval
Phase 4: Implementation and Evaluation

Figure 4.1 outlines an overview of the study process.

Figure 4.1 Traffic Calming Process



4.1 Phase 1 – Application and Data Collection

4.1.1 Traffic Calming Request

Implementation of the Neighbourhood Traffic Calming Policy and actions associated with the Process and Guidelines may be initiated by two different methods, Neighourhood-Driven or City-Driven.

Neighbourhood-Driven

A neighbourhood-driven traffic calming process is ideally suited to:

- Residential streets within existing, established neighbourhoods
- Local collector roadways within a residential neighbourhood

In neighbourhood-driven initiatives, property owners are encouraged to contact the City to initiate a review of their roadway(s) for eligibility within the City's Traffic Calming Program.

City-driven traffic

A city-driven traffic calming process is ideally suited to:

- Local / collector roadways where there may be concerns identified via traffic data analysis (such as motor vehicle collision information or annual traffic count / speed program data).
- Local / collector roadways that may be impacted by proposed new development.

In city-driven initiatives, Council or Administration may initiate a review of roadway(s) for eligibility within the City's Traffic Calming Program. All steps following the initiation phases of the program shall be followed.

4.1.2 Preliminary Screening

Investigation into received public concerns or requests shall take into account preliminary screening information, inclusive of the following criteria:

- Issues are located on a defined local or collector roadway within the City.
- Traffic patterns are stable, and are not under potential temporary impacts such as adjacent construction or special events.
- Traffic concerns are related to one or more of the following:
    - Vehicle speeds are exceeding a specified threshold above the posted speed limit;
    - Vehicles are short-cutting on residential streets in lieu of using the existing collector or arterial system, where a viable alternate route exists;

- Vehicle volumes on a residential or collector street are exceeding expected thresholds for such a roadway; and
- Pedestrian crossing visibility (for both pedestrian recognition of vehicles and driver's recognition of pedestrians).

Warrants

To comply with the Policy, the following warrants / technical criteria should be met. It is recognized that there may be roads that only meet one of the criteria for speed, volume and non-local traffic, and therefore do not qualify for traffic calming under the formal warrant process. For these roads, it may be appropriate to implement other solutions, such as changes to signing or additional speed enforcement. Changes to the road design outside of the traffic calming process may also be warranted in some situations.

Table 4-1 Safety Warrant Requirements

Safety Warrant Requirements		
All of the following criteria must be met		
1.1 Grade	Traffic calming measures may be considered at or near locations where the road grade is less than 8%.	Yes/No
1.2 Sidewalks	On streets where traffic calming is proposed, there must be continuous sidewalks on at least one side of the street. **OR** On streets where there are no sidewalks, the installation of sidewalk on at least one side of the street must have first been considered.	Yes/No
	Warrant Met?	Yes/No

Table 4-2 Technical Warrant Requirements for Local Roads

Technical Warrant Requirements – Local Road		
All of the following criteria must be met		
2.1 Grade	< 8%	Yes/No
2.2 Volume	> 1,000 vehicles per day	Yes/No
2.3 Speed	≥ posted speed limit + 5 km/h	Yes/No
2.4 Non-Local Traffic	≥ 20%	
	Warrant Met?	Yes/No

Table 4-3 Technical Warrant Requirements for Collector Roads

Technical Warrant Requirements – Collector Road		
All of the following criteria must be met		
2.1 Grade	< 8%	Yes/No
2.2 Volume	> 5,000 vehicles per day	Yes/No
2.3 Speed	≥ posted speed limit + 5 km/h	Yes/No
	Warrant Met?	Yes/No

4.1.3 Community Support Assessment

It is important to determine whether there is a minimum level of support within the community for action to address the issue. This helps to avoid situations where residents might consider a solution more of a problem than the issue it was intended to address. It also helps to avoid City staff spending time and funds to respond to a reported issue that is only considered a problem by a small number of people.

At this stage in addressing reported traffic calming issues, it is not necessary to demonstrate majority support within the community for a traffic calming solution. Rather, it is only necessary to demonstrate that a sufficient number of people within the community who are affected by the reported issue and who would be affected by the solution consider that there is a need to examine the issue further. Consequently, a sufficient level of community support is required.

Residents would be responsible for documenting community support, rather than City staff. The simplest means of indicating community support is a petition which lists the addresses of all affected households, and includes space for signatures of residents. An example of such a form is included in the Appendix. Residents would then contact persons in affected households to obtain these signatures.

Affected households are typically those within the block(s) of the street(s) where problems are reported, as well as all households within one block of the block(s) where problems are reported. The Administration will guide the applicant on the affected study area for their request.

For the traffic calming process to continue, a minimum of twenty-five (25%) of property owners within the impact area must indicate their support for further study.

4.2 Phase 2 – Traffic Calming Plan

4.2.1 Points Assessment

Sites that pass the initial screening are then ranked against each other in the next step of the process. The evaluation, scoring and ranking process incorporates 7 criteria with appropriate weighting applied to each. Each eligible traffic calming request is awarded points based on its score for each factor, with a maximum score of 100 points.

Table 4-4 Points Allocation for Assessment for Roadway Operations Factors

Roadway Operations Factors	Measure Used	Point Criteria	Maximum Points
Collision History	• Collision frequency over 3 years • Severity of collisions that occurred	• 1 point per collision occurrence resulting in property damage only • 2 points for each collision in the past three years involving vulnerable road users	10
Traffic Volumes	Average Daily Traffic (ADT)	• Local Roadways: 1 points for every 100 vehicles over 1,000 ADT • Collector Roadways: 1 point for every 200 vehicles above 5,000 ADT	25
Traffic Speeds	85th Percentile Speed	• 1 point for every km/h above posted speed. Additional 5 points if speed is > 15 km/h above the posted speed.	20
Short-Cutting Traffic	% of Total Vehicles	• 2 points for every 10% or more of short-cutting vehicles in excess of ADT	10

Table 4-5 Points Allocation for Assessment for Neighbourhood Factors

Neighbourhood Factors	Measure Used	Point Criteria	Maximum Points
Sidewalks	Presence of sidewalks	• 10 points for no sidewalks with evidence of pedestrian activity, 5 points for sidewalks on only one side	10
Pedestrian Generators	Pedestrian Generators	• 5 points for each nearby pedestrian generator such as a school, playground, community centre, libraries, retail centres, etc.	15
Cycling Concerns	Presence of All Ages and Abilities (AAA) cycling route	• 5 points if the road is an existing or planned cycle route	5

4.2.2 Traffic Calming Concept

Traffic calming plan(s) shall be created for locations moving forward within the year for the traffic calming program – the location(s) identified as ranking highest in severity and priority.

The final score awarded from the warrant evaluation will be applied to a 'toolbox' of traffic calming measures. Higher-ranking requests may be flagged for physical traffic calming measures, while lower-ranking requests would be restricted to less intrusive forms such as signing. This method is advantageous in that it does not dismiss the lower ranking request that may be accommodated through low cost and low maintenance traffic calming features.

Given that each road and surrounding neighbourhood is unique and presents individual characteristics, the toolbox approach of identifying traffic calming measures can be used as a guideline for the various types of traffic calming measures that may be applied to a particular case.

Each Traffic Calming Plan shall:

- Use traffic calming measures identified in the Canadian Guide to Traffic Calming.
- Be aligned with a summary of received resident / stakeholder concerns and traffic data collected and identify how the proposed measure addresses noted issues.

- Be reviewed fully for all expected impacts of the Traffic Calming Plan, inclusive of traffic routing (internal to the community and surrounding network), service level impacts (Emergency Medical Services / Fire Department / Transit / Roadways & Operations), and expected travel delay to residents.
- Identify high level construction cost estimates.

An Open House consultation may be conducted during the plan development to ensure that the traffic calming measures included address the community's concerns. The need for an Open House consultation will depend on the complexity of the issues to be addressed.

4.2.3 Community Ballot

The objective of the community ballot is to determine the level of support for the traffic calming concept and to provide an opportunity for the most directly affected residents to oppose any modifications to the road. A response rate of 50% + 1 ballots must be received with a minimum 60% of all affected residents in favour of the possible traffic calming for the request to proceed.

4.3 Phase 3 – Final Design and Approval

4.3.1 Develop and Design

If the initial public support requirement is satisfied, City staff or a consultant shall then prepare a preliminary design receiving input from City departments, including emergency, fire and transit. This plan shall be sent mailed to the affected residents for final comment and support.

For successful mitigation plans, City staff, or consultant representation, will prepare cost estimates and detailed construction drawings, and follow other City policies regarding construction activities.

4.3.2 Project Ranking

Projects will be ranked according to the points assessment (as outlined above).

4.4 Phase 4 – Implementation and Evaluation

4.4.1 Funding

The complete list of ranked projects will be sent to Council for budget deliberation. Funding of a traffic calming plan will be considered as final Council approval and standard City processes for tendering and construction shall commence, followed by evaluation and monitoring of the plan.

4.4.2 Implementation

Prior to full and permanent construction, temporary measures may be deployed within the neighbourhood for a minimum period of 1 year (maximum period of 2 years) to assess the effectiveness of the proposed traffic calming plan and to allow residents an opportunity to adjust to the new roadway conditions. Not all calming measures are applicable to being implemented as temporary traffic calming measures.

For successful mitigation plans, detailed cost estimates and construction drawings will be prepared, and construction activities will proceed following City policies.

If the traffic calming request is rejected at any point in the process, the applicants and affected residents shall be notified in writing, and traffic calming shall be excluded from additional review for 24 months. Requests may be rejected on the basis of:

- Failure to meet the minimum screening criteria;
- Lack of public support; or
- Lack of Council support for funding.

In the event that a request fails to meet the minimum screening criteria, it shall be eligible for further consideration within 24 months only if external conditions are such that traffic operations change significantly for the requested location. This would most likely occur due to development near the requested location.

4.4.3 Evaluation

In accordance with traffic calming communication strategy, once constructed, a minimum period of 6 months should transpire before a study is conducted within the neighbourhood to quantitatively measure vehicle speeds, volumes and cut-through vehicles and qualitatively solicit feedback from property owners on the effectiveness of the traffic calming plan, any observed changes, etc.

The City shall monitor the impacts of the implementation of the traffic calming measures for a minimum of 2 years (following the program data collection created for the specific neighbourhood).

Quantitative data shall be collected in a manner consistent with the base conditions collected, including locations for data collection. Additional data may be collected at specific measures to quantify the effectiveness of the specific device. The data collected will be compared to the data from prior to project initialization to evaluate the effectiveness of the overall traffic calming plan. The results will be compared to established metrics to determine if the plan achieved the intended vehicle speed and/or volume goals and objectives. If the plan does not operate as expected, modifications may be applied. If the proposed modifications are deemed significant, the City may host another workshop with stakeholders for further discussion.

4.4.4 Traffic Calming Removal

An adjustment period is necessary for drivers to adapt to the changes along the community roadways following the implementation of a Traffic Calming Plan.

Following evaluation (minimum 6 months lapse prior to the implementation of a Traffic Calming Plan), the City may identify issues or safety concerns from the implementation of traffic calming measures, or a negative impact that was created that cannot be corrected.

- Safety issues shall take priority and will be addressed appropriately, inclusive of potential removal or adjustment of the mitigation measure.
- Non-safety issues may be left and monitored for a further time period (minimum period of 1 year) to further evaluate potential traffic changes or driver behaviour changes.

In some instances, property owners may wish to remove the traffic calming measures from their community due to a variety of concerns. If a safety concern should occur, the City will evaluate the condition and modify / remove the traffic calming strategy as necessary.

For non-safety related traffic calming removal requests, a minimum installation period of 1 year will be required before the plan will be reviewed for removal. To initiate the review of traffic calming measures for removal the resident / stakeholder must submit an Application for Existing Traffic Calming Device Review / Removal Form. Following the receipt of the application, Administration shall contact the applicant and discuss concerns or issues to ensure full details are obtained to begin further field review.

If the resident / stakeholder wishes to pursue removal, a community ballot will be circulated to determine the level of support for the removal of the traffic calming measures. A response rate of 50% + 1 ballots must be received with a minimum 60% of all affected residents in favour of the removal of the traffic calming measure.

Upon removal, no new traffic calming requests from the community for those roadways will be processed for a minimum of 2 years unless a safety concern is identified by the City.

4.5 Community Input

Neighbourhood and resident responsibilities include:

- Identify traffic related issues in the neighbourhood;
- Respond to all surveys;
- Attend public meetings for traffic calming studies;
- Approve or reject the development of a traffic calming plan;

- Select from the options presented by staff, traffic calming concepts which address the identified issues; and
- Approve or reject the implementation of the preferred traffic calming plan.

5 COMMUNITY BASED INITIATIVES

This section is intended to address numerous initiatives which individuals and community groups can undertake as a means of addressing traffic issues. The intent of these initiatives is to help communities help themselves. Together with any action undertaken by the City, these initiatives result in a balanced response to local traffic issues.

- **Community Newsletters**: Community Associations can publish information on traffic concerns in their newsletters to encourage more appropriate driving behavior among motorists or notify a neighbourhood of planned projects that will affect local traffic patterns (construction or permanent installations).

- **Community Events**: Public meetings and community open houses involving residents and stakeholders can be an effective means of identifying traffic issues and options available to deal with problems. These discussions can also bring awareness and education to help improve driver behavior. This will assist in the traffic study process.

- **Alternative Modes of Transportation:** A wide range of initiatives can be used to reduce vehicle trips and the amount of traffic on neighbourhood streets. Some examples include:
    - Car Pooling
    - Working from at home
    - Flex time – staggering work hours to avoid peak hour traffic volumes
    - Public Transit
    - Cycling
    - Walking

5.1 Community Speed Display Board Program

The purpose of this program is to allow communities to purchase their own speed display board. The following criteria will be followed:

- Community Associations will need to submit an initial application to the City of Saskatoon to purchase the speed display board.
- The City of Saskatoon will arrange to acquire the speed display board.
- Community Association will submit written confirmation of location to install speed display board.
- The City of Saskatoon will arrange for installation.
- The speed display board is to be installed for one-year at one location.
- The community can submit another written confirmation to the city to have the speed display board relocated to another position the following year.

The following process and required timeline is outlined in Table 5-1.

Table 5-1 Speed Board Display Process

Process	Time line	Year
Initial application (one-time application)	January - December	1
Purchase of speed display board	January-March	2
Confirmation of location	January-March	2
Installation of speed display board	April-May	2
The speed display board will be located in one location for one year	May-May	2-3
Written confirmation of another location	May-May	2-3

The cycle after year 1 will continue until the community decides they no longer want to continue with the program.

Table 5-2 outlines the guidelines and reasons for these guidelines for the purpose of using speed display boards.

Table 5-2 Speed Display Boards Guidelines

Guidelines	Reasons for Guideline
The community will only be allowed to purchase one speed display board.	Doesn't conflict with recommendations for permanent speed display boards from the neighbourhood review plans.
The speed display board can only be installed at one location per year.	This reduces staff resources required to relocate signs throughout the season. .
The speed display board cannot be used as enforcement purposes.	The police are the only group who can enforce speeding.
The speed display boards are to be used only within the neighbourhood on local and collector streets.	To educate the drivers within the neighborhood.

The speed display boards can be used in school zone for education purposes only.	The police are the only group who can enforce speeding.
The speed display boards shall not conflict with any SGI or police education enforcement programs.	These programs will take priority over the community speed display program
The speed boards should be installed in locations with clear site visibility to the board. No vegetation should be blocking the view of the board.	Speed display boards are solar powered will not be effective if they do not have sufficient sunlight. Drivers need clear site visibility to see the board.

6 TRAFFIC CALMING MEASURES

This section describes the tools that will be used by the City of Saskatoon as potential traffic calming solutions within the neighbourhood. Not all tools used will be applicable to each traffic concern.

Table 6-1 Traffic Calming Measures Toolkit

	Effectiveness			Road Classification			
Measures	Speed Reduction	Volume Reduction	Safety	Local	Collector	Cost per Measure	Section
Education							
Speed Display Board	●	○	○	✓	✓	Low – Medium	
Horizontal Deflection							
Curb Extension	◐	○	○	✓	✓	Medium – High	
Median Island	◐	○	◐	✓	✓	Medium – High	
Traffic Circle	●	◐	●	✓	✓	Low – Medium	
Chokers (Pinch Points)	◐	○	○	✓	✓	Medium – High	
Curb Radius Reduction	◐	○	○	✓	✗	Low – Medium	
Chicane	●	●	●	✓	✗	Medium	
Lateral Shift	○	○	○	✓	✓	Low – Medium	
Speed Kidney	◐	○	○	✓	✗	Low – Medium	

	Effectiveness			Road Classification			
Measures	Speed Reduction	Volume Reduction	Safety	Local	Collector	Cost per Measure	Section
Vertical Deflection							
Raised Crosswalk	●	○	◐	✓	✓	Low – Medium	
Raised Intersection	●	○	◐	✓	✓	Medium – High	
Speed Cushion	●	◐	●	✓	✓	Low	
Speed Hump	●	◐	●	✓	✓	Low – Medium	
Access Restriction							
Diverter	○	●	◐	✓	✓	Low - Medium	
Right-in / Right-out	○	●	◐	✓	✓	Low - Medium	
Directional Closure	●	●	◐	✓	✓	Low – High	
Full Closure	○	●	●	✓	✓	Medium – High	
Intersection Channelization	○	◐	◐	✓	✓	Low - Medium	
Raised Median through Intersection	○	●	◐	✓	✓	Low - Medium	
Legend	● Substantial Benefits ◐ Minor Benefits ○ No Benefits or Limited Data Available						

6.1 Education

6.1.1 Speed Display Boards

Speed Display Boards are pole-mounted devices equipped with radar speed detectors and an LED display. The boards are capable of detecting the speed of an approaching vehicle and displaying it back to the driver. When these signs are combined with a regulatory speed limit sign, a clear message is sent to the driver displaying their speed.

The objective of the speed display board is to improve road safety by making drivers aware of their speed, evoking voluntary speed compliance.

Speed display boards are used as traffic calming devices in addition to or instead of physical devices such speed humps, speed cushions, or speed tables.

Speed Display Board Usages

- Used on collector roads where there are no trees or other vegetation that will restrict the operations of the speed display board.
- Used in conjunction with physical traffic calming devices.
- Typically installed where there is already an enforcement speed sign. E.g. entrance to neighbourhoods.

Advantages

- Provides awareness to driver.
- Encourages speed compliance
- Portable mounting method allows for exposure at numerous locations citywide.

Disadvantages

- Not an enforcement tool.
- Less effective on multi-lane, high volume roadways.

6.2 Horizontal Deflections

Horizontal deflection measures are those which require a motorist to steer around them. Examples include curb extensions and raised median islands.

Horizontal Deflections have the following benefits:

- Discourage short-cutting traffic or through traffic to a varying extent.

- May reduce vehicle speeds and reduce conflicts.
- Enhance pedestrian crossings and all-way stop sign placement.
- Relatively inexpensive.

6.2.1 Curb Extension (Bulb-out or bulbing)

A curb extension is a horizontal intrusion of the curb into the roadway resulting in a narrower section of roadway. The curb is extended on one or both sides of the roadway to reduce the width to as little as 6 m for two-way traffic.

Curb extensions are used to reduce vehicle speeds, reduce crossing distance for pedestrians, increase visibility of pedestrians and prevent parking close to an intersection.

Curb extensions can be used on all roadways which have on-street parking. They are often used at midblock crossing locations, in front of schools and at major crosswalk locations.

7th Avenue and Princess Street
(City Park Neighbourhood)

Saskatchewan Crescent
(Nutana Neighbourhood)

Figure 6.1 Curb extensions

6.2.2 Raised Median Island

A raised median island is a small-elevated median constructed on the centerline of the street, placed directly behind the crosswalk area. For example, in a marked crosswalk, it will be placed behind the standard painted markings. The purpose of the raised median island is to offer a place of refuge for pedestrians crossing the street. It increases pedestrian visibility and may help to reduce speeds. Raised median islands are also placed to improve the visibility of four-way stop signs as well as pedestrian crosswalk signs.

Typically, raised median islands are designed using concrete and often have a mountable median tip. They often are 1.5 m in width.

Figure 6.2 Avenue P and 21st Street (Pleasant Hill Neighbourhood)

6.2.3 Traffic Circles

A traffic circle is a raised island located in the centre of an intersection, which requires vehicles to travel through the intersection in a counter-clockwise direction around the island. It is similar to large roundabout except it does not require pedestrian islands.

A traffic circle eliminates speeding and the potential for the route to become a thoroughfare for motorists.

A traffic circle would be recommended for local streets only.

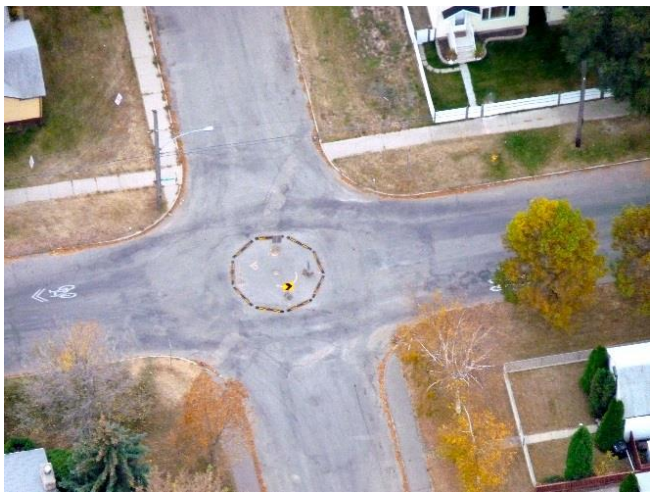


Figure 6.3 Temporary traffic circle on 23rd Street (part of the Bike Boulevard)

6.2.4 Chokers (Pinch points)

A choker is a curb extension at midblock or intersection corners that narrow a street by extending the sidewalk or widening the planting strip. It can leave the cross section with two narrow lanes or a single lane. Chokers are often referred to as parallel chokers, angled chokers, twisted chokers, angle points, pinch points, or midblock narrowing. When at intersections, they are often referred to as neckdowns, bulbouts, knuckles, or corner bulges. If marked as a crosswalk, they are also called safe crossings.

Figure 6.4 Saskatchewan Crescent (Nutuana Neighbourhood)Pinch Point on Saskatchewan Crescent indicating that traffic must yield to oncoming traffic.

6.2.5 Curb Radius Reduction

A curb radius reduction is the reconstruction of an intersection corner with a smaller radius—usually in the 3.0 m to 5.0 m range.

The purpose of a reduced curb radius is to:

- Slow right-turning vehicles;
- Reduce crossing distance for pedestrians; and
- Improve pedestrian visibility.

6.2.6 Chicane

A chicane consists of multiple curb extensions on alternate sides of a roadway. The chicane requires the driver to steer from one side of the roadway to the other and also narrows the road. The purpose of the chicane is to reduce overall speeds by forcing the lateral shift of vehicles as they pass through the device, and also discourages shortcutting traffic.

A one-lane chicane will discourage through traffic further, as it narrows a two-way road to less than a two vehicle width. When vehicles traveling in the opposite direction meet at a chicane, one must yield to the other.

6.2.7 Lateral Shift

A lateral shift involves the redesign of a straight section of road with pavement markings or curb extensions to create a curve in the road, similar to a chicane, which the driver must navigate around. A central island can also be used for a similar effect. The purpose of the lateral shift is to increase driver's awareness as they negotiate it. It can also be effective in reducing speeds.

6.2.8 Lane Narrowing

Lane narrowing is reducing lane widths with the addition of pavement markings, or other features such as bicycle lanes, street beautification programs, pavement texture, etc. The purpose is for the narrow road to reduce vehicle speeds by making drivers feel less comfortable driving at higher speeds.

Lane narrowing pavement markings have a low cost but tend to have minimal effect as physical measures tend to provide better results.

6.2.9 Vertical Centreline Treatment

Vertical centreline treatment involves the use of flexible post-mounted delineators or raised pavement markers to create a centre median. Flexible post-mounted delineators are similar to bollards in appearance. The purpose of vertical centreline treatments is to reduce speeds by giving drivers a sense of lane narrowing. The separation of traffic also has the potential to reduce collisions.

6.3 Vertical Deflections

Vertical deflections measures are those which create vertical motion in a motor vehicle when it is driven over the device. Vertical deflections are not recommended on a street where there is a transit route or emergency access.

Vertical deflections have the following benefits:

- Reduce vehicle speeds which can reduce traffic volumes.
- Relatively inexpensive.

Vertical deflections devices used by the City of Saskatoon include:

- Raised crosswalk
- Textured Crosswalk

- Raised Intersection
- Speed Hump
- Speed Table
- Speed Kidney
- Speed Cushion

6.3.1 Raised Crosswalks

A raised crosswalk is a marked pedestrian crosswalk at an intersection or mid-block location constructed at a higher elevation than the adjacent roadway. Raised crosswalks may help reduce vehicle speeds and improve pedestrian visibility, thereby reducing pedestrian-vehicle conflicts.

Figure 6.5 Meilicke Road between David Knight Crescent and Stechishin Crescent (Silverwood Heights Neighbourhood)

6.3.2 Raised Intersection

A raised intersection is an intersection including crosswalks which are constructed at a higher elevation than the adjacent roadways. It consists of a flat raised area covering the entire intersection, with ramps on all approaches and often brick or other textured materials on the flat section.

A raised intersection is not readily noticeable to motorists and other roadway users.

The effect of a raised intersection on vehicle speed and volume is minor.

The purpose of a raised intersection is to better define crosswalk areas; and the potential for a reduction in pedestrian-vehicle conflicts.

6.3.3 Speed Hump

A speed hump is a raised area of roadway that deflects both the wheels and frame of a traversing vehicle. Speed humps should only be considered if other traffic calming measures are not applicable or if there is excessive speed on a street.

Figure 6.6 Speed Hump on Hughes Avenue (Dundonald Neighbourhood)

Speed humps are designed in series and may reduce the volume of traffic on a street by diverting traffic to other streets.

Speed humps can increase safety - slower drivers and less traffic can reduce collision rates.

Speed humps should be avoided on roadways that are considered an emergency route or transit route.

Speed humps will only be considered if the speeds are 30% higher than the posted speed limit (e.g. on a roadway with a posted speed limit of 50km/h the 85th percentile speed must be 66.5km/h or higher) and supported by community, City Council, Transit, emergency services (Fire, Police, and Ambulance) and Public Works.

Speed humps are different than a speed bump. Speed humps are less aggressive than speed bumps at low speeds and are used on actual streets, as opposed to speed bumps which are primarily placed in parking lots.

While speed bumps generally slow cars to 15 km/h, speed humps slow cars to 15– 30 km/h. The narrow nature of speed bumps often allows vehicles to pass over them at high speed while only perturbing the wheels and suspension, hardly affecting the vehicle cab and its occupants. The relatively long slopes of speed humps gradually

accelerate the entire vehicle in vertical direction, causing the perturbation of the cab to become progressively more severe at higher speeds.

6.3.4 Speed Cushion

Speed cushions are traffic calming devices designed as several small speed humps installed across the width of the road with spaces between them. They are generally installed in a series across a roadway resembling a split speed hump.

The design of a speed cushion forces cars to slow down as they ride with one or both wheels on the humps. However, the wider axle of emergency vehicles such as fire trucks and ambulances allows them to straddle the cushions without slowing down or increasing response times.

Speed cushions will only be considered if the speeds are 30% higher than the posted speed limit and supported by community, City Council, Transit, emergency services (Fire, Police, and Ambulance) and Public Works.

6.4 Access Restrictions

Access restrictions physically restrict certain vehicle movements and should only be used on local streets and on low-volume collectors where there is not a likelihood that traffic would be diverted to nearby local streets.

Access restrictions are typically deployed at intersections, but may also be applied in mid-block positions. The nature and number of movements obstructed, as well as the presence of other traffic calming measures in the neighbourhood, combine to discourage shortcutting and through traffic to varying extents.

Access restrictions should be avoided and should only be used where horizontal or vertical deflection measures will not adequately address a traffic problem.

Access restriction devices used by the City of Saskatoon include:

- Diverter
- Right in/Right out
- Directional Closure or Full Closure
- Intersection Channelization
- Raised Median Through Intersection

6.4.1 Diverter

A diverter is a raised barrier placed diagonally across an intersection that forces traffic to turn and prevents traffic from proceeding straight through the intersection.

Diverters can incorporate gaps for pedestrians, wheelchairs and bicycles and may allow passage of emergency vehicles in some cases.

The purpose of a diverter is to obstruct shortcutting or through traffic.

Figure 6.7 Avenue C and 38th Street – Temporary Device (Mayfair Neighbourhood)

6.4.2 Right in/Right out

A right-in/right-out island is a raised triangular island at an intersection approach.

A right in/right-out island restricts left turns, and through movements to and from the intersecting street or driveway.

The purpose of right-in-right-out island is to restrict shortcutting or through traffic.

Figure 6.8 51st Street and Miller Avenue (Hudson Bay Industrial Neighbourhood)

6.4.3 Directional Closure

A directional closure is a curb extension or vertical barrier extending to approximately the centerline of a roadway, effectively obstructing (prohibiting) one direction of traffic.

The purpose of a directional closure is to restrict shortcutting or through traffic.

6.4.4 Full Closure

Full closure is a barrier extending across the entire widths of a roadway that restricts all motor vehicle traffic movement from continuing along the roadway.

The purpose of a full closure is to eliminate shortcutting or through traffic. It can be designed to allow pedestrian and cyclist access.

Figure 6.9 Coppermine Crescent and Churchill Drive (River Heights Neighbourhood)

6.4.5 Intersection Channelization

Intersection channelization is the use of raised islands or bollards to specific traffic movements and physically direct traffic through an intersection. Intersection channelization can improve pedestrian crossing safety by reducing crossing distances and providing refuge areas.

The purpose of intersection channelization is to reduce conflict points, including vehicle-pedestrian conflicts and reduced crossing distance.

6.4.6 Raised Median through Intersection

A raised median through an intersection is an island that eliminates left turns to and from a local street and obstructs straight through movements.

The median must extend a sufficient distance beyond the intersection to discourage drivers from attempting to get around it and continuing through the intersection.

A raised median through an intersection should be sufficiently wide to offer a pedestrian refuge area. The sidewalk crossing should include a depressed section in the median. This depressed section should be narrow enough to discourage general usage but not preclude emergency access. Separate openings may also be required for cyclists.

This measure should not be used across primary emergency access routes.

6.5 Other Issues

Traffic calming measures will be implemented on local and collector streets only. There may be a desire to implement traffic calming measures in other areas. This section describes other approaches to implementing traffic calming measures in the City.

Lanes – It is the standard policy of the Transportation Division that traffic calming measures are not appropriate in lanes. Lanes are meant for backyard access for the residents living in that area or for garbage pickup and access to utilities. Lanes should not be used as a short-cut. If short-cutting is deemed an issue in lanes, other measures will be considered.

Major Roads (arterials and expressways) - A different approach should be used in implementing speed reduction measures on major roads. It is recommended major roads receive a corridor study which would consider other transportation options such as changes to traffic signals and roadway lanes, improved pedestrian facilities and crossing, space for bicycles and parking, and streetscape enhancement.

Road Construction Projects - Where traffic is diverted or delayed as a result of a construction project on a major road, there is the potential for traffic to divert to adjacent neighbourhood streets. As part of construction plans, temporary traffic calming measures may be identified on adjacent local/collector roads (as needed) to mitigate any effects of diverted traffic. The intent would be to remove the temporary measures when the road construction project is completed.

Special Events - As with road construction projects, delays and diversions to traffic as a result of special events can divert traffic to nearby neighbourhood streets and create traffic concerns on these streets. Transportation plans for special events should include temporary traffic calming measures on adjacent local/collector roads as needed to mitigate any effects of the diverted traffic. Where possible, preparation of a temporary traffic calming plan should be required as part of the planning process for a special event. In all cases, the costs of temporary traffic calming measures associated with a special event should be paid entirely by the organization hosting the event.

New Development - Traffic calming measures are now often incorporated in the design of new residential neighborhoods and are included in the initial construction. Any devices should conform to the design standards as identified in section 6.

7 RESIDENT RESOURCES

If you are interested in submitting a traffic calming request, example materials are provided in Attachment A.

Please contact the Transportation Division for additional information:
Customer Service: 306-975-2454
transportation@saskatoon.ca

Sample Letter
Sample Petition
Sample Removal Request

Jurisdictional Review of Traffic Calming Policies

Municipality	Traffic Calming Policy or Program	Petition Model
Vancouver, BC	Yes	Yes
Edmonton, AB	Yes (Community Traffic Management)	No
St. Albert, AB	Yes	Yes
Calgary, AB	Yes	Yes
Regina, SK	Yes	Yes
Toronto, ON	Yes	Yes
London, ON	Yes	Yes
Montreal, QC	Yes	Yes
Halifax, NS	Yes	No
St. John’s, NL	Yes	Yes

Traffic Control at Pedestrian Crossings Policy Update

Recommendation

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

That the Council Policy 07-018,Traffic Control at Pedestrian Crossings updates based on the TAC Guide as outlined in this report be approved.

Topic and Purpose

The purpose of this report is to request City Council approval for the updated Traffic Control at Pedestrian Crossings Policy.

Report Highlights

1. The Transportation Association of Canada (TAC) has published a new edition of the Pedestrian Crossing Control Guide (Guide). The TAC Guide is intended to promote uniformity across the country with respect to the approach used in the provision of pedestrian crossing control.
2. Council Policy 07-018, Traffic Control at Pedestrian Crossings will be updated to reflect that the installation of appropriate traffic controls at pedestrian crossings shall be based on the TAC Guide.
3. A review of two intersections was completed following the process outlined in the TAC Guide to compare the results of the new decision process versus the existing warrant analysis.
4. A Traffic Control Catalogue has been developed to provide citizens with a reference on the various traffic control devices used in the City of Saskatoon.

Strategic Goal

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

Background

City Council approved Council Policy C07-018, Traffic Control at Pedestrian Crossings in November 2004. This policy used a warrant system to identify whether a location would be eligible for an Active Pedestrian Corridor or a Pedestrian Actuated Signal. The warrant methodology considered a variety of factors, including:

- Street geometry and sight distance;
- School crossing;
- Pedestrian type (children, elderly or mobility impaired);
- Existing crossing device;
- Speed limit;
- Distance to nearest protected crosswalk;
- Pedestrian volume; and
- Vehicle volume.

Report

TAC Pedestrian Crossing Control Guide

The objective of the TAC Guide is to promote uniformity across the country with respect to the approach used in the provision of pedestrian crossing control.

The existing warrant system is dependent on pedestrians already using the crossing, not considering pedestrians that do not use the crossing because they do not feel safe. Therefore the existing warrant system has been used to identify whether a location is eligible for an Active Pedestrian Corridor or a Pedestrian Actuated signal and to provide a rational, defensible basis for decisions. The TAC Guide provides more flexibility by not limiting the decisions to strict, numeric warrant criteria.

Recent research incorporated in the TAC Guide concludes that installing unjustified traffic control devices promotes misuse or overuse for crossing control treatment, which may result in non-compliance with and/or disregard of traffic control devices. However, a strict, numeric warrant is not conclusive justification for the installation of a pedestrian crossing control device.

The latest version of the TAC Guide promotes a holistic perspective to the provision of pedestrian crossing control by incorporating both numeric criteria and qualitative engineering judgement into a systematic approach. This will help in supporting decisions concerning pedestrian crossing control, implementing crossing control, and monitoring and evaluating it over time, which provides flexibility to address unique local conditions.

The seven guiding principles for pedestrian crossing control are:

1. Safety – Devices should achieve a high level of compliance and minimize pedestrian exposure to vehicular traffic.
2. Delay – Delay experienced by pedestrians attempting to cross the road should be carefully managed.
3. Equity – Establishing equal access to the transportation network and system by providing for the movement of people as for vehicular traffic is fundamental.
4. Expectancy – Devices should meet driver expectancy, thereby increasing driver response.
5. Consistency –Ensures that devices are recognized, understood and used effectively by all road users.
6. Connectivity – Effective crossing opportunities should be provided to ensure system connectivity for pedestrians while considering proximity to other crossings, driver expectation, and safety of pedestrians.
7. Pragmatism –Practical issues or consequences associated with the provision of pedestrian crossing control devices (e.g. costs, ease of installation, maintenance) should be a consideration of installation.

The Decision Support Tools for the preliminary assessment and the treatment selection steps are included in Attachment 1.

Pedestrian Crossing Control Device Review

To understand the implications of moving to the TAC Guide process, a review of the following two locations was undertaken:

1. Clarence Avenue & 14th Street; and
2. Preston Avenue & East Drive.

Both locations were reviewed for pedestrian devices under the existing warrant analysis procedure. Both locations have ground-mounted pedestrian crossing devices (i.e. signs and zebra pavement markings). A warrant analysis using the existing procedure was completed for both locations in the past year. The results are included in Attachment 2 and summarized below:

Pedestrian Crossing Control Device	Clarence Avenue & 14th Street		Preston Avenue & East Drive	
	Points	Warrant Result APC warranted if APC > 2	Points	Warrant Result PAS warranted if PAS > 99
Active Pedestrian Corridor (APC)	0	Not Warranted	0	Not Warranted
Pedestrian Actuated Signal (PAS)	40	Not Warranted	29	Not Warranted

Both locations have been reviewed using the new TAC Guide process to determine whether a pedestrian crossing device is justified for these locations and, if so, the appropriate treatment selection. The results of the analysis are included in Attachment 3 and summarized below:

Preliminary Assessment Decision Point	Clarence Avenue & 14th Street	Preston Avenue & East Drive
Traffic Signal Warranted	No	No
Average Hourly Pedestrian Volume ≥ 15 Equivalent Adult Units* AND vehicular volume ≥1,500 veh/day	No	No
Is this site > 200 metres from the nearest traffic control device?	Yes	Yes
Is average hourly potential pedestrian crossing demand ≥ 15 EAUs OR is there requirement for system connectivity?	Yes	Yes
Treatment Selection	Overhead Flashing device	Rapid Rectangular Flashing Beacon or Overhead Flashing device

As a result of the TAC Guide process, the identification of both locations as desirable pedestrian crossings has been confirmed and would be eligible for a pedestrian actuated device.

Prior to adding both locations to the list of pedestrian crossing devices for funding request, a site visit verification will be completed to ensure that the installation can be designed and installed to meet driver expectations. Geometric design components (i.e. curb extensions, curb corner radius, raised refuge) may also need to be considered to ensure the safety of crossing pedestrians.

The comparison in device selection for both locations demonstrates that moving to the TAC Guide would result in a significant change from our current warrant analysis policy. By considering potential pedestrian demand and road features for the crossing, the new policy approach would improve safe connections for Saskatoon's active transportation network and, in turn, would promote walking.

Options to the Recommendation

City Council may direct the Administration to continue using the existing policy. This option is not recommended as it is not in line with the latest version of the TAC Guide. The existing policy follows a strict, numeric warrant which new industry knowledge indicates is not conclusive justification for the installation of a pedestrian crossing control device.

Public and/or Stakeholder Involvement

The public and stakeholders will continue to raise pedestrian safety concerns by way of various communication methods available: calls, emails, community meetings, neighbourhood traffic reviews, etc.

Communication Plan

If approved, this policy will be posted to the City website and shared with key internal City agencies that handle special applications and liaise with the Community Associations.

A traffic control catalogue has been developed to inform residents of available pedestrian crossing and traffic control devices and how to request a traffic control device (Attachment 4). The traffic control catalogue will be posted to the City website.

Policy Implications

Council Policy C07-018, Traffic Control at Pedestrian Crossings requires updating as outlined in this report. A revised draft is attached (Attachment 5).

Financial Implications

Pedestrian crossing control devices are funded through Capital Project #2446 – Pedestrian Crossing Improvements. Current funding levels would allow for the installation of one or two pedestrian actuated devices per year.

Under the new policy, several additional locations, particularly on the arterial corridors, would be eligible for pedestrian actuated devices. Funding levels for Capital Project #2446 – Pedestrian Crossing Improvements would need to increase to install pedestrian crossing control devices for all justified locations.

The list of justified locations will be developed and submitted to support the annual funding requests during budget deliberations.

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 privacy and CPTED considerations or implications.

Due Date for Follow-up and/or Project Completion
If approved, the updated policy will be published on the City website.

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

Attachments
1. Pedestrian Crossing Control Guide - Decision Support Tools
2. Existing Pedestrian Warrant Analysis for Example Locations
3. New Decision Process for Example Locations
4. Saskatoon Traffic Control Catalogue
5. Updated Council Policy C07-018, Traffic Control at Pedestrian Crossings

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 - Traffic Control at Pedestrian Crossings Policy Update.docx

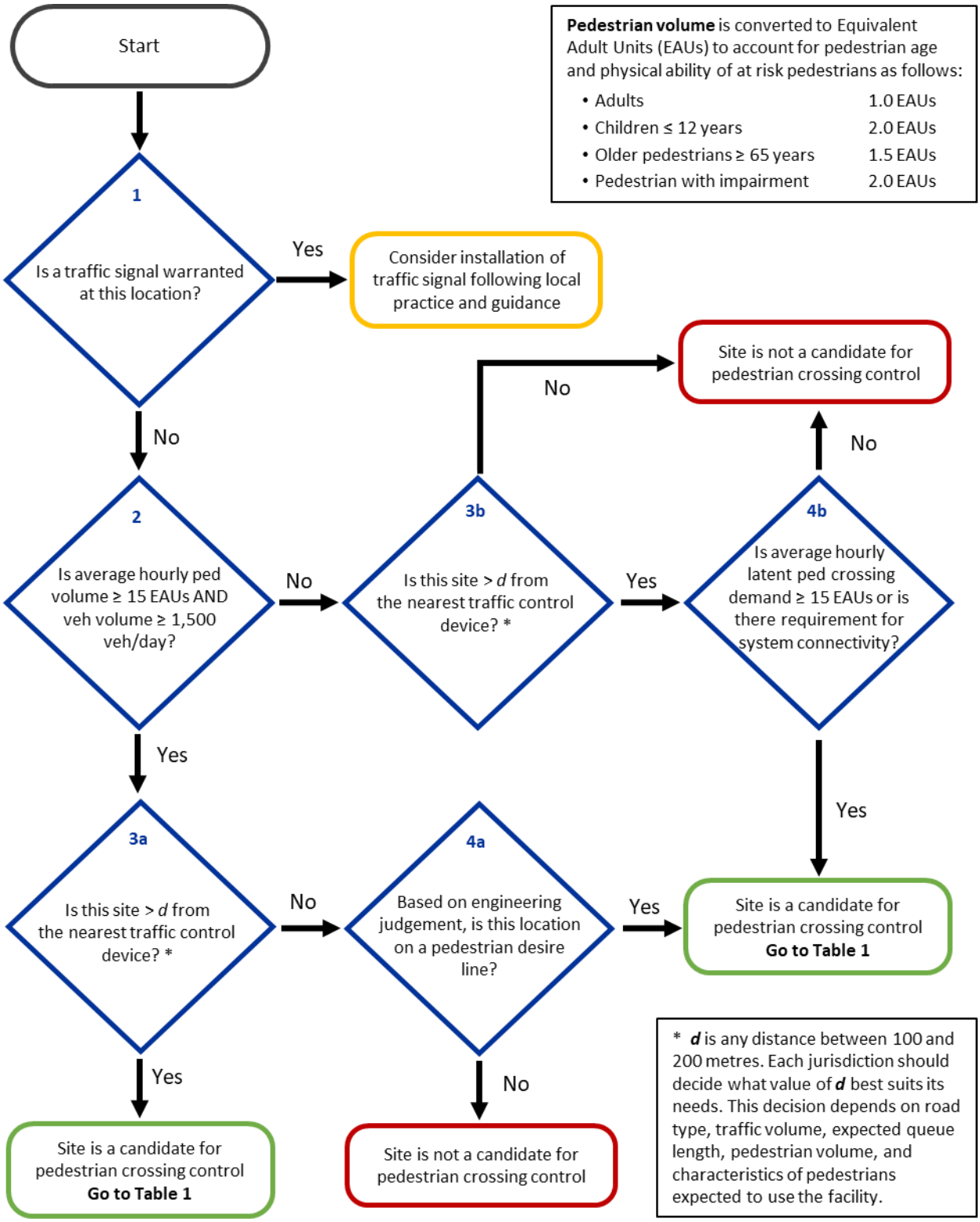


Figure 8: Decision Support Tool – Preliminary Assessment

Table 1: Decision Support Tool – Treatment Selection Matrix

Average Daily Traffic	Speed Limit [2] (km/h)	Total Number of Lanes [1]				
		1 or 2 lanes	3 lanes (two-way)	3 lanes (one-way)	2 or 3 lanes/direction w/ raised refuge	2 lanes/ direction w/o raised refuge
1,500 < ADT ≤ 4,500	≤ 50	GM	GM	GM	GM	GM+
	60	GM+	GM+	OF	RRFB or OF [3]	RRFB
	70	RRFB	RRFB	OF	OF	OF
4,500 < ADT ≤ 9,000	≤ 50	GM	GM	GM	GM	RRFB
	60	GM+	GM+	OF	RRFB or OF [3]	OF
	70	RRFB	OF	OF	OF	TS
9,000 < ADT ≤ 12,000	≤ 50	GM	RRFB	OF	RRFB or OF [3]	OF
	60	RRFB	RRFB	OF	RRFB or OF [3]	TS
	70	OF	OF	OF	TS	TS
12,000 < ADT ≤ 15,000	≤ 50	RRFB	RRFB	OF	RRFB or OF [3]	OF
	60	RRFB	OF	OF	RRFB or OF [3]	TS
	70	OF	TS	TS	TS	TS
> 15,000	≤ 50	RRFB	OF	OF	RRFB or OF [3]	TS
	60	RRFB	TS	TS	TS	TS
	70	OF	TS	TS	TS	TS

[1] The total number of lanes is representative of pedestrian-exposed crossing distance. The following can help determine the applicable number of lanes for a given roadway:

- Travel lanes, two-way left turn lanes, other turning lanes, and part time parking lanes should each be considered as one lane.
- Full time parking lanes on one or both sides of the roadway should be considered as one lane. Curb extensions may be constructed to reduce the total crossing distance and hence, the number of lanes.
- Engineering judgement based on local conditions should be used to determine the lane equivalent associated with bicycle lanes.

[2] At roundabouts, the maximum design speed of entering or exiting vehicles is often lower than the approaching roadway speed and can be used in place of the roadway speed limit.

[3] If three lanes per direction use OF.

Additional notes:

Treatment systems are hierarchical (GM → GM+ → RRFB → OF → TS). Higher order treatment systems may be substituted for lower order treatment systems. The rationale for substituting higher order treatment systems should be consistent throughout the jurisdiction. Remain consistent in application of DESIRABLE components of the GM+ system as best as possible.

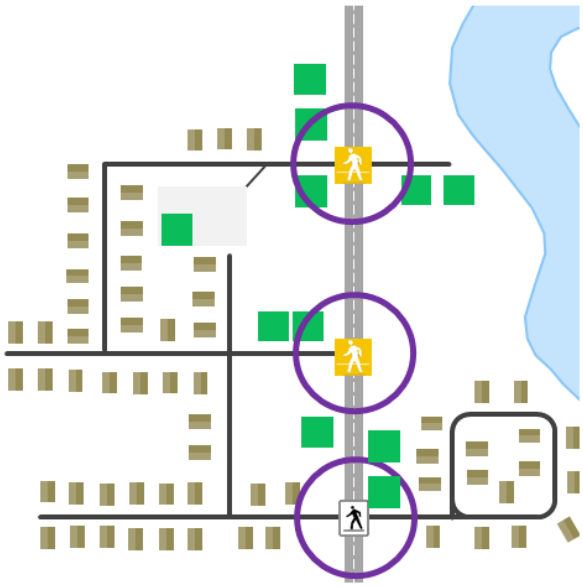
Raised refuge may be a pedestrian refuge island or raised median. Raised refuge should be a minimum of 2.4 metres wide to accommodate groups of pedestrians, bicycles, and mobility aids such as wheelchairs and scooters.

A TS treatment system should be selected: (1) for cross-sections with greater than six lanes where a raised refuge is present; (2) for cross sections with greater than four lanes where no raised refuge is present; and (3) for speeds greater than 70 km/h.

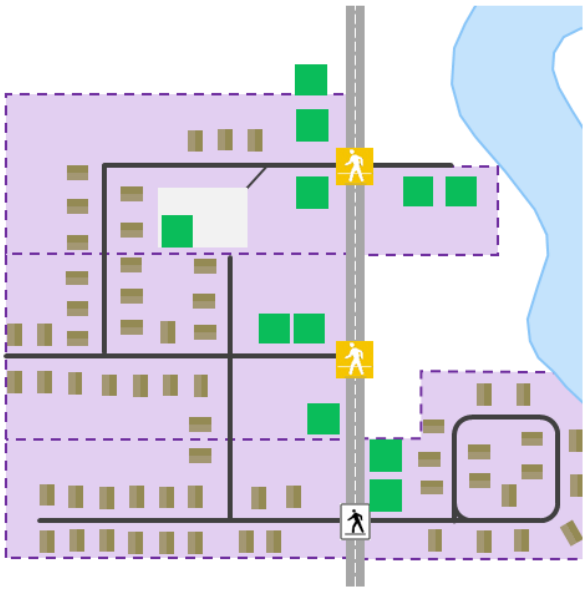
Always ensure adequate sight distance at the site as per the TAC *Geometric Design Guide for Canadian Roads*, and if it is insufficient, create it by applying available tools.

A crossing location with a very wide (7m or more) pedestrian refuge area between opposing directions of traffic may be considered to divide the crossing into two independent sections and may be treated as two separate crosswalks. This may occur at locations with a wide raised refuge or offset crosswalk.

Passive crossing treatment systems		Active crossing treatment systems		Traffic signal systems
GM Go to Table 2	GM+ Go to Table 3	RRFB Go to Table 4	OF Go to Table 5	TS go to Table 6 (pedestrian signal) or Table 7 (full signal)

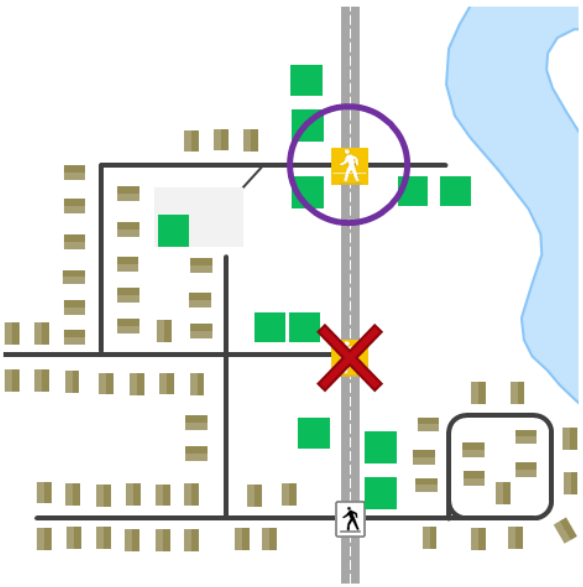


Step 1: Identify existing and potential pedestrian crossing control locations.



Step 2: Identify and quantify walking trip generators/attractors on each side of the roadway.

Step 3, 4: Determine probable OD pairs and assign probable trip routes



Step 5: Identify potential locations that serve the greatest latent crossing demand

Legend:

Potential crossing location

Existing crossing location

Residential unit

Walking trip attractor

Figure 3: Latent Crossing Demand Methodology

Glossary of Terms

Latent pedestrian crossing demand: a measure of the potential volume of pedestrians that may use a crossing if one were provided

Equivalent Adult Units (EAUs): A conversion of pedestrian volume to account for pedestrian age and physical ability of at risk pedestrians.

Ground Mounted System (GM): Standard Crosswalk with signage and pavement markings

Enhanced Ground Mounted System (GM+): Zebra Crosswalk with signage and pavement markings

Rectangular Rapid Flashing Beacon System (RRFB): Pedestrian activated treatment system which consts of two rapidly flashing beacons mounted above ground mounted signs

Overhead Flashing Beacon System (OF): Pedestrian activated treatment system which consists of internally illuminated overhead mounted signs with alternating ambler flashing beacons and down lighting. Equivalent to an Active Pedestrian Crossing (APC).

Traffic Signals (TS): Provide designated crossing opportunities for pedestrians and assign the right-of-way between conflicting streams of traffic. Equivalent to Pedestrian Actuated Signals (PAS) or full traffic signals.

RESULTS SUMMARY

DO NOT ENTER DATA INTO THIS PAGE

Prepared By: Minqing Deng **Date:** March 27th, 2018

ıtion & Roadway Classification: Clarence Ave S & 14th St (Major Arterial & Local)
Date of Count: Day of wk: Tuesday - Wednesday Mth, Day, Yr: Jan. 23-24, 2018
Weather: -5 to -7 degree celsius, light snow
Traffic Control Devices: Stop control on both east and west leg of intersection
Current Pedestrian Control: Zebra crosswalk on both north and south leg of intersection
Other Notes:

Number of travel lanes passing through the crosswalk(s) 4 lanes

Is there a physical median in this crosswalk(s)? n (y or n)

Speed limit (or 85th percentile speed) 50 km/h
☐ **85th percentile (check one)**
☐ **Posted Limit**

Distance to nearest protected crosswalk 210 m
Location: Clarence Ave S and Colony St
Type: Pedestrian Actuated Signal

Is the orientation of this crosswalk(s) N-S? n (y or n)

Duration of pedestrian count 5 hrs

Elementary:	**31**	**Total Warranted PC Points:**		**or**	**/ period**
High School:		**Highest PC point value:**	**3,424**	**at**	
Adult:		**Active Ped Corridor Points:**			
Senior:		**Pedestrian Actuated Signal Points:**	**40**		
Vehicles passing through crosswalk(s):	**5,221**				

ACTIVE PEDESTRIAN CORRIDOR NOT WARRANTED
PEDESTRIAN ACTUATED SIGNAL NOT WARRANTED

****Install device at the South Crosswalk ****
(Note: Standard and Zebra crosswalks can be installed on both sides if pedestrian volumes are approximately equal.)

Time (15 minute intervals)	Vehicle Counts				Pedestrian Counts							
					North Crosswalk				South Crosswalk			
	SB	WB	NB	EB	Child	Teen	Adult	Senior / Impaired	Senior / Impaired	Adult	Teen	Child
7:00												
7:15												
7:30												
7:45												
8:00	86	13	157	6	1							1
8:15	106	32	153	5								1
8:30	106	20	155	3	1							
8:45	93	16	154	1	1							
9:00			1									
9:15												
9:30												
9:45												
AM Totals	391	81	620	15	3							2
11:30	114	15	101		2							1
11:45	113	13	114	3								
12:00	106	12	101	2	2							3
12:15	93	6	105	3								3
12:30	89	12	127	1								
12:45	96	11	102	2								2
13:00	111	8	102	1								1
13:15	89	11	117	2	2							
Noon Totals	811	88	869	14	6							10
14:00												
14:15												
14:30												
14:45												
15:00	102	16	109	2								
15:15	143	25	102	3								
15:30	153	22	131	2								
15:45	132	15	136	7								
16:00	154	30	124	4	1							2
16:15	161	19	121	1								2
16:30	162	10	107	4	2							
16:45	171	31	126	7	1							2
17:00												
17:15												
17:30												
17:45												
18:00												
18:15												
18:30												
18:45												
19:00												
19:15												
19:30												
19:45												
20:00												
20:15												
20:30												
20:45												
PM Totals	1,178	168	956	30	4							6
Totals	**2,380**	**337**	**2,445**	**59**	**13**							**18**
					North Crosswalk =			**13**	**South Crosswalk =**			**18**

RESULTS SUMMARY

DO NOT ENTER DATA INTO THIS PAGE

Prepared By: Chelsea Lanning **Date:** Friday, October 6, 2017

ıtion & Roadway Classification: Preston Ave & East Dr
Date of Count: Day of wk: Tuesday Mth, Day, Yr: Tuesday, September 26, 2017
Weather:
Traffic Control Devices:
Current Pedestrian Control: Zebra crosswalk on North Leg
Other Notes: Didn't watch ped video. Assumed all children.

Number of travel lanes passing through the crosswalk(s) 2 lanes

Is there a physical median in this crosswalk(s)? y (y or n)

Speed limit (or 85th percentile speed) 50 km/h
☐ **85th percentile (check one)**
☑ **Posted Limit**

Distance to nearest protected crosswalk 370 m
Location: Preston Ave & Louise St
Type: Traffic Signal

Is the orientation of this crosswalk(s) N-S? n (y or n)

Duration of pedestrian count 6 hrs

Elementary:	**10**	**Total Warranted PC Points:**		**or**	**/ period**
High School:		**Highest PC point value:**	**3,655**	**at**	
Adult:		**Active Ped Corridor Points:**			
Senior:		**Pedestrian Actuated Signal Points:**	**29**		
Vehicles passing through crosswalk(s):	**8,398**				

ACTIVE PEDESTRIAN CORRIDOR NOT WARRANTED
PEDESTRIAN ACTUATED SIGNAL NOT WARRANTED

****Install device at the North Crosswalk ****
(Note: Standard and Zebra crosswalks can be installed on both sides if pedestrian volumes are approximately equal.)

Time (15 minute intervals)	Vehicle Counts				Pedestrian Counts							
					North Crosswalk				South Crosswalk			
	SB	WB	NB	EB	Child	Teen	Adult	Senior / Impaired	Senior / Impaired	Adult	Teen	Child
7:00	44	2	66									
7:15	60	3	81		1							
7:30	68	6	105		1							
7:45	90	5	158									
8:00	102	1	172		2							
8:15	142	5	230		3							
8:30	164	13	177		2							
8:45	98	5	166									
9:00												
9:15												
9:30												
9:45												
AM Totals	768	40	1,155		9							
11:30	102	6	121									
11:45	131	2	134									
12:00	147	2	128									
12:15	142	5	159									
12:30	150	6	119									
12:45	122	2	159									
13:00	123	1	152									
13:15	115	2	125									
Noon Totals	1,032	26	1,097									
14:00												
14:15												
14:30												
14:45												
15:00	168	1	178									
15:15	183	4	217		1							
15:30	217	6	168									
15:45	140	3	186									
16:00	160	7	177									
16:15	182	3	150									
16:30	189	2	200									
16:45	175	5	208									
17:00	203	3	167									
17:15	190	6	160									
17:30	163	5	169									
17:45	136	6	143									
18:00												
18:15												
18:30												
18:45												
19:00												
19:15												
19:30												
19:45												
20:00												
20:15												
20:30												
20:45												
PM Totals	2,106	51	2,123		1							
Totals	**3,906**	**117**	**4,375**		**10**							
					North Crosswalk =			**10**	**South Crosswalk =**			

New Decision Process for Example Locations

Preliminary Assessment Decision Point		**Clarence Avenue & 14th Street Pedestrian Crossing East-West direction**	**Preston Avenue & East Drive Pedestrian Crossing East-West direction**
Traffic Signal Warrant	Points	31	42
	Warranted (Y/N)	No	No
Average Hourly Pedestrian Volume ≥ 15 EAU[1]s AND vehicular volume ≥1,500 veh/day?	Average Hourly Pedestrian Volume	12 EAU	4 EAU
	Vehicular Volume	14,400	16,700
	Answer (Y/N)	No	No
Is this site > 200 metres from the nearest traffic control device?	Distance from the nearest traffic control device	220 m	375 m
	Answer (Y/N)	Yes	Yes
Is average hourly latent pedestrian crossing demand ≥ 15 EAUs OR is there requirement for system connectivity?	Latent pedestrian crossing demand[2]	~ 10 EAU	~4 EAU
	Required connection?	14th Street is identified as a proposed All Ages and Abilities route in the Active Transportation Master Plan	The distance between the traffic signals at Arlington Avenue and Louise Street suggests that an additional pedestrian crossing would be desirable. East Drive is most evenly spaced between Arlington Avenue and Louise Street and has an existing ground-mounted pedestrian device. Enhancing the crossing would meet pedestrian and driver expectation and enhance compliance.
	Answer (Y/N)	Yes	Yes
Treatment Selection	Table-1 in Pedestrian Crossing Guide	Overhead Flashing (OF) device	RRFB or OF

[1] EAU – Equivalent Adult Units to account for pedestrian age and physical ability. Adults – 1.0 EAU; Children ≤ 12 years – 2.0 EAUs; Older pedestrians ≥ 65 years – 1.5 EAUs; Pedestrian with impairment – 2.0 EAUs.
[2] Latent crossing demand estimated using the Institute of Traffic Engineers Trip Generation Manual 10th Edition and the mode split identified in the Active Transportation Master Plan Discussion Paper #1.

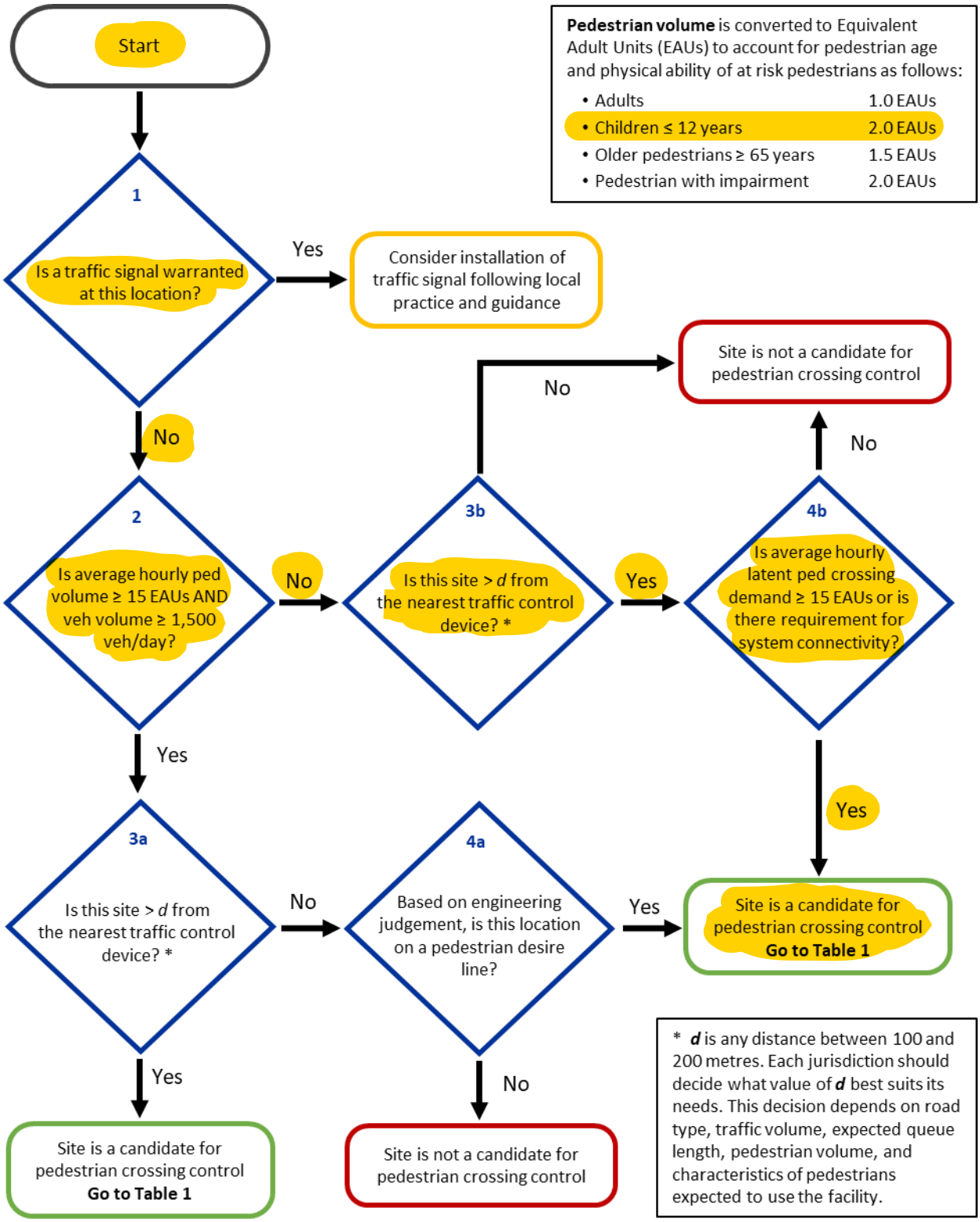


Figure 8: Decision Support Tool – Preliminary Assessment

City of Saskatoon Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	Clarence Avenue	Direction (EW or NS)	NS
Side Street (name)	14th Street	Direction (EW or NS)	EW
Quadrant / Int #		Comments	
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET		

Road Authority:	City of Saskatoon
City:	Saskatoon
Analysis Date:	2018 Jul 30, Mon
Count Date:	2018 Jan 23, Tue
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Thr+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Clarence Avenue	NB		1			1		220	2
Clarence Avenue	SB		1			1		220	2
14th Street	WB				1				
14th Street	EB				1				
Are the 14th Street WB right turns significantly impeded by through movements? (y/n)							n		
Are the 14th Street EB right turns significantly impeded by through movements? (y/n)							n		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	y
Metro Area Population	(#)	210,000
Central Business District	(y/n)	n

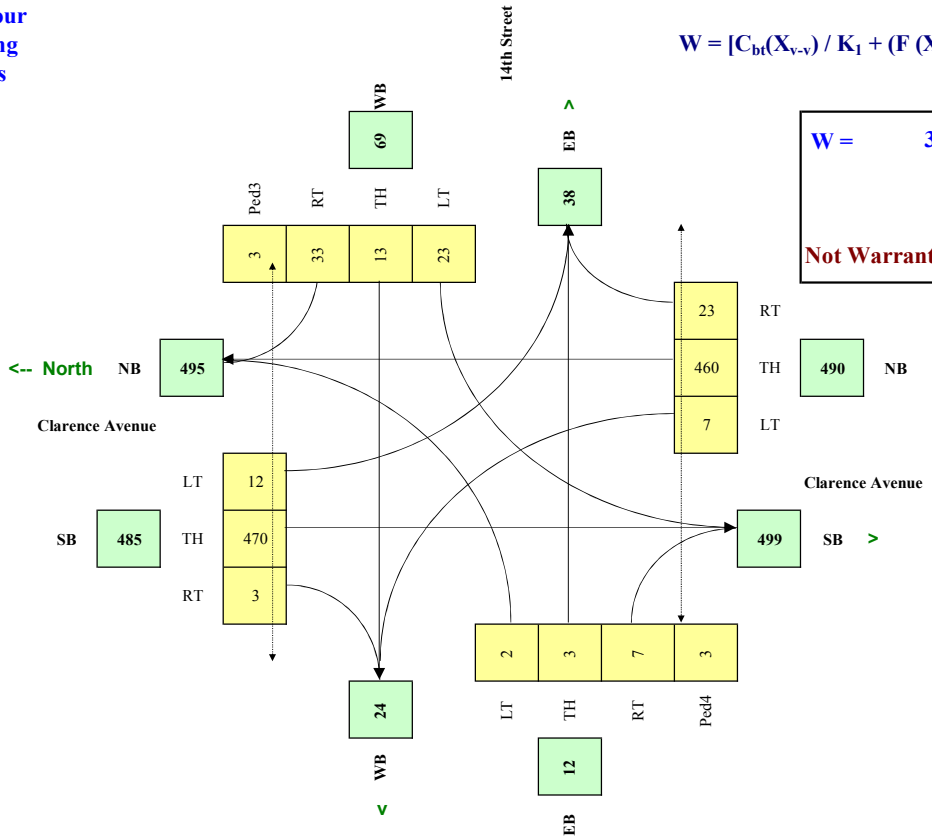
Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Clarence Avenue	NS	50	2.0%	y	0.0
14th Street	EW		2.0%	n	

Set Peak Hours

								WB		EB			Ped1	Ped2	Ped3	Ped4
								Th	RT	LT	Th	RT	NS	NS	EW	EW
								16	37	3	2	9	W Side	E Side	N Side	S Side
8:00 - 9:00	4	602	22	13	373	5	22	18	41	3	5	7	2	7	3	2
11:30 - 12:30	8	391	29	9	415	2	15	7	24	0	3	5	7	13	4	7
12:30 - 13:30	8	426	14	8	375	2	12	10	20	1	2	3	8	3	2	3
15:00-16:00	6	451	21	12	514	4	25	16	37	3	2	9	4	4	0	0
16:00-17:00	9	439	30	19	626	3	38	13	39	1	6	9	9	3	6	4
Total (6-hour peak)	**41**	**2,760**	**137**	**73**	**2,817**	**20**	**137**	**80**	**198**	**11**	**20**	**42**	**34**	**34**	**15**	**16**
Average (6-hour peak)	**7**	**460**	**23**	**12**	**470**	**3**	**23**	**13**	**33**	**2**	**3**	**7**	**6**	**6**	**3**	**3**

Average 6-hour Peak Turning Movements

$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F (X_{v\text{-}p}) L) / K_2] \times C_i$$



W =	31	26	5
		Veh	*Ped*

Not Warranted - Vs<75

RESET SHEET

LEGEND

EXISTING TRAFFIC SIGNAL :

EXISTING PEDESTRIAN ACTUATED SIGNAL LOCATION

EXISTING PEDESTRIAN CROSSWALK:

POTENTIAL CROSSING LOCATIONS:

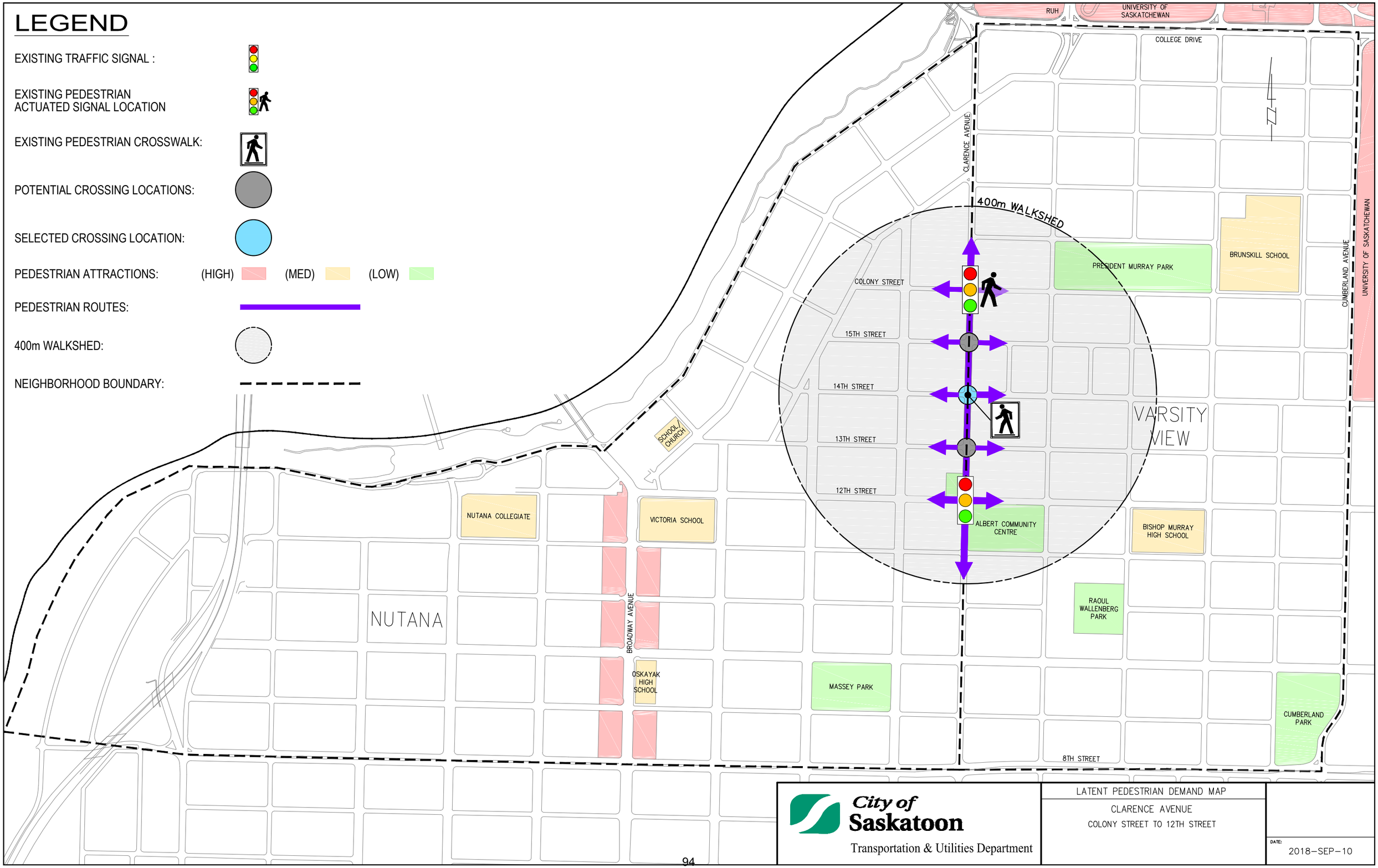
SELECTED CROSSING LOCATION:

PEDESTRIAN ATTRACTIONS: (HIGH) (MED) (LOW)

PEDESTRIAN ROUTES:

400m WALKSHED:

NEIGHBORHOOD BOUNDARY:



City of Saskatoon
Transportation & Utilities Department

LATENT PEDESTRIAN DEMAND MAP
CLARENCE AVENUE
COLONY STREET TO 12TH STREET

DATE: 2018–SEP–10

City of Saskatoon Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	Preston Avenue	Direction (EW or NS)	NS	Road Authority:	City of Saskatoon
Side Street (name)	East Drive	Direction (EW or NS)	EW	City:	Saskatoon
Quadrant / Int #		Comments	APC is warranted and new data is requested for full signal warrant calculations	Analysis Date:	2018 May 02, Wed
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET			Count Date:	2017 Sep 26, Tue
				Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Preston Avenue	NB					1		380	1
Preston Avenue	SB		1					295	1
East Drive	WB				1				
East Drive	EB								
Are the East Drive WB right turns significantly impeded by through movements? (y/n)							n		

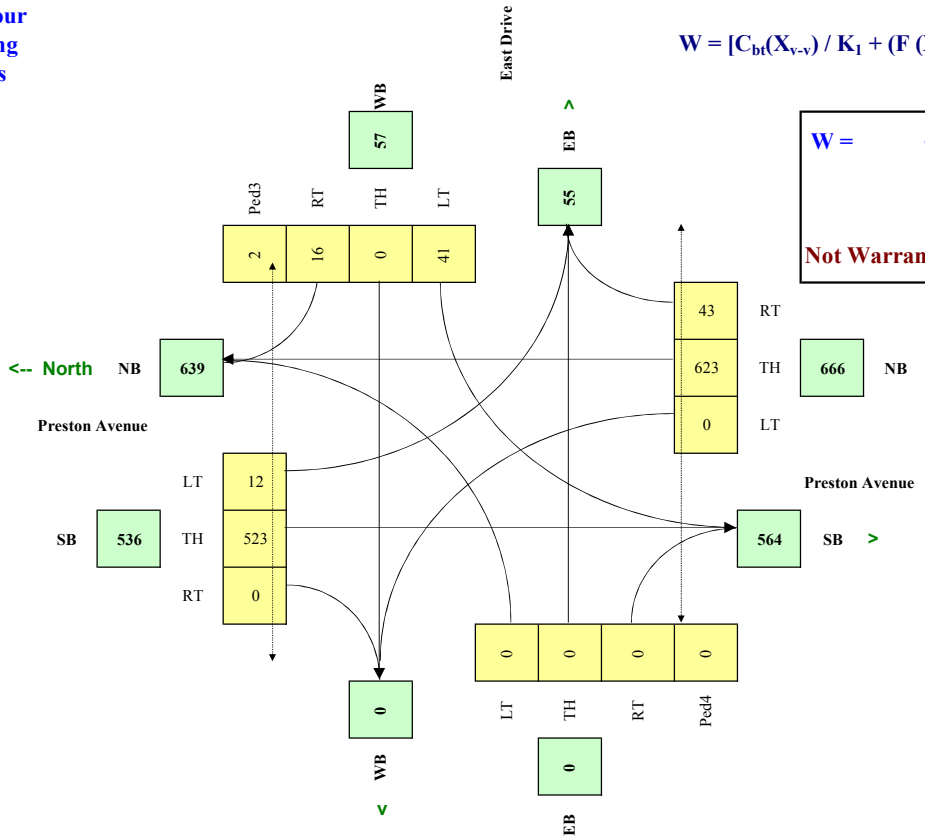
Demographics		
Elem. School/Mobility Challenged	(y/n)	y
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	y
Metro Area Population	(#)	210,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Preston Avenue	NS	50	2.0%	y	6.0
East Drive	EW		2.0%	y	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1	Ped2	Ped3	Ped4
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	NS	NS	EW	EW
													W Side	E Side	N Side	S Side
7:00 - 8:00	0	410	23	3	259	0	46	0	16	0	0	0		9	2	0
8:00 - 9:00	0	745	57	22	484	0	52	0	24	0	0	0		7	7	0
11:30-12:30	0	542	35	7	515	0	14	0	15	0	0	0		5	0	0
12:30-13:30	0	555	23	3	507	0	31	0	11	0	0	0		3	0	0
15:00-16:00	0	749	61	18	690	0	50	0	14	0	0	0		20	1	0
16:00-17:00	0	735	59	21	685	0	50	0	17	0	0	0		3	0	0
Total (6-hour peak)	**0**	**3,736**	**258**	**74**	**3,140**	**0**	**243**	**0**	**97**	**0**	**0**	**0**	**0**	**47**	**10**	**0**
Average (6-hour peak)	**0**	**623**	**43**	**12**	**523**	**0**	**41**	**0**	**16**	**0**	**0**	**0**	**0**	**8**	**2**	**0**

Average 6-hour Peak Turning Movements



$$W = [C_{bt}(X_{v\text{-}v}) / K_1 + (F\,(X_{v\text{-}p})\,L) / K_2] \times C_i$$

W =	42	40	2
		Veh	*Ped*

Not Warranted - Vs<75

RESET SHEET

Page 5

LEGEND

EXISTING TRAFFIC SIGNAL :

EXISTING PEDESTRIAN CROSSWALK:

POTENTIAL CROSSING LOCATIONS:

SELECTED CROSSING LOCATION:

PEDESTRIAN ATTRACTIONS: (HIGH) (MED) (LOW)

PEDESTRIAN ROUTES:

400m WALKSHED:

NEIGHBORHOOD BOUNDARY:

WALTER MURRAY COLLEGIATE
HOLY CROSS COLLEGIATE
TAYLOR STREET
ADELAIDE STREET
NUTANA KIWANIS PARK
MARKET MALL
LOUISE AVENUE
LOUISE STREET
400m WALKSHED
ECOLE CANADIENNE-FRANCAISE
HAROLD TATLER PARK NORTH
AS WRIGHT PARK
GUPPY STREET
ALVIN BUCKWOLD SCHOOL
100 EAST DRIVE
CIRCLE DRIVE
HAROLD TATLER PARK SOUTH
JARVIS DRIVE
HUGH CAIRNS V.C. SCHOOL
ADELAIDE PARK
PRINCE PHILIP SCHOOL
NUTANA PARK
JAMES ANDERSON PARK
JOHN DOLAN SCHOOL
EASTVIEW
ARLINGTON AVENUE
POPE JOHN PAUL II SCHOOL
KISTAKIN PARK
WILSON CRESCENT
PRESTON AVENUE
CIRCLE DRIVE

City of Saskatoon
Transportation & Utilities Department

LATENT PEDESTRIAN DEMAND MAP
PRESTON AVENUE
ARLINGTON AVENUE TO LOUISE STREET

DATE: 2018-SEP-10

Saskatoon

Traffic Control Catalogue

2018

Contents

List of Figures

1 Speed Limits

Speed limits for the City of Saskatoon are outlined in Traffic Bylaw 7200. The majority of streets in the City have a 50 kph speed limit. Speed limits may vary from the 50 kph speed limit depending on a number of factors, such as road type, road classification, road geometry, land use, among others. School zones have a 30 kph speed limit effective from 8:00 am to 5:00 pm Monday to Friday, September to June.

1.1 Speed Limit Signs

Speed limit signs are used to indicate the legal speed limit on a roadway. When there is no posted speed limit sign, the legal speed limit defaults to 50 kph.

Speed limit signs are installed when the speed limit is higher or lower than the default speed limit of 50 kph. There are two types of speed limit signs:

- **Maximum Speed Ahead** – These signs are used when the speed limit changes by more than 20 kph. A Maximum Speed Ahead sign is placed in advance of the first Maximum Speed Begins sign to provide drivers the time to adjust their speed before entering the new speed zone.
- **Maximum Speed** – These signs are placed after each cross-street along a roadway to which the speed limit applies.

Figure 1: Speed limit signs

1.2 How You Can Take Action

To request a speed limit review or a speed limit sign, please call 306-975-2454 or email Transportation@saskatoon.ca.

To report a damaged sign, please call Sign Shop at 306-975-2682.

To request speed enforcement or to report unsafe drivers, please call the Saskatoon Police Service at 306-975-8068.

1.3 Things to Consider

- Changing the speed limit of a roadway has little effect on the speed of drivers.
- Studies show that changes to roadway configuration are more effective in slowing driver speed than lowering speed limits.

2 Intersection Controls

The use of signs, traffic signals or crosswalks at intersections play a big part of ensuring motorist and pedestrian safety. Using input from residents and collected data, the Transportation division will assess and determine if any of these traffic management tools are required at a specific location.

2.1 Uncontrolled Intersections

Where there are no traffic control signs, the driver of a vehicle approaching an intersection must yield the right-of-way to any vehicle or pedestrian already in the intersection. When two vehicles approach an intersection from different streets or highways at approximately the same time, the right-of-way rule requires the driver of the vehicle on the left to yield the right-of-way to the vehicle on the right.

2.2 Yield Signs

A yield sign can be an effective traffic control device at intersections if it is found that the right-of-way rules do not provide safe, convenient and efficient traffic movement.

Figure 2: Standard yield sign

2.3 Stop Signs

A stop sign clearly assigns the right-of-way between vehicles approaching an intersection from different directions and it has been deemed that a yield sign is inadequate.

For all-way stops to be installed at an intersection, minimum criteria must be met. Where it has been determined that an all-way stop is required, the stop signs are supplemented with an 'All-Way' tab, placed below the stop sign.

Figure 3: Standard stop sign

2.4 Roundabouts or Traffic Signals

Traffic control signals and roundabouts are traffic control devices used to allocate right-of-way at an intersection. When traffic volumes at a stop-controlled intersection increase to the point that they cause delays or result in increased collisions, a higher form of traffic control, like traffic control signals or roundabouts, may be necessary.

Roundabouts can be considered at all locations that meet the warrants for traffic control signals.

2.5 How You Can Take Action

To learn if stop signs, all-way stops, roundabouts or traffic signals are appropriate at an intersection, please call 306-975-2454 or email Transportation@saskatoon.ca

To report a damaged or lost sign, please call Sign Shop 306-975-2682.

2.6 Things to Consider

- Stop signs are a form of traffic control used to assign the right-of-way at intersections; they are not intended to be used as speed control devices or to stop priority traffic over minor traffic.
- The introduction of unwarranted all-way stop signs has been shown to increase speed of the traffic travelling between intersections as drivers try to make-up time after stopping for the unwarranted stop sign.
- The installation of unwarranted all-way stop signs usually results in a higher occurrence of non-compliance of the stop signs at an intersection. This may lead to reduced pedestrian and motorist safety as approaching motorists fail to yield the right-of-way to pedestrians crossing the street.
- The review process for all-way stop signs, traffic control signals or roundabouts may take a few months to complete as it requires a traffic count. Traffic counts mostly take place in the spring, summer and fall.

- The costs to install traffic signals and roundabouts are relatively high. As a result, only those locations that satisfy a set of minimum criteria receive the devices.

2.7 Our Service to You

Step 1: Once a request is received, it is assigned to a Transportation Engineer who will contact you with the results of a recent evaluation or to inform you that a traffic count will be scheduled.

Step 2: Traffic volume and collision data will be analyzed to determine if the criteria for the installation of a new traffic control device are met. The study also reviews sightlines available to motorists approaching the intersection, the latest collision statistics at the intersection, the proximity to other traffic control devices on the roads, and the adjacent land use on the street.

Step 3: If the location is suitable for the installation of an all-way stop sign, the signs will be installed. If the location meets the criteria for the installation of a traffic control signal, the City of Saskatoon undertakes a functional design exercise that recommends an appropriate form of traffic control for the intersection.

Step 4: Once the analysis is complete, the project will be identified as part of the proposed budget for Intersection Improvements.

Step 5: The new traffic control signal or roundabout will be installed in the spring through fall months of the budget year in which the funds were approved by Council, depending on the extent of the roadway modifications.

3 Pedestrian Crossings

The City of Saskatoon offers a variety of traffic controls at pedestrian crosswalks. The uniform application of traffic control devices for pedestrian crossing promotes the orderly and predictable movement of vehicular and pedestrian traffic. The seven guiding principles for pedestrian crossing control are:

1. **Safety** – Devices should achieve a high level of compliance and minimize pedestrian exposure to vehicular traffic.
2. **Delay** – Delay experienced by pedestrians attempting to cross the road should be carefully managed.
3. **Equity** – Establishing equal access to the system by providing for the movement of people as for vehicular traffic is fundamental.
4. **Expectancy** – Devices should meet driver expectancy, thereby increasing driver response.
5. **Consistency** – Helps ensure that devices are recognized, comprehended and used effectively by all road users.
6. **Connectivity** – Effective crossing opportunities should be provided to ensure system connectivity for pedestrians while considering proximity to other crossings, driver expectation and safety of pedestrians.
7. **Pragmatism** – Consider practical issues or consequences associated with the provision of pedestrian crossing control devices (e.g. costs, ease of installation, maintenance).

3.1 Unmarked Crosswalks

Most crosswalk locations are currently unmarked by signs, pavement markings or signals. Crosswalks exist at each intersection of two streets, as defined in the Highway Traffic Act for Saskatchewan. Drivers can expect pedestrians to be present on all streets in an urban environment and therefore marking all crosswalk locations is unnecessary.

3.2 Standard and Zebra Crosswalks

Crosswalk pavement markings are applied to the roadway to indicate the area pedestrians are supposed to use to cross the roadway. The markings provide an additional reminder to motorists that they should be looking for pedestrians.

Two parallel, solid lines are used to designate a standard pedestrian crossing. However, at crossings where there are higher numbers of vehicles and pedestrians interacting, zebra pavement markings may be used to enhance the visibility of the crosswalk. For both standard and zebra crosswalks, the pavement markings are combined with ground-mounted signage.

Figure 4: Crosswalk pavement markings

3.2.1 How You Can Take Action

To learn if crosswalk pavement markings are appropriate at an intersection please call 306-975-2454 or email Transportation@saskatoon.ca.

To request that existing pavement markings be re-painted, please call the Sign Shop at 306-975-2682.

3.2.2 Things to Consider

- Pavement markings are typically only installed between April and November. If a request is made during the winter months, it will be reviewed and implemented in the spring or early summer.

3.2.3 Our Service to You

Step 1: Once the request is received, it will be assigned to a Transportation Engineer who will conduct a review to see if the location is a candidate for crosswalk pavement markings. If traffic and pedestrian volumes are high enough, zebra crosswalk markings may be implemented.

Step 2: If the location is suitable, pavement markings will be installed within six to eight weeks, weather permitting.

3.3 Pedestrian Actuated Devices

3.3.1 Rectangular Rapid Flashing Beacons (RRFB)

RRFB are pedestrian activated treatment systems which consist of two rapidly and alternately flashing rectangular amber beacons mounted above ground-mounted pedestrian signs.

Figure 5: Rectangular Rapid Flashing Beacons (RRFB)

3.3.2 Active Pedestrian Corridor (APC)

Pedestrian activated treatment system which consists of internally illuminated overhead mounted signs with alternating amber flashing beacons and down lighting.

Figure 6: Active Pedestrian Corridor (APC)

3.3.3 Pedestrian Actuated Signals (PAS)

Pedestrian actuated signals are a form of controlled pedestrian crossing that provides the right-of-way to pedestrians crossing the roadway when they have the walk signal displayed. The signals can be located at intersections or at mid-block locations. City Council approval is

required for all new pedestrian signal installations, and approval is obtained via the budget process.

Figure 7: Pedestrian Actuated Signal (PAS)

3.4 How You Can Take Action

To learn if a pedestrian crossing device is appropriate at an intersection or midblock location, please call 306-975-2454 or email Transportation@saskatoon.ca.

To request that existing pavement markings be re-painted, please call Sign Shop at 306-975-2682.

3.5 Things to Consider

- The review process for pedestrian crossing devices may take a few months to complete as it requires a traffic count. Traffic counts typically take place in the spring, summer and fall months.
- Pedestrian actuated device costs are relatively high. As a result, only those locations that meet the justification process receive the devices.
- Pavement markings are typically only installed between April and November. If a request is made during the winter months, it will be reviewed and implemented in the next painting season.
- Occasionally, there are operational or accessibility issues that may prevent the installation of a pedestrian crossing device.

3.6 Our Service to You

Step 1: Once the request is received, it will be assigned to a Transportation Engineer who will contact you with the results of the recent evaluation or inform you that a pedestrian survey/traffic count will be scheduled.

Step 2: Pedestrian survey and traffic volume data will be analyzed to determine whether the installation of a new pedestrian crossing device is justified.

Step 3: If a location is justified for the installation of a pedestrian crossing device, staff will determine if roadway modifications are required to implement the device.

Step 4: Standard and zebra crosswalks will be installed in the following season. If the identified treatment is a pedestrian actuated device, the location will be added to the list of locations as part of the proposed budget for the Pedestrian Crossing Improvements program.

Step 5: The new pedestrian crossing device will be installed through the spring to the fall of the budget year in which the funds were approved by Council, depending on the extent of the roadway modification required.

CITY OF SASKATOON
COUNCIL POLICY

NUMBER
C07-018

POLICY TITLE *Traffic Control at Pedestrian Crossings*	**ADOPTED BY:**	**EFFECTIVE DATE**
ORIGIN/AUTHORITY	**CITY FILE NO.** 6150	**PAGE NUMBER**

1. PURPOSE

   To establish guidelines to be followed by the Administration in the selection and installation of appropriate traffic control devices at pedestrian crossings.

2. DEFINITIONS

   For the purposes of this policy, the following definitions are used:

   2.1 Pedestrian – Any person on foot or in a wheelchair.

   2.2 Corridor – A pedestrian crosswalk that combines both pavement markings, signing and special illumination.

   2.3 Traffic Control Device – A sign, signal, marking, or other device, placed upon, over or adjacent to a roadway by a public authority or official having jurisdiction, which is intended to regulate, warn or guide the road user.

   2.4 Pedestrian Corridor (PC) – A pedestrian crosswalk that combines pavement markings, signing and special illumination.

   2.5 Rectangular Rapid Flashing Beacon (RRFB) – A pedestrian crosswalk that combines pavement markings, signing, and pedestrian-activated side-mounted amber flashing beacons.

   2.6 Active Pedestrian Corridor (APC) – A pedestrian crosswalk that combines pavement markings, signing, special illumination and pedestrian-activated overhead amber flashing beacons.

   2.7 Pedestrian Actuated Signal (PAS) – A traffic signal activated by pedestrians that directly controls through street traffic, with stop or yield control to side-street traffic, to create a gap in traffic that facilitates crossing.

2.8 Crosswalk (a.k.a. Crossing) – A marked pedestrian crossing defined by linear pavement markings and/or signs, or the prolongation through the intersection of the lateral boundary lines of the adjacent or intersecting sidewalks at the end of a block.

3. POLICY

The installation of appropriate traffic controls at pedestrian crossings shall be based on the process outlined in the latest edition of the Transportation Association of Canada's *Pedestrian Crossing Control Guide*.

4. RESPONSIBILITY

4.1 General Manager, Transportation & Utilities Department

The General Manager, Transportation & Utilities Department, or designate, will:

a) Administer and recommend updates to this policy.

4.2 City Council

City Council will:

a) Review and approve amendments to this policy.

88 King Street Equipment Storage Facility – 2018 Budget Adjustment Request

Recommendation

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

That a budget adjustment of $50,000 to Capital Project #2269 – TU Accommodation Construction funded from the Public Works Buildings Civic Facilities Reserve and the TU Department Capital Reserve be approved to install safety retrofits on the 88 King Street property for winter equipment storage.

Topic and Purpose

The purpose of this report is to request City Council approval for a budget adjustment to Capital Project #2269 – TU Accommodation Construction funded from the Public Works Buildings Civic Facilities Reserve and the TU Department Capital Reserve. The funds are required to install safety retrofits on the 88 King Street property for winter equipment storage.

Report Highlights

1. Safety retrofits are required at the newly acquired 88 King Street property for winter equipment storage.
2. Approval of $50,000 in capital funding will eliminate the requirement of an external leased facility, saving approximately $30,000 over the course of the winter of 2018-2019 and in future years.

Strategic Goal

This report supports the Strategic Goal of Asset and Financial Sustainability by utilizing vacant City facilities in lieu of renting external facilities.

Background

Currently, City Yards facilities do not include adequate indoor heated equipment storage required for the City's daily winter operations. Historically, this equipment has been stored at external leased facilities. With the recent purchase of the former Saskatchewan Transit Company facility located at 88 King Street, the City can reduce ongoing operating costs associated with daily use equipment storage.

Report

Retrofits Required to Meet Safety Standards

The 88 King Street property is owned by the City of Saskatoon and is not in proximity to any residential areas. Its daily use is not expected to be disruptive to local residents or businesses, and will use the same access points as existing City Yards operations.

In order to utilize this facility, immediate safety retrofits are required in the equipment maintenance portion of the facility. Currently there are open service pits which pose a falling safety hazard for both staff and equipment. As well, there are existing indoor fuel pumps which pose a risk of being struck by heavy equipment involved in daily operations.

Elimination of External Leased Facilities

In previous years, winter maintenance equipment was stored in external leased facilities in the North Industrial area. The anticipated cost of winter storage for the 2018-2019 snow and ice maintenance season is $10,000 to $15,000 per month, which is significantly higher than the expected operating cost of $8,500 per month using the 88 King Street property. From an operational perspective, 88 King Street is in closer proximity to City Yards allowing for more efficient mobilization and better synergy with the rest of the public works operations.

Options to the Recommendation

The Administration may be directed to secure privately-owned heated indoor storage at an expected cost of up to $80,000 in rental fees for the months of November 2018 to April 2019. This is not recommended as there are increased financial and operational implications.

Financial Implications

There is sufficient funding in the Public Works Buildings Civic Facilities Reserve ($40,000) and the TU Department Capital Reserve ($10,000) to fund this budget adjustment.

Other Considerations/Implications

There are no policy, public and/or stakeholder involvement, communications, environmental, privacy, or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

To ensure continued operational efficiencies, equipment storage facilities need to be in place by November 1, 2018.

Public Notice

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

Report Approval

Written by:	Cathy Davidson, Operations Manager, Roadways & Operations
Reviewed by:	Shelley Korte, Director of Business Administration
	Brandon Harris, Director of Roadways & Operations
Approved by:	Angela Gardiner, Acting General Manager, Transportation & Utilities Department