Additional Unfinished Business item was added on Page 1

PUBLIC AGENDA

STANDING POLICY COMMITTEE ON TRANSPORTATION

MONDAY, SEPTEMBER 15, 2014 AT 9:00 A.M., COUNCIL CHAMBER

Councillor C. Clark, Chair
Councillor R. Donauer, Vice-Chair
Councillor T. Davies
Councillor D. Hill
Councillor M. Loewen
His Worship the Mayor, D. Atchison (Ex-Officio)

1. CALL TO ORDER

2. CONFIRMATION OF AGENDA

3. ADOPTION OF MINUTES

3.1 Minutes of public meeting of the Standing Policy Committee on Transportation held on August 19, 2014.

4. UNFINISHED BUSINESS

4.1 New Pavement Design Guidelines
[Deferred matter from August 19, 2014 meeting]
[File No. CK. 6000-1]

Recommendation
1. That the new pavement design guidelines as outlined in the following report be approved; and
2. That the new guidelines be finalized and implemented for all development after January 1, 2015.

5. COMMUNICATIONS *(requiring the direction of the Committee)*

5.1 Delegated Authority Matters

5.2 Matters Requiring Direction

5.2.1 Urban Transportation and Design: Getting Where We Need To Go – Conference Recommendations, Toddi Steelman, Executive Director, School of Environment and Sustainability, University of Saskatchewan
[File No. CK. 7000-1]

Recommendation
That the direction of Committee issue.

6. REQUESTS TO SPEAK *(new matters)*

7. REPORTS FROM ADMINISTRATION

7.1 Delegated Authority Matters

7.2 Matters Requiring Direction – Report to Council

7.2.1 Update Report – Transit and School Board Discussions
[Files CK. 7300-1, WT. 7300-1]

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

That the report of the General Manager, Transportation & Utilities Department dated September 15, 2014, be forwarded to City Council for information.

7.2.2 Funds Dedicated to the Traffic Safety Reserve
[Files CK. 6320-1, TS. 1815-1]

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

1. That the City of Saskatoon's portion of the revenue generated from the Automated Speed Enforcement (commonly known as photo radar) program be dedicated to the Traffic Safety Reserve; and
2. That the City Solicitor be requested to prepare the amendments to Bylaw No. 6774, Capital Reserve Bylaw.

7.2.3 Communication to Council – Blair Wooff – undated – Limited Residential Parking Permit Program

[File CK. 6120-4-2]

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

1. That a Limited Residential Parking Permit Program be implemented on the 200 – 400 blocks of 25th Street West; and
2. That the City Solicitor be requested to prepare the amendments to Bylaw No. 7862, Residential Parking Program Bylaw, 1999.

7.2.4 Strategic Traffic Safety Action Plan

[File CK. 6320-1]

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

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.

7.2.5 Municipal Impound Lot Update – Hours of Operation

[File CK. 6120-6]

Recommendation
That the Standing Policy Committee on Transportation recommend to City Council during 2015 Business Plan and Budget deliberations:

1. That the Municipal Impound Lot continue Saturday hours of operation from 11:00 a.m. to 4:00 p.m. for vehicle retrievals; and
2. That the current hours of operation Monday to Friday, 8:00 a.m. to 7:00 p.m. be modified to 8:00 a.m. to 8:00 p.m.

7.2.6 Partnership with Saskatchewan Government Insurance
[File CK. 6320-1]

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

1. That the City of Saskatoon and Saskatchewan Government Insurance enter a formal agreement regarding collaborating on delivering cost-effective road safety projects within the City of Saskatoon; and
2. That the City Solicitor prepare the appropriate agreement and that His Worship the Mayor and the City Clerk be authorized to execute the agreement under the Corporate Seal.

7.2.7 Parking Restriction - Millar Avenue between 51st Street and 60th Street
[Files CK. 6120-2, TS. 6120-3]

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

That parking be restricted in each direction on Millar Avenue between 51st Street and 60th Street to create an extra lane of traffic in each direction to improve traffic flow.

7.2.8 Communications to Council – Ilsa Arnesen – December 3, 2013 Pedestrian Safety – 20th Street between Avenues M and P
[File CK. 6150-1]

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

That an Active Pedestrian Corridor located at 20th Street and Avenue N be installed.

7.2.9 Inquiry – Councillor Jeffries (December 2, 2013) Carpooling

[Files CK. 6330-1, WT. 7550-16]

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

That the option to subscribe to a ridesharing service such as Carpool.ca or Rideshark at an annual cost of $17,000 be referred to the 2015 Business Plan and Budget deliberations.

7.2.10 Pavement and Sidewalk Preservation Update

[Files CK. 6315-1, CS. 6315-1, CS. 1500-1]

Recommendation
That the Standing Policy Committee on Transportation submit the report of the General Manager, Transportation & Utilities to City Council for information.

8. URGENT BUSINESS

9. ADJOURNMENT

City of
Saskatoon

ADDITIONAL AGENDA ITEM

STANDING POLICY COMMITTEE ON TRANSPORTATION

MONDAY, SEPTEMBER 15, 2014

2. Confirmation of Agenda

The following attached letter has been received regarding the Public agenda:

- Request to Speak – Dave Palsat – Item 4.1

Recommendation

1. That Dave Palsat, Principal Consultant, Pavement Infrastructure Technologies, Tetra Tech be heard during consideration of agenda item 4.1; and
2. That the agenda be confirmed as amended.

New Pavement Design Guidelines

Recommendation

1. That the new pavement design guidelines as outlined in the following report be approved; and

2. That the new guidelines be finalized and implemented for all development after January 1, 2015.

Topic and Purpose

The purpose of this report is to provide information on the Administration's recommended new pavement design guidelines for construction of new roadways. The design guideline is based on the design procedures outlined in the American Association of State Highway and Transportation Officials (AASHTO) 1993 Guide for Design of New Pavement Structures.

Report Highlights

1. The City's current pavement design standards need to be improved in order to better accommodate existing soil conditions, water table issues and serviceability in the urban environment as Saskatoon expands, and to ensure the most cost-effective product is delivered to its citizens.
2. It is recommended by the Administration to proceed with implementing the AASHTO 1993 design methodology, supplemented with a sub-surface drainage requirement, as the City's standard for roadway design.
3. Implementing the AASHTO 1993 design standard will generally result in thicker asphalt, a sub drainage system for all new roadways, and a mandatory deferred top lift asphalt layer on local, collector and select arterial roadways with substantial utilities installed below.
4. For a typical residential roadway, there would be an increase in initial direct capital cost of approximately 14% to 43% depending on the soil and groundwater conditions.
5. For a typical paved lane, there would be an increase in initial direct capital cost of 33% to 67% depending on the soil and groundwater conditions.

Strategic Goals

Upgrading the pavement design guidelines aligns with the City's Building Better Roads plan and supports the Strategic Goals of Asset and Financial Sustainability and Moving Around.

Background

Improvement of Pavement Design Guidelines

The Administration is looking to improve the City's current pavement design standards in order to better accommodate existing soil conditions, water table issues and serviceability in the urban environment as Saskatoon expands, and to ensure the most cost-effective product is delivered to its citizens.

The Administration commissioned a study to review, compare and recommend a design methodology that would provide the City with the best, most cost-effective roads for the long term. Methodologies such as the Saskatchewan Method, AASHTO, Mechanistic Empirical Pavement Design Guide and mechanistic design methodologies were assessed and evaluated as part of the study.

The City's current design standards are based on the Saskatchewan Shell Curve design method, modified to deal with local climate and soils. This methodology is only practiced in Saskatchewan and is being used by the Saskatchewan Ministry of Highways and Infrastructure. The City of Saskatoon has been utilizing this method for over 25 years.

Reviewing the design standards is intended to address roadway issues related to moisture sensitive soils, water infiltration and increased heavy traffic during build out of neighbourhoods.

Report

The City's goal is to have an improved pavement design guide that follows a design methodology that:

- is well understood and widely used throughout North America;
- is geared towards pavement structural design for urban conditions;
- can be reviewed and checked in-house by City Staff;
- can be easily adopted well in advance for roadway design work required for the 2015 construction season; and
- offers the ability to provide additional design and rehabilitation options by utilizing non-destructive testing and analysis.

Tetra Tech EBA Inc. (Tetra Tech) was commissioned to evaluate and recommend a design methodology that would provide for the above points. The three tasks undertaken were:

1. Identify, evaluate and recommend a preferred pavement design methodology for new pavements;
2. Determine appropriate values or methods to establish the inputs and parameters required for the preferred design method; and
3. Develop a Pavement Design Guide for new pavement.

Recommended Design Methodology

A number of methodologies such as the Saskatchewan Method, AASHTO, Mechanistic Empirical Pavement Design Guide and mechanistic design methodologies were

assessed and evaluated. The above methodologies were thoroughly reviewed by Tetra Tech and it is recommended to proceed with the AASHTO 1993 methodology which is a North American best practice. Many jurisdictions in Canada utilize the AASHTO 1993 methodology including British Columbia, Alberta, Manitoba, Ontario, Quebec, and Nova Scotia, as well as most of the United States. The Administration instructed the consultant to move forward with the AASHTO 1993 methodology for the purpose of generating a new roadway design guide (Attachment #1). The Administration wishes to adopt the new methodology for any new development after January 1, 2015.

The new design guidelines provide the following features:

- Accommodation of alternative materials in the design process such as recycled concrete, drainage materials, high performance polymer-modified asphalt concrete (PMAC);
- Provides a reliability-based approach to account for variations in traffic and performance prediction and to manage this risk based on roadway traffic loading (or roadway classification);
- Is technically straightforward and generally well understood by pavement practitioners;
- Has design inputs (traffic loading and subgrade support condition) that are relatively inexpensive to quantify;
- Is a procedure that is empirically based and has been used in Western Canada for 20 plus years with good performance experience;
- Can be used in the design of pavement rehabilitation options using non-destructive testing;
- Can be implemented quickly by the City; and
- Will provide the option to possibly adopt the new AASHTO Mechanistic-Empirical Pavement Design Guideline in the future.

<u>Resulting Factors of the New Design Guideline</u>

The key differences with the current design standards and the proposed design standards are:

- a required sub drainage system for all roadways;
- designs will be developed using AASHTO 1993 criteria, which will typically result in a thicker hot mix asphalt layer; and
- a mandatory deferred top-lift asphalt on all local roadways, all collector roadways and select arterial roadways with substantial utility installations.

The sub drainage system is to mitigate water or frost related failure mechanism. This is the primary cause of premature failures in the City's roadway network. The changes proposed will result in longer service life of the City's roadway system. The changes will also minimize the risk of future full-depth structural rehabilitations, which are extremely costly and disruptive. The deferred top-lift asphalt process will provide staged construction to help deal with short-term settlements from utility installations and provides a new driving surface close to substantial neighbourhood build out once construction traffic has been removed from the area and damage to the roadways can be minimized.

While the design guide is near its final draft, there will be minor modifications to include items including minimum paved lane structures, mandatory deferred pavement lifts and modifications to ensure the guide aligns with the City of Saskatoon Standard Specifications and Drawings.

Communication Plan

The Developer's Liaison Committee was presented the new design guidelines on July 29, 2014. The Administration has taken comments and concerns from the committee into account for further follow-up and review prior to final implementation of the design standards. Any changes resulting from reviews will be based on best engineering practices.

Any change to current practices, with regard to the items listed above, will continue to be coordinated with Transportation, Water and Sewer, Public Works and other divisions or stakeholders as required. Communication activities will be integrated when possible into relevant communication plans involving roadway design, preservation or construction practices.

The communication of the new standards will be integrated with the City's Building Better Roads communication plan including news conferences, advertisements, and social media as required.

Financial Implications

The most significant change to building our roads includes a thicker asphalt layer, the required installation of a sub drainage system and mandatory deferred pavement lifts on lower class roadways and roadways with substantial infrastructure installed below.

For a typical residential roadway, there would be an increase in cost of approximately $10 to $30 per square meter depending on the sub drain system required resulting from the soil and water table conditions. On a typical 10m roadway, these changes will add between $762 and $2,287 to the development cost of the lot.

To construct a new residential roadway, based on the City's current design standard, it costs approximately $70 per square meter. Under the new design guidelines and given the same bearing strength of the subgrade, the cost to construct could range from approximately $80 to $100 per square metre including a sub drainage system and thicker asphalt.

Paved back lanes will be required to have the same roadway structure as a local roadway with a centre drain or a full drainage layer depending on the estimated level of the water table. To construct a new paved back lane, based on the City's current design standard, it costs approximately $60 per square meter. Under the new proposed design guidelines and given the same bearing strength of the subgrade, the cost to construct could range from approximately $80 to $100 per square metre. These changes will add between $1,174 to $2,881 to the development cost of each lot.

It should be noted that although the initial capital cost is higher, the Administration is confident that the new roadway standard will provide higher quality roadways that require less expensive treatments over their lifecycle to maintain their good condition. Investing more up front will result in savings in the future.

Other Considerations/Implications

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

Due Date for Follow-up and/or Project Completion

The City Administration plans to adopt the new methodology for January 1, 2015.

Public Notice

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

Attachment

1. Tetra Tech EBA Inc. – City of Saskatoon New Roadway Pavement Design Guide

Report Approval

Written by:	Mitchell Parker, Manager, Asset Preservation for Roads
Reviewed by:	Rob Frank, Manager, Preservation Services
Reviewed by:	Mike Gutek, Director of Major Projects
Approved by:	Jeff Jorgenson, General Manager, Transportation & Utilities

TRANS MG – New Pavement Design Guideline – July 30 2014

TETRA TECH

CITY OF SASKATOON NEW ROADWAY PAVEMENT DESIGN GUIDE

BUILDING BETTER ROADS
SASKATOON'S ROAD PLAN

PRESENTED TO
The City of Saskatoon

JUNE 2014
ISSUED FOR USE
FILE: E32103173-01

Tetra Tech EBA Inc.
300, 410 - 22 Street East
Saskatoon, SK S7K 5T6 CANADA
Tel 306.347.4000 Fax 306.352.1687

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LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of The City of Saskatoon and their agents. Tetra Tech EBA Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than The City of Saskatoon, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in Tetra Tech EBA Inc.'s Agreement with the City of Saskatoon dated March 7, 2014.

1.0 PURPOSE

The purpose of the City of Saskatoon New Roadway Pavement Design Guide (Design Guide) is to define the pavement design methodology and procedures to be used for new flexible pavement design within the City of Saskatoon. The Design Guide is based on the design procedures outlined in the American Association of State Highway and Transportation Officials (AASHTO) 1993 Guide for Design of New Pavement Structures modified for the City of Saskatoon's conditions.

This Design Guide focuses on addressing three primary components concerning the design of new flexible pavement structures:

1. Drainage,
2. Subgrade Support, and
3. Traffic Loadings.

Design methodology has been provided for both rural and urban roadway cross-sections. For the purpose of this Design Guide, urban and rural cross sections can be defined as follows:

- Urban cross-section – roadway with surface drainage controlled with curb and gutter, catch basins and a storm sewer system; and
- Rural cross-section – roadway with surface drainage directed to ditches on both sides of the road, with a minimum of 1 m from ditch bottom to the top of subgrade and with lateral drainage of the granular material extended through the shoulder to drain out onto the side slope.

The design methodology presented in this Design Guide addresses the various design steps and inputs the Pavement Designer must consider when completing a new flexible pavement design. These steps are presented in Figure 1 located in the Figures section of this Design Guide.

2.0 DESIGN INPUTS

2.1 Drainage Considerations

It is important to consider geometric aspects that influence pavement drainage. Adequate surface drainage is important and minimum cross-slopes and longitudinal grades should be established. Sufficient grade at the top of subgrade is important to promote water being evacuated as quickly as possible along the granular base-subgrade interface. These influencing geometric factors apply to both urban and rural cross-sections.

2.1.1 Urban Cross-section

Guidelines for the pavement design drainage for urban cross sections are presented in the following sections. A hydro-geological study should be carried out for areas incorporating new or reconstructed roadways. Note that "seasonal groundwater" represents the most shallow groundwater condition anticipated, based on the hydro-geological study for the area. Sample cross sections for urban drainage conditions are presented in Figure A.

Seasonal Groundwater Greater than 1.0 m below Subgrade Elevation

Where the seasonal groundwater is located 1.0 m or greater below the anticipated subgrade elevation longitudinal edge drains should be provided within the sub-base material at the top of subgrade. For crowned roads a drain is

required on both sides of the pavement. If superelevated the drain is only required on the low side. A notch at the edge of the subgrade using a motor grader is often used to avoid the drain pipe from creeping during sub-base placement. The subdrain should be a 100 mm diameter (or greater if required by the roadway width) perforated plastic pipe with a filter sock. Positive outfall of the drains should be provided at catchbasins. Where catch basins do not exist, outfall can be made to ditches with a preferred spacing of 100 m.

Seasonal Groundwater Less than 1.0 m below Subgrade Elevation

Where the seasonal groundwater is located less than 1.0 m below the anticipated subgrade elevation, a minimum 200 mm thick drainage layer should be provided. The drainage layer should be enveloped in non-woven geotextile to prevent fines from entering the drainage layer. To evacuate the collected water the same subdrain configuration as described for the "groundwater greater than 1.0 m" condition should be installed. The drain should be located within the drainage layer material and geotextile with positive outfall at catchbasin locations.

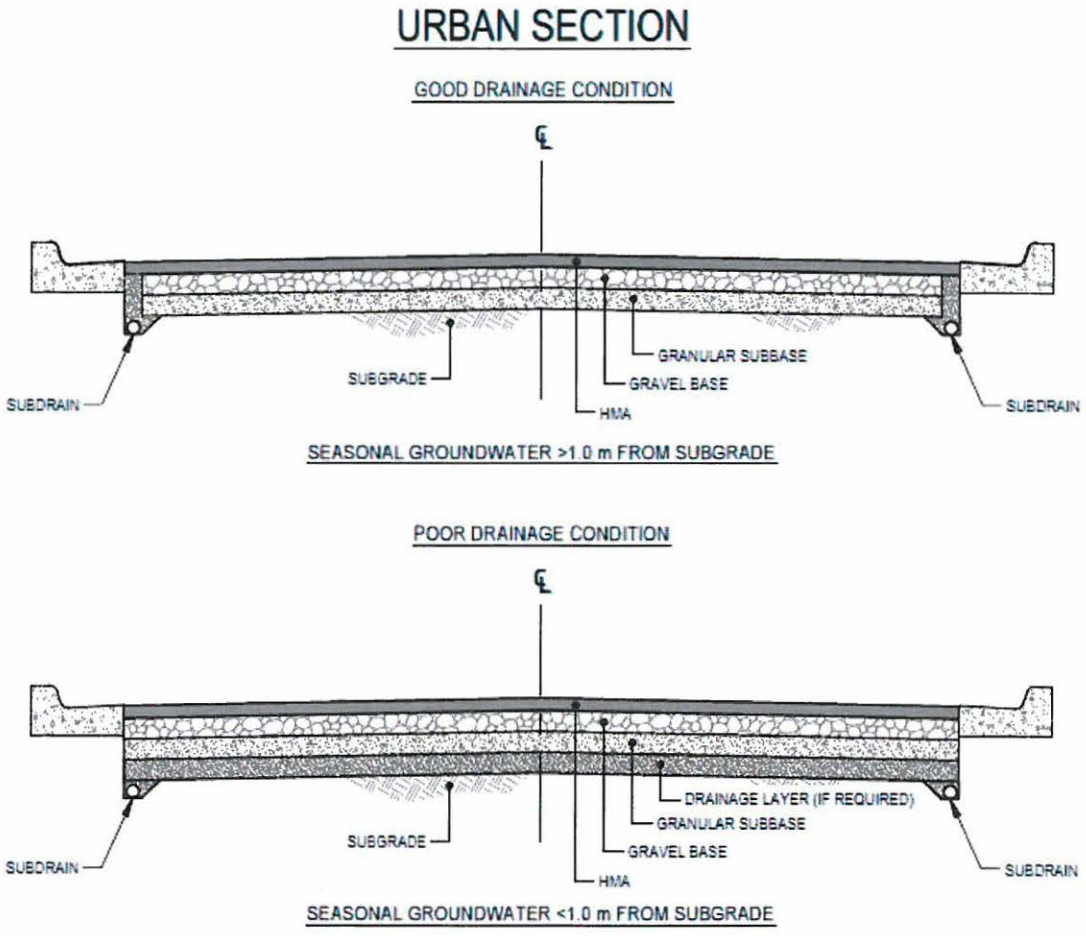


Figure A: Sample Urban Cross Section Drainage Conditions

2.1.2 Rural Cross-section

Guidelines for the pavement design drainage for rural cross sections are presented in the following sections. In the case of rural cross sections, the drainage design is based on the distance from the top of subgrade to the ditch invert.

Ditch Invert 1.0 m or Greater below Subgrade Elevation (Good Condition)

Where the ditch invert is located a 1.0 m or more below the subgrade, the pavement drainage condition is considered as good. In this case the granular materials, base and sub-base, should extend to the road sideslope to enable water to escape. No other drainage detail is necessary.

Ditch Invert between 0.5 m to <1.0 m below Subgrade Elevation (Marginal Condition)

Where the ditch invert is located less than 1.0 m below subgrade, but greater than 0.5 m, the pavement drainage condition is considered marginal. Project and location specific conditions should be considered that would influence the potential depth of water that may be held in the ditch. This would include the longitudinal ditch grade, sideslope angle, width of ditch, surface drainage pattern from surrounding area, etc. .

If the potential for standing water greater than 200 mm in depth is considered unlikely, the "good condition" detail of daylighting the granular materials to the sideslope is considered appropriate. If the potential for standing water greater than 200 mm in depth is considered likely, the pavement structure should be designed as for an urban section with the same details for either a shallow or deep groundwater condition (but not curb and gutter). The material outside of the roadway footprint (i.e. the material forming the sideslope) should be constructed with fine-grained low permeable material to act as a "plug" preventing water from entering the pavement structure from the ditch.

Ditch Invert less than 0.5m below Subgrade Elevation (Poor Condition)

Where the ditch invert is located less than 0.5 m below subgrade, the pavement drainage condition is considered poor. The pavement structure should be designed as for an urban section with the same details for either a shallow or deep groundwater condition (but not curb and gutter). The material outside of the roadway footprint (i.e. the material forming the sideslope) should be constructed with fine-grained low permeable material.

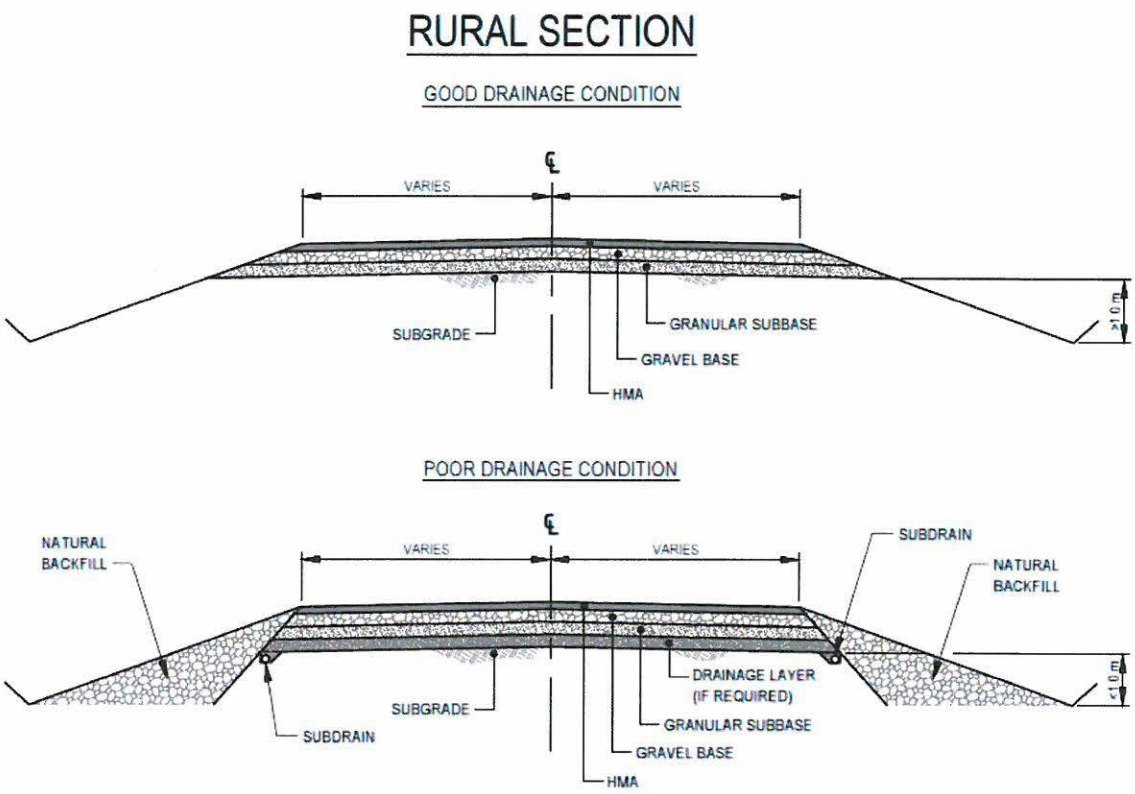


Figure B: Sample Rural Cross Section Drainage Conditions

2.2 Subgrade Support Conditions

Subgrade support is to be expressed in terms of resilient modulus (M_R). Two acceptable methods for classifying subgrade support are as follows:

1. Estimating the Subgrade Resilient Modulus from California Bearing Ratio (CBR); and/or
2. Determining the Resilient Modulus from Non-Destructive Testing of Prototype Pavements.

Estimating the Resilient Modulus from CBR

Correlations have been established by researchers that allow the resilient modulus to be estimated from other soil properties. The correlation for fine grained soils with a soaked CBR of 10 or less is:

Equation 1

$$M_R\ (MPa) = 10.3 \times (CBR)$$

An appropriate number of tests should be performed to reflect the test repeatability, the range of soil types expected to be encountered on the project, and the size of the project. The recommended minimum frequency for CBR testing is one test for every 3,000 sq.m. of pavement, with a minimum of three tests per project.

Determining the Resilient Modulus from Non-Destructive Testing of Prototype Pavements

The resilient modulus may be determined by testing a prototype pavement structure with a Falling Weight Deflectometer (FWD) and the deflection data analysed to determine the back-calculated subgrade modulus. For the design of new construction pavement structures, the subgrade modulus can be estimated using an existing representative roadway located near the new project, with similar subgrade soils and drainage conditions, as a prototype. The prototype should preferably meet the following criteria:

- be a minimum of 3 years old;
- be a minimum of 0.5 km in length;
- be reasonably free of structural distress;
- be slightly under-design for the loading condition on the new project being designed; and
- have the same pavement structure type as proposed for the new project being designed.

Alternatively, for a roadway that is being reconstructed to increase capacity or improve geometrics, the existing road can be tested with an FWD prior to reconstruction.

The recommended method for determining design M_R from FWD testing requires an adjustment factor (C) to adjust the value used to represent subgrade conditions consistent with the AASHO road test and to account for regional climate effects. The intent of this adjustment is to ensure the design M_R is representative of the aggregate "year-round" subgrade support condition.

The Effective Roadbed Resilient Modulus for design purposes can be determined by the following equation:

Equation 2

$$Design\ M_R = 0.36 \times (Backcalculated\ M_R), where\ M_R\ is\ in\ MPa$$

This combined adjustment factor would apply to pavement tested by the FWD during the mid-summer through early fall months when the subgrade is in a relatively stable and unfrozen condition. Unusual spring conditions (earlier or later than normal) may affect this period of stability and should be considered when interpreting the results.

The City must approve the use of this method to determine the resilient modulus for pavement design purposes on a project-by-project basis.

Selection of the Resilient Modulus Value for Design

It is important to note that the design of a pavement structures following the 1993 AASHTO Guide is based on the average M_R value for a representative soil type. The designer must not select a design M_R value based on some minimum or conservative criteria as this will introduce increased conservatism in design beyond that provided in the reliability factor.

2.3 Design Traffic

Design Traffic is defined in terms of Equivalent Single Axle Loadings (ESALs). Based on the information provided in this section of the Design Guide, the new Roadway Design ESALs can be determined using the following procedure:

Step 1: Determine the roadway Classification (from the City)

Step 2: Estimate the new roadway AADT and % Commercial as appropriate (from the City's Transportation Division)

Step 3: Determine the required Design Period based roadway Classification and roadway cross section type (urban or rural) using Table 1

Table 1: Recommended Design Period

Roadway Classification	Design Cross Section Type	
	Rural (years)	Urban (years)
Class B	15	15
Class C	15	15
Class A - Local Commercial	15	15
Collector	15	20
Industrial	15	20
Arterial	20	30
Freeway	30	30

Step 4: Estimate the Direction Split for two-way roads

Instances where commercial vehicle loadings may not be equally distributed between travel directions should be considered.

Step 5: Estimate the Lane Distribution Factor (LDF) for multi-lane roadways using Table 2

Table 2: Lane Distribution Factors

Roadway Cross-Section	LDF		
	1 Lane Section	2 Lane Section	3 or more Lane Section
Urban	▪ 100% in each lane	▪ 60 to 70% in each lane ▪ 100% buses in outside (slow) lane	▪ 50 to 65% in outside (slow) lane and center lanes ▪ 30% in inside lanes ▪ 100% buses in outside (slow) lane
Rural	▪ 100% in each lane	▪ 85% in outside (slow) lane ▪ 40% in inside (fast) travel lane	▪ 50 to 70% in outside (slow) lane ▪ 50 to 65% in center lanes ▪ 25 to 35% in inside lane

Table 2 provides recommended Lane Distribution Factors. For freeways of 3 or more lanes, a traffic study may be warranted to estimate project specific LDF values.

Step 6: Estimate the Load Equivalency Factor (LEF) for the expected axle classifications/loadings

Ideally a blended LEF is determined from detailed axle spectra, which would include the anticipated range of axle classifications and weights. It is understood however that this information is not always available, and therefore a blended LEF must be estimated by other means.

Commercial Traffic is typically expressed in terms of percentage Single Unit Trucks, Tractor Trailer Combinations, and Transit Bases. The following range of LEFs is recommended for each commercial vehicle classification:

- Single Unit Trucks (SUT) – 0.8 to 1.2 ESALs per truck;
- Tractor Semi-Trailer Combinations (TTC) – 1.2 to 2.0 ESALs per truck; and
- Transit Buses (Bus) – 2.0 to 3.0 ESALs per bus.

A blended LEF can be determined from the LEF values for each truck/bus classification and the estimated proportion of each truck/bus type using Equation 3.

Equation 3

$$Load\ Equivalency\ Factor\ (LEF) = \frac{[(\#SUT) \times SUT_{LEF} + (\#TTC) \times TTC_{LEF} + (\#Bus) \times Bus_{LEF}]}{(\#SUT) + (\#TTC) + (\#Bus)}$$

Step 7: Determine the Traffic Growth Factor (TGF)

Estimate the traffic growth rate and determine the Traffic Growth Factor (TGF) for the corresponding Design Period from Step 3. The TGF can be determined using Equation 2.

Equation 4

$$Traffic\ Growth\ Factor\ (TGF) = \frac{[(1+g)^n - 1]}{g}$$

Where:

- g = growth rate (expressed as a decimal, e.g. 3% = 0.03); and
- n = design period in years.

Step 8: Determine the new roadway Design ESALs as per Equation 5

Equation 5

$$Design\ ESALs/lane = (\text{AADT}) \times (\%\ \text{Commercial}) \times (\text{Direction Split}) \times (\text{LDF}) \times (\text{LEF}) \times (365\ \text{days/year}) \times (\text{TGF})$$

3.0 DESIGN PROCEDURE FOR NEW CONSTRUCTION

The methodology presented in this Design Procedure is based on AASHTO 1993 modified for local conditions including materials, climate, etc. The premise of this Design Procedure is founded on the following principles:

1. Drainage Condition Evaluation;
2. Evaluation and Classification of Subgrade Support Conditions;
3. Estimation of Design Traffic (ESALs);
4. Define Pavement Material Characteristics;
5. Define AASHTO Design Inputs and Complete Design Alternatives; and
6. Validate Design Against Layer Thickness Minimums and Construction Costs.

3.1 AASHTO Design Inputs; Reliability, Serviceability and Overall Standard Deviation

The Design Inputs recommended for completing new flexible pavement designs are presented in Table 3:

Table 3: AASHTO Pavement Design Inputs

AASHTO Design Input		Value
Design ESALs		As Determined in Section 2.3
Reliability (Function of Design ESALs per lane)		
	Design ESALs (per lane) Range	
	< 100,000	75
	> 100,000 – 1,000,000	80
	> 1,000,000 – 5,000,000	85
	> 5,000,000 – 10,000,000	85
	> 10,000,000	90
Serviceability		
	Initial Serviceability Index (p_i)	4.2
	Terminal Serviceability Index (p_t)	2.5
	Serviceability Loss (Δpsi)	1.7
Overall Standard Deviation (S_o)		0.45
Subgrade Resilient Modulus (M_R)		As Determined in Section 2.2

In instances where the Design Reliability could vary by lane across a roadway width (as determined by Design ESALs), the lane with the highest reliability shall govern and shall be used for the design of all lanes. The design reliability is used to determine standard normal deviate (Z_R), which is a normally distributed random variable with expected value 0 and variance 1.

3.2 Material Characterization

The material layer properties and corresponding AASHTO layer coefficients recommended for use in the design of new pavement structures are presented in Table 4. The material properties for Granular Base, Granular Sub-base and Drainage Layers are based on material specifications used by the City of Saskatoon (Saskatoon 2014-2).

Table 4: Recommended AASHTO Layer Coefficients

Material Type	Material Properties	AASHTO Layer Coefficient
ACP	n/a	0.40
ACP - Polymer Modified	n/a	0.42
Cold In-place Recycled Asphalt Concrete	n/a	0.30
Full Depth Reclamation with Stabilization	n/a	0.30
Granular Base Course	CBR 65	0.13
Granular Sub-base Course	CBR 25	0.10
Drainage Rock	CBR 25 - 35	0.10
Drainage Recycled Concrete	CBR 25 -35	0.10
Drainage Sand	CBR 10 - 20	0.08

AASHTO 1993 also provides guidelines for addressing the expected drainage conditions of the pavement structure through the use of modified layer coefficients. The factor for modifying the layer coefficient has been integrated into the structural number equation as a drainage coefficient for each pavement layer. Drainage considerations pertaining to pavement design have been addressed in detail in Section 2.1 of this Design Guide.

The drainage coefficients recommended for use in the design of new pavement structures are presented in Table 5.

Table 5: Recommended AASHTO Drainage Coefficients

Material Type	Urban and Rural Drainage Coefficient for Good Drainage	Rural Drainage Coefficient for Poor Drainage
ACP	n/a	n/a
ACP - Polymer Modified	n/a	n/a
Granular Base Course	1.0	0.8
Granular Sub-base Course	1.0	0.8
Drainage Rock	1.0	1.0
Drainage Recycled Concrete	1.0	1.0
Drainage Sand	1.0	1.0

The recommended gradation and permeability requirements for drainage layer materials are provided in Table 6.

Table 6: Recommended Drainage Layer Gradation and Permeability Requirements

Sieve Size	% Passing		
	Drainage Rock	Reclaimed PCC	Sand
50 mm	100	100	
25 mm	0 - 80	0 - 80	
12.5 mm	0 - 18	0 - 18	100
5 mm	0 - 12	0 - 12	75 - 100
2 mm	-	-	55 - 100
800 µm	-	-	35 - 75
400 µm	-	-	20 - 50
71 µm	0 - 5	0 - 5	0 - 5
Permeability (cm/sec), minimum			
1×10^{-4}			

3.3 AASHTO Design Procedure

An AASHTO Design SN is determined from design ESALs, subgrade resilient modulus, and AASHTO design inputs using one of the following methods:

Method 1: Using the AASHTO DARWin 3.1 Software Program

Method 2: Solving the AASHTO Structural Number Equation, presented as Equation 6

Equation 6

$$\log_{10}(W_{18}) = Z_R \times S_o + 9.36 \times \log_{10}(SN+1) - 0.20 + \frac{\log_{10}\left(\frac{\Delta PSI}{4.2-1.5}\right)}{0.40 + \frac{1094}{(SN+1)^{5.19}}} + 2.32 \times \log_{10}(M_R) - 8.07$$

Note: inputs are in Imperial units (i.e. inches, psi etc.).

Once the design structural number (SN) has been determined using one of the methods described above, it is necessary to identify a set of pavement layer thicknesses which, when combined, will provide the load-carrying capacity corresponding to the design SN. The following equation (Equation 5) provides the basis for converting SN into actual thickness of Asphalt Concrete Pavement (ACP), granular base course, and granular sub-base course:

Equation 7

$$SN = a_1 D_1 + a_2 D_2 m_2 + a_3 D_3 m_3 + \cdots a_n D_n m_n$$

Where,

- a_1, a_2, a_3,a_n = layer coefficient for each pavement layer (a_1 is the asphalt concrete layer);
- D_1, D_2, D_3 , D_n = actual pavement layer thickness (mm) (D_1 is the asphalt concrete layer); and
- m_2, m_3, m_n = drainage layer coefficients for each corresponding pavement layer.

The SN equation does not have a single unique solution, and there are many combinations of layer thicknesses that provide satisfactory thickness design solutions.

3.4 Minimum Pavement Layer Thicknesses

Consideration should be given to minimum design thicknesses of the various pavement materials. Minimum thicknesses have been established primarily for two reasons:

1. Material properties (i.e. aggregate top size and gradation) dictate the minimum constructable layer thickness, and

2. Minimum pavement layer thicknesses should be determined for the purpose of sufficiently limiting the stresses and strains at pavement layer boundaries as to prevent permanent deformation for the design traffic loading (ESALs).

Recommended minimum layer thicknesses for each roadway classification are presented in Table 7.

Table 7: Recommended Minimum Pavement Layer Thicknesses

Roadway Classification	Minimum ACP Thickness (mm)	Minimum Granular Base Course Thickness - if Used (mm)	Minimum Granular Sub-base Course Thickness - if Used (mm)	Minimum Drainage Layer Thickness (mm)
Class B	75	100	150	200
Class C	75	100	150	200
Class A - Local Commercial	75	100	150	200
Collector	95	100	150	200
Industrial	110	100	150	200
Arterial	160	100	150	200
Freeway	175	100	150	200

There may be instances (economic, constructability, etc.) where the Designer may elect to design the pavement structure granular layers entirely out of granular base course, or a combination of base gravel and drainage layer. In these instanced the following minimum granular base course layers are recommended:

- Granular Base Course over Drainage layer – minimum base thickness of 200 mm; and
- Granular Base Course over Subgrade - minimum base thickness of 300 mm.

Figure C presents example cross sections showing alternative minimum granular base/sub-base course layer thicknesses.

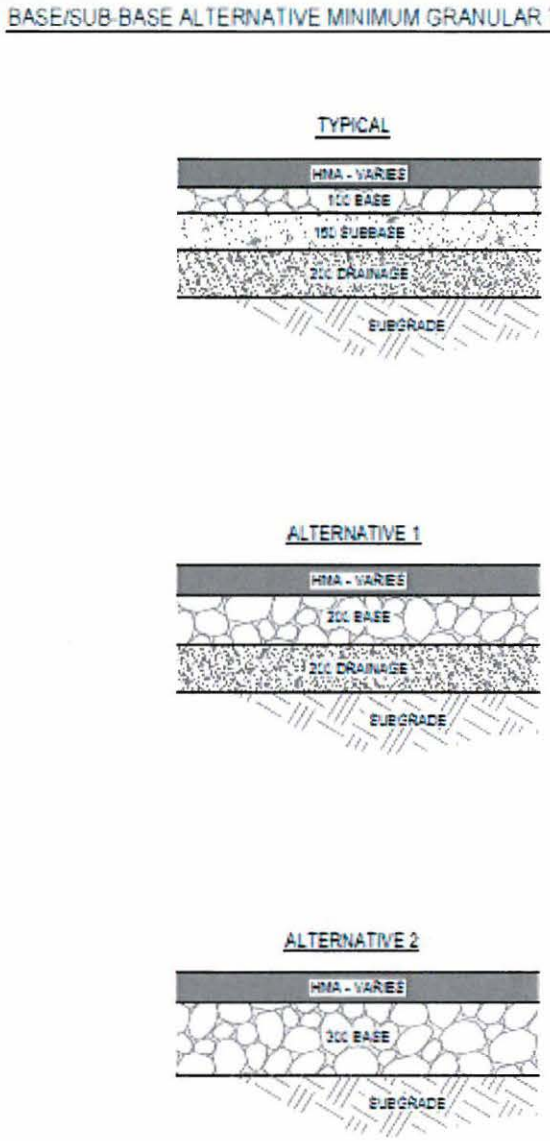


Figure C: Granular Base/Sub-base Alternative Minimum Granular Thicknesses

It is ultimately the designer's responsibility to ensure the AASHTO layer designs conform with the pavement layer minimums.

3.5 Deferred Top Lift Construction

Deferred top lift construction includes the application of a first stage ACP layer with deferment of up to 2 years of a final stage ACP layer until a point where the majority of the new development construction is complete. Deferring the final stage ACP layer provides two major benefits:

1. Staged construction provides an opportunity for any corrections to the roadway profile due to settlement, additional utility installation, or initial pavement deficiencies/defects, and

2. Staged construction provides a final surfacing to the roadway following the majority of the heavy vehicle loading (construction traffic), and restores the roadways serviceability.

Table 8 provides recommendations for minimum ACP thicknesses for first and final stage construction for each roadway classification.

Table 8: Minimum Recommended ACP Thicknesses for Deferred Construction

Roadway Classification	Minimum Constructed ACP Thickness (mm)	
	First Stage	Final Stage
Class B	50	35
Class C	50	35
Class A - Local Commercial	50	35
Collector	60	35
Industrial	60	50
Arterial	110	50
Freeway	125	50

If deferred top lift construction is selected, it is the ultimately the Designer's responsibility to ensure all ACP layers conform with the design ACP thickness as well as the minimum ACP layer thicknesses presented in Table 8. For the purposes of table, the final stage lift is to be constructed within two years.

3.6 Sample Design

The following is an example of a new flexible pavement design using the Design Procedure presented in Figure 1 and in this report.

Sample Project Description:

The City would like to complete a new pavement design for a 2-lane (1-lane per travel direction) Urban Arterial Roadway with and estimated AADT of 7000 vehicles/day and Total Percent Commercial = 6% with 40 Transit Buses per day.

Step 1: Establish Drainage Condition

Proposed roadway geometric, geotechnical and subsurface drainage conditions indicate that this Urban Section pavement will be subjected to groundwater conditions less than 1.0 m from the top of subgrade elevation. Therefore, a drainage layer consisting of drainage rock with longitudinal sub drains is selected for this pavement structure and drainage layer coefficients of 1.0 are to be used for each pavement layer material.

Step 2: Establish Subgrade Support Condition

Laboratory testing of the subgrade materials indicated an expected bearing capacity equivalent to a soaked CBR = 3.0%.

From equation 1:

$$M_R\ (MPa) = 10.3 \times (CBR) = 10.3 \times (3.0) = 31\ MPa$$

This design M_R was confirmed from FWD testing of prototype roadways in the vicinity with showed seasonally adjusted resilient moduli ranging between 25 and 35 MPa.

Step 3: Estimate Design ESALs

A limited traffic review of the City's historical traffic information foo the surrounding areas suggests the following traffic inputs should be used in determining Design ESALs:

- 2-Way AADT = 7000 vehicles/day with 3% Growth;
- Directional Split = 0.5 (50% of AADT in each travel direction);
- LDF = 1.0 (only a single lane in each travel direction);
- Commercial Volumes = 6% of AADT of which 4% are Single Unit Trucks (SUT) (280 total) and 2% are Tractor Trailer Combinations (TTC) (140 total) with an additional 40 buses per day;
- Estimated LEF for SUT = 0.9;
- Estimated LEF for TTC = 1.7; and
- Estimated LEF for buses = 2.0.

From Equation 3:

$$Load\ Equivalency\ Factor\ (LEF) = \frac{[(\#SUT) \times SUT_{LEF} + (\#TTC) \times TTC_{LEF} + (\#Bus) \times Bus_{LEF}]}{(\#SUT) + (\#TTC) + (\#Bus)}$$

$$LEF = \frac{[(280)(0.9) + (140)(1.7) + (40)(2.0)]}{(280) + (140) + (40)} = 1.24\ ESALs\ per\ Commercial\ Vehicle$$

From Table 1, the Design Period for an Urban Arterial = 30 years. Therefore from Equation 4:

$$Traffic\ Growth\ Factor\ (TGF) = \frac{[(1+g)^n - 1]}{g}$$

$$TGF = \frac{[(1+0.03)^{30} - 1]}{0.03} = 47.6$$

From Equation 5:

$$Design\ ESALs/lane = (\text{AADT}) \times (\%\ \text{Commercial}) \times (\text{Direction Split}) \times (\text{LDF}) \times (\text{LEF}) \times (365\ \text{days/year}) \times (\text{TGF})$$

$$Design\ \frac{ESALs}{lane} = (7{,}000) \times (0.06) \times (0.5) \times (1.0) \times (1.24) \times (365) \times (47.6) = 4.6M\ ESALs/lane$$

Step 4: Determine AASHTO Structural Number (SN)

Using the following Design Inputs from Steps 2 and 3 above:

- From Step 3 Design ESALs (W18) = 4.6M ESALs/lane;
- From Table 3 Design Reliability (R) = 85%;

- Initial Serviceability (p_i) = 4.2;
- Terminal Serviceability (p_t) = 2.5;
- **Serviceability Loss Factor** (ΔPSI) = 4.2 – 2.5 = 1.7; and
- From Step 2 Subgrade Soil Resilient Modulus (M_R) = 31 MPa = 4495 psi.

Solving for SN in Equation 6:

$$\log_{10}(W_{18}) = Z_R \times S_o + 9.36 \times \log_{10}(SN+1) - 0.20 + \frac{\log_{10}\left(\frac{\Delta PSI}{4.2-1.5}\right)}{0.40 + \frac{1094}{(SN+1)^{5.19}}} + 2.32 \times \log_{10}(M_R) - 8.07$$

SN = 5.06 inches = 129 mm

Step 5: Complete AASHTO Layer Design Alternatives

The following design alternatives have been generated based on Equation 7:

$$SN = a_1D_1 + a_2D_2m_2 + a_3D_3m_3 + \cdots a_nD_nm_n$$

Structural Layer Coefficients are from Table 4, Drainage Coefficients from Table 5, and the Minimum Layer Thicknesses from Table 7:

Pavement Layer	Design Layer Coefficient	Drainage Coefficient	Option 1	Option 2	Option 3
ACP Thickness (mm)	0.40	n/a	160[1]	160[1]	175
Granular Base Course Thickness (mm)	0.13	1.0	150	350	150
Granular Sub-base Course Thickness (mm)	0.10	1.0	250	0	200
Drainage Layer Thickness[2]	0.10	1.0	200[1]	200[1]	200[1]
Total SN Provided (mm)	-	-	**129**	**130**	**130**

[1] – Minimum layer thicknesses govern.
[2] – Assumes Drainage Rock.

Step 6: Finalize Design

Based on an economical evaluation of each Design Option (including constructability, construction costs, material availability, etc.), Option 2 is selected for as the Final Pavement Design. A deferred top lift construction option has also been provided based on Table 8.

Pavement Layer	Design Layer Coefficient	Option 2	Option 2 with Deferred ACP
Final Stage ACP Thickness (mm)	0.40	n/a	50
First Stage ACP Thickness (mm)	0.40	160	110
Granular Base Course Thickness (mm)	0.13	350	350
Drainage Layer Thickness	0.10	200	200

4.0 SUPPLEMENTARY PUBLICATIONS

The **Guide for Design of Pavement Structures, 4th Edition with 1998 Supplement** can be purchased at https://bookstore.transportation.org. It should be noted that AASHTO no longer sells or supports DARWin 3.1 AASHTO software. For organizations that don't have this software, it will be necessary for them to develop the required spread sheets to solve the AASHTO SN equation and other necessary calculations.

5.0 SUBMITTAL REQUIREMENTS

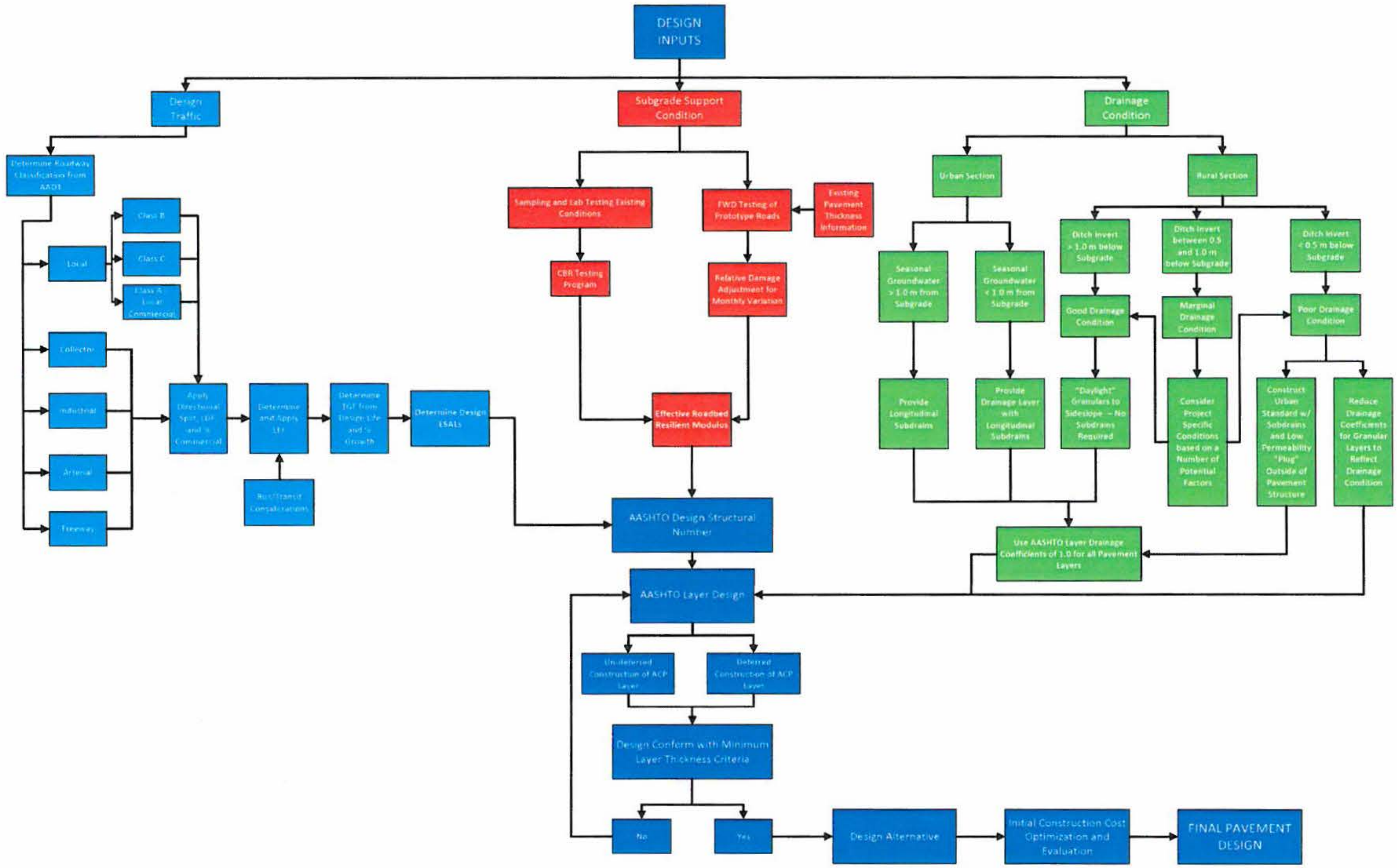
The Pavement Design Report is to be submitted to:

City of Saskatoon
Major Projects
222 3rd Avenue North
Saskatoon, SK S7K 0J5

The pavement design submission should include all supporting information which provides the basis for the pavement design, including, but not limited to, field investigations, test data, design inputs, etc. and be signed and stamped by a Professional Engineer. In addition, supporting reports should be provided, including, but not limited to:

- Geotechnical Report;
- Hydro-geological Report; and
- Traffic Report.

FIGURES


DESIGN INPUTS
Design Traffic
Subgrade Support Condition
Drainage Condition
Determine Roadway Classification from AADT
Local
Class B
Class C
Class A Local Commercial
Collector
Industrial
Arterial
Freeway
Apply Directional Split, LDF and % Commercial
Determine and Apply LEF
Bus/Transit Considerations
Determine TGF from Design Life and % Growth
Determine Design ESALs
Sampling and Lab Testing Existing Conditions
CBR Testing Program
FWD Testing of Prototype Roads
Existing Pavement Thickness Information
Relative Damage Adjustment for Monthly Variation
Effective Roadbed Resilient Modulus
Urban Section
Rural Section
Seasonal Groundwater > 1.0 m from Subgrade
Seasonal Groundwater < 1.0 m from Subgrade
Provide Longitudinal Subdrains
Provide Drainage Layer with Longitudinal Subdrains
Ditch Invert > 1.0 m below Subgrade
Ditch Invert between 0.5 and 1.0 m below Subgrade
Ditch Invert < 0.5 m below Subgrade
Good Drainage Condition
Marginal Drainage Condition
Poor Drainage Condition
"Daylight" Granulars to Sideslope – No Subdrains Required
Consider Project Specific Conditions based on a Number of Potential Factors
Construct Urban Standard w/ Subdrains and Low Permeability "Plug" Outside of Pavement Structure
Reduce Drainage Coefficients for Granular Layers to Reflect Drainage Condition
Use AASHTO Layer Drainage Coefficients of 1.0 for all Pavement Layers
AASHTO Design Structural Number
AASHTO Layer Design
Undeferred Construction of ACP Layer
Deferred Construction of ACP Layer
Design Conform with Minimum Layer Thickness Criteria
No
Yes
Design Alternative
Initial Construction Cost Optimization and Evaluation
FINAL PAVEMENT DESIGN

4.1 6000-1

From: Web E-mail - City Clerks
Sent: Wednesday, September 10, 2014 12:51 PM
To: Web E-mail - City Clerks
Subject: Saskatoon Roadway Pavement Design Standards Project - Draft Presentation

From: Palsat, Dave [mailto:Dave.Palsat@tetratech.com]
Sent: Wednesday, September 10, 2014 12:17 PM
To: Gutek, Mike (TU - Major Projects); Parker, Mitchell (TU - Major Projects); Frank, Rob (TU - Major Projects); Bryant, Shellie (Clerks)
Subject: RE: Saskatoon Roadway Pavement Design Standards Project - Draft Presentation

"I, Dave Palsat, of Tetratech/EBA wish to address the SPC on Transportation at their Sept 15 meeting on the Roadway Design Standards Item that is being considered under 'unfinished business' of the Agenda"

Dave Palsat | Principal Consultant, Pavement Infrastructure Technologies
Direct **+1 (250) 862-3026 x227** | Business **+1 (250) 862-4832** | Fax **+1 (250) 862-2941** | Mobile **+1 (778) 215-1164** |
Dave.Palsat@tetratech.com

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7000-1

5.2.1

UNIVERSITY OF SASKATCHEWAN

School of Environment and Sustainability
Room 323 Kirk Hall 117 Science Place Saskatoon Saskatchewan S7N 5C8 Canada
Ph: 306-966-1985 Fx: 306-966-2298
Email: sens.info@usask.ca Web: www.usask.ca/sens

September 3, 2014

Standing Policy Committee on Transportation
Saskatoon City Council
City Clerk's Office
2nd Floor, City Hall
222 3rd Avenue North
Saskatoon, SK S7K 0J5

To the Standing Policy Committee on Transportation:

On January 24, 2014, a sustainability networking conference entitled "Urban Transportation and Design: Getting Where We Need to Go" was hosted in Saskatoon. The conference brought together a diverse group of stakeholders and provided both the presenters and attendees the opportunity to discuss urban transportation issues and solutions for our city. Through facilitation and small group discussions, many recommendations were made for the City of Saskatoon (below).

The City of Saskatoon's vision to create wealth and prosperity states: "By planning for balanced growth, providing transportation alternatives and building places that bring people together, the city has become healthier, more integrated, more accessible and more attractive" (Strategic Plan 2013-2023, pg. 13). The perspectives, ideas, and solutions that came forward at the conference reflect this vision and a number of the City's other strategic priorities.

Conference Recommendations:

- Work with the provincial government to secure funding for municipal transportation projects and infrastructure, particularly focused on active and public transportation.
    - *Strategic Goals: Moving Around; Sustainable Growth; Asset and Financial Sustainability*
- Improve and/or develop guidelines and policies to ensure that services and infrastructure for multiple modes of transportation are required in new and existing developments.
    - *Strategic Goals: Moving Around; Sustainable Growth*
- Improve connectivity and access between neighbourhoods, destinations, and amenities using roads, bike lanes, bus routes, sidewalks and pathway networks.
    - *Strategic Goals: Moving Around; Sustainable Growth*
- Ensure that roads, sidewalks, bike paths, and bridges are adequately cleared to allow for safe, reliable and timely transportation for pedestrians, cyclists, transit users, drivers, and those who have limited mobility.
    - *Strategic Goal: Moving Around*
- Improve the transit system by: including more frequent service; adding more direct routes; creating transit hubs or Park-and-Go locations in neighbourhoods outside of Circle Drive; running buses in a more timely and efficient matter; increasing comfort on buses and at bus shelters; attracting a more diverse demographic of transit users; and offering more incentives for the public to use and/or try the transit system.
    - *Strategic Goal: Moving Around*
- Build a Bus Rapid Transit (BRT) system, dedicated bus lanes, dedicated cycling lanes, and high-occupancy vehicle lanes to improve and incentivize those modes of transportation.
    - *Strategic Goals: Moving Around; Sustainable Growth*
- Extend future BRT systems to outlying communities, such as Martensville and Warman.
    - *Strategic Goals: Moving Around; Economic Diversity and Prosperity*
- Conduct a market analysis to determine at what cost people will change their transportation choices (e.g. from single occupancy vehicles to other modes of transportation).
    - *Strategic Goals: Moving Around; Asset and Financial Sustainability*
- Increase transportation literacy in the city by discussing the issues, explaining potential solutions, high-

lighting the costs of maintaining the status quo, and promoting the benefits (e.g. cost and health) of non-automobile modes of transportation.
    - *Strategic Goal: Moving Around*
- Lead by example and champion active and public modes of transportation (Councillors, mayor, and administrators).
    - *Strategic Goal: Moving Around*
- Collaborate with and consider input from community organizations that are focused on improving transportation in the city.
    - *Strategic Goals: Moving Around; Quality of Life*
- Work with stakeholders to create a more comprehensive Drivers Ed. curriculum that includes more information on the rights, rules and safety of other road users, such as cyclists, pedestrians, and transit users.
    - *Strategic Goals: Moving Around; Quality of Life*
- Work with businesses to provide facilities for active commuters (e.g. showers, secure bike racks), offer incentives for transit (e.g. discounted bus passes), and promote ride shares and carpooling to reduce single-occupant vehicle use.
    - *Strategic Goals: Moving Around; Economic Diversity and Prosperity*
- Work with the provincial government to reinstitute rail service between Saskatoon and Regina, given the growth (and desired future growth) of both cities.
    - *Strategic Goals: Moving Around; Economic Diversity and Prosperity*
- Develop innovative parking policies and techniques (e.g. downtown parking permits; graduated parking fees dependent on location, time of day, and vehicle type; etc.).
    - *Strategic Goals: Moving Around; Asset and Financial Sustainability*
- Introduce new full-cost price mechanisms for infrastructure (e.g. toll bridges, road use taxes).
    - *Strategic Goals: Moving Around; Asset and Financial Sustainability*
- Provide greater fiscal transparency on the moneys spent on transportation infrastructure, including the variance between amounts spent on automobiles compared to other forms of transportation.
    - *Strategic Goals: Moving Around; Asset and Financial Sustainability*
- Design communities as "urban centres" that provide adequate public amenities, complete streets, and a variety of housing types.
    - *Strategic Goals: Sustainable Growth; Quality of Life*
- Initiate, celebrate and examine the results of innovative transportation pilot projects. Evaluate the potential for these projects to be implemented on a greater scale.
    - *Strategic Goal: Moving Around*
- Adopt new technologies for efficiency and effectiveness (e.g. GPS, smart phone apps, electric car plug-ins, lane switches, social marketing).
    - *Strategic Goals: Environmental Leadership; Moving Around*

We kindly ask the Standing Policy Committee on Transportation to provide an update on the status of these recommendations. We wish to inform the community on what progress has already been made, highlight Saskatoon's successes, and better understand the areas that need further attention. We would also welcome feedback on how citizens, organizations and community stakeholders can get more involved in supporting City of Saskatoon initiatives in the area of urban transportation and design.

We look forward to hearing from you.

Sincerely,

Toddi Steelman, PhD
Executive Director

Update Report – Transit and School Board Discussions

Recommendation
That the report of the General Manager, Transportation & Utilities Department dated September 15, 2014, be forwarded to City Council for information.

Topic and Purpose
The purpose of this report is to provide information on the discussions that took place between the Saskatoon Transit Administration and the Saskatoon Public and Separate School Boards.

Report Highlights
1. Saskatoon Transit Administration and Saskatoon School Board representatives met on June 16, 2014.
2. Primary topic of discussion was the staggered start and end times of schools located in the same area making it difficult for Saskatoon Transit to provide service with limited resources.
3. Comments from the representatives were positive; complaints about transit service were minimal and Saskatoon Transit was commended for providing a valuable service.
4. An agreement was made by all parties to continue to meet periodically to continue the two-way communication.

Strategic Goals
This report supports the Strategic Goal of Continuous Improvement through continually increasing and improving Saskatoon Transit communications and engagement with the Citizens of Saskatoon. It also supports the Strategic Goal of Moving Around through continued improvement of the transit system.

Background
During consideration of the 2014 Saskatoon Transit Route Enhancements report, City Council at its meeting held on June 9, 2014 adopted, in part, that the Administration meet with the school boards and report back in August providing an update on discussions.

Report
On June 16, 2014, Saskatoon Transit Administration met with Saskatoon School Board representatives to discuss transit service.

<u>Primary Discussion</u>
The primary topic of discussion was the staggered start and end times of schools located in the same area (i.e. Aden Bowman, Walter Murray, and Holy Cross). Each school has a different start and end time for the school day, which makes it very difficult

for Saskatoon Transit to provide service with limited resources (Attachment 1). There is not enough time to pick up, drop off and return back to the same area or school for a second or third trip, nor are there enough resources to provide additional buses for these trips. Representatives from both School Boards were very understanding of the challenges that Saskatoon Transit is facing with these staggered times and are discussing the matter internally with their stakeholders to come to some type of positive resolution that works for everyone, for the fall of 2015 school year.

Further discussion took place regarding the age of students that use Saskatoon Transit regularly. Representatives from both School Boards stated that it's mostly Grade 9 and 10 students using the service and by the time they get to Grade 11 and 12, most of the students in this age group drive a vehicle to and from school instead of using Saskatoon Transit. The abundance of part-time job opportunities has made it easy for students to acquire independent transportation.

Comments in General

Comments regarding Saskatoon Transit, in general, were quite positive; complaints about transit service were minimal; and Saskatoon Transit was commended for providing a valuable service. There were some requests for some minor two to three minute time point changes, which will be accommodated in the fall school schedule that will require no additional resources or costs to Saskatoon Transit. The School Board representatives were apprised of the fact that every fall minor time adjustments are required to accommodate yearly fluctuations in student travel patterns, and that the issues are usually settled by the last week of September.

Continued Communication

The meeting was very positive, informative, and was a great step forward in building a collaborative long-term relationship. It was agreed by all parties to continue to meet periodically to ensure that the flow of information and two-way communication continues in this positive manner. Possible U-Pass pilots will be discussed at subsequent meetings.

Public and/or Stakeholder Involvement

The body of this report outlines engagement with the Saskatoon School Boards as an important Saskatoon Transit stakeholder.

Communication Plan

Saskatoon Transit Administration will continue to meet with the School Board representatives and develop communication plans as required, for any initiatives or outcomes arising from these meetings to ensure students and parents are informed.

Minor time adjustments, as indicated, will be updated on Saskatoon Transit materials as required and in the online Click & Go service. Any updates will also be communicated to schools affected for inclusion in their materials for students.

Other Considerations/Implications

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

Due Date for Follow-up and/or Project Completion

Saskatoon Transit Administration will be continuing discussions with both School Boards.

Public Notice

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

Attachments

1. School Start and End Times

Report Approval

Written by: Bob Howe, Director of Saskatoon Transit
Approved by: Jeff Jorgenson, General Manager, Transportation & Utilities Department

TRANS – Update Report – Transit and School Board Discussions

Attachment 1

School Start and End Times

	Bedford	E.D. Feehan	Mount Royal
Start	8:50AM	8:40AM	8:55AM
End	3:25PM	3:15PM	3:30PM

	Tommy Douglas	Bethlehem
Start	8:50AM	8:40AM
End	3:40PM	3:30PM

	Walter Murray	Holy Cross	Aden Bowman
Start	8:45AM	8:30AM	8:45AM
End	3:35PM	3:25PM	3:30PM

	Centennial	St. Joseph
Start	8:40AM	8:35AM
End	3:35PM	3:25PM

	Evan Hardy
Start	8:50AM
End	3:25PM

	Marion Graham	Bishop Mahoney
Start	8:35AM	8:35AM
End	3:25 PM	3:20PM

	Bishop Murray
Start	8:35AM
End	3:20PM

	City Park
Start	9:00AM
End	3:15PM

Funds Dedicated to the Traffic Safety Reserve

Recommendation
That the Standing Policy Committee on Transportation recommend to City Council:
1. That the City of Saskatoon's portion of the revenue generated from the Automated Speed Enforcement (commonly known as photo radar) program be dedicated to the Traffic Safety Reserve; and
2. That the City Solicitor be requested to prepare the amendments to Bylaw No. 6774, Capital Reserve Bylaw.

Topic and Purpose
The purpose of this report is to obtain approval to allocate the City of Saskatoon's portion of the revenue generated from the Automated Speed Enforcement (ASE) program to the Traffic Safety Reserve. The Traffic Safety Reserve currently funds the traffic safety program and other traffic safety initiatives.

Report Highlights
1. Installation of ASE on Circle Drive in Saskatoon was selected due to the high speed, high traffic volume characteristics of the road and severity of collisions on the roadway.
2. The City of Saskatoon's portion of the funds generated from the ASE program is to be dedicated to the Traffic Safety Reserve for safety improvements and initiatives throughout the City.

Strategic Goal
This report supports the Strategic Goal of Moving Around by optimizing the safe flow of people and goods in and around the city.

Background
In 2013, the Government of Saskatchewan announced the implementation of a two-year pilot ASE project to reduce speeds in areas of high collisions, high traffic volumes, and high speed areas throughout the province.

The purpose of the Traffic Safety Reserve is to provide for the funding of projects that support traffic, pedestrian, and cyclist safety programs and initiatives throughout the City. Currently, the City of Saskatoon's portion of revenue generated from the Red Light Camera program is dedicated to funding The Traffic Safety Reserve.

The ASE pilot project will target problematic areas of the city. Accordingly, the City of Saskatoon's Circle Drive has been selected for the implementation of the two-year provincial pilot project.

Report

ASE on Circle Drive

According to the Saskatchewan Government Insurance (SGI), the average speed along Circle Drive in Saskatoon is 98km/hr, the posted speed limit is 90km/hr. Speed enforcement on Circle Drive is hazardous due to the speed of traffic in close proximity to a police officer standing on the road. The introduction of the ASE program is also a strategic tool in reducing the number of times this situation occurs. The differential speed also contributes to collisions along Circle Drive.

The first phase of the pilot will include ASE cameras mounted in specific locations along Circle Drive with the ability to be moved to different locations. Signage will be installed to inform motorists of the cameras. A second phase of the pilot project may include ASE in school zones throughout the City. The first phase of the ASE project is anticipated to commence in the fall of 2014.

Dedication of Revenues to the Traffic Safety Reserve

SGI is initially paying for the capital costs associated with the ASE pilot program. Revenues from violations will be split between the City and the Province (75% to municipality and 25% to Provincial Justice for court fees). Over the term of the pilot project, the City will then reimburse SGI for the cost of the equipment ($19,633 per camera per month) from the revenues. This reimbursement to SGI will only occur if there are adequate revenues. There will be no negative impact to the City if the revenues are not sufficient to pay the expenses of the program.

The Administration is recommending that any revenues from the ASE project over and above the program costs will be used to fund traffic safety improvements and initiatives in the city. This will enable the Administration to continue to address traffic safety on the City's road network, as the demands for improvements on the road network have continued to grow beyond the current available funding. In addition to a backlog of existing projects seeking funding, the Neighbourhood Traffic Management Program is identifying improvements required in residential areas which will require significant funding over the coming years.

Options to the Recommendation

The alternative option is to direct the revenues to General Revenue. This is not recommended as the ASE project is intended to address traffic safety concerns; therefore, the revenues from the program should be dedicated to similar programs.

Public and/or Stakeholder Involvement

The City of Saskatoon is partnering with Saskatoon Police Services for a successful implementation of this project.

Communication Plan

SGI is the lead on the program and will be coordinating overall communications.

Once the implementation of the project is in place, a Public Service Announcement will be released to inform motorists of the new enforcement system. Information such as answers to frequently asked questions will also be provided via the City of Saskatoon website. A public service announcement will be placed in The StarPhoenix City Pages around the time of implementation. ASE may also be considered as the subject of a 'Building Better Roads' weekly media briefing around the time of implementation.

Financial Implications

The recommendations as proposed will provide funding for the Traffic Safety Reserve used to support traffic safety improvements and initiatives. At this time, there are no estimates of expected revenues as this is a new program in the Province. As the program proceeds and actuals are known, budgets will be updated to reflect the incoming revenue.

Other Considerations/Implications

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

Due Date for Follow-up and/or Project Completion

The Administration will submit a follow-up report in the fall of 2016, following completion of the two-year pilot ASE project.

Public Notice

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

Report Approval

Written by:	Lanre Akindipe, Traffic System Engineer, Transportation
Reviewed by:	Angela Gardiner, Director of Transportation
Approved by:	Jeff Jorgenson, General Manager, Transportation & Utilities Department

TRANS LA - Funds Dedicated to the Traffic Safety Reserve docx

Communication to Council – Blair Wooff – undated – Limited Residential Parking Permit Program

Recommendation

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

1. That a Limited Residential Parking Permit Program be implemented on the 200 – 400 blocks of 25th Street West; and
2. That the City Solicitor be requested to prepare the amendments to Bylaw No. 7862, Residential Parking Program Bylaw, 1999.

Topic and Purpose

The purpose of this report is to obtain approval for a Limited Residential Parking Permit (LRPP) Program to be implemented on the 200 – 400 blocks of 25th Street West in response to local resident concerns related to the high number of non-residential parking occurring on these blocks. The report also identifies a solution to address mid-street parking limits.

Report Highlights

1. A petition was received from residents on the 200 – 400 blocks of 25th Street West to create an LRPP. All criteria was met and the Administration is recommending approval of an LRPP.
2. Where the 150 metre range for LRPP ends in a mid-street location, the LRPP zone will include the entire block until the next intersecting street.

Strategic Goal

This report supports the Strategic Goal of Quality of Life by improving the quality of life for those affected.

Background

At its meeting held on May 21, 2013, City Council resolved, in part,:

> "that the Administration submit a report to the Administration and Finance Committee with solutions for potential problems with mid-street parking limits."

The difference between a Traditional RPP and a Limited RPP are shown in the below table:

	Traditional RPP	Limited RPP
Permits	Available to a resident residing within the zone	Limited to vehicles with a registered owner at an address within the RPP zone
Visitor Permit	1 visitor permit per unit	Not available
Temporary Permit	Available for a specified time period	Not available
Level of resident support	70 percent per block	50 percent per area
Size of area	Minimum 10 block faces	1 block face
Enforcement	Regular enforcement provided	Enforcement on complaint basis only
Fees	$25.00	$15.00
Permitted Time Frame	Continuous (year round)	Continuous (year round)

The Administration has received numerous complaints from residents on the 200 – 400 blocks of 25th Street West as to the influx of vehicles parking in front of their residences with no space for neighbourhood residents to park. Complaints relate to vehicles being left parked on the street while the operators are leaving their vehicles walking east towards the Central Business District.

Report

Limited Residential Parking Permit Program Creation

Residents on the 200 – 400 blocks of 25th Street West have submitted a petition to create an LRPP Program to address the increasing influx of parking in front of their residences due to their proximity to the Central Business District. An LRPP would provide residents who live in the zone the ability to purchase an annual permit for $15 to allow the zone residents' vehicles to be parked on the street for a period longer than the two-hour posted parking restriction.

The results of the petition are shown in the below table:

	Resident Addresses	Number of Signatures	Percentage of Support
200 25th St W	17	15	88%
300 25th St W	18	10	56%
400 25th St W	20	10	50%

Considering the confirmed parking shortage on these blocks and the results of the petition, the Administration has confirmed that this location meets the requirements and is recommending that an LRPP Program be implemented on the 200 – 400 blocks of 25th Street West from Monday to Friday (8:00 a.m. to 4:00 p.m.). Attachment 1 outlines the area to be included in the limited RPP zone. Enforcement within the zone would occur on a complaint driven basis as set out in the Policy.

LRPP Boundary Clarification

In addition, the Administration has reviewed concerns related to the boundaries of LRPP zones ending mid-street. Should the maximum limit of 150 metres from the boundary of the parking generator (Central Business District, River Landing or other) fall mid-street, then criteria and petition requirements to warrant an LRPP zone will extend to the next intersecting street.

Extensions beyond the 150 metres would only be considered as an expansion of an LRPP zone.

Public and/or Stakeholder Involvement
The residents impacted by the LRPP Program were involved in the petition to create the program.

Communication Plan
Brochures outlining the details of the program, including information on where to purchase permits and the associated costs, will be provided to all places of residence that qualify for the LRPP within the zone. The City's website will also be updated to reflect the addition of this area. Additionally, Transportation will place signs around the perimeter of the newly demarcated parking zone to alert local residents, as well as those that regularly park in the neighbourhood, of the changes.

Policy Implications
The recommendations in this report are consistent with the requirements in Council Policy C07-014 – Residential Parking Permit Program.

Financial Implications
Residential Parking Permit Programs have traditionally been revenue neutral, whereby the annual purchase price of the permit covers the costs to implement, administer and enforce the program. The cost of the parking permit for the LRPP program in this area will be $15 (plus all applicable taxes).

Environmental Implications
The implementation of an LRPP Program for the 200 – 400 blocks of 25th Street West would reduce the frequency of drive by traffic searching for available parking spaces which will reduce greenhouse gas emissions for this area.

Other Considerations/Implications
There are no other options, privacy or CPTED considerations or implications.

Due Date for Follow-up and/or Project Completion
Subject to approval, the program will be implemented by October 1, 2014.

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

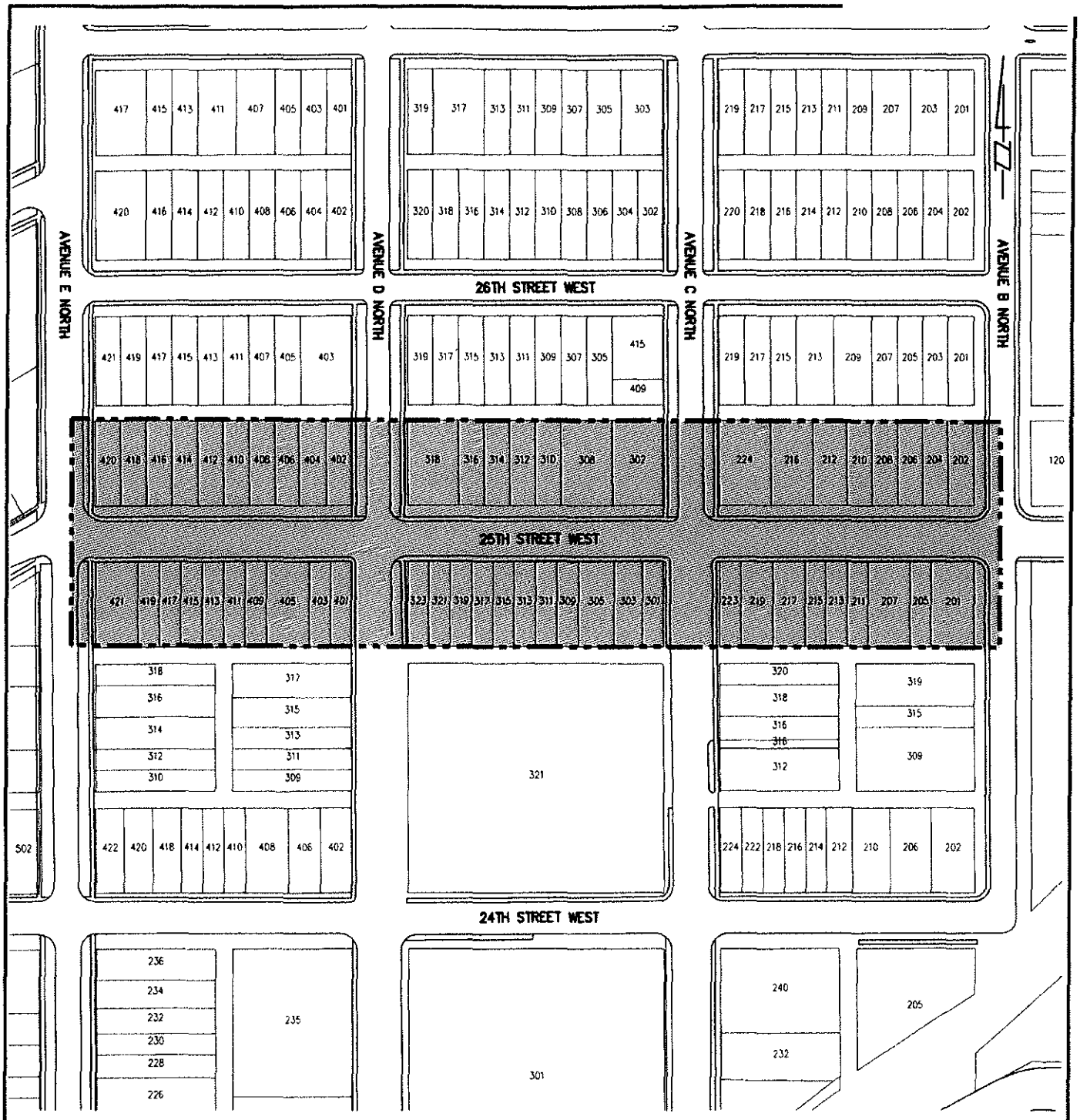
Attachment
1. Limited Residential Parking Permit Zone South Caswell Hill

Report Approval
Written by: Phil Haughn, Parking Services Manager, Transportation
Reviewed by: Angela Gardiner, Director of Transportation

Approved by: Jeff Jorgenson, General Manager, Transportation & Utilities Department

TRANS PH CC– Blair Wooff – May 21, 2013 – Limited Residential Parking Permit Program.docx

ATTACHMENT 1



PROPOSED PERMIT ZONE

PLAN DESCRIPTION/REVISIONS	
4	
3	
2	
1	

DRAWN BY JMR
DATE 2014-JUL-25
SCALE : HOR. NTS VERT.

City of Saskatoon
Transportation & Utilities Department

LIMITED RESIDENTIAL PARKING PERMIT ZONE
SOUTH CASWELL HILL

APPROVED

CHIEF ENGINEER

ENGINEER

PLAN NO. 260-0038-002r001

Strategic Traffic Safety Action Plan

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

Topic and Purpose
The purpose of the Strategic Traffic Safety Action Plan is to assist in improving traffic safety in the City of Saskatoon. The plan provides input on how the City and stakeholders can maximize the benefits by collaborating resources and efficiently allocating budget dollars.

Report Highlights
1. The Strategic Traffic Safety Action Plan identifies areas of emphasis for traffic safety that focuses on areas that include aggressive driving, distracted driving, impaired driving, intersections, older drivers, vulnerable road users and young drivers.
2. Identifies traffic safety improvement strategies and programs within each emphasis area such as Education, Enforcement, and Engineering.
3. The Strategic Traffic Safety Action Plan and Summary Report identifies a 10% reduction target in each emphasis area for collisions resulting in injuries and fatalities.
4. Periodically the stakeholders will meet to monitor, evaluate, and update the effectiveness and value of the strategies and programs.

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

Background
The Strategic Traffic Safety Action Plan is a high level traffic safety policy that provides a four-to-five year comprehensive safety document for the City of Saskatoon. The safety document contains scientific, data-driven information that is 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

The Strategic Traffic Safety Action Plan is expected to support the safety initiatives of the newly established provincial level Saskatchewan Traffic Safety Committee (Legislative Assembly of Saskatchewan, 2013).

Report

Emphasis Areas

After a detailed review and analysis of the collision data from 2001 to 2010 and feedback from a 2012 stakeholder workshop, the plan identifies the following seven emphasis areas:

1. Aggressive Driving – collisions stemming from frustration with congested roads. Saskatoon is one of the fastest growing cities in Canada causing traffic volumes and congestion to rise, increasing the likelihood of speeding, running red lights, etc.
2. Distracted Driving – the use of new communication technologies is a rapidly growing safety problem (i.e. cell phone use).
3. Impaired Driving – consequences are severe and public demand for action is very high.
4. Intersections – there are a number of high-collision intersections in Saskatoon.
5. Older Drivers – Saskatoon's population is aging.
6. Vulnerable Road Users – consequences of collisions are severe; Saskatoon's cyclist and pedestrian population is growing.
7. Young Drivers – collision statistics have shown that young drivers (age 16-25) are the most frequently involved more than any other age group.

Strategies and Programs

There are 37 recommended strategies and programs which focus on Education, Enforcement, or Engineering. Examples of these include the following:

- Education – message boards, smart phone apps (SGI's Safe Ride App).
- Enforcement – Report Impaired Drivers (RID) Program, High Collision Intersection Enforcement.
- Engineering – Improved Traffic Signal Operation, Well Maintained Pavement Markings, Geometric Improvements.

Strategic Traffic Safety Action Plan – Targets for Reducing Injuries and Fatalities

The Strategic Traffic Safety Action Plan and Summary Report includes details on the recommended strategies/programs and is shown in Attachment 1. The target goals

applied to each emphasis area is a reduction of traffic collisions involving injuries or fatalities of 10% by 2019.

The complete technical report can be received by contacting Transportation.

Implementation

The stakeholders will meet on a periodic basis to monitor, evaluate, and update the effectiveness and value of the strategies and programs currently being applied.

Public and/or Stakeholder Involvement

A stakeholder workshop was held in September 2012. The implementation and maintenance of the Strategic Traffic Safety Action Plan will require bi-annual meetings with the stakeholders to review progress, assess effectiveness, and discuss emerging strategies. Continued stakeholder involvement facilitates a coordinated multi-jurisdictional approach to improving traffic safety in an efficient manner.

Communication Plan

A news release, plus accompanying backgrounder, will be distributed to announce the report's release. The backgrounder will outline how the report was developed while the news release will outline what the report can be used for (i.e. a resource guide and not as a City master plan). The following items will be placed on the City's web-site:

- Summary Report and Final Report of the Strategic Traffic Safety Action Plan for the City of Saskatoon.
- An annual progress report summarizing the status of the 37 recommended strategies and programs.

Key messages will be developed to respond to media or public inquiries. Spokespersons will be identified and made available around report release.

Financial Implications

This project was jointly funded through a partnership between the City of Saskatoon and the Saskatchewan Centre of Excellence for Transportation and Infrastructure. The City of Saskatoon's portion of funding for implementation of strategies and programs will be funded from the Traffic Safety Reserve. This reserve is funded by the City's portion of revenues from the Red Light Camera Program. Additionally, many strategies and programs identified in the Strategic Traffic Safety Action Plan are currently part of existing capital programs.

Environmental Implications

Traffic safety measures are expected to 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.

By improving the safety of all streets, specifically for the vulnerable road user, residents choosing to walk or cycle will be promoted.

Other Considerations/Implications

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

Due Date for Follow-up and/or Project Completion

An annual report of the strategies and programs completed for each year will be presented to City Council.

Public Notice

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

Attachment

1. Strategic Traffic Safety Action Plan for the City of Saskatoon - Summary Report October 2013.

Report Approval

Written by:	Lanre Akindipe, Infrastructure Engineer, Traffic Systems, Transportation
Reviewed by:	Angela Gardiner, Director of Transportation
Approved by:	Jeff Jorgenson, General Manager, Transportation & Utilities Department

TRANS LA – Strategic Traffic Safety Action Plan.docx

ATTACHMENT 1

Strategic Traffic Safety Action Plan for the City of Saskatoon

Summary Report | October 2013

City of Saskatoon
A 21st Century City

University of Saskatchewan

SCETI
The Saskatchewan Centre of Excellence for Transportation and Infrastructure
BRILLIANCE IN NETWORKING

Table of Contents

Introduction

A "Traffic Safety Action Plan" (TSAP) is an upper-level traffic safety policy that provides a scientific, data-driven, four to five year comprehensive safety document for the jurisdiction.

PURPOSE

The purpose of the TSAP is to assist the City of Saskatoon to allocate its limited budget in the most efficient way possible when identifying and improving areas of safety concern in Saskatoon.

STAKEHOLDERS

The following stakeholders provided data or feedback for the development of a TSAP for the City of Saskatoon:

- City of Saskatoon (COS)
- COS Traffic Safety Committee (TSC)
- Saskatoon Board of Education (SBOE)
- Saskatchewan Government Insurance (SGI)
- Saskatoon Health Region (SHR)
- Saskatoon Police Service (SPS)

OBJECTIVES

- Identify safety emphasis areas
- Develop target goals for each emphasis area
- Provide network screening results for each emphasis area
- Provide safety improvement strategies for each emphasis area

SCOPE

The TSAP's area of study is limited to the City of Saskatoon, Saskatchewan. Existing collision data (2001-2010) were obtained from SGI. This project's outcomes are intended for use in Saskatoon only. The results may not be transferable to neighbouring cities or communities.

SAFETY MEASURES

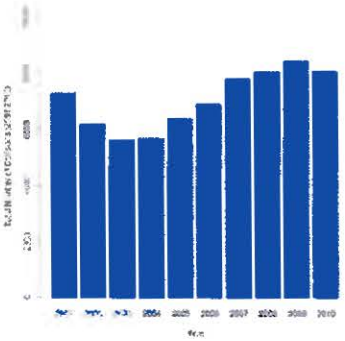
Five different collision severities were analyzed as safety measures: They are: 1) total, 2) fatal, 3) injury, 4) property damage only (PDO), and 5) fatal or injury (FI) collisions. To analyze and highlight the City of Saskatoon's traffic safety issues as effectively as possible, the study uses only "total" and "fatal or injury" collisions. This is because:

- Fatal collisions were extremely rare in Saskatoon. Being rare and random, fatal collisions cannot be used as a sole safety measure.
- The total number of collisions largely reflect the same collision patterns as PDO collisions over the period.

This project was jointly funded through a partnership between the City of Saskatoon and the Saskatchewan Centre of Excellence for Transportation and Infrastructure (SCETI).

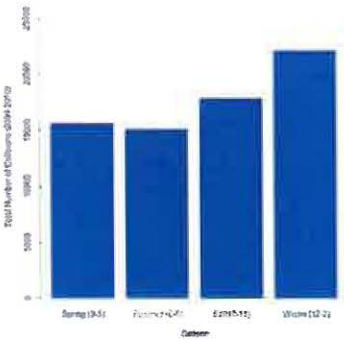
Collision History
Total Number of Collisions

ANNUAL



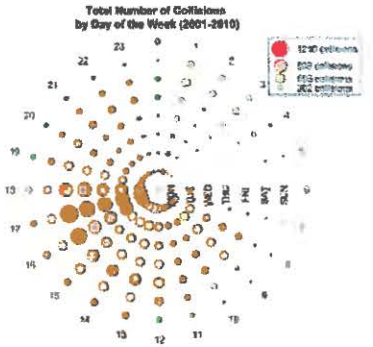
- Increasing trend (2003 – 2010)
- 7,049 total collisions per year

SEASONAL



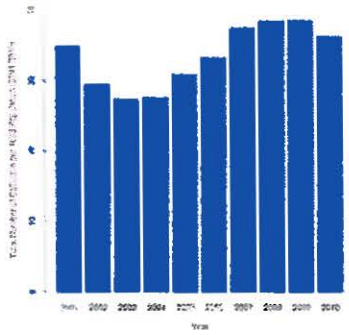
- Peak Season: Winter (31%; 22,073)
- Peak Months: Dec. & Jan. (23%; 16,014)

DAILY & HOURLY



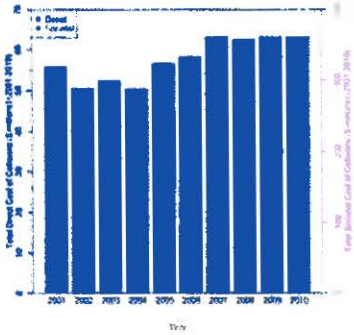
- Peak Day: Friday (18%; 12,732)
- Peak Time: 3pm – 6pm (24%; 17,136)

COLLISIONS PER CAPITA



- Increasing trend (2003 – 2010)
- 33 total collisions per 1000 population per year

COSTS



- Increasing trend (2003 – 2010)
- Direct Cost: $57.52 million per year
- Societal Cost: $261.20 million per year

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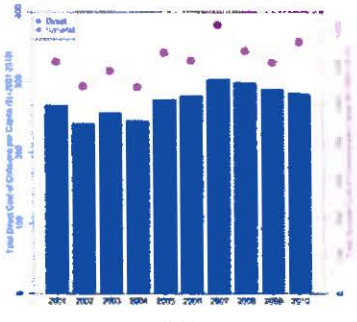
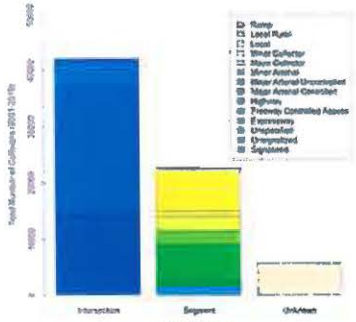
Collision History
Total Number of Collisions (Cont'd)

COSTS PER CAPITA



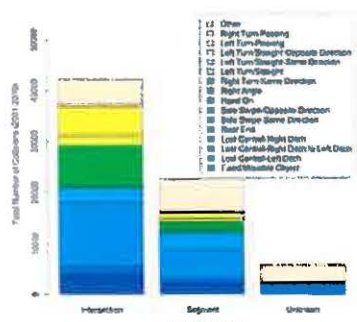
- No clear increasing or decreasing trend
- Direct Cost per Capita: $273.01 per year
- Societal Cost per Capita: $1,240.01 per year

ROAD CLASSIFICATION



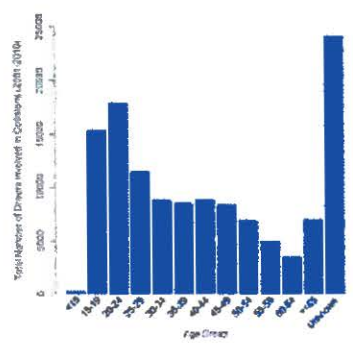
- Intersections: 60%; 42,138 (Unsignalized 54%, 22,880; Signalized 34%, 14,250)
- Segments: 32%; 22,571 (Major Arterial Uncontrolled 29%, 6,439; Local 33%, 7.557)

COLLISION CONFIGURATION



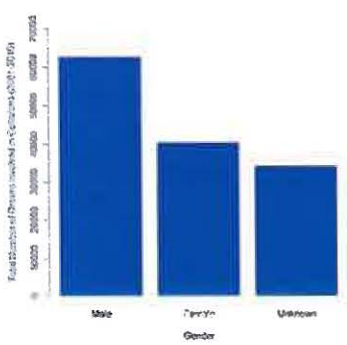
- Intersections: 60%; 42,138 (Rear End 29%, 12,399)
- Segments: 32%; 22,571 (Rear End 25%, 5,607)

AGE GROUP



- 15 – 24 years old: 27%; 33,220

GENDER

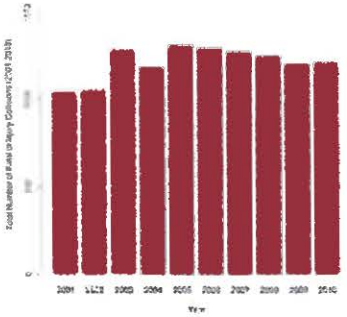


- Male Drivers: 46%; 62,578
- Female Drivers: 29%; 40,226

Collision History

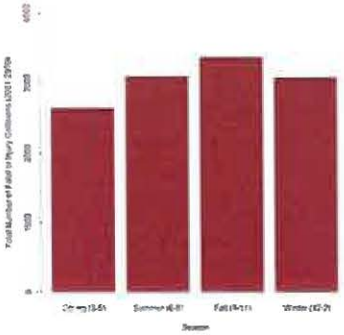
Total Number of Fatal or Injury Collisions

ANNUAL



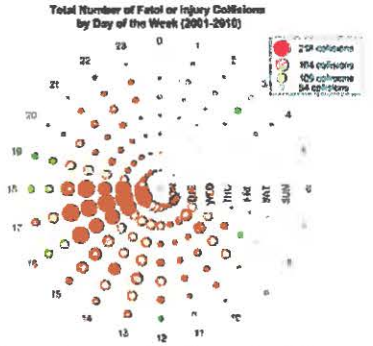
- Slight increasing trend
- 1,215 FI collisions per year

SEASONAL



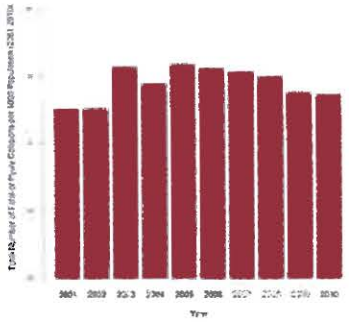
- Peak Season: Fall (28%; 3,359)
- Peak Months: No dominant peak month

DAILY & HOURLY



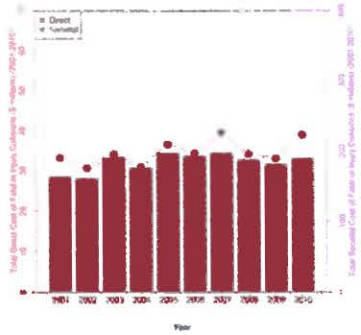
- Peak Day: Friday (17%; 2,126)
- Peak Time: 3pm – 6pm (29%; 3,539)

COLLISIONS PER CAPITA



- No clear increasing or decreasing trend
- 6 FI collisions per 1000 population per year

COSTS



- Slight increasing trend
- Direct Cost: $32.05 million per year
- Societal Cost: $197.62 million per year

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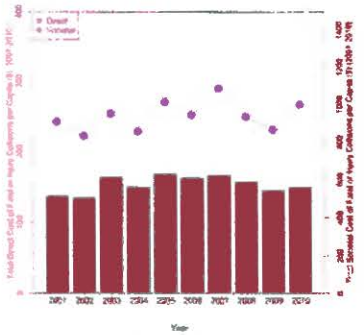
Collision History

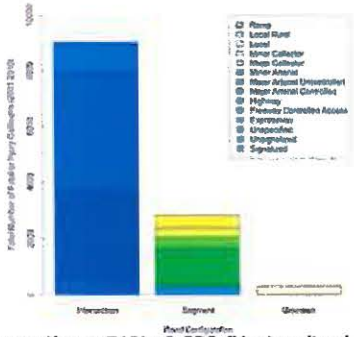
Total Number of Fatal or Injury Collisions (Cont'd)

COSTS PER CAPITA



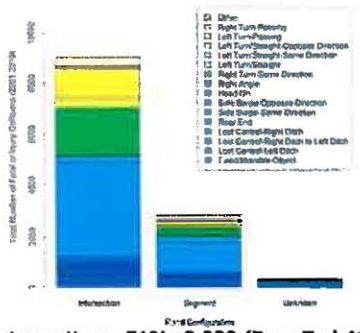
- No clear increasing or decreasing trend
- Direct Cost per Capita: $152.36 per year
- Societal Cost per Capita: $938.71 per year

ROAD CLASSIFICATION



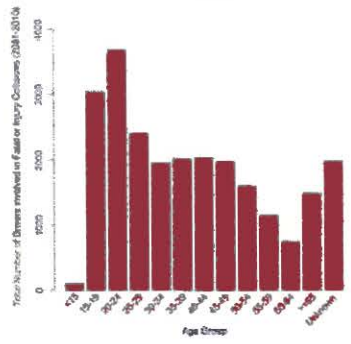
- Intersections: 51%; 9,020 (Unsignalized 47%, 4,207; Signalized 41%, 3,703)
- Segments: 16%; 2,821 (Major Arterial Uncontrolled 43%, 1,209; Local 15%, 416)

COLLISION CONFIGURATION



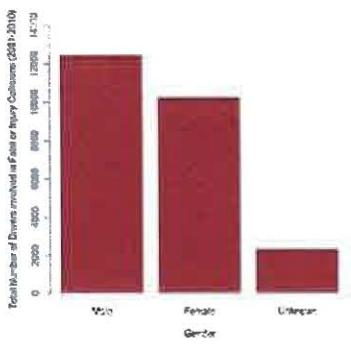
- Intersections: 51%; 9,020 (Rear End 41%, 3,659)
- Segments: 16%; 2,821 (Rear End 41%, 1,158)

AGE GROUP



- 15 -- 24 years old: 28%; 6,730

GENDER



- Male Drivers: 50%; 12,415
- Female Drivers: 41%; 10,215

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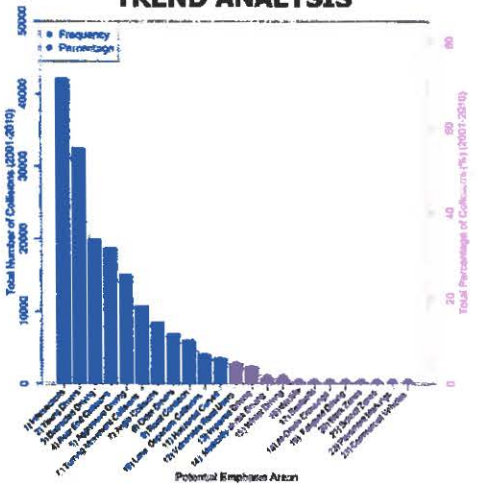
BRILLIANCE IN NETWORKING

Emphasis Area and Target Goal Selection Process

1) Review emphasis areas in existing TSAPs
   - Federal-level TSAP (CCMTA (2011))
   - Provincial-level TSAP (Saskatchewan (2010), Alberta (2006), British Columbia (2010))
   - Municipal-level TSAP (Burlington (2006), Edmonton (2007), Grande Prairie (2011), Hamilton (2009), New Westminster (2007), Ottawa (2011), Red Deer (2007), Strathcona County (2008) and North Vancouver (2010))
   - AASHTO's TSAP (AASHTO (2005))

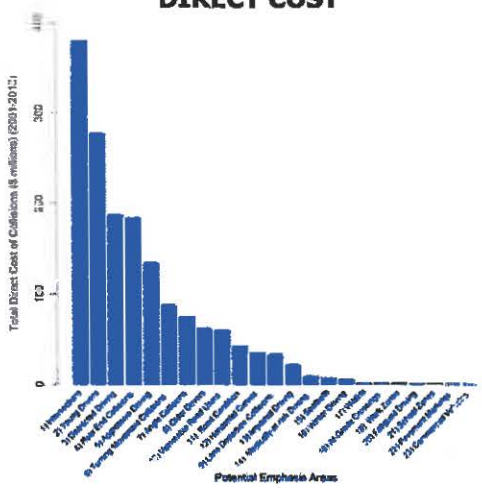
TREND ANALYSIS



The 13 potential emphasis areas with 2% or more of the total collisions are:

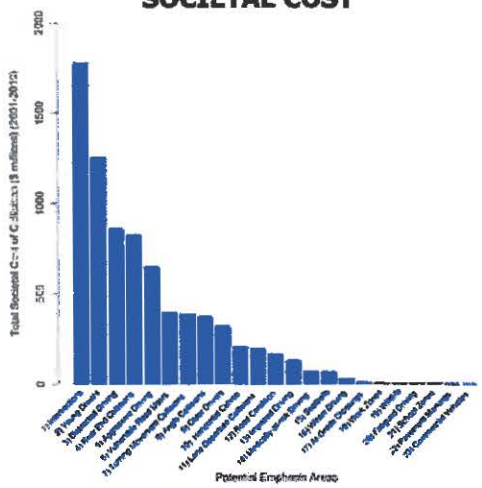
1. Intersections (60%)
2. Young Drivers (46%)
3. Distracted Driving (28%)
4. Rear End Collisions (27%)
5. Aggressive Driving (21%)
6. Turning Movement Collisions (15%)
7. Angle Collisions (12%)
8. Older Drivers (10%)
9. Road Condition (9%)
10. Lane Departure Collisions (6%)
11. Horizontal Curves (5%)
12. Vulnerable Road Users (4%)
13. Impaired Driving (3%).

DIRECT COST



- Intersections: $380.52 million
- Young Drivers: $277.90 million

SOCIETAL COST

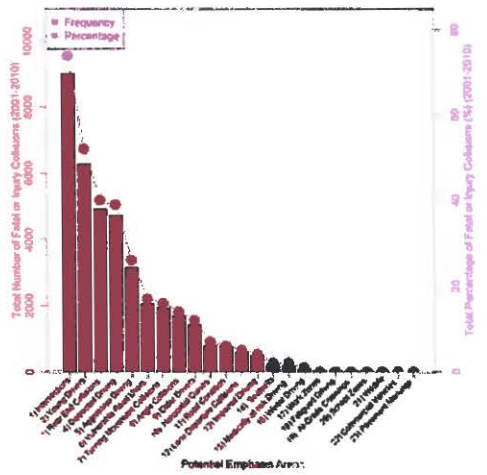


- Intersections: $1.78 billion
- Young Drivers: $1.25 billion

Emphasis Area and Target Goal Selection Process (Cont'd)

2) Consider various collision configurations and contributing factors in SGI's collision database as potential emphasis areas.
3) Investigate the number of total and FI collisions for each potential emphasis area.
4) Estimate and compare the direct and societal costs for each potential emphasis area.
5) Communicate among stakeholders to finalize the emphasis areas for the City of Saskatoon.
6) Adopt "Vision Zero" approach (zero fatal or injury collisions over long term period) to determine target goal.

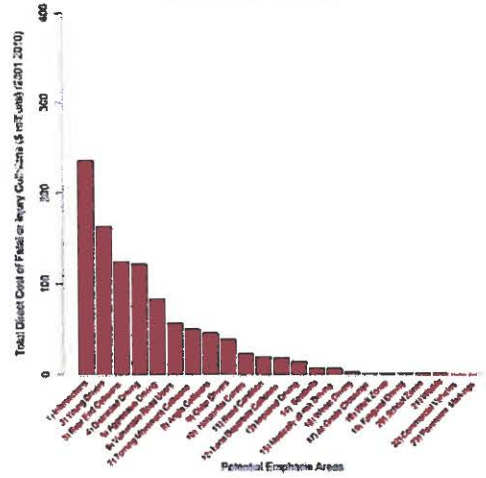
TREND ANALYSIS



The 13 potential emphasis areas that are greater than 2% of FI collisions are as follows:

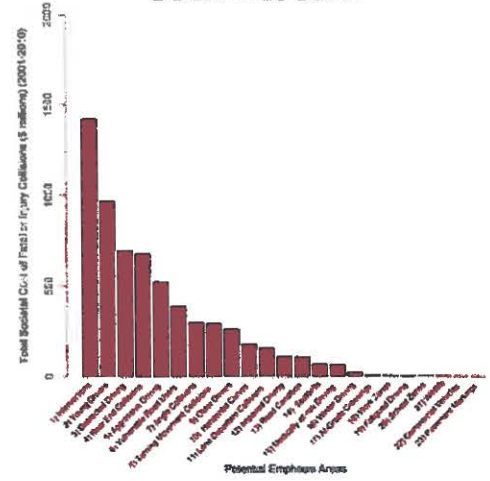
1. Intersections (74%)
2. Young Drivers (52%)
3. Rear End Collisions (40%)
4. Distracted Driving (39%)
5. Aggressive Driving (26%)
6. Vulnerable Road Users (17%)
7. Turning Movement Collisions (16%)
8. Angle Collisions (14%)
9. Older Drivers (12%)
10. Horizontal Curves (7%)
11. Road Condition (6%)
12. Lane Departure Collisions (5%)
13. Impaired Driving (4%).

DIRECT COST



- Intersections: $235.95 million
- Young Drivers: $163 million

SOCIETAL COST



- Intersections: $1.42 billion
- Young Drivers: $967.01 million

City of Saskatoon
A 21st Century City

UNIVERSITY OF SASKATCHEWAN

SCETI
The Saskatchewan Centre of Excellence for Transportation and Infrastructure
BRILLIANCE IN NETWORKING

Saskatoon's Emphasis Areas and Target Goals (Vision Zero)

Emphasis Area #1: Aggressive Driving

- Aggressive Driving collisions stem from driver's frustration with congested roads. Saskatoon is one the fastest growing cities in Canada and congestion is likely increasing.
- Ranked Fifth in terms of total collisions (21%) and fatal or injury collisions (26%).
- Target Goal: 10% reduction by 2017 (equivalent to 34 fewer fatal or injury aggressive driving collisions).

Emphasis Area #2: Distracted Driving

- The use of new communication technologies, such as handset devices, is a fast growing safety problem in Saskatoon.
- Ranked Third in terms of total collisions (28%) and Fourth in terms of fatal or injury collisions (39%).
- Target Goal: 10% reduction by 2017 (equivalent to 46 fewer fatal or injury distracted driving collisions).

Emphasis Area #3: Impaired Driving

- Although the number of impaired driving collisions is small, the consequences are severe, and public demand for action is very high.
- Ranked Thirteenth in terms of total collisions (3%) and fatal or injury collisions (4%).
- Target Goal: 10% reduction by 2017 (equivalent to 5 fewer fatal or injury impaired driving collisions).

Emphasis Area #4: Intersections

- Far more collisions occur at intersections than on road segments.
- Ranked First in terms of total collisions (60%) and fatal or injury collisions (74%).
- Target Goal: 10% reduction by 2017 (equivalent to 91 fewer fatal or injury collisions at intersections).

Emphasis Area #5: Older Drivers

- Saskatoon's population is aging. Potential safety issues relating to older drivers need to be considered.
- Ranked Eighth in terms of total collisions (10%) and Ninth in terms of fatal or injury collisions (12%).
- Target Goal: 10% reduction by 2017 (equivalent to 13 fewer fatal or injury collisions involving older drivers).

Emphasis Area #6: Vulnerable Road Users

- Although the number of vulnerable road user collisions is relatively small, the consequences of these collisions are very severe.
- Ranked Twelfth in terms of total collisions (4%) and Sixth in terms of fatal or injury collisions (74%).
- Target Goal: 10% reduction by 2017 (equivalent to 20 fewer fatal or injury collisions involving vulnerable road users).

Emphasis Area #7: Young Drivers

- Young people are involved in many collisions related to the selected emphasis areas, e.g., distracted driving and impaired driving.
- Ranked Second in terms of total collisions (46%) and fatal or injury collisions (52%).
- Target Goal: 10% reduction by 2017 (equivalent to 60 fewer fatal or injury collisions involving young drivers).

Safety Strategies/Programs

Education

Strategy/Program		Description	Stakeholders	Emphasis Areas							No. of Emphasis Areas Involved
ID	Title			#1: Aggressive Driving	#2: Distracted Driving	#3: Impaired Driving	#4: Intersections	#5: Older Drivers	#6: Vulnerable Road Users	#7: Young Drivers	
1	Awareness Campaigns using Multimedia and Community Newsletters	Local broadcasting channels (radio, TV, community newsletters, CAA articles, etc.) create and promote awareness.	COS TSC, Radio and TV Stations, SGI	Enhance	Enhance	Enhance	Enhance	Enhance	Enhance	Enhance	7
2	Awareness Campaigns using Social Media and Various Organizations' Homepages	Popular social media (e.g., Facebook) and stakeholders' homepages (e.g., COS, SPS) can be used to create and promote awareness.	COS, SGI, SPS	Enhance	Enhance	Enhance	Enhance		Enhance	Enhance	6
3	Educational Activities targeted at High Schools	Traffic safety themed activities can be designed for high school students. These activities can be coordinated and promoted by Saskatoon School Board of Education.	SBOE, SGI	Introduce	Introduce	Introduce			Introduce	Introduce	5
4	Message Boards	Billboards or changing message signs create and promote awareness, and advise drivers of safety issues and associated regulations and fines.	COS TSC, SGI	Enhance	Enhance	Enhance				Enhance	4
5	Awareness Week	An awareness week can be used to create and promote awareness.	COS TSC, SGI	Introduce	Introduce	Enhance					3
6	Rollover Simulator Demonstrations at High Schools	SGI demonstrates its rollover simulator at Saskatoon high schools to emphasize the safety benefits of seatbelts in severe rollover collisions.	SBOE, SGI							Enhance	1
7	Smartphone Apps	Smartphone apps can be used to create and promote awareness. For example, SGI's Safe Ride App provides information on taxis, designated driving services, etc.	SGI			Enhance					1

Enhance: Expand and improve existing program(s)
Introduce: Create new program(s)

Safety Strategies/Programs
Education (Cont'd)

Strategy/Program		Description	Stakeholders	Emphasis Areas							No. of Emphasis Areas Involved
ID	Title			#1: Aggressive Driving	#2: Distracted Driving	#3: Impaired Driving	#4: Intersections	#5: Older Drivers	#6: Vulnerable Road Users	#7: Young Drivers	
8	Operation Red Nose (ORN)	Operation Red Nose (ORN, operationrednose.com) is a national road safety campaign focused on reducing impaired driving during holiday periods. ORN volunteers to drive impaired or tired people and their vehicles home from parties, events, etc.	SGI			Enhance					1
9	55 Alive (Mature Driver Course)	55 Alive is a free six-hour course that educates older drivers about how the physical changes of aging can affect driving, and explains how older drivers with, for example, compromised vision or hearing, can adapt to adverse road and weather conditions. At least 12 participants are required in each class.	Saskatchewan Safety Council, SGI					Enhance			1

Safety Strategies/Programs

Enforcement

Strategy/Program		Description	Stakeholders	Emphasis Areas							No. of Emphasis Areas Involved
ID	Title			#1: Aggressive Driving	#2: Distracted Driving	#3: Impaired Driving	#4: Intersections	#5: Older Drivers	#6: Vulnerable Road Users	#7: Young Drivers	
1	Selective Enforcement Programs	Selective enforcement programs may use highly visible and/or invisible law enforcement. Collision maps can be used to select the program's locations/times.	SGI, SPS	Enhance	Enhance	Enhance	Enhance		Enhance	Enhance	6
2	Highly Visible Enforcement (HVE)	Liquor enforcement team (LET) officers provide highly visible enforcement (HVE) within and around drinking establishments to continually reinforce the message that impaired drivers will be stopped and arrested.	SPS			Enhance					1
3	Report Impaired Drivers (RID) Program	The RID program is a new road safety initiative that encourages residents to call 911 to report a suspected impaired driver. RID allows the public to assist law enforcement in finding and removing impaired drivers from the roads. RID also serves as a warning to impaired drivers that many eyes are watching them.	COS TSC, SGI			Enhance					1
4	High Collision Intersection Enforcement	Saskatoon police officers have been focusing on enforcement at intersections considered high-risk from past collision statistics. An intersection collision map can be used to select the target intersections/times.	SPS				Enhance				1

Safety Strategies/Programs
Enforcement (Cont'd)

Strategy/Program		Description	Stakeholders	Emphasis Areas							No. of Emphasis Areas Involved
ID	Title			#1: Aggressive Driving	#2: Distracted Driving	#3: Impaired Driving	#4: Intersections	#5: Older Drivers	#6: Vulnerable Road Users	#7: Young Drivers	
5	Multi Agency Seat Belt Team (MASTeam) Seatbelt Checkstops	The MASTeam program focuses on seatbelt enforcement. Enforcement agencies throughout Saskatchewan conduct stopchecks to enforce seatbelt use. To target young drivers, a young driver collision map can be used to select the program's locations/times.	SPS							Enhance	1

Safety Strategies/Programs
Engineering

Strategy/Program		Description	Stakeholders	Emphasis Areas							No. of Emphasis Areas Involved
ID	Title			#1: Aggressive Driving	#2: Distracted Driving	#3: Impaired Driving	#4: Intersections	#5: Older Drivers	#6: Vulnerable Road Users	#7: Young Drivers	
1	Improved Road Surface Friction/Winter Maintenance	Winter maintenance programs (e.g., sanding and snowplowing) improve road surface friction on high speed roadways and high classification roadways (e.g., Circle Drive and major/minor arterials).	COS, SGI	Enhance			Enhance	Enhance		Enhance	4
2	Clearview Street Signs	Street name signs that use the Clearview font and larger street name plates are designed to help drivers to find their route, choose their lane, etc. and thus negotiate the intersection more safely and more easily.	COS				Introduce	Introduce		Introduce	3
3	Well Maintained Pavement Markings	Missing and faded pavement markings (crosswalks, lane markings, lane ending indicators, etc.) at/near City intersections are maintained throughout the year to ensure good visibility. Clear markings are important at all intersections, but may be especially important at locations screened as high collision locations.	COS				Enhance	Enhance		Enhance	3
4	Improved Traffic Signal Operation	Traffic signal phasing at high collision intersections. Possible countermeasures include providing a protected left-turn signal phase, prohibiting left-turns, and extending the yellow, green, or red signal phase as appropriate.	COS	Enhance			Enhance		Enhance		3

Safety Strategies/Programs
Engineering (Cont'd)

Strategy/Program		Description	Stakeholders	Emphasis Areas							No. of Emphasis Areas Involved
ID	Title			#1: Aggressive Driving	#2: Distracted Driving	#3: Impaired Driving	#4: Intersections	#5: Older Drivers	#6: Vulnerable Road Users	#7: Young Drivers	
5	Professional Engineering Projects Designed to Improve Surface Infrastructure (e.g., in-service road safety review projects)	In-service safety review projects can be conducted at selected intersections to determine engineering countermeasures that will improve the surface infrastructure. Typical engineering countermeasures include adding exclusive left/right turn lanes, installing advanced signal change warning signs, etc. An intersection collision map can be used to select target intersections for in-service road safety review projects.	COS, SGI				Enhance		Enhance		2
6	Red Light Cameras	Red light cameras are installed at high collision intersections.	COS, SGI	Enhance			Enhance				2
7	Engineering Projects that help to reduce Peak Period Congestion	Certain types of aggressive driving (e.g., speeding and unsafe lane changing) are known to stem from drivers' frustration with congested roads. COS's various surface infrastructure projects are designed to reduce congestion on the road network and can therefore help to reduce aggressive driving.	COS	Enhance							1
8	Changeable Message Signs	Changeable message signs are installed at locations where aggressive driving is leading to collisions. The signs may also be used to advise road users of adverse weather and road conditions.	COS TSC, SGI	Enhance							1
9	Speed Reader Boards	Speed reader boards are installed at locations where aggressive driving is leading to collisions. The signs show each driver his or her speed.	COS TSC, SGI	Enhance							1

Safety Strategies/Programs

Engineering (Cont'd)

Strategy/Program		Description	Stakeholders	Emphasis Areas							No. of Emphasis Areas Involved
ID	Title			#1: Aggressive Driving	#2: Distracted Driving	#3: Impaired Driving	#4: Intersections	#5: Older Drivers	#6: Vulnerable Road Users	#7: Young Drivers	
10	Photo Radar Technology	SGI has been considering expanding the use of photo radar technology in Saskatchewan from work zones (as at present) to other roadways. The program would need public support and a Cabinet decision.	SGI	Introduce							1
11	Roadway Safety Improvements to reduce the Likelihood and Severity of Collisions	Numerous engineering countermeasures can help to reduce the problem of distracted driving: advance stop signs, advance signing for lane closures, larger and more reflective signage, installation of medians, removal of obstacles, and improved lane marking and delineation of curbs.	COS, SGI		Enhance						1
12	Countdown Pedestrian Signals	Pedestrian signals with countdown timers inform pedestrians how many seconds remain for crossing. The countdown timers may be visual only, or visual and audible.	COS						Enhance		1
13	Bicycle Lane Connectivity (i.e., continuous right-of-way for bicyclists) and Bicycle Friendly Facilities	Bicycle lane connectivity can be provided where possible. During surface infrastructure improvement, raised/exclusive bicycle lanes (rather than curb side bicycle lanes) can be considered to maximize bicyclists' safety.	COS						Enhance		1
14	Winter Maintenance of Transit Facilities	Bus stops where access is impeded by snow, ice or broken pavement are identified, and COS can be informed of these problems by Saskatoon Transit so that the problems can be addressed quickly.	COS, Saskatoon Transit						Enhance		1

Safety Strategies/Programs
Engineering (Cont'd)

Strategy/Program		Description	Stakeholders	Emphasis Areas							No. of Emphasis Areas Involved
ID	Title			#1: Aggressive Driving	#2: Distracted Driving	#3: Impaired Driving	#4: Intersections	#5: Older Drivers	#6: Vulnerable Road Users	#7: Young Drivers	
15	Accessible Pedestrian Signals (APS)	APS communicate information in non-visual formats (e.g., audio).	COS, SGI						Enhance		1
16	Sidewalk Retrofit	Sidewalks can be added to old neighbourhoods with missing sidewalks, or upgrade sidewalks.	COS, SGI						Enhance		1
17	Accessibility Ramps	Create access by adding curb ramps on street corners.	COS, SGI						Enhance		1

Safety Strategies/Programs

Legislation

Strategy/Program		Description	Stakeholders	Emphasis Areas							No. of Emphasis Areas Involved
ID	Title			#1: Aggressive Driving	#2: Distracted Driving	#3: Impaired Driving	#4: Intersections	#5: Older Drivers	#6: Vulnerable Road Users	#7: Young Drivers	
1	Work Zone Regulation	Impose tougher fines on motorists who do not reduce their speed when driving in construction zones when workers are present.	COS, SGI	Introduce				Introduce		Introduce	3
2	Driver Improvement Program	Drivers are assigned demerit points every time they are convicted of a traffic offence related to aggressive driving. In Saskatchewan, drivers are currently assigned 4 demerit points for running a stop sign, and 1 demerit point for exceeding the speed limit.	SGI	Enhance							1
3	Administrative Licence Suspension Program (a.k.a. Immediate Roadside Prohibition (IRP) Program)	The licence suspension program is applied at the roadside to drivers with 0.08 BAC. Saskatchewan has various driver licence suspension programs. The sanctions vary with the driver's offence and include 90-day administrative suspensions, roadside suspensions, statutory suspensions, and criminal code suspensions.	SGI, SPS			Enhance					1
4	Ignition Interlocks Program (IIP)	An ignition interlock is an alcohol testing device connected to the ignition and power systems of a vehicle. It prevents an alcohol impaired driver from starting the vehicle. In Saskatchewan, drivers who are convicted of impaired driving, who drive over 0.08 BAC, or who refuse to take a breath test are eligible for the IIP.	SGI			Enhance					1

Safety Strategies/Programs
Legislation (Cont'd)

Strategy/Program		Description	Stakeholders	Emphasis Areas							No. of Emphasis Areas Involved
ID	Title			#1: Aggressive Driving	#2: Distracted Driving	#3: Impaired Driving	#4: Intersections	#5: Older Drivers	#6: Vulnerable Road Users	#7: Young Drivers	
5	Driver Evaluation Program (DEP)	DEPs monitor drivers who have medical conditions that may affect their ability to drive.	SGI					Enhance			1
6	Graduated Driver Licensing (GDL) Program	GDL programs are designed to ensure that young drivers' exposure to higher levels of risk increases incrementally as the drivers gain more experience driving. The details of such programs vary. SGI is considering toughening the current GDL program.	SGI							Enhance	1

Municipal Impound Lot Update – Hours of Operation

Recommendation
That the Standing Policy Committee on Transportation recommend to City Council during 2015 Business Plan and Budget deliberations:

1. That the Municipal Impound Lot continue Saturday hours of operation from 11:00 a.m. to 4:00 p.m. for vehicle retrievals; and
2. That the current hours of operation Monday to Friday, 8:00 a.m. to 7:00 p.m. be modified to 8:00 a.m. to 8:00 p.m.

Topic and Purpose

The purpose of this report is to provide an update on the operations at the Municipal Impound Lot and to recommend continuing the Saturday hours, and reinstating the additional hour per day from Monday to Friday.

Report Highlights

1. Changes to the operating hours at the Municipal Impound Lot for providing vehicle retrievals on Saturdays resulted in 118 vehicles released on Saturdays between January 25 and August 9, 2014.
2. The removal of an hour each day from Monday to Friday has resulted in an increase in overtime to accommodate a surge of vehicle retrievals just prior to 7:00 p.m.

Strategic Goal

This report supports the Strategic Goal of Quality of Life by providing a reliable and responsive community service.

Background

The hours of operation at the Municipal Impound Lot were modified in January 2014 as a pilot project to provide for vehicle retrievals on Saturdays from 11:00 a.m. to 4:00 p.m. In order to not impact the mill rate, equivalent operational hours were reduced Monday to Friday by an hour each day to offset the Saturday hours.

Report

Saturday Retrieval Statistics

Statistics from January 25, 2014 to August 9, 2014 indicate that on Saturdays the number of vehicle retrievals averages four vehicles per day.

There were 77 vehicles released on Saturdays from January 25, 2014 to April 30, 2014, with a total of 901 vehicles impounded during the same period. This equals an 8.5% Saturday release rate.

The Saturday release rate drops to 5.1% for the period of May 1, 2014 to August 9, 2014 where 799 impounds resulted in 41 Saturday releases.

There does not appear to be a correlation between the number of vehicles retrieved on a Saturday, whether it is a long weekend or regular weekend.

The chart in Attachment 1 shows the number of vehicles retrieved on Saturdays. Providing for retrievals on Saturdays is estimated to impact the annual revenues at the impound lot by $6,240 due to two less days of impound fees per vehicle.

Increase of Overtime

During the pilot project, the Saturday shift was staffed by a regular Monday to Friday employee, as it was imperative staff are proficient in the regular operations and numerous technical functions that accompany the Municipal Impound Lot. This resulted in overtime costs of about $7,500 per year for the five-hour Saturday shift.

The reduced hours for Monday to Friday (closing at 7:00 p.m.) has caused a public surge of vehicle retrievals near closing time resulting in the staff working beyond 7:00 p.m., at a cost of $7,500 per year.

Administration is recommending that the Municipal Impound Lot continue to provide for vehicle retrievals on Saturdays and reinstate an additional hour on Monday to Friday, which will give the public ample time for retrieving a vehicle. Given that this is no longer a pilot project, shifts will be modified to reduce the overtime costs currently being experienced on Saturdays and after regular hours during the week.

Options to the Recommendation

An option is to remove the Saturday retrievals to restore revenues. This is not recommended since the statistics show a demand for the ability to retrieve vehicles on Saturdays.

A second option is to maintain the current hours of operation on Saturdays (implemented January 2014), and not reinstate the additional hour Monday to Friday. This is not recommended as there is also a demand for retrievals beyond 7:00 p.m. Monday to Friday and unintentionally results in overtime costs.

Public and/or Stakeholder Involvement

There was no public or stakeholder involvement in the development of these recommendations.

Communication Plan

A Public Service Announcement will be released to inform citizens of any changes to the hours of operation at the Municipal Impound Lot. Signage at the Municipal Impound Lot and the City's website will be updated to reflect any changes in hours of operation.

Financial Implications

The cost to reinstate the additional hour of operation each day Monday to Friday, and maintain Saturday operation hours with an existing trained employee at overtime rates, is an additional $5,000 per year. In addition, the lost revenues from two days of impound fees is estimated at $6,240 per year, for a total impact of $11,240 per year. This cost has not been included in the 2015 Operating Budget submission.

The Municipal Impound Lot ended 2013 with a $37,000 surplus and the current year end projections are approximately the same which will absorb this additional cost.

Budgeted	Unbudgeted	Capital	Operating	Non-Mill Rate	External Funding
X			$11,240		

Other Considerations/Implications

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

Due Date for Follow-up and/or Project Completion

Any changes to the hours of operation at the Municipal Impound Lot would be implemented immediately.

Public Notice

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

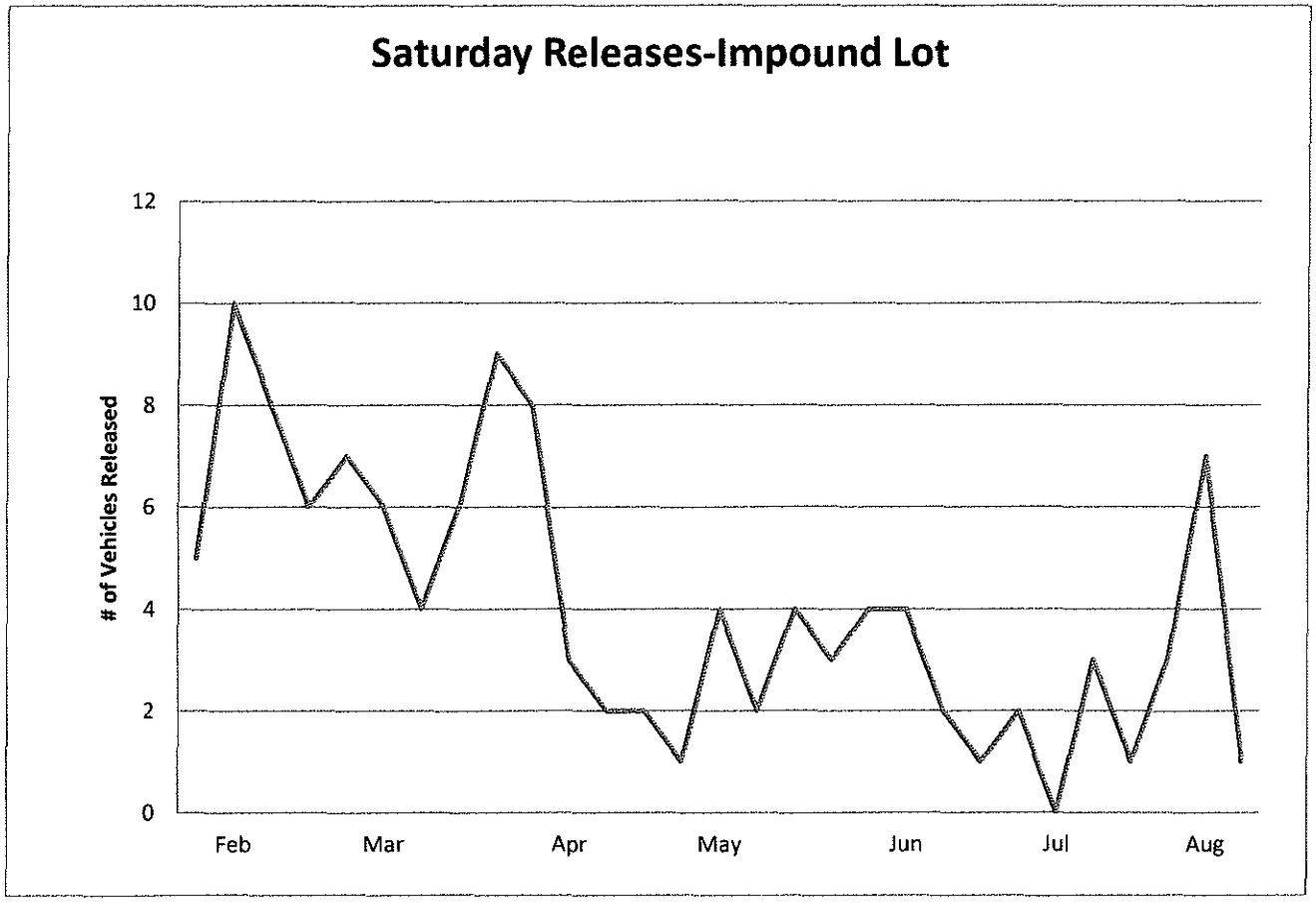
Attachment

1. Chart - Saturday Releases-Impound Lot

Report Approval

Written by: Roxanne Christian, Parking Enforcement Coordinator
Reviewed by: Angela Gardiner, Director of Transportation
Approved by: Jeff Jorgenson, General Manager, Transportation & Utilities Department

TRANS RC - Municipal Impound Lot Update – Hours of Operation


Saturday Releases-Impound Lot
# of Vehicles Released
12
10
8
6
4
2
0
Feb
Mar
Apr
May
Jun
Jul
Aug

Partnership with Saskatchewan Government Insurance

Recommendation
That the Standing Policy Committee on Transportation recommend to City Council:
1. That the City of Saskatoon and Saskatchewan Government Insurance enter a formal agreement regarding collaborating on delivering cost-effective road safety projects within the City of Saskatoon; and
2. That the City Solicitor prepare the appropriate agreement and that His Worship the Mayor and the City Clerk be authorized to execute the agreement under the Corporate Seal.

Topic and Purpose
The purpose of this report is to inform City Council on how the Saskatchewan Government Insurance (SGI) and the City of Saskatoon currently collaborate, and receive authorization to execute the agreement.

Report Highlights
A formal agreement is proposed between the City of Saskatoon and SGI that will establish cooperation, recognize individual and joint rights, and identify responsibilities and authorities in working collaboratively on traffic safety projects.

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

Background
Currently the City of Saskatoon and SGI collaborate on many initiatives in an ad-hoc fashion, samples of which include the following:
- Development of the Traffic Safety Action Plan.
- Identification of road improvement projects that mutually benefit the City of Saskatoon and SGI.
- Determine the percentage of the cost of projects apportioned to the City of Saskatoon and SGI.
- Monitor the development and completion of the project.
- SGI periodically provides traffic collision data and information that significantly benefits Transportation's engineering assessments and solution identification.

In the past, SGI has provided funding for improvements to infrastructure to improve the safety on the transportation network. These projects were typically one-off without a formal plan for working together.

Report

Partnership Agreement

In order to formalize the working arrangement currently enjoyed by the City of Saskatoon and SGI, and to maximize the benefits gained by collaboration on transportation improvement projects, a formal agreement is proposed. This agreement will:

- Establish cooperation;
- Recognize individual and joint rights; and
- Identify responsibilities and authorities.

The following guiding principles will form the environment of the collaboration:

- Ongoing communication and sharing of information in a regular and timely fashion, while upholding confidentiality requirements.
- Exploration and implementation of innovative solutions with an outcome that provides the ability to measure return on investment.
- Commitment to a responsive and respectful Information Sharing Agreement that improves road safety issues and concerns through joint prioritization and delegation of responsibilities and tasks; joint decision-making processes; and an understanding of expectations, timelines, and concerns of each partner.

A formal agreement between the City of Saskatoon and SGI will allow both parties to better plan and budget for upcoming projects, as opposed to addressing individual projects on an ad-hoc basis.

Public and/or Stakeholder Involvement

There is no Public and/or Stakeholder involvement.

Communication Plan

A joint SGI – City of Saskatoon news release will be released announcing the formalization of the partnership.

Financial Implications

The Traffic Safety Reserve funds traffic safety related programs and projects throughout the City and will be used to fund the City's portion of the project in the future. No new funding source is being requested at this time.

Environmental Implications

Infrastructure improvement projects are expected to 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.

By improving the safety of streets, the choice by residents to walk and bicycle will be promoted.

Other Considerations/Implications

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

Due Date for Follow-up and/or Project Completion

An annual renewal of the agreement will be required, and a report will be provided to City Council.

Public Notice

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

Report Approval

Written by:	Justine Nyen, Traffic Safety Engineer, Transportation
Reviewed by:	Angela Gardiner, Director of Transportation
Approved by:	Jeff Jorgenson, General Manager, Transportation & Utilities Department

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Parking Restriction – Millar Avenue between 51st Street and 60th Street

Recommendation

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

That parking be restricted in each direction on Millar Avenue between 51st Street and 60th Street to create an extra lane of traffic in each direction to improve traffic flow.

Topic and Purpose

This report is to request approval to remove on-street parking on Millar Avenue between 51st Street and 60th Street. The result of the parking removal is two additional lanes available for through traffic; therefore, increasing the traffic capacity of this segment of Millar Avenue.

Report Highlights

1. A corridor study resulted in current traffic flows on Millar Avenue and traffic entering or crossing from the side streets are delayed by the current configuration of Millar Avenue.
2. The removal of on-street parking will improve traffic flow on Millar Avenue, and provide more opportunities for drivers on the side streets to enter or cross Millar Avenue.

Strategic Goal

This report supports the Strategic Goal of Moving Around by optimizing pedestrian safety and the flow of people and goods in and around the city.

Background

Millar Avenue between 51st Street and 60th Street is a two-lane (one per direction) major arterial roadway with on-street parking both directions. The increase in traffic volume during peak hours has resulted in increased traffic delays and side street congestion when entering or crossing Millar Avenue.

Report

Corridor Review Study Results

In 2013, the Administration initiated the process of a corridor review, including a study of recent traffic and pedestrian volumes for Millar Avenue between 51st Street and 60th Street, which found alternatives for improving traffic operations along this corridor. The review confirmed the following:

- Traffic operations at this corridor, specifically the two-lane traffic on Millar Avenue configuration, does not accommodate increasing traffic volumes during peak hours.

- Corridor traffic delays also impact drivers on side streets attempting to enter or cross Millar Avenue.

On-Street Parking Removal

The Administration recommends the removal of on-street parking in each direction along Millar Avenue between 51st Street and 60th Street to create two permanent lanes of traffic in each direction.

Removal of the on-street parking is expected to decrease delays on Millar Avenue while providing more opportunities for traffic to enter or cross Millar Avenue.

Options to the Recommendation

The installation of a traffic signal on Millar Avenue between 56th Street and 60th Street was an option considered, but while improving the side street traffic flow, it increases traffic delays on Millar Avenue; therefore, this was not an option to consider.

Public and/or Stakeholder Involvement

In June 2014, information was sent out to property owners along Millar Avenue (43rd Street and 60th Street), including the side streets, highlighting the upcoming construction and including information on proposed parking restrictions with a request to provide feedback (Attachment 1). Feedback was received from eight property owners, with one being opposed to the parking restrictions. That property owner's preference to improve traffic flow is to install traffic signals along Millar Avenue. The remainder were supportive of the proposed parking restrictions.

Communication Plan

Residents and businesses affected by the parking changes will be sent a letter in advance of implementation to alert them of the coming changes. Street-side parking signage will be installed at the time of implementation to ensure the restrictions are clearly visible to motorists. A public service advertisement will be placed in The StarPhoenix City Pages to notify all city motorists of the changes to traffic flow on Millar Avenue.

Policy Implications

The parking restriction on Millar Avenue between 51st Street and 60th Street is in accordance with Policy C07-010 – Parking Restrictions and Parking Prohibitions.

Financial Implications

The cost to install parking restriction signage and lane demarcation lines is approximately $10,000. Funding will be available within the approved Capital Project #1506 – Traffic Signing Replacement.

Budgeted	Unbudgeted	Capital	Operating	Non-Mill Rate	External Funding
X		$10,000			

Environmental Implications

The reduction in delays along Millar Avenue is expected to have a positive impact on greenhouse gas emissions, but has not been quantified at this time.

Other Considerations/Implications

There are no privacy, or CPTED considerations or implications.

Due Date for Follow-up and/or Project Completion

The Administration will provide a follow up report in the fall of 2015 assessing the impacts of providing an extra lane of traffic in each direction along Millar Avenue between 51st Street and 60th Street.

Public Notice

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

Attachment

1. Update on Construction in Your Area – Millar Avenue from 43rd Street to 60th Street

Report Approval

Written by:	Lanre Akindipe, Traffic System Engineer, Transportation
Reviewed by:	Angela Gardiner, Director of Transportation
Approved by:	Jeff Jorgenson, General Manager, Transportation & Utilities Department

TRANS LA - Parking Restriction – Millar Avenue between 51st Street and 60th Street.docx

ATTACHMENT 1

BUILDING BETTER ROADS
SASKATOON'S ROAD PLAN

City of Saskatoon

June 24, 2014

Update on Construction in Your Area

Millar Avenue from 43rd Street to 60th Street

Extensive maintenance work is scheduled to begin on Millar Avenue in July 2014 as crews upgrade water and sewer infrastructure and resurface the roadway. The work will take approximately four weeks to complete. Thank you for your patience and understanding as you navigate through and around the roadway restrictions that are required for us to complete these projects. Below is an overview of the work that will occur. A more detailed timeline and summary of the road restrictions will be provided to you prior to the work commencing.

We would like to hear any concerns you may have regarding these projects. Please contact the Project Manager listed below each project.

43rd Street to Molaro Place - Water and Sewer Upgrades
Project Manager: Cam LeClaire, 306-975-2735 or cam.leclaire@saskatoon.ca

Starting in early July, water and sewer infrastructure upgrades will occur along Millar Avenue from 43rd Street to Molaro Place. This will require cutting rectangular holes (known as utility cuts) in the road to access underground utilities. The work will be performed in the roadway area and could span the entire street from curb to curb. To minimize disruption, only a few blocks will be repaired at a time. During work, lane or full closure restrictions will be required, and vibration and noise will be present. For businesses adjacent to the work zone, driveway access will be limited; however, it will be accommodated whenever possible. The work is expected to take two weeks to complete.

43rd Street to Molaro Place - Road Resurfacing
Project Manager: James Donohoe, 306-986-0892 or james.donohoe@saskatoon.ca

After water and sewer upgrades are complete, road resurfacing will occur. The deteriorated asphalt will be milled and then the road will be resurfaced with new hot mix asphalt. To minimize disruption to your business and to motorists this work will take place overnight from 7:00 p.m. to 7:00 a.m. During construction access to businesses will be maintained. The work is expected to take two weeks to complete.

51st Street to 60th Street – Traffic Operation Improvement (Parking Restrictions)
Project Manager: Olanrewaju Akindipe, 306-975-3657 or
olanrewaju.akindipe@saskatoon.ca

The City of Saskatoon is considering implementing parking restrictions on Millar Avenue between 51st Street and 60th Street in order to improve traffic operations by providing for an extra lane of traffic in each direction. We would like your input regarding this proposed change by July 11, 2014.

BUILDING BETTER ROADS
SASKATOON'S ROAD PLAN

City of Saskatoon

Frequently Asked Questions

Will customers have access to my business during this work?
Driveway access will be limited during the water and sewer work; however, it will be accommodated whenever possible. Businesses should use alternate parking on their properties and on the side streets. Access to businesses will be maintained during the road resurfacing work.

Will there be vibration and noise during construction?
Yes. Please note that to minimize disruption the road resurfacing work will be done at night between the hours of 7:00 p.m. and 7:00 a.m. The water and sewer work will be done during the day.

Will my water and sewer services be affected?
Water and sewer could be affected. If, for any reason, the water and sewer services need to be interrupted, you will be notified in advance of any scheduled interruption in service.

Will bus routes be affected?
Bus routes along the construction route may be affected. During construction, please check the signs posted for alternate bus stop locations or call Saskatoon Transit at 306-975-3100.

Why are you removing on-street parking?
The City of Saskatoon reviewed existing traffic operations of Millar Avenue between 51st Street and 60th Street, and determined the current level of service was poor. Specifically, the existing two lanes for through traffic are becoming congested, delaying vehicles at intersections, and making it more difficult for vehicles to safely enter Millar Avenue from the side streets.

A potential improvement includes removing the on-street parking in each direction, thus providing one extra lane of traffic in each direction. With the on-street parking removed, the roadway will now permanently have two lanes of traffic in each direction. This improvement will decrease delays to drivers on Millar Avenue and provide more opportunities for vehicles from the side streets to safely enter Millar Avenue. During the development of this proposed improvement, City Staff visited the area and noted that the on-street parking for Millar Avenue was not significantly used, and that ample parking was available on the side streets and off-street. The City therefore concluded that the impact of removing on-street parking is expected to be minimal, and the benefits to the drivers on Millar Avenue positive.

What about parking during construction?
Businesses should use alternate parking on their properties and on the side streets.

Communications to Council – Ilsa Arnesen – December 3, 2013
Pedestrian Safety – 20th Street between Avenues M and P

Recommendation
That the Standing Policy Committee on Transportation recommend to City Council:
That an Active Pedestrian Corridor located at 20th Street and Avenue N be installed.

Topic and Purpose
The purpose of this report is to address the pedestrian safety crossing located at 20th Street between Avenue M and Avenue P.

Report Highlights
1. A review of pedestrian activity along 20th Street near Avenue N South was completed.
2. Installation of an Active Pedestrian Corridor at 20th Street and Avenue N is recommended.

Strategic Goal
This report supports the Strategic Goal of Moving Around by optimizing pedestrian safety and the flow of people and goods in and around the city.

Background
City Council, at its meeting January 20, 2014, considered a letter from Ilsa Arnesen regarding the safety of pedestrians on 20th Street between Avenues M and P. City Council passed a motion that the information be received and that the matter be referred to the Administration for a further report, including the feasibility of curb bulbing.

Report
Pedestrian Study Results
Pedestrian studies were conducted along 20th Street to determine pedestrian usage. Subsequently, warrant analysis was completed to assess the appropriateness of installing an Active Pedestrian Corridor or a Pedestrian Actuated Signal. Details on the data collection and warrant analysis are provided in Attachment 1.

The result of the studies indicated:
- All crosswalk locations are being used by pedestrians;
- The Avenue M crossing is commonly used by pedestrians going to the transit stop;
- The Avenue N crossing is commonly used by pedestrians going to school; and
- The Avenue O crossing is commonly used by pedestrians going to school and transit stops.

Currently, Pedestrian Actuated Signals are installed at Avenue M and Avenue O. The crossing at Avenue N is unmarked.

A Pedestrian Actuated Signal is typically not coordinated with the traffic signal timing and activates when the button is pushed by a pedestrian (light turning red to cross) with a waiting time of approximately 1 – 2 minutes. In the case where a second pedestrian pushes the button right after activation, the waiting time is longer which can possibly lead to a pedestrian crossing prior to the signal change.

The results of the warrant analysis indicate that:

- No device is warranted at Avenue M
- An Active Pedestrian Signal is warranted at Avenue N
- An Active Pedestrian Signal is warranted at Avenue O

An Active Pedestrian Signal utilizes amber flashing beacons to notify motorists that a pedestrian is at the crosswalk and intending to cross.

Enhanced Pedestrian Crossing at Avenue O

The Administration is recommending the installation of an additional Active Pedestrian Corridor at Avenue N and 20th Street leaving the current pedestrian devices at Avenue O and Avenue M.

Advantages of the Active Pedestrian Corridor:

- The device flashes immediately with no waiting time for the pedestrians.
- Pedestrians can proceed to cross once vehicles have stopped.
- When a second pedestrian comes along a second later and activates the light, the device will flash immediately.
- The device will remain dormant through the day until the pedestrian activates the device.

A curb extension is not recommended at Avenue N as typically this type of traffic calming device is used for mid-block locations, directly in front of schools, or on residential streets such as local and collector roads. In addition, City Council recently approved the installation of a reduced speed school zone on 20th Street which will encompass Avenue N. The school zone will then perform as a traffic calming measure.

Options to the Recommendation

- Move the pedestrian actuated signal at Avenue O to Avenue N and install a zebra crossing at Avenue O. This is not recommended as the pedestrian activity at Avenue O also warrants enhanced crossings.
- Installation of an additional Pedestrian Actuated Signal at Avenue N is feasible but not recommended as the option will disrupt traffic flow along 20th Street. Avenue O and Avenue M currently have Pedestrian Actuated Signals, and if all three signals are activated at once, the traffic flow will be disrupted. In addition,

pedestrians will have a longer wait time to cross via a Pedestrian Actuated Signal.

Public and/or Stakeholder Involvement

On May 22, 2014, a public meeting was held with representatives from the St. Mary's Education and Wellness Centre, area residents, and the Community Association to discuss their concerns and ideas regarding pedestrian safety along 20th Street.

Residents were able to share their input on the website shapingsaskatoon.ca. All input supported the expansion of the school speed zone onto 20th Street including the recently approved school zone expansion.

Communication Plan

Transportation will notify all stakeholders of the outcome of the review, including representatives of St. Mary's Education and Wellness Centre and the Community Association. Additionally, area residents will be notified of the active pedestrian corridor recommendation by flyers and via the website shapingsaskatoon.ca. All communications with area residents will advise of approximate timelines for implementation.

Policy Implications

The recommendation to install an Active Pedestrian Corridor is in accordance with Policy C07-018, Traffic Control at Pedestrian Crossings.

Financial Implications

The cost to install the Active Pedestrian Corridor is approximately $40,000. A budget submission has been made for 2015 within Capital Project #0637 – Traffic Safety.

Budgeted	Unbudgeted	Capital	Operating	Non-Mill Rate	External Funding
	X	$40,000			

Other Considerations/Implications

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

Due Date for Follow-up and/or Project Completion

If approved, the Active Pedestrian Corridor will be installed in 2015.

Public Notice

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

Attachment

1. Pedestrian Safety Review – Crossing 20th Street between Avenues M and P

Report Approval

Written by:	Shirley Matt, Traffic Management Engineer, Transportation
Reviewed by:	Angela Gardiner, Director of Transportation
Approved by:	Jeff Jorgenson, General Manager, Transportation & Utilities Department

TRANS JN – CC-Ilsa Arnesen-December 3, 2013 – Pedestrian Safety – 20th Street between Avenue M and P.docx

Date: August 27, 2014
File: CK 6150-1

To: File

From: Shirley Matt, P. Eng.

Report Title: Pedestrian Safety Review - Crossing 20th Street between Avenues M and P

1. Introduction

This report addresses pedestrian safety of crossing 20th Street between Avenue M and Avenue P. This report includes analysis of the pedestrian data collected and identifies the recommended pedestrian crossing device suggested to improve the level of safety for pedestrians crossing 20th Street at Avenue N.

2. Methodology

The assessment was completed by completing the following tasks:

1. Collect pedestrian crossing data at the following locations:
   a. 20th Street and Avenue M
   b. 20th Street and Avenue N
   c. 20th Street and Avenue O
2. Complete a pedestrian warrant calculation for each location in accordance with City of Saskatoon Policy – C07-018, Traffic Control at Pedestrian Crossings.
3. Provide a recommendation on the type and location of the pedestrian crossing control device.

3. Pedestrian Crossing Data

Pedestrian crossing data was conducted during the following weekday peak hours:

- 8:00 AM – 9:00 AM
- 11:30 AM – 1:30 PM
- 3:00 PM – 5:00 PM

The data collected at the three locations along 20th Street is summarized in **Table 1**.

Table 1: Pedestrian Crossing Peak Hour Data

Location on 20th Street	Date of Study	Existing Pedestrian Crossing Control	Pedestrian Classification								Grand Total
			West Approach				East Approach				
			Child	Teen	Adult	**Total**	Child	Teen	Adult	**Total**	
Ave M	March 25, 2014	Pedestrian Actuated Signal	0	0	6	**6**	12	2	94	**108**	**114**
Ave N	March 5, 2013	unmarked	21	13	20	**54**	8	11	12	**31**	**85**
	June 11, 2013		26	13	20	**59**	6	14	19	**39**	**98**
Ave 0	March 7, 2013	Pedestrian Actuated Signal	0	2	7	**9**	12	15	52	**79**	**88**
	June 11, 2013	Pedestrian Actuated Signal	0	5	9	**14**	16	20	65	**101**	**115**

4. Types of Pedestrian Crossing Control Devices

City of Saskatoon Council Policy – C07-018, Traffic Control at Pedestrian Crossings states that "…*appropriate traffic controls at pedestrian crossings shall be based on warrants listed in the document entitled "Traffic Control at Pedestrian Crossings – 2004" approved by City Council in 2004*."

A review of ***Traffic Control at Pedestrian Crossings***, City of Saskatoon, 2004 provides the following hierarchy of typical pedestrian crossing applications:

- Unmarked Crosswalks
- Standard Crosswalk
- Zebra Crosswalk
- Pedestrian Corridor
- Active Pedestrian Corridor
- Pedestrian Actuated Signal

Additional details on the Active Pedestrian Corridor and Pedestrian Actual Signal types of pedestrian crossing controls follow below.

Active Pedestrian Corridor

An Active Pedestrian Corridor utilizes amber flashing beacons to notify motorists that a pedestrian is at the crosswalk and intending to cross. The device flashes immediately when the pedestrians activate the button.
Motorists are to stop when the light is flashing to allow the pedestrian to cross and then proceed after the pedestrian finishes crossing the street. The pedestrian corridor is typically dormant until a pedestrian activates it; therefore the device does not disrupt traffic flow.

An Active Pedestrian Corridor should not be used on streets with more than two lanes of traffic in either direction, nor on streets where the speed limit is 70 kilometres per hour (kph) or greater.

An Active Pedestrian Corridor warrant utilizes a cross-product method of evaluating the ease of crossing that pedestrians have at a particular location. During the 15-minute count periods at peak pedestrian activity times (normally 8:00 AM to 9:00 AM, 11:30 AM to 1:30 PM, and 3:00 PM to 5:00 PM) pedestrian crossing and vehicle counts are undertaken. Pedestrians are classified as elementary school aged, high school aged, adult and senior/mobility impaired.

Pedestrian Actuated Signal

Pedestrian actuated signals are a traffic signal control for the through street traffic and stop or yield control for side-street traffic. The traffic signal can be actuated by pedestrians to create a gap in traffic to facilitate their crossing,

Pedestrian actuated signals are similar to a traffic signal where motorists stop when the signal shows red and cannot proceed until a green signal. Typically drivers wait for a longer duration when compared to an Active Pedestrian Corridor, as they have to wait for the light to return to showing green. With an Active Pedestrian Corridor, a driver can proceed once the pedestrian has finished crossing.

Pedestrian Actuated Signals should not be installed on streets where:

- The posted speed limit is 70 kph or greater;
- The installation is less than 200 metres from an adjacent traffic signal; and
- Where safe stopping sight distance for drivers approaching the crosswalk is insufficient.

5. Warrant Calculation Results

A warrant score of 3 points for three – 15 minute period intervals within the peak hour indicates an Active Pedestrian Corridor is warranted.
A warrant score of 80 indicates a Pedestrian Actuated Signal is warranted. The warrant calculation results are summarized in **Table 2**.

Table 2: Warrant Results

Location on 20th Street	Date of Study	Existing Pedestrian Crossing Control	Warrant Scores	
			Active Pedestrian Crossing	Pedestrian Actuated Signal
Avenue M	March 25, 2014	Pedestrian Actuated Signal	1	61
Avenue N	March 5, 2013	unmarked	3	62
	June 11, 2013		3	71
Avenue 0	March 7, 2013	Pedestrian Actuated Signal	3	58
	June 11, 2013		2	58

Based on the warrant results it is concluded that an Active Pedestrian Crossing are warranted at the intersection of 20th Street and Avenue N.

6. Curb Extensions

Traffic calming devices are intended to slow speeding vehicles down, reduce collision frequency, enhance the safety and perception of safety for pedestrians and reduce shortcutting through residential neighbourhoods.

Curb extensions, a type of traffic calming device, are horizontal intrusions 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 metres for two-way traffic.

However, curb extensions are not recommended to be installed at the intersection of 20th Street and Avenue N as they are typically used at mid-block crossing locations, directly in front of schools, resident streets such as local and collector roads, and at major crosswalk locations. None of these criteria are met with this assessment of 20th Street.

In addition, recently City Council approved the installation of a school zone on 20th Street that encompasses Avenue N. This school zone will act as a traffic calming device.

Inquiry – Councillor Jeffries (December 2, 2013) Carpooling

Recommendation
That the option to subscribe to a ridesharing service such as Carpool.ca or Rideshark at an annual cost of $17,000 be referred to the 2015 Business Plan and Budget deliberations.

Topic and Purpose
The purpose of this report is to respond to the inquiry by Councillor Jeffries on Carpooling by providing an option to subscribe to an online ridesharing service that makes the coordination of carpooling effective and convenient for citizens.

Report Highlights
1. The City of Saskatoon (City) has identified carpooling as one strategy in the Transportation Demand Management Strategic Plan.
2. Carpooling can be encouraged and facilitated through an online tool known as a ridesharing service.
3. In addition to carpooling, the City supports a number of initiatives to encourage sustainable transportation options including developing an Active Transportation Plan, parking support for the CarShare Cooperative, pedestrian and cycling infrastructure, annual participation in Commuter Challenge, and support for the Bike Valet.

Strategic Goal
The recommendations in this report support the long term strategy to optimize the flow of people and goods in and around the city through the Strategic Goal of Moving Around.

Background

On December 2, 2013, Councillor Jeffries made the following inquiry:

> "Traffic congestion is becoming more significant as Saskatoon continues to grow. Many communities at both citizen and government levels work to encourage carpooling to reduce the number of vehicles on the roads at peak times. Could the Administration please report on the feasibility of creating a program to encourage and facilitate carpooling in the city? This could include but is not limited to signage, designated parking, advertising, and coordination activities."

Report

Transportation Demand Management

In June 2010, the City adopted a Transportation Demand Management Strategic Plan (the Plan) that identified the need to reduce dependency on single-occupant auto trips and encourage more sustainable means of travel such as transit, walking, cycling and carpooling.

Within the Plan, carpooling is identified as an important tool for managing the demand for space on our roadways through strategies such as:

- allocating parking stalls for carpool vehicles and providing incentives for carpooling to civic staff;
- developing and proactively promoting a centralized carpooling service;
- providing online or other resources to assist with travel planning, including ridesharing;
- participating in commuter week and support for carpooling through www.carpool.ca;
- setting up a Transportation Demand Management working group with willing major trip generators (e.g. large employers and institutions) to promote site-based projects including carpooling, flexible work scheduling, teleworking, videoconference, parking initiatives, improved walking and cycling infrastructure, and end of trip facilities.

Participation in commuter week continues, but the City no longer makes use of Carpool.ca. Today, citizens may access Carpool.ca; however, it is not an active subscription and therefore the benefits of the program are limited. The service is also not actively promoted.

Among the strategies identified in support of carpooling above, re-establishing a subscription and promoting an online resource known as a ridesharing service supports the other strategies and will support carpooling among civic employees and the community at large.

Online Ridesharing Service

Ridesharing services provide opportunities for commuters to identify others with whom they can share trips. They are popular in many Canadian cities when coupled with education and promotional campaigns. In Saskatoon, several large employers facilitate ridesharing for their employees; both the Saskatoon Health Region and the University of Saskatchewan utilize a service called Rideshark.

The Administration has identified that the two leading services providing an online tool for the effective and convenient coordination of carpooling among all citizens are Carpool.ca and Rideshark.

Subscription to Carpool.ca helps users find carpooling partners for their regular commute and other trips. Carpool.ca would administer and host the site on behalf of the City, and the City would have access to data and reporting. Carpool.ca also provides promotional support.

Rideshark also provides rideshare matching for single trips or regular ongoing commutes; modes of transportation include carpooling and vanpooling, but also includes facilitating matches for cyclists, walkers and transit users. The service includes the multi-modal matching service as well as individual tracking, administrative support, promotion support, and reporting from a customized internet microsite. Rideshark provides additional options to promote use of the site and enhance active transportation education including Commuter Challenge, regional car matching, and emergency ride home.

Other Carpooling and Alternative Transportation Initiatives

The City is involved in a number of initiatives meant to encourage a shift from single-occupant vehicle use to more sustainable options. These include:

- The development of an Alternative Transportation Plan as part of the Growing Forward (the growth plan for a population of 500,000).
- Partnering with Saskatoon CarShare Co-operative on a 2-yr pilot project to set-aside assigned parking spots in the Nutana neighbourhood and the installation of signage. The CarShare Co-operative provides access to a vehicle through membership.
- Provision of pedestrian and cycling infrastructure in our built environment and support of the Meewasin multi-use trail system.
- Civic participation in the annual Commuter Challenge event promoting carpooling, transit and all modes of active transportation, including the installation of promotional banners along 25th Street East each year in June.
- Support for the Bike Valet through its initial launch (as a partner in Road Map Saskatoon); and funding for Saskatoon Cycles in 2013 to continue the growth of this program through the Environmental Cash Grant.
- Partnered with APEGS and the University of Saskatchewan School of Environment and Sustainability in a Networking Conference on Urban Transportation. The conference explored how to create more sustainable transportation systems, how to encourage urban dwellers to choose sustainable transportation, and why it's important.

Options to the Recommendation

City Council may choose to focus on other initiatives that support transportation demand management rather than subscribe to a ridesharing service.

Public and/or Stakeholder Involvement

The 2010 Transportation Demand Management Strategic Plan engaged a number of major trip generators including the University of Saskatchewan, Saskatoon Health Region, Cameco, Potash Corporation of Saskatchewan, and representatives from various departments within the civic Administration.

Communication Plan

Communication for the implementation and operation of a carpooling program would focus on increasing awareness of the benefits of carpooling, and encouraging behaviour change through a customer-centric, flexible carpool website with real-time and accurate information. Businesses would be supported in the development of their own workplace travel plan through the provision of a simple template with suggested actions.

Financial Implications

Subscription to a ridesharing service has an annual cost of approximately $7,000. Rideshark charges $15,000 to set up the customized website in the first year, and has an annual fee of $7,200. Carpool.ca has no set up fee and has an annual subscription fee of $7,000.

Additional annual funding of $10,000 will also be required to promote the service.

The Administration recommends that the option to subscribe to a ridesharing service such as Carpool.ca or Rideshark be referred to the 2015 Business Plan and Budget deliberations requesting the addition of $17,000 to the Environmental Programs Service Line.

Environmental Implications

In Saskatoon, approximately 65% of all trips are travelled in a car alone, and 17% are in a carpool. Reducing the number of single-occupant vehicle trips can reduce greenhouse gas emissions as well as air and noise pollution. Approximately 5.1 tonnes of CO_2e are avoided annually for every passenger vehicle removed from the road.

Other Considerations/Implications

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

Due Date for Follow-up and/or Project Completion

If approved, the performance of the new ridesharing service will be reported on in November 2015.

Public Notice

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

Report Approval

Written by:	Amber Jones, Education and Environmental Performance Manager
Reviewed by:	Brenda Wallace, Director of Environmental and Corporate Initiatives Angela Gardiner, Director of Transportation
Approved by:	Catherine Gryba, General Manager, Corporate Performance Department

2015 Pavement and Sidewalk Preservation Update

Recommendation
That the information be received.

Topic and Purpose
The purpose of this report is to advise Council that the Administration will be bringing forward, as part of the 2015 budget package, a dedicated road levy tax increase of 2.92%. This will be the second year of a three-year phase in to build the annual investment base into road and sidewalk preservation.

Report Highlights
1. Continuation of the three-year phased-in dedicated tax increase is part of the City's strategy to increase core funding for roadway and sidewalk investment.
2. This continued investment is required in order to sustain a program of similar size to 2014.

Strategic Goals
The report supports the Strategic Goals of Continuous Improvement, Asset and Financial Sustainability, Quality of Life, and Moving Around.

Background
In August of 2013, City Council considered three reports pertaining to funding adjustments for roadway and sidewalk preservation and operations. A 4.23% dedicated tax levy was ultimately approved for the 2014 budget, of which 2.92% was dedicated to roadway and sidewalk preservation and the remaining 1.37% was dedicated to sweeping, pothole, and snow program enhancements. Attachment 1 is the Roadway Financial Management Strategy report considered in August of 2013.

Report
A significant funding increase for roadway and sidewalk preservation in 2014 resulted in a program roughly twice as large as previous year's programs. A total of $25.25 Million was allocated, compared with $13.56 Million the previous year. 2014 funding is more than five-times the 2011 funding level.

The 2014 program was made possible by the 2.92% property tax increase dedicated to roadway and sidewalk preservation, combined with a significant base funding increase and a one-time capital contribution of $9 Million made possible by land development dividends. The 2014 program will result in more than 180 lane-kilometres of roadway being treated.

In order to continue the roadway and sidewalk preservation investment at current levels, two more years of phase-in are required for the 2.92% dedicated tax increase. This increase is in addition to any increase required to sustain existing civic operations.

The Administration believes that the 2014 Roadway and Sidewalk Preservation programs have been well received by the citizens of Saskatoon. Many operational changes were included in addition to the significant increase in funding, including 24/7 work for major road renewal projects, and the Building Better Roads communications system to keep the public apprised as programs were implemented. Although the full impact on public perception of the 2014 program will not be known until the results of the next Civic Satisfaction Survey are known (spring of 2015), the Administration has heard many positive reports from residents on their appreciation for the significant work undertaken in 2014. As the 2014 program nears completion in October, the Administration will report more comprehensively on the various successes of the 2014 program.

The 2014 Civic Satisfaction Survey was based on phone and on-line feedback in the spring of 2014, which was after the completion of the winter programs but before the start of the 2014 Roadway and Sidewalk Preservation programs. Roads continue to remain a priority concern, with 37% of telephone respondents and 32% of online respondents reporting roads as the dominant issue.

Options to the Recommendation

City Council could choose to not implement the 2015 portion of the phase-in. This would result in a 2015 program that sees significantly fewer lane-kilometres of work than 2014, unless additional one-time funding is found.

Administration does not recommend long-term reliance on one-time funding for roadway and sidewalk preservation. Base funding is a sustainable way to maintain the City's roadway and sidewalk infrastructure.

Public and/or Stakeholder Involvement

No specific engagement activities will be undertaken with respect to the proposed 2.92% dedicated tax increase.

Communication Plan

The Building Better Roads communication approach was instrumental in keeping the public apprised of the 2014 program.

Financial Implications

The 2.92% dedicated tax increase would build the base funding for roadways to approximately $23.1 Million in 2015. A modest amount of one-time funding will be added to this base funding to bring 2015 Roadway and Sidewalk Preservation funding to a level slightly higher than 2014, and final details will be included in the 2015 budget proposal from the Administration. The target annual funding to achieve Service Level B,

which results in a modest but steady improvement in overall roadway and sidewalk condition on an annual basis, is $29.0 Million as presented in the 2013 reports.

Other Considerations/Implications

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

Due Date for Follow-up and/or Project Completion

The Administration will further report on the 2014 program in October of 2014, and the formal funding request will be integrated into the Administration's 2015 recommended budget.

Public Notice

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

Attachment

1. Roadway Financial Management Strategy Report Considered in August of 2013.

Report Approval

Written &
Approved by: Jeff Jorgenson, General Manager, Transporation & Utilities Department

TRANS JJ – 2015 Pavement and Sidewalk Preservation Update

TO: Secretary, Executive Committee
FROM: General Manager, Corporate Services Department
DATE: August 7, 2013
SUBJECT: Roadway Financial Management Strategy
FILE NOS: CS.6315-1 and CS.1500-1

RECOMMENDATION: that the attached Roadway Financial Management Plan be approved in principle and be forwarded to the 2014 Business Plan and Budget deliberations.

TOPIC AND PURPOSE(S)

To develop a Roadway Financial Management Strategy to maintain the City's roadway assets and to provide an agreed-upon service level for road operations.

REPORT HIGHLIGHTS

1. A financial plan has been developed to fund the existing gap for roadway assets which will meet the previously-approved service levels for paved roads, sidewalks, back lanes, and boundary roads.
2. A financial plan has also been developed to fund increased service levels including two city-wide snow clearing programs, a compressed timeline for street sweeping, and additional resources to repair potholes.

STRATEGIC GOAL(S)

This report relates to the Strategic Goal of Asset and Financial Sustainability and meets the goal of establishing levels of service for rehabilitation of assets and identifying supporting financial strategies.

REPORT

City Council has approved roadway asset service levels. Based on public input, City Council has also indicated a desire for an increase in service levels in three road-related programs: snow clearing and ice control, street sweeping and pothole repair. This report is intended to be a companion report to the following:

- Neighbourhood and Primary Roadway and Sidewalk Preservation
- Paved Roadways – Summer and Winter Operational Service Level Increases

The Administration has developed a Roadway Financial Management Strategy to address the funding gap related to the Roadway Asset Funding Gap and the operating service level increases (Attachment 1). A three-year phase-in is outlined for the asset funding gap; the phase-in period is optional. The strategy recommends the use of a dedicated property tax, however, the use of a base (flat) tax is also available. The use of a base tax is outlined in more detail under the Options section of this report.

OPTIONS TO THE RECOMMENDATION

Phase-in Period
The phase-in period can be increased to a period longer than three years.

Base Property Tax
A portion, or all, of the gap can be funded through a base or flat tax (versus using the mill rate which is an ad valorem approach to property taxes).

The authority to levy a base tax is in Section 259 of *The Cities Act*. This option can only apply to the municipal portion of the property tax. The school and library portions would continue to be levied on the ad valorem basis.

The current ad valorem tax results in the same rate of tax being applied to every dollar of fair value assessment. In other words, every dollar of residential assessment is levied the same rate of tax. An assessment of $200,000 would be levied twice the tax of an assessment of $100,000.

The theory behind a base tax is to charge every property a base amount "off the top". If this base tax does not raise the full levy, the difference is then raised using the ad valorem formula against all property. A case can be made for using a base tax to fund a portion of the capital cost to maintain the roadway assets as all residents and commercial/industrial businesses use the roads either through driving a vehicle, using public transit and/or taxis, accepting deliveries, etc.

Attachment 2 compares the results of using a base tax to fund the annual three-year phased-in shortfall of $13.8 million, compared to the ad valorem system. As identified within the attachment, this shortfall results in a base tax of $170 ($14.17 per month) on every property. This would be phased-in over three years resulting $56.67 in 2014, $113.34 in 2015 and $170.00 in 2016.

The City uses Effective Tax Rates (ETR) as a means to compare the taxes between properties with the same assessed value in different property classes. The effective tax rate is calculated by dividing the taxes by the assessed value. Currently, the ETR is the same for all properties within the same class. Using a mix of ad valorem and base tax would mean the ETR would vary by property class, as well as by assessed value. The result would be that properties within the same property class would have different effective tax rates and that a lower valued property would have a higher ETR than a property with a higher value.

Presently, the City uses the ETR as a means to manage the tax ratio between commercial and residential properties. Using a base tax would impact this ratio. As a result, the ratio could only be maintained on the non-base portion, and the ETR would no longer be an accurate indicator of relative taxes between these two property classes.

If this option is of interest, a further report outlining the implementation details will be provided.

Local Improvement

In past reports, your Administration has suggested local improvements as a funding option for sidewalk replacement. This option results in the City borrowing funds with the residents benefiting from the improvement repaying the debt over approximately 25 years. The repayment is included on the property tax bill; however, the debt is also included within the City's overall debt limit.

POLICY IMPLICATIONS

The Cities Act provides cities with the ability to calculate taxes using mill rates and mill rate factors multiplied by taxable assessment. The *Act* also provides the option to use a base tax, a minimum tax, or a special tax. A special tax can only be used to pay for a specific service that will be completed within the taxation year.

FINANCIAL IMPLICATIONS

The Roadway Financial Management Strategy requires a property tax increase; however, the specific impact is dependent upon the phase-in period selected.

PUBLIC AND/OR STAKEHOLDER INVOLVEMENT

The 2013 Civic Services Survey is conducted annually to obtain citizen feedback on a variety of civic issues. The City uses the information during its planning cycle as input into program or service changes and budget decisions, in an attempt to meet the program and service needs of the citizens of Saskatoon.

The condition of streets continues to be the most frequently mentioned priority issue facing the City today (36% among telephone respondents and 31% of online respondents). As with last year, it should be noted that the survey takes place in the spring when road conditions are typically at their worst.

Maintenance of major roadways and freeways in the city, ice and snow management, traffic management, planning and development of the city, and neighbourhood street maintenance are areas where the level of satisfaction with the service is lower than the level of importance.

The Roadway Financial Management Strategy has been prepared to address the priorities that citizens have identified related to roadways in Saskatoon.

COMMUNICATION PLAN

Answers to frequently asked questions will be developed and will also be posted on the City's website.

DUE DATE FOR FOLLOW-UP AND/OR PROJECT COMPLETION

The recommendation is to refer this to the 2014 Business Plan and Budget deliberations to ensure that this matter is not dealt with outside the normal budgeting timeframe.

ENVIRONMENTAL IMPLICATIONS

There are no environmental implications and or greenhouse/gas emissions identified at this time.

PUBLIC NOTICE

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

ATTACHMENTS

1. Investing in the Roads to Continued Prosperity - Roadway Financial Management Strategy.
2. Base Tax versus Ad Valorem Tax.

Reviewed by: Jeff Jorgenson, General Manager
Utility Services Department

Written and approved by: "Marlys Bilanski"
Marlys Bilanski, General Manager
Corporate Services Department
Dated: Aug. 8, 2013

Approved by: "Murray Totland"
Murray Totland, P. Eng., MBA
City Manager
Dated: Aug. 8, 2013

RoadwayFinancialManagementStrategy.doc

Investing in the Roads to Continued Prosperity

Roadway Financial Management Strategy

City of Saskatoon

August 7,2013

City of Saskatoon

Introduction

The roadway infrastructure within the City of Saskatoon has been continuing to deteriorate based on insufficient funding levels. Condition assessments are conducted periodically and the existing funding has been allocated to ensure the dollars are used in a way that slows the deterioration.

City Council approved a number of roadway capital asset service levels in 2012; however, current funding levels do not meet this level.

Increases are included in the annual budget; however, these have only partially offset inflation and as a result, the existing funding gap continues to grow. Progress has begun and a number of significant funding changes have been introduced over the past few years, including:

- In 2010, City Council approved a phased-in plan to fully fund the back lane capital program by increasing the annual tax-supported funding level by $300,000 until 2016.
- The 2013 Budget introduced a property tax increase of $1,967,300 (1.25% increase over the 2012 tax base) dedicated specifically to paved roadways.
- Allocation of ad hoc funding, whenever opportunities arise, including allocations from neighbourhood land development profits and yearend surpluses.
- Access to the federal Infrastructure Stimulus Fund to assist in street reconstruction.

Administration has previously recommended that a 1.25% dedicated property tax increase continue until approved roadway funding targets have been met. However, this will take approximately 10 years. The Administration has clearly heard the priority that both City Council and Saskatoon's citizens have placed on the state of Saskatoon's roads. Based on this, a more aggressive funding strategy is proposed.

Roadway Assets

The Administration is responsible for evaluating the condition of the City's paved roadways and for developing an annual program to maintain them at a minimum long-term cost, with modifications based on approved funding levels. Where feasible, condition assessments are conducted on an annual basis. The assessments are used to determine condition and to develop annual capital improvement plans.

The level of service for each type of asset is defined differently. For example, the service level for water mains may be defined by the number of service interruptions per year, for bridges it may be the Bridge Condition Index (BCI), for parks it may be the health of the vegetation. Therefore, as the level of service increases, so does the cost of maintaining the asset in the desired condition level.

In order to be able to compare apples to apples, six levels of expenditures identified by the letters A through F have been introduced, where A represents the highest level of expenditures and F represents no expenditure. Table 1 describes each level of service.

Table 1: Expenditure Service Levels

Expenditure Level	Asset Condition	Description
A	Getting Better Quickly	Sufficient expenditures to keep asset in top condition and to increase asset condition/value quickly over time.
B	Getting Better	Sufficient expenditures to keep asset in top condition and to increase asset condition/value slowly over time.
C	Maintain Assets that are in Poor Condition	Sufficient expenditures to keep asset in constant condition over time. This expenditure level applies to older assets in poor to fair condition.
D	Maintain Assets that are in Good Condition	Sufficient expenditures to keep asset in constant condition over time. This expenditure level applies to newer assets in good to excellent condition.
E	Getting Worse	Insufficient expenditures to maintain asset condition. Over time asset condition will deteriorate.
F	Getting Worse Quickly	No expenditures. Asset condition/value decreases rapidly.

Using the above criteria, City Council has approved a number of roadway asset service levels. The Administration has identified the following funding gaps for each asset class:

Table 2: Funding Gap by Asset Class (in Millions of Dollars)

Asset Class	2013 Service Level	Approved Service Level	Required Annual Funding	Existing Annual Funding	Increases included in 2014 Draft Budget	2014 Subtotal	Annual Funding Gap
Paved Roadways	Level E	Level B	$26.20	$8.8	$0.45	$9.25	$16.95
Sidewalks	Level E	Level B	2.78	0.5	0.08	0.58	2.20
Paved Back Lanes	Level E	Level B	0.62	0.2	0.17	0.37	0.25
Gravel Back Lanes	Level A	Level A	1.03	0.9	0.13	1.03	0.00
Boundary Roads	Level E	Level D	0.41	0.0	0.00	0.00	0.41
Total Gap			**$31.04**	**$10.4**	**$0.83**	**$11.23**	**$19.81**

(Based on 2013 Dollars)

To fully fund the approved service levels, additional annual funding of $19.81 million is required. A three-year property tax increase phase-in is being recommended to address the remaining shortfall. This translates into an increase of $6.60 million in each of 2014 through 2016.

The following outlines the annual investment in paved roadways over the past three years:

	2011	2012	2013
	in Millions of Dollars		
Annual Base Funding	$3.77	$5.82	$8.80
One-time Paved Roadway Funding	0.83	4.68	4.26
Total Annual Investment	**$4.60**	**$10.50**	**$13.06**

The three year phase-in results are outlined in Table 3.

Table 3: Resulting Annual Investent through a Phased-In Approach (in Millions of Dollars)

	2013 Base Funding	2014 Draft Budget	2014	2015	2016	Investment over the next 3 years (2014 through 2016)	Investment over the next 10 years (2014 through 2023)
Paved Roadways	$8.80	$9.25	$14.90	$20.55	$26.20	$61.65	$245.05
Sidewalks	0.50	0.58	1.31	2.04	2.78	6.13	25.59
Subtotal	**$9.30**	**$9.83**	**$16.21**	**$22.59**	**$28.98**	**$67.78**	**$270.64**
Paved Back Lanes	0.16	0.37	0.45	0.53	0.62	1.60	5.94
Gravel Back Lanes	0.93	1.03	1.03	1.03	1.03	3.09	10.30
Boundary Roads	0.00	0.00	0.14	0.28	0.41	0.83	3.70
Annual Investment	**$10.89**	**$11.23**	**$17.83**	**$24.43**	**$31.04**	**$73.30**	**$290.58**

The Administration is introducing the concept of a Neighbourhood Renewal Program. This program would fund the neighbourhood roadway and sidewalk network separately from the primary roadway and sidewalk network. This ensures an adequate portion of funding goes towards local roads and sidewalks on a yearly basis.

Restating Paved Roadways and Sidewalks from Table 3 to acknowledge neighbourhood roads and sidewalks separate and apart from the primary road and sidewalk network, and continuing with the current preservation strategy, results in the following:

Table 4: Restated Neighbourhood and Primary Network Renewal Programs (in Millions of Dollars)

	2014 Draft Budget	2014	2015	2016	Investment over the next 3 years (2014 through 2016)	Investment over the next 10 years (2014 through 2023)
Neighbourhood Network Renewal Program						
Roadways	$1.70	$5.03	$8.37	$11.70	$25.10	$107.00
Sidewalks	0.29	0.79	$1.29	1.78	3.86	16.32
Primary Network Renewal Program						
Roadways	7.55	9.87	12.18	14.50	36.55	138.05
Sidewalks	0.29	0.52	0.75	1.00	2.27	9.27
Annual Investment	**$9.83**	**$16.21**	**$22.59**	**$28.98**	**$67.78**	**$270.64**

Increased Roadway Service Levels – Street Sweeping, Pothole Repairs, and Snow Clearing

Based on communications from both City Council and the public, the Administration is recommending additional service levels be added to the 2014 budget. These include the following:

1. Increases to the street sweeping program of $605,000. This includes the following: introduction of a "Spring Sweeping Blitz" estimated at $175,000; a compressed Residential Area Sweep program at an estimated additional cost of $250,000, additional summer sweeping estimated at $20,000, and additional equipment estimated at $160,000.
2. "Spring Pothole Blitz" program totalling $550,000. This program will fully patch all travelled lanes in the City's freeway, collector and arterial roads over a 2 to 3-week period and will overlay areas of large defects.
3. An increase in annual operating funding levels to supplement the existing summer pothole patching program. The 2013 operating budget includes resources for four crews. This was enhanced for two years to eight crews and a weekend crew through capital funding. This is estimated at a cost of $500,000.
4. Additional city-wide snow clearing, with an estimated cost of $500,000 is proposed. A snow clearing program consisting of potentially two complete city-wide clearings has been built into the 2014 draft budget.

These four service level increases total $2.355 million and translate into a 1.50% property tax increase.

Funding Plan

Contribution from the Water/Wastewater Utilities

Deeply buried water and sewer mains adversely affect the life expectancy of the roadways above them. During construction, deep excavations are made to install water, sewer and storm sewer systems. As the infrastructure ages and repairs are made or new connections are installed, the pavement structure is further damaged.

The Administration is proposing a transfer of base funding of up to $6 million per year from the Utility as a direct contribution towards paved roadways. This will be phased-in over three years with the first contribution in 2014 of $2 million.

Back Lane Program

In 2010, City Council approved a funding plan for back lanes. This funding plan included an annual $300,000 provision funded from tax revenue received from annual assessment growth funds. The 2014 preliminary budget will include a $300,000 provision for back lanes.

Paved Roadways and Sidewalks

The City's 2014 draft budget includes a $450,000 additional provision for paved roadways and a $80,000 additional provision for sidewalks, to acknowledge inflationary increases.

Dedicated Property Tax Increase (in Millions of Dollars)

As part of the 2013 Budget, City Council approved a 1.25% property tax increase dedicated specifically to roads. It is recommended that this approach be continued over the next three years to fund both the capital road program (roadway asset funding gap) and the increased service levels.

The following reconciles the annual Service Level B funding required from a dedicated tax increase:

	Required Investment (in of 2013 dollars)	$31.04
Less:	2013 Base Funding	(10.40)
	2014 Draft Budget	(0.83)
	Contribution from Water/Wastewater Utility	(6.00)
	Dedicated Tax Increase	$13.81
	Three Year Phase-in Requirement	**$4.60**

Table 5 provides a further breakdown of the increases required by the various classes of assets, as well as the requirements for the service level increases.

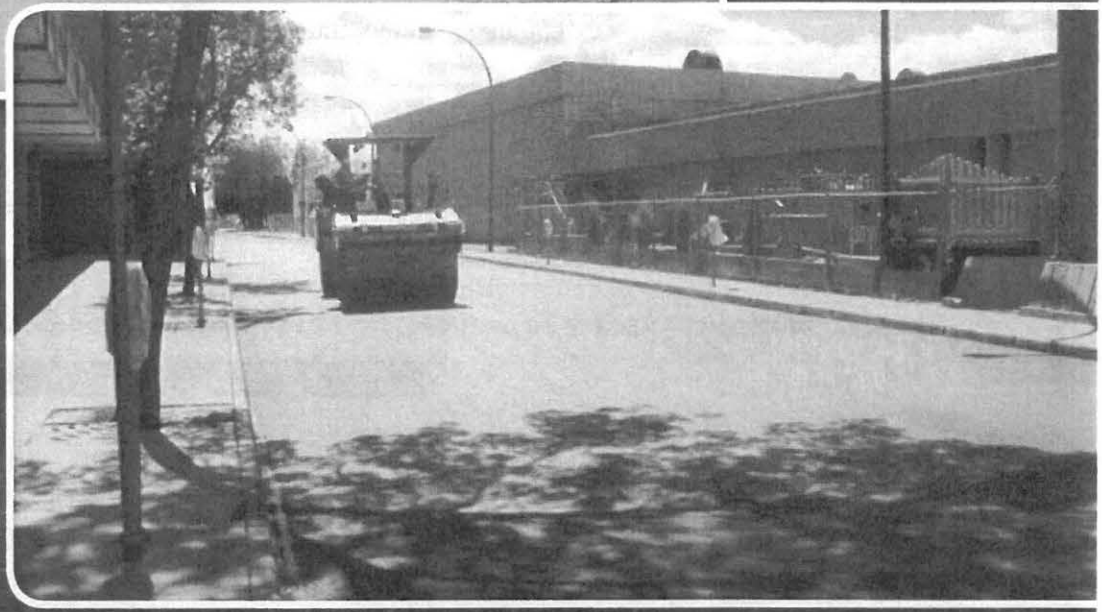
Table 5: Dedicated Property Tax Increase Phase-In (in Millions of Dollars)

	2014		2015		2016	
Roadway Asset Funding Gap						
Neighbourhood Network Renewal Program	$2.83	1.80%	$2.83	1.80%	$2.83	1.80%
Primary Network Renewal Program	1.55	0.98%	1.55	0.98%	1.55	0.98%
Back Lanes and Boundary Roads	0.22	0.14%	0.22	0.14%	0.22	0.14%
Subtotal	**$4.60**	**2.92%**	**$4.60**	**2.92%**	**$4.60**	**2.92%**
Service Level Increases						
Enhanced Street Sweeping Program	0.60	0.38%				
Spring Pothole Blitz	0.55	0.35%				
Supplemented Summer Pothole Patching	0.50	0.32%				
Additional City-wide Snow Clearing	0.50	0.32%				
Subtotal	**$2.15**	**1.37%**				
Total	**$6.75**	**4.29%**	**$4.60**	**2.92%**	**$4.60**	**2.92%**

(Based on 2013 Dollars)

Changes to the phase-in period and any revisions to the service level increases will impact the final dollars and percentage increases as will inflation in future years.

A phased-in approach results in a continuously growing backlog. The use of one-time funding will continue to be recommended by the Administration over the next three years.



City of
Saskatoon

Ad Valorem Tax versus Base Tax

Fair Value	# of properties at this value	% of properties at this value	2013 Taxes: Ad Valorum Tax Levy City Portion	2013 Taxes: City ETR	2013 Taxes: City Taxes as a % of Total Taxes	2014 Taxes: $13.8 M added to Ad Valorum Levy: Ad Valorum Tax Increase	2014 Taxes: $13.8 M added to Ad Valorum Levy: $ Tax Increase	2014 Taxes: $13.8 M added to Ad Valorum Levy: % Tax Increase	2014 Taxes: $13.8 M added to Ad Valorum Levy: City ETR	2014 Taxes: $13.8 M added to Ad Valorum Levy: City Taxes as a % of Total Taxes	2014 Taxes: $170 Base Tax: Ad Valorum with additional Base Tax	2014 Taxes: $170 Base Tax: $ Tax Increase	2014 Taxes: $170 Base Tax: % Tax Increase	2014 Taxes: $170 Base Tax: City ETR	2014 Taxes: $170 Base Tax: City Taxes as a % of Total Taxes
50,000	1,971	2.41%	$233.63	0.45%	52.8%	$243.37	$19.74	8.76%	0.49%	54.9%	$393.63	$170.00	76.0%	0.79%	66.3%
75,000	598	0.73%	$335.45	0.45%	52.8%	$365.06	$29.61	8.76%	0.49%	54.9%	$505.45	$170.00	50.7%	0.67%	62.8%
100,000	1,231	1.50%	$447.27	0.45%	52.8%	$486.75	$39.48	8.76%	0.49%	54.9%	$617.27	$170.00	38.0%	0.62%	60.7%
150,000	4,088	5.00%	$670.90	0.45%	52.8%	$730.12	$59.23	8.76%	0.49%	54.9%	$840.90	$170.00	25.3%	0.56%	58.4%
200,000	6,674	8.16%	$894.53	0.45%	52.8%	$973.50	$78.97	8.76%	0.49%	54.9%	$1,064.53	$170.00	19.0%	0.53%	57.1%
250,000	12,092	14.78%	$1,118.16	0.45%	52.8%	$1,216.87	$98.71	8.76%	0.49%	54.9%	$1,288.16	$170.00	15.2%	0.52%	56.3%
300,000	14,850	18.15%	$1,341.80	0.45%	52.8%	$1,460.25	$118.45	8.76%	0.49%	54.9%	$1,511.80	$170.00	12.7%	0.50%	55.8%
350,000	16,640	20.33%	$1,565.43	0.45%	52.8%	$1,703.62	$138.19	8.76%	0.49%	54.9%	$1,735.43	$170.00	10.9%	0.50%	55.4%
400,000	9,414	11.50%	$1,789.06	0.45%	52.8%	$1,947.00	$157.93	8.76%	0.49%	54.9%	$1,959.06	$170.00	9.5%	0.49%	55.1%
450,000	5,513	6.74%	$2,012.69	0.45%	52.8%	$2,190.37	$177.68	8.76%	0.49%	54.9%	$2,182.69	$170.00	8.4%	0.49%	54.8%
500,000	2,881	3.52%	$2,236.33	0.45%	52.8%	$2,433.74	$197.42	8.76%	0.49%	54.9%	$2,406.33	$170.00	7.6%	0.48%	54.6%
600,000	2,675	3.27%	$2,683.59	0.45%	52.8%	$2,920.49	$236.90	8.76%	0.49%	54.9%	$2,853.59	$170.00	6.3%	0.48%	54.3%
750,000	1,399	1.71%	$3,354.49	0.45%	52.8%	$3,650.62	$296.13	8.76%	0.49%	54.9%	$3,524.49	$170.00	5.1%	0.47%	54.0%
1,000,000	900	1.10%	$4,472.65	0.45%	52.8%	$4,867.49	$394.84	8.76%	0.49%	54.9%	$4,642.65	$170.00	3.8%	0.46%	53.7%
1,500,000	600	0.73%	$6,708.98	0.45%	52.8%	$7,301.23	$592.26	8.76%	0.49%	54.9%	$6,878.98	$170.00	2.5%	0.46%	53.4%
1,900,000	309	0.38%	$8,498.04	0.45%	52.8%	$9,248.23	$750.19	8.76%	0.49%	54.9%	$8,668.04	$170.00	2.0%	0.46%	53.3%
	81,835	100.00%													

Ad Valorem vs Base Tax.xls