Attachment 1

NORTH INDUSTRIAL AREA AND HUDSON BAY INDUSTRIAL AREA TRAFFIC REVIEW

City of Saskatoon

January 2, 2018

North Industrial Area and Hudson Bay Industrial Area Traffic Reviews

January 2, 2018

Authorization

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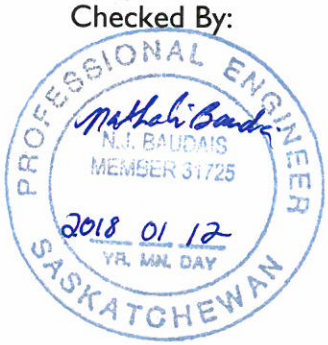

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- North Industrial Area & Hudson Bay Industrial Area Businesses
- North Saskatoon Business Association
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- City of Saskatoon Environmental Services
- City of Saskatoon Transit
- City of Saskatoon Planning & Development
- City of Saskatoon Roadways & Operations
- City of Saskatoon Community Standards
- City of Saskatoon Transportation
- Councillor Randy Donauer

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EXECUTIVE SUMMARY

The objective of the Neighbourhood Traffic Management Program is to address traffic concerns within neighbourhoods such as speeding, shortcutting, and pedestrian safety. The program was revised in August 2013 to address traffic concerns on a neighbourhood-wide basis. The program involves community and stakeholder consultation that provides opportunity for residents and City staff to work together in developing solutions that address traffic concerns within their neighbourhood. The process is outlined in the Traffic Calming Guidelines and Tools, City of Saskatoon, 2016.

This project was initiated as a pilot in 2016 to systematically address traffic concerns that arise within the City's industrial areas using a very similar approach followed in a Neighbourhood Traffic Review.

A public meeting was held in November 2016 to identify traffic concerns and potential solutions within North Industrial and Hudson Bay Industrial areas. As a result of the meeting, a number of traffic assessments were completed to confirm and quantify the concerns raised by road users in the industrial areas. Based on the road users input and the completed traffic assessments, a Traffic Plan was developed and presented to stakeholders at a follow-up meeting held in September 2017 and via the Shaping Saskatoon website.

A summary of recommended improvements for North Industrial and Hudson Bay Industrial areas is included in **Table ES-1.** The summary identifies the locations, the recommended improvements, and a schedule for implementation. The schedule to implement the Traffic Plan can vary depending on the complexity of the proposed improvement.

The North Industrial Area Traffic Plan is illustrated in **Exhibit ES-1** and the Hudson Bay Industrial Area Traffic Plan is illustrated in **Exhibit ES-2.**

Table ES-1: North Industrial Area and Hudson Bay Industrial Area Recommended Improvements

Item	Location	Recommendation	Reason
1	Millar Avenue between 51st Street & 60th Street	• Install speed display board north side of 52nd Street facing the northbound direction • Install speed display board south of 60th Street facing the southbound direction • Forward peak hour speed data to Saskatoon Police Service to consider enforcement	Reduce driver speed
2	Millar Avenue & 52nd Street	Review for Rectangular Rapid Flashing Beacons (RRFB)*	Improve pedestrian safety
3	2922 Millar Avenue	Increase parking enforcement	Improve parking compliance
4	Faithfull Crescent	Increase parking enforcement	Improve parking compliance
5	706 Circle Drive (Super 8 Motel) back lane	Install 20 kph signs	Reduce driver speed
6	400 Block of 42nd A Street back lane	Install 20 kph signs	Reduce driver speed
7	709 Circle Drive (Tim Hortons driveway)	Install stop sign	Improve traffic safety and enhance driver compliance at uncontrolled intersections
8	Millar Avenue & 43rd Street	• Review for Rectangular Rapid Flashing Beacons (RRFB)* • Install Do not Block Intersection signs and Pedestrian Ahead signs	Improve pedestrian safety
9	48th Street & Wentz Avenue	Install No Parking signs on Wentz Avenue 10 metres from intersection on northwest and southeast corner	Improve parking compliance and driver sightline
10	50th Street & Wentz Avenue	Install No Parking signs on Wentz Avenue 10 metres from intersection on northwest and southeast corner	Improve parking compliance and driver sightline
11	2250 Northridge Drive	Install No Parking signs and 30 kph warning sign	Improve driver sightline and reduce turning speed at the corner

Table ES-1 Continued

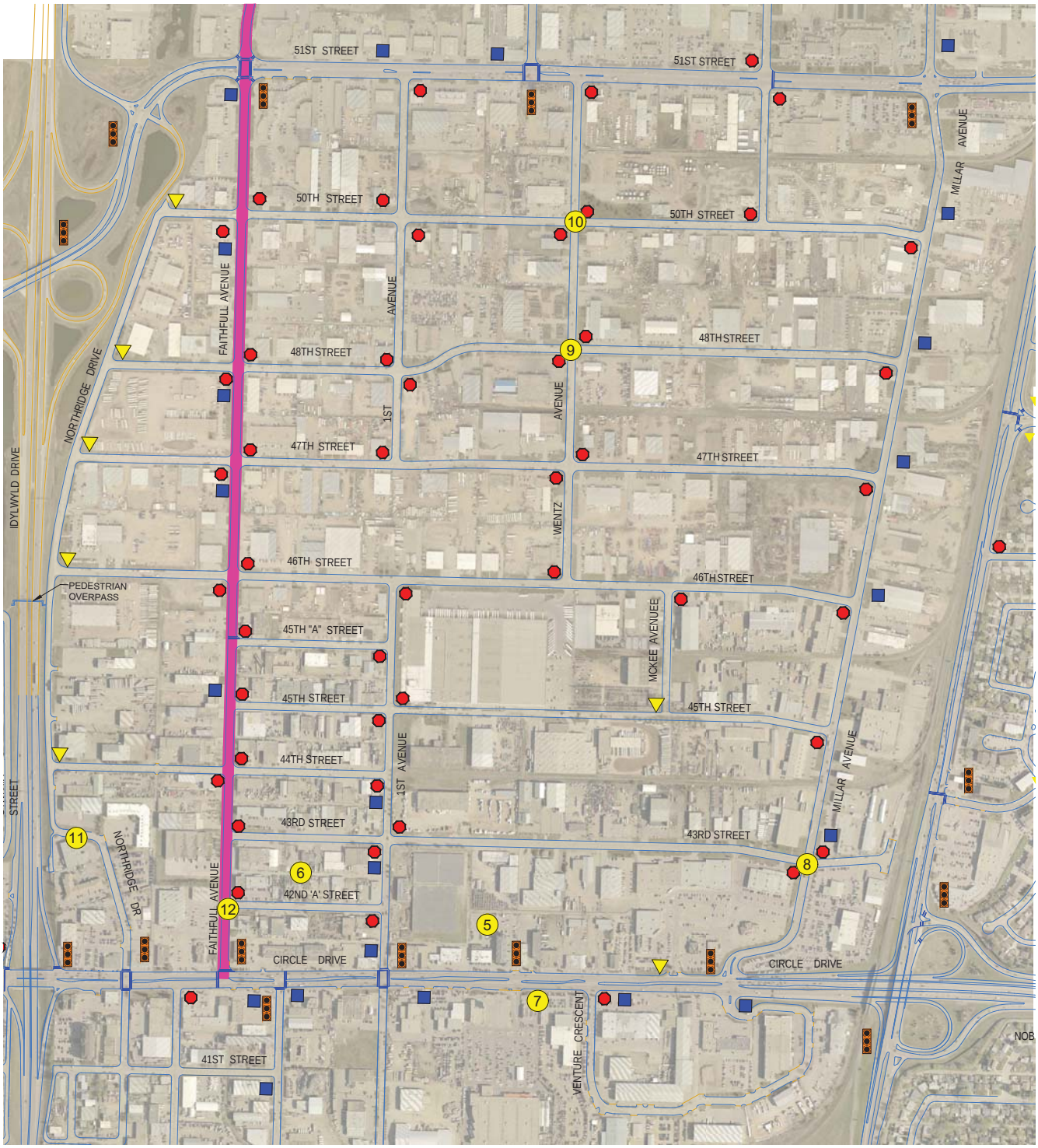
Item	Location	Recommendation	Reason
12	Faithfull Avenue between Circle Drive and 60th Street	Restrict on-street parking from Circle Drive to 60th Street, resulting in an additional travel lane in each direction	• Provide clarity regarding the number of travel lanes and improve traffic safety • Improve traffic flow on Faithfull Avenue and provide more opportunities for drivers on the side streets to enter or cross Faithfull Avenue

* Rectangular Rapid Flashing Beacon (RRFB) may be considered pending the outcome of the RRFB pilot project that will begin in the spring of 2018.

NORTH INDUSTRIAL AREA TRAFFIC PLAN

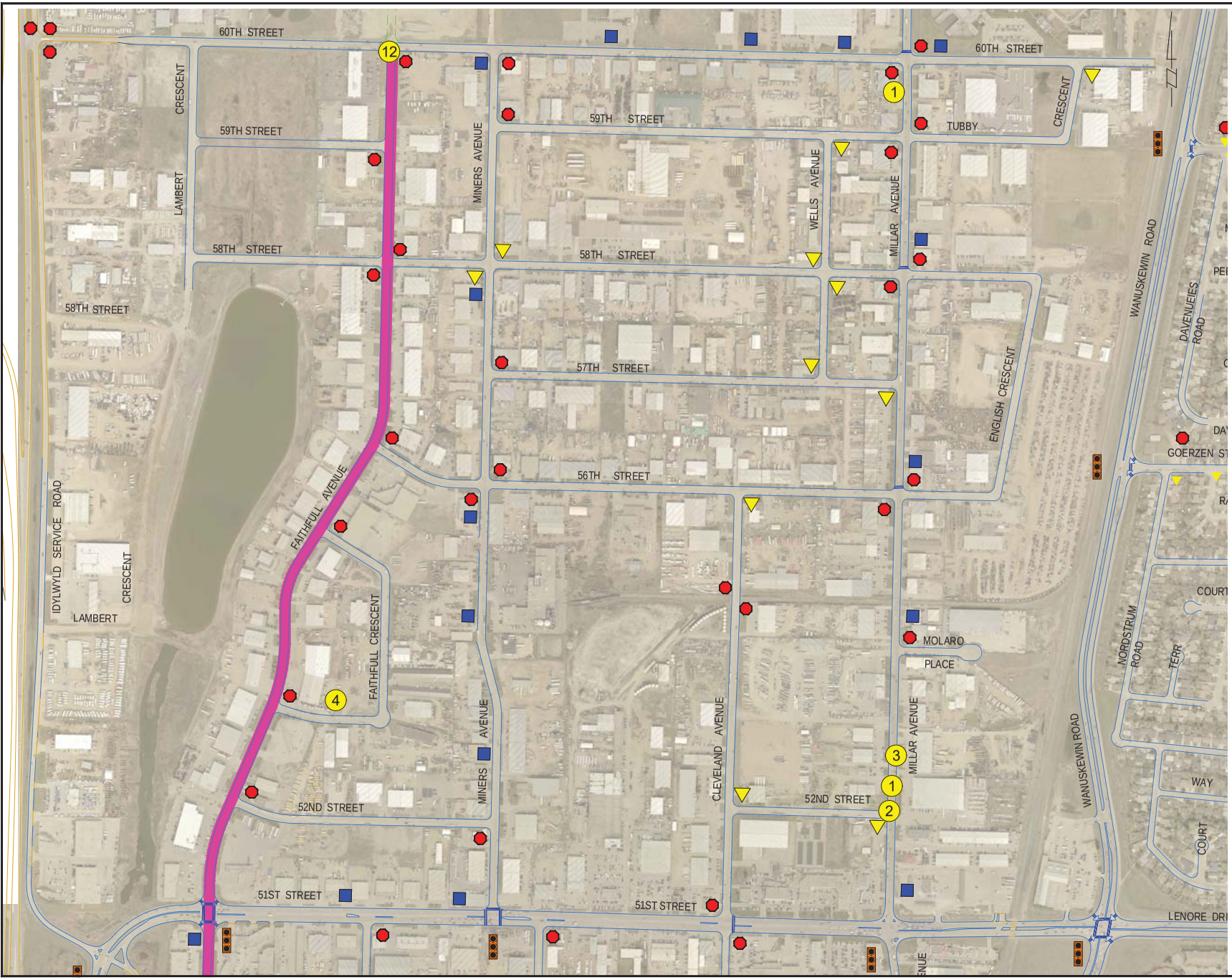
City of Saskatoon

Exhibit ES-1



LEGEND

- EXISTING STOP SIGN
- REMOVE STREET PARKING
- EXISTING YIELD SIGN
- BUS STOP
- CROSS WALK
- EXISTING TRAFFIC SIGNAL
- # RECOMMENDATION



HUDSON BAY INDUSTRIAL AREA TRAFFIC PLAN

City of Saskatoon

LEGEND

- EXISTING STOP SIGN
- EXISTING YIELD SIGN
- BUS STOP
- CROSS WALK
- EXISTING TRAFFIC SIGNAL
- RECOMMENDATION (#)
- REMOVE STREET PARKING

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1 INTRODUCTION

As the City of Saskatoon continues to grow, many industrial neighbourhoods face issues such as pedestrian safety, parking, and increased speeds. In 2016, in a similar approach to the successful Neighbourhood Traffic Review program, the City's Administration recommended that two industrial neighbourhoods (North Industrial and Hudson Bay Industrial) within Saskatoon undergo a neighbourhood wide traffic review. Prior to this, traffic issues in industrial neighbourhoods were dealt with on a case-by-case basis with mixed results. Recommendations are developed by the Administration and stakeholders in a collaborative fashion. Accordingly, this report provides the Traffic Plan for the North Industrial Area and Hudson Bay Industrial Area.

The North Industrial Area and Hudson Bay Industrial Area is located in north Saskatoon and is bound by 40th Street to the south, 60th Street to the north, Wanuskewin Road / Warman Road to the east and Idywyld Drive to the west. The land use is mostly industrial and commercial.

The industrial area traffic review includes four stages:

- **Stage 1** - Identify issues, concerns and possible solutions through the initial public consultation, the Shaping Saskatoon online discussion forum, Report a Traffic Issue website, emails and phone calls.
- **Stage 2** - Develop a draft traffic plan based on road users' input and traffic assessments.
- **Stage 3** - Present the draft traffic plan at a follow-up meeting; circulate the plan to other civic divisions for feedback; make adjustments as needed; and present the plan to City Council for approval.
- **Stage 4** - Implement the proposed measures in specific time frame, short-term (1 to 2 years), medium-term (3 to 5 years) or long-term (5 years plus).

This report presents the study findings and recommendations.

2 STAGE 1: IDENTIFYING ISSUES, CONCERNS, AND POSSIBLE SOLUTIONS

A public meeting was held in November 2016 to identify traffic concerns within the North Industrial Area and Hudson Bay Industrial Area. At the meeting, business owners, employees and road users were given the opportunity to express their concerns and suggest possible solutions. The comments received from this meeting and online are provided in **Appendix A.**

The following pages summarize the concerns and suggested solutions identified during the initial consultation (including all correspondence and Shaping Saskatoon discussion comments received prior to the follow-up meeting) with the stakeholders.

2.1 Concern 1 – Speeding and Shortcutting

Shortcutting occurs when non-local traffic passes through an area on streets that are designed and intended for low volumes of traffic (i.e. local streets). As speeding often accompanies shortcutting, these concerns have been grouped into one category.

Neighbourhood concerns for speeding and shortcutting were identified at the following locations:

- Millar Avenue north of 51st Street;
- Circle Drive back lane behind Super 8 Motel; and
- 400 Block of 42nd A Street back lane.

2.2 Concern 2 – Pedestrian Safety

It is important to address pedestrian safety concerns to support active transportation. Walking to nearby amenities, as opposed to driving, reduces traffic volumes.

Pedestrian crosswalks need to adhere to the City of Saskatoon Council Policy C07-018 *Traffic Control at Pedestrian Crossings*, November 15, 2004 which states the following:

> "The installation of 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."

Concerns regarding pedestrian safety were identified at the following locations:

- General: Lack of sidewalks in all of the industrials areas.
- Millar Avenue & 43rd Street: Improve the visibility of this crosswalk.
- Millar Avenue & 52nd Street: Customers and staff have little opportunity to safely cross Millar Avenue.

- Millar Avenue & 57th Street: Employees have to cross Millar Avenue on a daily basis.
- 51st Street & Wentz Avenue: Difficult to cross 51st Street at Wentz Avenue.
- Miners Avenue & 51st Street: To cross at the traffic signals on Miners Avenue from east side of the crosswalk there is risk of being hit by drivers making a left turn on to 51st Street.

Proposed solutions identified by those consulted were:

- Millar Avenue & 43rd Street: Paint crosswalk at north side.
- Millar Avenue & 52nd Street: Install a pedestrian actuated signal.
- Millar Avenue & 57th Street: Install a standard crosswalk.
- 51st Street and Wentz Avenue: Install a pedestrian actuated signal.
- Idylwyld Drive pedestrian overpass: It should be accessible for wheelchair users.
- Faithfull Avenue & 51st Street: The current crossing should be upgraded to include pedestrian actuated buttons on all four corners.
- Faithfull Avenue & 42nd Street: A pedestrian actuated signal is required to cross Circle Drive on the east side of this intersection.

2.3 Concern 3 – Traffic Control

Traffic control signs are used in order to assign the right-of-way. City of Saskatoon Council Policy C07-007 *Traffic Control – Use of Stop and Yield Signs*, April 26, 2009 states that stop and yield signs are not to be used:

- As speed control devices;
- to stop priority traffic over minor traffic;
- on the same approach to an intersection where traffic signals are operational; or
- as a pedestrian crossing device.

An all-way stop must meet the conditions for traffic volumes, collision history, and must have a balanced volume from each leg to operate sufficiently.

Concerns regarding traffic controls were identified at the following locations:

- Northridge Drive & 50th Street: Westbound traffic has higher volumes than southbound traffic, so the southbound traffic should yield to westbound.
- 46th Street & Faithfull Avenue:
    - It is difficult to make a left turn onto Faithfull Avenue during PM peak hour.
    - Large trucks making a left turn cause delays on 46th Street.
    - This intersection is unsafe, there are a lot of accidents. Trees obstruct the vision of all drivers turning onto Faithfull from 46th Street westbound.

- Millar Avenue & 58th Street: Millar Avenue is too busy. It is difficult to make left turn onto Millar Avenue.

Proposed solutions identified by those consulted were:

- Northridge Drive & 50th Street: Install stop sign for the southbound traffic and remove the yield sign on the westbound approach.
- Tim Hortons driveway (709 Circle Drive): Install stop sign.
- Faithfull Avenue & 46th Street:
    - Install traffic signal.
    - Remove or trim the trees.
- Millar Avenue & 58th Street: Install a traffic signal.
- Millar Avenue & 60th Street: Install a traffic signal.

2.4 Concern 4 – Parking

Parking is allowed on all city streets unless signage is posted. According to the City of Saskatoon Bylaw 7200, *The Traffic Bylaw*, December 16, 2013:

- "Vehicles are restricted from parking within 10 metres of an intersection and one metre of a driveway or back lane."
- "A person shall not park or leave parked at any time, a trailer which is detached from the vehicle used for moving the same, unless the trailer is a recreational vehicle to which Subsection 21(3) applies."
- "Except as otherwise indicated by a sign or otherwise provided for in this Bylaw, a person shall not park a vehicle on a street for more than 36 hours."

Concerns regarding parking were identified at the following locations:

- 48th Street & Wentz Avenue: Turning either left or right from 48th onto Wentz Avenue is dangerous due to the poor visibility created by tractor trailers parked near the intersection on Wentz Avenue.
- Faithfull Crescent: Tractor trailers are randomly parking on the Crescent consuming parking spaces around the business. They park overnight or for several days.
- Wentz Avenue & 50th Street: Parked tractor trailers on the north and south sides of the intersection block the sightlines for vehicles turning from 50th Street onto Wentz Avenue.
- Wells Avenue: The use of street parking increased significantly when the parking on Millar Avenue was removed. Street parking is required for customers and delivery people.
- 2922 Millar Avenue: Millar Avenue becomes more congested when tractor trailers park in the curb lane to enter restaurants or coffee shops.

Proposed solutions identified by those consulted were:

- Faithfull Crescent: As per the bylaw, trailers must be attached to the tractor portion while on public streets. If parking enforcement would ticket vehicles that are not abiding by the required bylaws this may deter this behavior.
- Wells Avenue:
    - Provide sufficient parking for regular staff and leave street parking primarily for customers and delivery services.
    - Businesses should be able to post signs in front of their premises to allow parking to be reserved for their customers and deliveries.
- 2922 Millar Avenue: Install 'no stopping' signs on Millar Avenue.

2.5 Concern 5 – Maintenance

Maintenance is requested throughout the consultation process that reflects the work of other civic departments. These include the condition of the street signs (i.e. knocked over, damaged, obstructed by trees), trees obstructing driver's view, or roadway maintenance (i.e. snow clearing, potholes, sanding).

Concerns regarding maintenance were identified at the following locations:

- 60th Street: Pavement is in poor condition.
- 2250 Northridge Drive: Tractor trailers drive on the boulevard and it is a costly repair.
- 3050 Millar Avenue:
    - Catch basin is placed where debris often blocks it and creating issues in the spring.
    - Catch basin grate punctures tires of cars turning into parking lot.
- Marquis Drive & Millar Ave: Pavement is in bad condition.

Proposed solutions identified by those consulted were:

- 60th Street needs pavement rehabilitation.
- Venture Crescent street name sign is needed in boulevard.

2.6 Concern 6 – Major Intersections & Corridors

Major intersections include roadways with higher traffic volumes (i.e. arterials, collectors) or intersections with an existing traffic signal.

Concerns regarding major intersections were raised at the following locations:

- Faithfull Avenue:
  - Confusion about the number of travel lanes.
  - Motorists often travel in the parking lane.
  - Faithfull Avenue is busy and it is difficult to enter from side streets.
- Millar Avenue between 60th Street and 71st Street: Speed limit is inconsistent and transition from 50 kph to 60 kph makes it difficult for pedestrians to cross and for drivers to assess the gap in traffic when they try to enter Millar Avenue.
- Circle Drive & Millar Avenue (Venture Crescent):
  - Southbound left turn delay and queue is long.
  - Westbound right turning traffic does not yield to eastbound left turning traffic during the protected left turn phase.
  - Tractor trailers drive on the boulevard due to the limited room on the "s" curve.
- 2922 Millar Avenue:
  - Customers and service trucks have difficulty entering and exiting the site during peak hours due to traffic from Marquis Drive.
  - Northbound vehicles coming from 51st Street cross four lanes of traffic to enter the restaurants on the west side of Millar Avenue. This creates an unsafe condition.
  - Motorists stop to wait for gaps to turn left against southbound traffic causing a queue of northbound traffic. A barrier to restrict left turns west off of Millar Avenue north of 51st Street is required.
- Circle Drive Westbound:
  - Difficult to change lanes to access the curb lane and make right turn onto side streets.
  - Large tractor trailers take all the space in the curb lane.
- Circle Drive & 1st Avenue: Southbound left turn often blocks the southbound through traffic.
- Circle Drive & Idylwyld Drive: Traffic is congested at this intersection during peak hours.
- Circle Drive & Super 8 (Home Depot):
  - Eastbound left turn has long delay and left turn arrow is needed.
  - Cars are speeding in the parking lot and back lane.
- 51st Street & Millar Avenue: McDonald's driveway on Millar Avenue is too close to the intersection.

- 618 51st Street: Difficult to turn left from the driveway onto 51st Street eastbound and sometimes the queue from the downstream intersection blocks turns.
- Railway crossing on 51st Street: Trains crossing cause traffic delay.
- Idylwyld Drive off ramp onto 51st Street: Vehicles wait here to merge to the inside lane on 51st Street eastbound, causing queuing in what is supposed to be free flow travel lane.

Proposed solutions identified by those consulted were:

- Circle Drive & Millar Avenue (Venture Crescent):
    - Northbound traffic should receive a dedicated left turn for accessing Circle Drive.
    - Westbound traffic should receive a dedicated left turn (green arrow) for accessing Venture Crescent.
    - Southbound right turning lane needs to begin further north on Millar Avenue to allow better flow.
    - Improve the lane designation signage at Millar Avenue onto Circle Drive.
- 2922 Millar Avenue:
    - Install traffic signals around 60th Street to allow more opportunities for traffic entering and exiting Millar Avenue.
    - Install a barrier to restrict left turns off of and onto Millar Avenue.
    - Install traffic signals to break up the 'drag strip' between 51st Street and Marquis Drive.
- Circle Drive & 1st Avenue: Install a dedicated left turn storage lane and protected left turn in the traffic signal cycle.
- Faithfull Avenue & 51st Street: Southbound left turn needs turning arrow.
- Faithfull Avenue & Circle Drive: Construct dual left turning lanes onto Circle Drive.
- Idylwyld Drive northbound off ramp onto 51st Street:
    - This ramp should be two lanes.
    - The inside lane is for those vehicles turning left at Faithfull Avenue & 51st Street. The outer lane can be free flow.
    - Install yield sign for the inside lane and keep the existing added lane sign for outer lane.
- 60th Street & Idylwyld Service Road:
    - Stop signs need to be reviewed or close the access to Idylwyld Drive.
    - This access should be eliminated.

2.7 Concern 7 – Active Transportation

People requested walking and cycling infrastructure such as sidewalks, bike lanes, and pathways throughout the consultation process.

The main concern was that cyclists and pedestrians were not comfortable biking or walking on the roads in these areas.

Proposed solutions identified by those consulted were:

- 43rd Street & Warman Road, 60th Street & Wanuskewin Road, Molaro Place & Wanuskewin Road: At grade or below grade crossing is needed for pedestrians, cyclists, and users with mobility needs.
- 43rd Street corridor: A separated multi-use pathway or a buffered bike lane should be added to the entire 43rdstreet corridor.
- 60th Street: Creating an east-west active transportation corridor on 60th Street is needed.
- Multi-use pathway is needed on 51st Street, Faithfull Avenue and Millar Avenue.
- Idylwyld Drive pedestrian overpass should have accessibility ramps.

3 STAGE 2: DEVELOPMENT OF DRAFT TRAFFIC PLAN

3.1 Methodology

Stage 2 of the Traffic Review included developing a draft traffic plan. This was completed through the following actions:

- Create a detailed list of all the issues provided by the businesses, employees and road users.
- Collect historical traffic studies and information the City has on file for the areas.
- Prepare a data collection program that will provide the appropriate information needed to undertake the assessments.
- Complete the data collection, which may include:
    - Daily and weekly traffic counts
    - Speed measurements
    - Intersection turning movement counts
    - Pedestrian counts
    - Site observations
    - Collision analysis
- Assess the issues by using the information in reference with City policies, bylaws, and guidelines, transportation engineering design guidelines and technical documents, and professional engineering judgment.

The following sections provide details on the data collected for traffic volume and speed assessments, traffic control assessments, pedestrian crossing assessments, and traffic signal assessments. A map of the traffic data collection is shown in **Appendix B**.

3.2 Traffic Volume and Speed Assessments

Traffic volumes and travel speeds were measured to assist in determining the need for traffic calming devices. In Saskatoon the streets are classified typically as local, collector or arterial streets. Traffic volumes (referred to as Average Daily Traffic) on these streets should meet the City of Saskatoon guidelines shown in **Table 3-1**.

Table 3-1: City of Saskatoon Street Classifications and Characteristics

Characteristics	Classifications				
	Back Lanes	Locals	Collectors	Arterials	
	Commercial	Commercial / Industrial	Commercial / Industrial	Minor	Major
Traffic function	Access function only (traffic movement not a consideration)	Access primary function (traffic movement secondary consideration)	Traffic movement and land access of equal importance	Traffic movement major consideration	Traffic movement primary consideration
Average Daily Traffic (vehicles per day)	<1,000	<5,000	8,000-10,000	5,000-25,000	10,000-50,000
Typical Speed Limits (kph)	20	50	50	60	60-70
Transit Service	Not permitted	Generally avoided	Permitted	Permitted	Permitted
Cyclist	No restrictions or special facilities	No restrictions or special facilities	No restrictions or special facilities	Lane widening or special facilities may be provided	
Pedestrians	Permitted, no special facilities	Sidewalks provided where required	Sidewalks provided where required	Sidewalks may be provided, separation for traffic lanes preferred	
Parking	Some restrictions	No restrictions or restriction on one side only	Few restrictions other than peak hour	Permitted, restricted or prohibited	Prohibited or peak hour restrictions

Travel speeds were measured to determine the 85th percentile speed, which is the speed at which 85 percent of vehicles are travelling at or below. The speed limit in the North Industrial Area and Hudson Bay Industrial Area is 50 kph, except for Millar Avenue north of 60th Street where the speed limit is 60 kph.

The speed studies and Average Daily Traffic (ADT) on streets where speeding was identified as an issue are summarized in **Table 3-2**.

Table 3-2: Speed Studies and Average Daily Traffic Counts (2017)

Street	Between	Class	Average Daily Traffic (vehicles per day)	Speed (kph)
Millar Avenue	57th Street & 58th Street	Major arterial	10,160	63

3.3 Traffic Control Assessments

Yield, stop, and all-way stop controls need to meet the City of Saskatoon Council Policy C07-007 *Traffic Control – Use of Stop and Yield Signs*, January 26, 2009.

Turning movement counts were completed to determine the need for an all-way (i.e. three-way or four-way) stop control. Criteria outlined in Council Policy C07-007 that may warrant an all-way stop include:

- A peak hour count greater than 600 vehicles
- an ADT greater than 6,000 vehicles per day; or
- when five or more collisions are reported in the last twelve month period and are of a type susceptible to correction by an all-way stop control.

Further conditions that must be met for an all-way stop to be warranted are:

1. Traffic entering the intersection from the minor street must be at least 35% for a four-way stop and 25% for a three-way stop.
2. No other all-way stop or traffic signals within 200 metres.

Results of the studies are shown in **Table 3-3**.

Table 3-3: All-Way Stop Warrant Criteria

Location	Criteria 1: Peak Hour Count (greater than 600)	Criteria 2: Average Daily Traffic (greater than 6,000 vpd)	Criteria 3: Collisions within most recent 12 months (5 or more)	Results
Millar Avenue & 60th Street	1,246 (yes)	13,140 (yes)	1 (no)	Continue to Step 2.

Provided one of the above criteria are met, continue to Step 2 to check the condition requirements, as shown in **Table 3-4**.

Table 3-4: All-Way Stop Warrant Condition Requirements

Location	Condition 1: Traffic on minor street is at least 35%	Condition 2: No all-way stop or traffic signals within 200 metres	Results
Millar Avenue & 60th Street	13% (no)	1,120 metres (yes)	All-Way Stop Not Warranted

3.4 Pedestrian Assessments

Pedestrian assessments are conducted to determine the need for pedestrian actuated signalized crosswalks which are in adherence to the City of Saskatoon Council Policy C07-018 *Traffic Control at Pedestrian Crossings*, November 15, 2004. Devices include the active pedestrian corridor (flashing yellow lights) or pedestrian-actuated signals. A warrant system assigns points for a variety of conditions including:

- Number of traffic lanes to be crossed;
- presence of a physical median;
- posted speed limit of the street;
- distance the crossing point is to the nearest protected crosswalk point; and
- number of pedestrian and vehicles at the location.

In 2017, City Council approved a two-year pilot project to install Rectangular Rapid Flashing Beacons (RRFB) at five uncontrolled intersections. To improve pedestrian safety and encourage walking in the industrial neighbourhoods, RRFBs may be considered an alternate pedestrian device at the locations that have high pedestrian activity. However, the pilot project requires completion prior to further consideration of additional installations.

Pedestrian and traffic data is collected during the five peak hours of: 8:00 am to 9:00 am, 11:30 am to 1:30 pm, and 3:00 pm to 5:00 pm.

A standard pedestrian crosswalk or a zebra crosswalk (i.e. striped) may be considered when a signalized crosswalk is not warranted. A summary of the pedestrian studies are provided in **Table 3-5**.

Table 3-5: Pedestrian Assessments

Location	Number of Pedestrians Crossing During Peak Hours	Results
Millar Avenue & 52nd Street	8	Pedestrian Device Not Warranted
Millar Avenue & 57th Street	1	
51st Street & Wentz Avenue	0	
Millar Avenue & 43rd Street	31	

Details of the pedestrian actuated signal and active pedestrian corridor assessments are provided in **Appendix C**.

3.5 Traffic Signal Assessments

Assessments are conducted to determine the need for traffic signals, in adherence to the Traffic Signal and Pedestrian Signal Head Warrant Handbook. A warrant system assigns points for a variety of conditions including:

- Number of traffic lanes;
- posted speed limit of the street;
- distance to the nearest traffic signal; and
- number of pedestrians and vehicles at the location.

Pedestrian and traffic data is collected during the five peak hours of: 8:00 am to 9:00 am, 11:30 am to 1:30 pm, and 4:00 pm to 6:00 pm.

If a traffic signal is not warranted, additional measures to improve safety (i.e. parking restrictions, oversized stop signs) may be considered. A summary of the traffic signal assessments is provided in **Table 3-6.**

Table 3-6: Traffic Signal Assessments

Location	Traffic Signal Warrant Points	Results
Faithfull Avenue & 46th Street	42	Traffic Signal Not Warranted
Millar Avenue & 60th Street	56	
Millar Avenue & 58th Street	32	

Details of the traffic signal assessments are provided in **Appendix D.**

3.6 Faithfull Avenue Review

A review was completed for Faithfull Avenue in response to the following issues identified during stakeholder consultation and site observations:

- There is confusion about the number of traffic lanes when on-street parking is under-used. As a result, motorists often travel in the parking lane. When motorists weave in and out of the parking lane, it poses risk of side-swipe and rear-end collisions.
- Faithfull Avenue has high traffic volumes and it is difficult to enter from side streets.

Faithfull Avenue is approximately a 14.6 metre wide major arterial roadway with one travel lane and one parking lane in each direction. Every business along Faithfull Avenue has off-street parking spaces to accommodate the needs for customers and employee parking.

The adopted City of Saskatoon Design and Development Standard Manual establishes design guidelines for travel and parking lanes on Arterial Roadways. It requires the provision of a minimum of four travel lanes and parking prohibition on any arterial.

In alignment with the City's design standards, a potential improvement includes removing the on-street parking in each direction and formalizing one additional travel lane in each direction. With the on-street parking removed, the roadway would permanently have two lanes of traffic in each direction. This roadway configuration change will improve the traffic safety, provide clarity regarding the number of travel lanes, reduce delay, and provide more opportunities for motorists to turn from side streets.

A parking study was conducted to determine the current utilization of parking on Faithfull Avenue. The parking counts were performed in accordance with the following methodology. First, the study area was split into segments ranging from intersection to intersection. Counts were then performed at several times throughout the day to determine the number of parked vehicles (parking demand) along each street block.

The results of parking study indicate that the use of on-street parking on Faithfull Avenue from Circle Drive to 59th Street was very low, and ample parking was available on the side streets and off-street. Therefore, the impact of removing on-street parking for Faithfull Avenue is expected to be minimal.

Details of the parking study are provided in **Appendix E.**

4 STAGE 3: PRESENTATION OF TRAFFIC PLAN

4.1 Methodology

Stage 3 of the neighbourhood traffic review includes finalizing the recommended plan. This was achieved by completing the following steps:

- Based on the assessments, prepare a plan that illustrates the appropriate recommended improvement;
- Present the draft plan to the employees and businesses at a follow-up public meeting and online;
- Circulate the draft plan to the civic divisions for comment;
- Revise the draft plan based on feedback from the stakeholders; and
- Prepare a technical document summarizing the recommended plan and project process.

The tables in the following sections provide the details of the recommended traffic management plan, including the location, recommended improvement, and the justification of the recommended improvement.

4.2 Speeding and Shortcutting

As stated in Council Policy C07-007 *Traffic Control – Use of Stop and Yield Signs*, January 26, 2009, "stop signs are not to be used as speed control devices."

The recommended improvements to address speeding and shortcutting are detailed in **Table 4-1**.

Table 4-1: Recommended Improvements – Speeding and Shortcutting

Location	Recommended Improvement	Justification
Millar Avenue between 51st Street & 60th Street	• Install speed display board north side of 52nd Street facing the northbound direction • Install speed display board south of 60th Street facing the southbound direction • Forward peak hour speed data to Saskatoon Police Service to consider enforcement	Reduce driver speed
706 Circle Drive (Super 8 Motel) back lane	Install 20 kph signs	Reduce driver speed
400 Block of 42nd A Street back lane	Install 20 kph signs	Reduce driver speed

4.3 Pedestrian Safety

The recommended improvements to increase pedestrian safety are detailed in **Table 4-2**.

Table 4-2: Recommended Improvements - Pedestrian Safety

Location	Recommended Improvement	Justification
Millar Avenue & 43rd Street	Install Do not Block Intersection signs and Pedestrian Ahead signs	Improve pedestrian safety

4.4 Intersection Safety

The recommended improvements to intersections that will improve the level of safety by clearly identifying the right-of-way through traffic controls are provided in **Table 4-3**.

Table 4-3: Recommended Improvements – Intersection Safety

Location	Recommended Improvement	Justification
709 Circle Drive (Tim Horton's driveway)	Install stop sign	Improve safety and enhance driver compliance at uncontrolled intersections

4.5 Faithfull Avenue Improvement

The recommended improvements to Faithfull Avenue that will improve the level of safety and traffic operations are provided in **Table 4-4.**

Table 4-4: Recommended Improvements – Faithfull Avenue

Location	Recommended Improvement	Justification
Faithfull Ave between Circle Drive and 60th Street	Restrict on-street parking from Circle Drive to 60th Street, resulting in an additional travel lane in each direction	• Provide clarity regarding the number of travel lanes and improve traffic safety • Improve traffic flow on Faithfull Avenue and provide more opportunities for drivers on the side streets to enter or cross Faithfull Avenue

4.6 Parking

The recommended improvements to parking that will improve the level of safety are provided in **Table 4-5.**

Table 4-5: Recommended Improvements – Parking

Location	Recommended Improvement	Justification
48th Street & Wentz Avenue	Install No Parking signs on Wentz Avenue 10 metres from intersection on northwest and southeast corner	Improve parking compliance and driver sightline
50th Street & Wentz Avenue	Install No Parking signs on Wentz Avenue 10 metres from intersection on northwest and southeast corner	Improve parking compliance and driver sightline
2250 Northridge Drive	Install No Parking signs and 30 kph warning sign	Improve driver sightline and reduce turning speed at the corner
2922 Millar Avenue	Increase parking enforcement	Improve parking compliance
Faithfull Crescent	Increase parking enforcement	Improve parking compliance

4.7 Active Transportation

On June 27, 2016, City Council approved the Active Transportation Plan (ATP) in principle. The ATP contains an 80-point action plan, organized around the following items: Improving Connectivity, Safety and Security, Convenience, Land Use and Growth, Maintenance and Accessibility, and Education and Awareness.

Page 40 of the ATP notes the following regarding the theme of 'Improving Connectivity':

"…establishing a complete, connected and convenient network of pedestrian and cycling facilities throughout the city is critical to encouraging more active transportation trips."

As part of this Connectivity theme, directions to 'Expand and Enhance the Sidewalk Network' and 'Expand and Enhance the Bicycle Network' are provided.

An action item under 'Expand and Enhance the Sidewalk Network' is to eliminate gaps in the sidewalk network on major roads such as arterial or collector streets and industrial streets. Further, the ATP recommends sidewalks on the major streets in North Industrial and Hudson Bay Industrial areas, such as Faithfull Avenue, Miners Avenue, 60th Street, 51st Street, 42nd Street (Circle Drive) and Millar Avenue.

In addition, developing a complete and connected bicycle network for all ages and abilities to access key employment areas is recommended under the 'Expand and Enhance the Bicycle Network' in the ATP. Major streets in these two areas such as 43rd Street, Faithfull Avenue, Millar Avenue and 51st Street have been identified as future AAA bicycle network in the ATP.

The ATP notes that there are 90 kilometres of sidewalks on major roads, 195 kilometres of on-street bicycle facilities, and 170 kilometres of multi-use pathway to be constructed in Saskatoon at a total cost estimate of $250,000,000. The ATP does not provide a detailed prioritization of projects; however, the comments received in this neighbourhood traffic review will be used to help Administration in prioritizing the future implementations under the Active Transportation Program.

4.8 Follow Up Consultation – Presentation of Traffic Management Plan

The recommended improvements were presented to stakeholders at a follow-up public meeting and on Shaping Saskatoon website in November 2017. Comments received are provided in **Appendix F.** Recommended improvements that were not supported were eliminated or altered accordingly.

Additional issues raised during the follow-up meeting were assessed, and recommendations were added to the list of improvements if necessary.

The revised list of recommendations was then circulated to the civic divisions (including Saskatoon Police Service, Saskatoon Light & Power, Saskatoon Fire Department, Environmental Services, Parking Services, Roadways & Operations and Transit) to gather comments and concerns. General support was received.

5 STAGE 4: IMPLEMENTATION

Stage 4, the final stage of the Traffic Review, is to install the recommended improvements within the specified timeframe. The timeframe depends upon the complexity and cost of the solution. A short-term time frame is defined by implementing the improvements within 1 to 2 years; medium-term is 3 to 5 years; and long-term is 5 years plus.

The placement of signs, pavement markings and pedestrian safety device will be completed over 1 to 2 years as funding for the improvements is available. Most often the installations take place in spring / summer of the following year. Therefore installations for North Industrial Area and Hudson Bay Industrial Area are likely to take place in spring / summer 2018.

The estimated costs of the improvements included in the Traffic Plan are outlined in the following tables:

- **Table 5-1**: Signs and Pavement Markings Cost Estimate
- **Table 5-2**: Speed Enforcement & Speed Display Boards Cost Estimate
- **Table 5-3**: Total Cost Estimate

Table 5-1: Signs and Pavement Markings Cost Estimate

Location	Device (# of Devices)	Cost Estimate	Time Frame
706 Circle Drive (Super 8 Motel) back lane	20 kph signs (2)	$500	1 to 2 years
400 Block of 42nd A Street back lane	20 kph signs (2)	$500	
709 Circle Drive (Tim Hortons driveway)	Stop sign (1)	$250	
Millar Avenue & 43rd Street	Do not Block Intersection sign (2) Pedestrian Ahead signs (2)	$500 $500	
2250 Northridge Drive	No Parking signs (2) 30 kph warning sign (2)	$500 $500	
48th Street & Wentz Avenue	No Parking signs (2)	$500	
50th Street & Wentz Avenue	No Parking signs (2)	$500	
Faithfull Avenue between Circle Drive and 60th Street	No Parking signs (70) Pavement marking	$17,500 $1,450	
	Total	**$23,200**	

Table 5-2: Speed Enforcement & Speed Display Boards Cost Estimate

Location	Device	Cost Estimate	Time Frame
Millar Avenue - north of 52nd Street	Speed Display Board	$0 (funded through Speed Program)	1 to 2 years
Millar Avenue - south of 60th Street	Speed Display Board	$0 (funded through Speed Program)	
Millar Avenue between 51st Street & 60th Street	Speed Enforcement	$0 (provided by Saskatoon Police Service)	
	Total	**$0**	

Table 5-3: Total Cost Estimate

Category	Short-Term Time Frame (1 to 2 years)
Signs and Pavement Markings	$23,200
Speed Enforcement & Speed Display Boards	$0
Total	**$23,200**

A list of recommended improvements resulting from the neighbourhood traffic review including the location and justification is summarized in **Table 5-4**.

The resulting recommended North Industrial Area is illustrated in **Exhibit 5-1**and the Hudson Bay Industrial Area Traffic Plan is illustrated in **Exhibit 5-2**.

Table 5-4: North Industrial and Hudson Bay Industrial Recommended Improvements

Item	Location	Proposed Recommendation	Reason
1	Millar Avenue between 51st Street & 60th Street	• Install speed display board north side of 52nd Street facing the northbound direction • Install speed display board south of 60th Street facing the southbound direction • Forward peak hour speed data to Saskatoon Police Service to consider enforcement	Reduce driver speed
2	Millar Avenue & 52nd Street	Review for Rectangular Rapid Flashing Beacons (RRFB)*	Improve pedestrian safety
3	2922 Millar Avenue	Increase parking enforcement	Improve parking compliance
4	Faithfull Crescent	Increase parking enforcement	Improve parking compliance
5	706 Circle Drive (Super 8 Motel) back lane	Install 20 kph signs	Reduce driver speed
6	400 Block of 42nd A Street back lane	Install 20 kph signs	Reduce driver speed
7	709 Circle Drive (Tim Hortons driveway)	Install stop sign	Improve traffic safety and enhance driver compliance at uncontrolled intersections
8	Millar Avenue & 43rd Street	• Review for Rectangular Rapid Flashing Beacons (RRFB)* • Install Do not Block Intersection signs and Pedestrian Ahead signs	Improve pedestrian safety
9	48th Street & Wentz Avenue	Install No Parking signs on Wentz Avenue 10 metres from intersection on northwest and southeast corner	Improve parking compliance and driver sightline
10	50th Street & Wentz Avenue	Install No Parking signs on Wentz Avenue 10 metres from intersection on northwest and southeast corner	Improve parking compliance and driver sightline
11	2250 Northridge Drive	Install No Parking signs and 30 kph warning sign	Improve driver sightline and reduce turning speed at the corner

Table 5-4 Continued

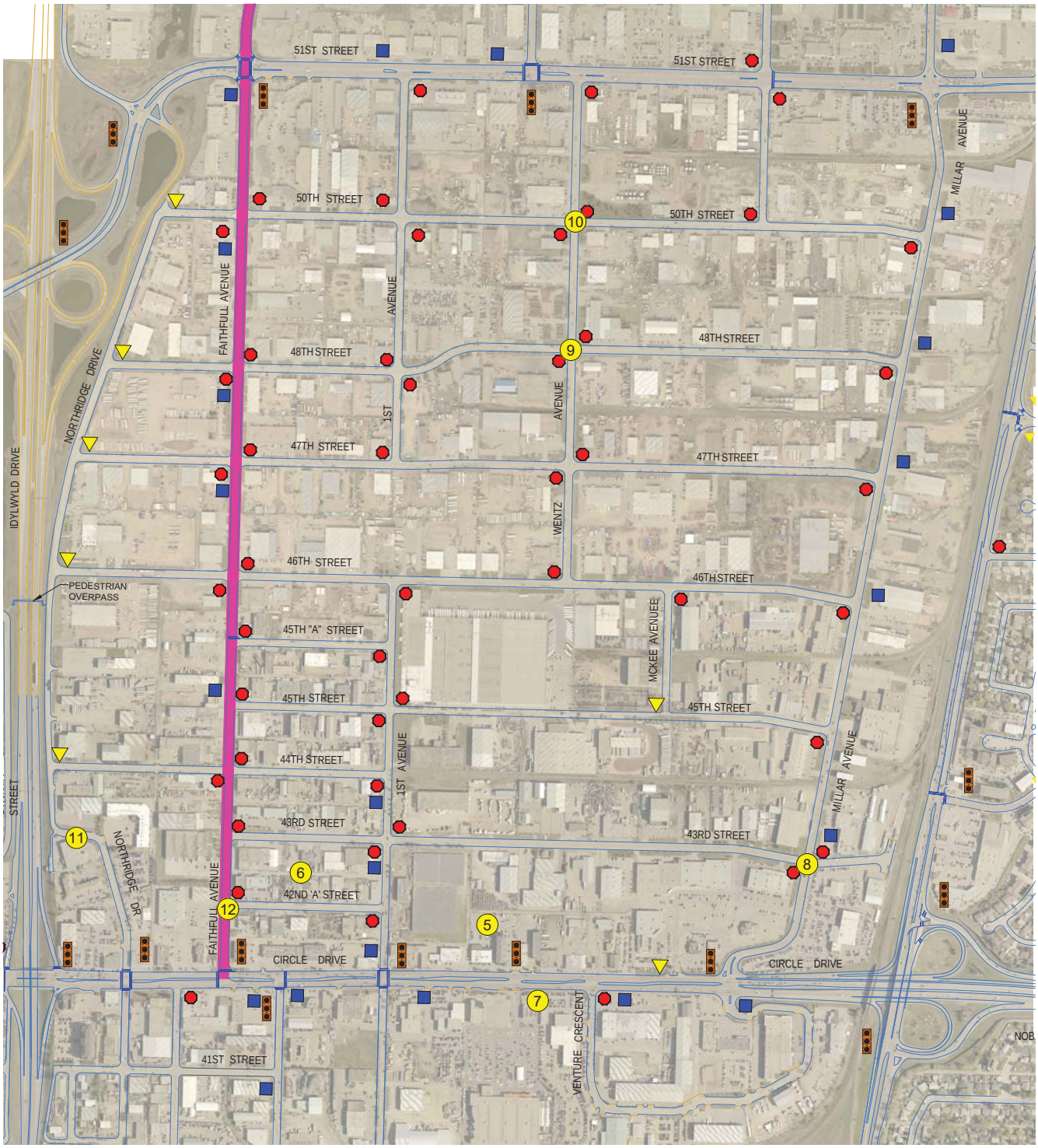
Item	Location	Proposed Recommendation	Reason
12	Faithfull Avenue between Circle Drive and 60th Street	Restrict on-street parking from Circle Drive to 60th Street, resulting in an additional travel lane in each direction	• Provide clarity regarding the number of travel lanes and improve traffic safety • Improve traffic flow on Faithfull Avenue and provide more opportunities for drivers on the side streets to enter or cross Faithfull Avenue

* Rectangular Rapid Flashing Beacon (RRFB) may be considered pending the outcome of the RRFB pilot project that will begin in the spring of 2018.

NORTH INDUSTRIAL AREA TRAFFIC PLAN

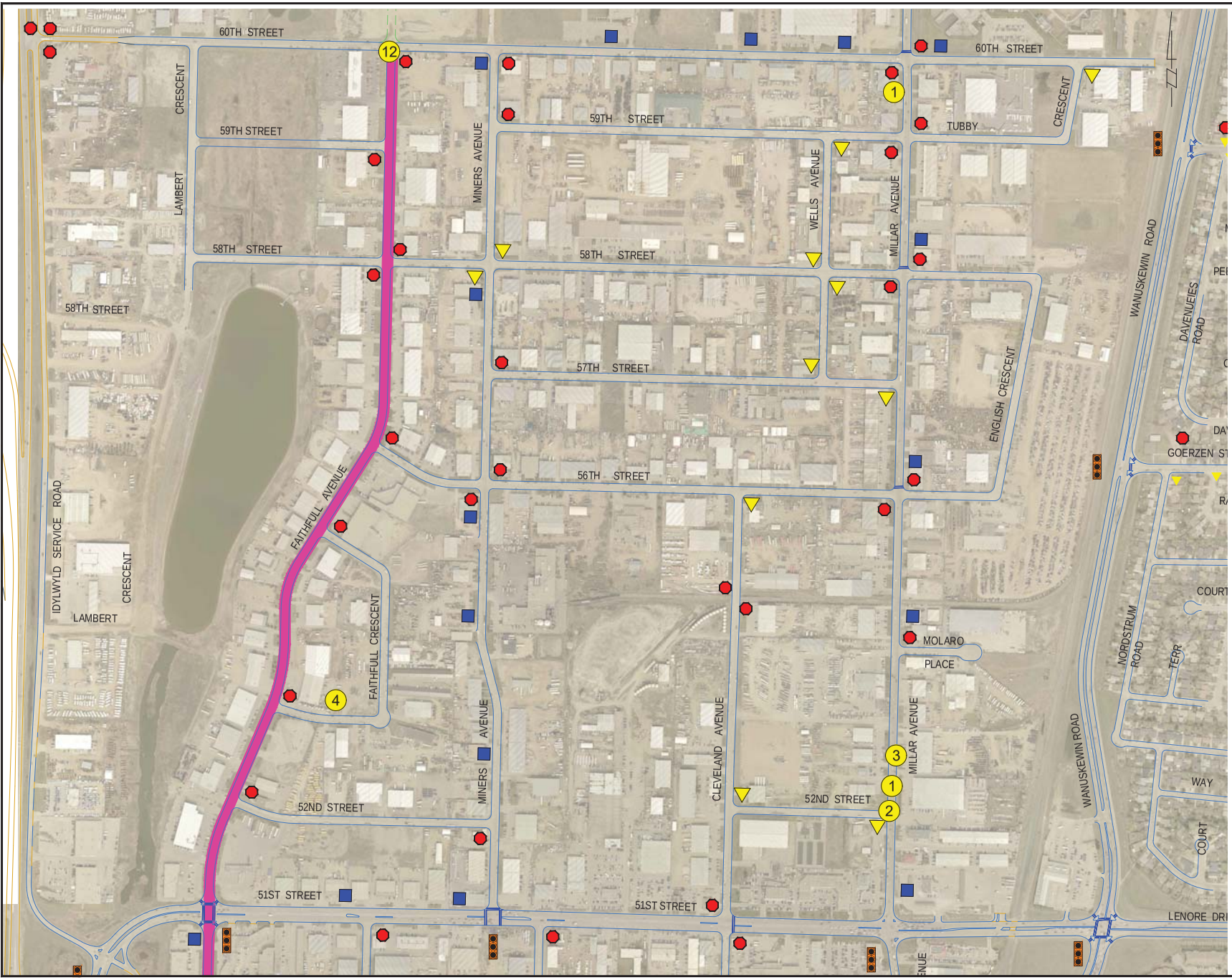
City of Saskatoon

Exhibit 5-1



LEGEND

- EXISTING STOP SIGN
- REMOVE STREET PARKING
- EXISTING YIELD SIGN
- BUS STOP
- CROSS WALK
- EXISTING TRAFFIC SIGNAL
- # RECOMMENDATION



HUDSON BAY INDUSTRIAL AREA TRAFFIC PLAN

City of Saskatoon

LEGEND

- EXISTING STOP SIGN
- EXISTING YIELD SIGN
- BUS STOP
- CROSS WALK
- EXISTING TRAFFIC SIGNAL
- (#) RECOMMENDATION
- REMOVE STREET PARKING

Exhibit 5-2

APPENDIX A: INITIAL PUBLIC CONSULTATION #1 – NOVEMBER 15, 2016

Comments and Concerns Received Online During the Initial Public Consultation

- Millar Avenue & 43rd Street:
  - Improve the visibility of this crosswalk
- Millar Avenue & 52nd Street:
  - Customers and staff have little safe opportunity to cross Millar Avenue
- Millar Avenue & 57th Street
  - Employees have to cross Millar Avenue on a daily basis
- Faithfull Avenue & 51st Street
  - The current crossing should be upgraded to include buttons for pedestrian traffic travelling in all four sections of the crossing
- Faithfull Avenue & 42nd Street
  - There needs to be an additional (button activated) N-S crossing on the east side of the intersection
- 51st Street & Wentz Avenue
  - It's hard to cross 51st Street at Wentz Ave
- Miners Avenue & 51st Street
  - To cross at the lights on Miners Avenue from east side of the crosswalk we run the risk of Being hit by drivers making a left turn on to 51st St
- General:
  - Lack of sidewalk in the entire industrial area
- Paint crosswalk at north side of Millar Avenue and 43rd Street
- Install a pedestrian walk light at Millar Avenue and 52nd Street
- Install a pedestrian crosswalk at Millar Avenue and 57th Street
- Install a flashing light at 51st Street and Wentz Avenue
- Idylwyld Drive pedestrian overpass should be accessible for wheelchair
- Northridge Drive & 50th Street
  - Westbound has higher traffic than southbound, so the southbound traffic should yield the westbound
- 46th Street & Faithfull Avenue
  - It is difficult to make left turn onto Faithfull Avenue during PM peak hour.
  - Large trucks making left turn cause delay on 46th Street.
  - This intersection is unsafe, lots accidents. There are some trees that obscure the vision of all drivers entering on to Faithfull from 46th Street from the East. The trees reside along Faithfull beside business named Speedy Collision.
- Millar Avenue & 58th Street - Millar Avenue is too busy. It is hard to make left turn onto Millar Avenue.
- Install stop sign on the southbound and remove the yield sign on the westbound
- 709 Circle Drive
  - Stop sign needs to be installed on Tim Hortons driveway
- Faithfull Avenue & 46th Street
  - Install traffic signal
  - Remove or trim the trees
- Millar Avenue & 58th Street – Install traffic signal
- 60th Street – Install traffic signal
- 48th Street & Wentz Avenue
  - Poor sightline due to large trucks parking too close to the intersection

Comments and Concerns Received Online During the Initial Public Consultation

- Faithfull Crescent
  - Semi tractors with trailers and semi-trailers by themselves are randomly parking on the Crescent and not allowing regular local traffic any spaces around the business. They park overnight or several days.
- Wentz Avenue & 50th Street
  - Approaching Wentz Avenue on 50th Street, parked trucks on southbound of Wentz Avenue block sightline
- Wells Avenue
  - The use of our street parking increased significantly when the parking on Millar Avenue was removed. Street parking is required for customers, delivery people and etc.
- 2922 Millar Ave
  - Already heavy traffic becomes more congested when large vehicles (i.e. Tractor Trailer units) park in curb lane of Millar Ave to enter restaurants or coffee shops on both west and east side.
- Faithfull Crescent
  - As per the bylaw, semi-trailers must be attached to the tractor portion while on public streets. If parking enforcement would ticket vehicles that are not abiding by the required bylaws this may deter this behavior.
- Wells Avenue
  - The solution is for each business to provide sufficient parking for their regular staff – leaving street parking primarily for customers and delivery services, etc. Also businesses should be able to post signs in front of their premises to allow for some parking to be reserved for their customers and deliveries, etc.
- 2922 Millar Ave
  - Extend 'no stopping' signs further down Millar. (Most, if not all, businesses have their own parking lots.)
- 60th Street
  - It is in poor condition and desperate
- 2250 Northridge Dr
  - Trucks drive on the lawn and it's a costly repair
- 3050 Millar Avenue- Drain is placed where debris can block it. It becomes an issue in spring. Also for cars turning into parking lot as iron grate punctures tires
- Marquis Drive and Millar Ave – Pavement is not flat and it drops down so much
- 60th Street needs a significant pavement rehabilitation
- Venture Cres street name sign is needed in boulevard
- Millar Avenue between 60th Street and 71st Street
  - Speed limit is inconsistent and transition from 50kph to 60kph is difficult for pedestrian to cross and driver to figure out the gap when they try to turn onto Millar Avenue
- 42nd Street (Circle Drive) & Millar Avenue (Venture Crescent)
  - Southbound left turn delay and queue is very long
  - Westbound traffic doesn't yield the eastbound left turn when the green arrow is on
  - Trucks run on the boulevard due to the limited room on the "s" curve.
- 2922 Millar Ave

  - Customers and Service trucks have difficulty entering and exiting the lot in busy traffic times due to heavily increased traffic from Marquis Drive opening.
  - North travelling vehicles coming off of 51st St. cross four lanes of traffic to enter the restaurants on the west side of Millar Ave. This poses serious risk of accident. Often traffic stops to wait for an opening to cross against south traffic, causing a serious back up of north traffic. These vehicles can easily access the restaurant by turning right off of 51st Ave.
- 42nd Street (Circle Drive) Westbound
  - It is hard to merge to curb lane and make right turn onto side streets. Large trucks take all the space on curb lane
- 42nd Street (Circle Drive) & 1st Avenue
  - Southbound left turn often block the southbound through traffic
- Circle Drive & Idylwyld Drive
  - The intersection of Circle Drive and Idylwyld Drive is an unmitigated disaster at peak hour.
- 42nd Street (Circle Drive) & Super 8 (Home Depot)
  - Coming into our hotel have no arrow and sometimes wait through 2 lights, guest felt very annoyed
  - Back alley people speed through back alley as it links from 3 different road ways
  - Racing to light in front of our building these cars are running through at high speeds.
  - People can't turn into hotel because light is blocked from traffic trying to use lights. This also causes back up onto Circle Drive.
- 51st Street and Millar Avenue
  - McDonald's driveway on Millar Avenue is too close to the intersection
- 618 51st Street
  - It is difficult to make left turn from driveway onto 51st Street eastbound and sometimes the queue from downstream intersection blocks the way
- Railway crossing on 51st Street
  - The rail track severely affect traffic, do not let train run during daytime
- 42nd Street (Circle Drive) & Millar Avenue (Venture Crescent)
  - Southbound traffic has a left hand turn arrow and this should remain on until red and then northbound traffic should get full green with arrow.
  - Westbound traffic should have short green arrow when turning left onto Venture Crescent for safety reasons
  - Southbound right turning lane needs to begin further north on Millar Avenue to allow better flow
  - Improve the signage at Millar Avenue onto Circle Drive
- 2922 Millar Avenue
  - Traffic lights around 60th Street may add a lull in the flow of traffic to allow more opportunity for traffic entering and exiting the road.
  - A barrier to not allow turning west off of Millar
  - Traffic lights to break up the 'drag strip' between 51st and Marquis.
- 42nd Street (Circle Drive) & 1st Avenue
  - Install a left turning bay and protected let turn
- Circle Drive & Idylwyld Drive

  - The City needs to work with the provincial and federal governments to create a solution that moves interprovincial truck traffic away from this intersection.
- Faithfull Avenue & 51st Street
  - Southbound left turn needs turning arrow. Sometimes the traffic back is very long
- Faithful Avenue & (42nd Street) Circle Drive
  - It needs double left turning lanes onto Circle Drive.
- Idylwyld Drive off ramp onto 51st Street
  - Vehicles always wait here in order to make quick merge to the inside lane on 51st Street eastbound, and it causes backup even it is supposed to be free flow traffic lane. This ramp should be 2 lanes. The inside lane is for those vehicles turning left at Faithfull Avenue & 51st Street. The outer lane can be free flow. Install yield sign for the inside lane and keep added lane sign for outer lane
- 60th Street & Idylwyld Service Road
- Stop signs need to be reviewed or close the access to Idylwyld Drive. This access should be eliminated. It is dangerous and is not necessary. There is no turning lane for northbound of Idylwyld Drive to eastbound of 60th Street movements. The three way stop adds to the confusion and danger. There will be no justification for leaving this access point in place once Faithfull Avenue extends to Marquis Drive. Traffic can access all points of call using 51st Street or Marquis Drive, and then the service road or Faithfull Avenue.
- General - Cyclists are not comfortable biking on the road in this area. Any option for biking to work?
- Faithfull Avenue is an excellent corridor for north-south travel, as it continues from Circle Drive to 60th Street (and eventually Marquis/71st Street). A separated multi-use path or a buffered bike lane (adjacent to the curb, then buffered by two white lines set 0.6 m apart, and either diagonal cross hatching or chevron markings, and then a parking lane) should be added to the entire length of Faithfull Avenue. This would allow cyclists to access the entire north end. The relatively low traffic east-west streets would be used for access to terminal destinations. Residents that work in the north end and live in the west side core neighbourhoods (e.g., Mayfair, Kelsey Woodlawn, Caswell Hill) would be able to access this corridor via Ontario Avenue or Quebec Avenue and cross Circle Drive at Faithfull Avenue
- The City should negotiate with CN to allow for the construction of an at-grade crossing for pedestrians, cyclists, and users with mobility issues. The path that parallels 51st Street terminates before the CN tracks and then a desire line continues toward the McDonalds parking lot. It is a case study for poor infrastructure and demonstrates that pedestrians were an afterthought when developing in the north end. The new crossing of the CN tracks at Marquis Drive is a good example of how more users could be accommodated.
- 43rd Street & Warman Road, 60th Street & Wanuskewin Road, Molaro Place & Wanuskewin Road - need a at grade or below grade crossing for pedestrians, cyclists, and users with mobility issues. New crossing of the CN tracks at Marquis Drive is good example of how more users could be accommodated
- 43rd Street corridor - A separated multi-use path or a buffered bike lane should be added to the entire 43rd Street corridor. This would allow users that live east of the CN tracks (Lawson, Silverweed, etc.) to access the infrastructure proposed for Faithfull Avenue
- 60th Street - Consideration should be given to creating an east-west pedestrian/cycling corridor on 60th Street. This could be accomplished by a separated multi-use path or a

buffered bike lane with a sidewalk. The City should negotiate with CN to allow for the construction of an at-grade or below grade crossing for pedestrians, cyclists, and users with mobility issues. The new crossing of the CN tracks at Marquis Drive is a good example of how more users could be accommodated

- Build multi-use pathway on 51st Street, Faithfull Avenue, Miller Avenue

Meeting Minutes
North Industrial Traffic Review
(Come & Go Open House)
Tuesday, November 15, 2016, 10 a.m. to 3 p.m.
Travelodge Hotel

City of Saskatoon Representatives:

- David LeBoutillier, P.Eng., Senior Transportation Engineer, Transportation & Utilities
- Goran Lazic, P.Eng., Senior Transportation Engineer, Transportation & Utilities
- Mariniel Flores, Engineer-in-Training, Transportation Engineer, Transportation & Utilities
- Yang Li, Engineer-in-Training, Transportation Engineer, Transportation & Utilities

Input & Questions from Public:

- 60th Street & Idylwyld Service Road – It is dangerous when accessing Idylwyld Drive from here. Stop signs need to be reviewed or close the access to Idylwyld Drive
- Millar Avenue – Review the speed limit on Millar Ave and make it consistent. Transition from 50 kph to 60 kph is difficult for driver to figure out the gap when they try to turn onto Millar Ave. Either increase to 60 kph or reduce to 50 kph. It is very dangerous for pedestrian to cross Millar Avenue
- Millar Avenue & 51st Street- There were many near misses at this intersection
- 43rd Street & Warman Road, 60th Street & Wanuskewin Road, Molaro Place & Wanuskewin Road – Cyclists biking on the Warman Road multi-use pathway need to access industrial areas from these locations. There are no other safe access from the pathway to industrial area for cyclists
- Wanuskewin Road – Bike lane is dangerous on this section of road as its speed is high, prefer to bike on a separated multi-use pathway
- Wanuskewin Road & Goerzen Street – There should be yield sign for cyclist
- 71st Street & Idylwyld Drive/Highway 11 – It is unsafe to cross or make left turn here. It needs a signal or prohibit vehicles to cross Idylwyld Drive at this intersection
- Avenue C & Circle Drive – Put jersey barrier for right hand turn or make right turn only lane (same as Warman Road & 51st Street)
- Idylwyld Drive off ramp to 51st Street – Vehicles wait here to merge to the inside lane on 51st Street eastbound, and it causes queuing in free flow traffic lane. This ramp should be 2 lanes. The inside lane is for those vehicle turning left at Faithfull Ave & 51st Street. The outer lane can be free flow. Install yield sign for the inside lane and keep added lane sign for outer lane
- 48th Street & Wentz Avenue – Poor sightline due the tractor trailers parking too close to the intersection

- Industrial Area – Cyclists are not comfortable biking on the road in this area. Any option for biking to work?
- 46th Street & Faithfull Avenue – It is difficult to make left turn onto Faithfull Avenue during PM peak hour. Tractor trailers making left turn cause delay on 46th Street
- 1st Avenue & Circle Drive – Southbound left turn block the southbound through traffic
- Millar Avenue & 71st St – Landscaping on southwest corner impedes sightline. Northbound at 71st Street is not a level intersection
- 3050 Millar Avenue- Catch basin is placed where debris can block it. It becomes an issue in spring. Also for cars turning into parking lot as catch basin punctures tires
- Millar Avenue & Highway 11 – Proposed overpass will increase the traffic to Millar Avenue
- Circle Drive Westbound- It is hard to merge to curb lane and make right turn onto side streets. Large trucks take all the space on curb lane
- 709 Circle Drive- Stop sign needs to be installed on Tim Hortons driveway
- Circle Drive & Millar Avenue – Southbound left turn delay and queue is very long. Westbound right turn traffic doesn't yield eastbound left turn traffic when the green arrow is on. Install yield sign for the westbound right turn lane. Trucks run on the boulevard due to the lack of room on the s curve
- Northridge Drive & 50th Street – Install stop signs on southbound and remove the yield sign on westbound as less traffic travelling on north and south direction at this location
- Marquis Drive and Millar Ave – Pavement is not flat and it drops down so much
- 618 51st Street – It is difficult to make left turn from driveway onto 51st eastbound and sometimes the queue from downstream intersection blocks the way
- Silverwood Heights – Large trucks from industrial area shortcut in Siverwood Heights on Adilman Drive
- 51st Street & Faithfull Avenue – It is unsafe for pedestrians. Southbound left turn needs longer turning light/arrow. It needs protected southbound left turn. It is hard to see the oncoming traffic when turning left. Sometimes the traffic backup is very long
- Quebec Avenue & Circle Drive – Northbound left turn becomes problem, large trucks on the curb lane
- Marquis Drive & Idylwyld Drive – Vehicles are confused by lane designation on westbound even it is signed

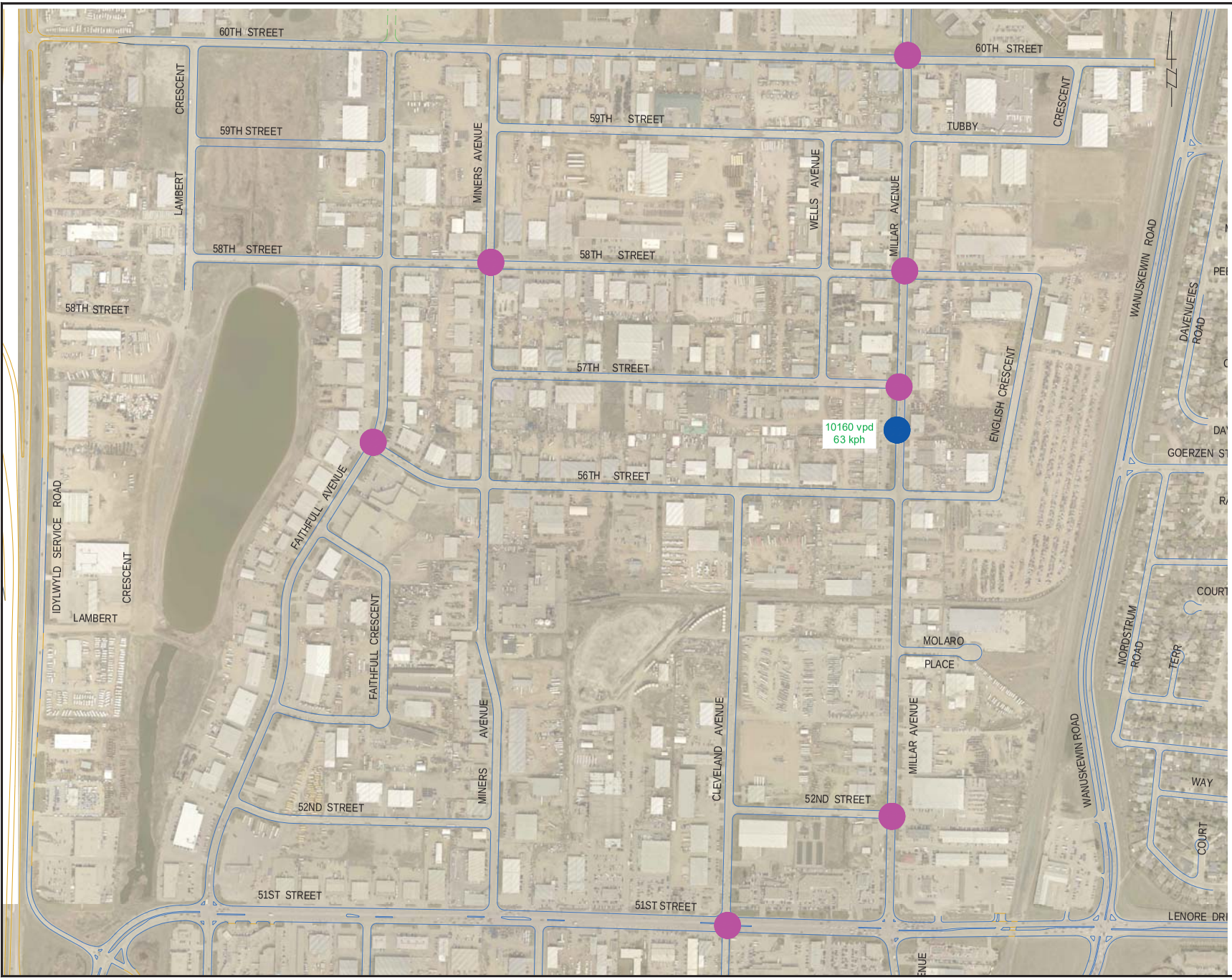
APPENDIX B: TRAFFIC DATA COLLECTION

NORTH INDUSTRIAL AREA TRAFFIC DATA COLLECTION MAP

City of Saskatoon

LEGEND

- TRAFFIC + PEDESTRIAN COUNT MOVEMENT COUNT (INTERSECTION)
- SPEED + TRAFFIC VOLUME STUDY (MIDBLOCK)
- 786 vpd — NUMBER OF VEHICLES PER DAY
- 47.2 kph — 85th PERCENTILE SPEED



HUDSON BAY INDUSTRIAL AREA TRAFFIC DATA COLLECTION MAP

City of Saskatoon

LEGEND

- TRAFFIC + PEDESTRIAN COUNT MOVEMENT COUNT (INTERSECTION)
- SPEED + TRAFFIC VOLUME STUDY (MIDBLOCK)

786 vpd — NUMBER OF VEHICLES PER DAY
47.2 kph — 85th PERCENTILE SPEED

APPENDIX C: PEDESTRIAN DEVICE ASSESSMENTS

Pedestrian Corridor Warrant Calculation

Millar Avenue & 43rd Street

Time (15 minute intervals)	Vehicle Counts		Pedestrian Counts							P.C. Warrant	Periods Wrnt'd	Points of Wrnt'd
			Total Both Sides					Factored Counts				
	15 min.	30 min.	Child	Teen	Adult	Senior / Impaired	Total	15 min.	30 min.	Points	(1=Yes)	Periods
7:00												
7:15					3		3	1.5	1.5			
7:30					1		1	0.5	2			
7:45									0.5			
8:00	370	370			1		1	0.5	0.5	185		
8:15	281	651			2		2	1	1.5	977		
8:30	298	579			1		1	0.5	1.5	869		
8:45	305	603							0.5	302		
9:00		305										
9:15												
9:30												
9:45												
AM Totals	1,254				8		8					
11:30	329				3		3	1.5				
11:45	333	662							1.5	993		
12:00	354	687										
12:15	313	667										
12:30	317	630			1		1	0.5	0.5	315		
12:45	326	643			1		1	0.5	1	643		
13:00	321	647			1		1	0.5	1	647		
13:15	323	644			1		1	0.5	1	644		
Noon Totals	2,616				7		7					
14:00												
14:15												
14:30												
14:45												
15:00	291	291			3		3	1.5	1.5	437		
15:15	333	624			1		1	0.5	2	1,248		
15:30	327	660							0.5	330		
15:45	307	634										
16:00	331	638			3		3	1.5	1.5	957		
16:15	313	644			2		2	1	2.5	1,610		
16:30	291	604			3		3	1.5	2.5	1,510		
16:45	305	596							1.5	894		
17:00		305			2		2	1	1	305		
17:15					1		1	0.5	1.5			
17:30					1		1	0.5	1			
17:45									0.5			
18:00												
18:15												
18:30												
18:45												
19:00												
19:15												
19:30												
19:45												
20:00												
20:15												
20:30												
20:45												
PM Totals	2,498				16		16					
Totals	**6,368**				**31**		**31**					
					100%		100%					
					North Crosswalk =		**1**					
					South Crosswalk =		**30**	<<< install crosswalk on this side of the int.				

SUMMARY

Total Warranted PC Points:		**or**	**/ period**
Highest PC point value:	**1,610**	**at**	
Average PC point value:	**858**		
No. of periods warranted:			

RESULTS SUMMARY

Millar Avenue & 43rd Street

Prepared By: Yang Li **Date:** Monday, July 24, 2017

ıtion & Roadway Classification: Millar Ave & 43rd St Aterial & Local
Date of Count: **Day of wk:** **Mth, Day, Yr:** Wednesday, May 17, 2017
Weather: sunny
Traffic Control Devices: 2 way stop controlled
Current Pedestrian Control: Standard crosswalk
Other Notes:

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

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

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

Distance to nearest protected crosswalk 350 m
Location: Circle Dr & Millar Ave
Type: signalized

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

Duration of pedestrian count 6 hrs

Elementary:		**Total Warranted PC Points:**		**or**	**/ period**
High School:		**Highest PC point value:**	**1,610**	**at**	
Adult:	**31**	**Active Ped Corridor Points:**			
Senior:		**Pedestrian Actuated Signal Points:**	**42**		
Vehicles passing through crosswalk(s):	**6,368**				

ACTIVE PEDESTRIAN CORRIDOR NOT WARRANTED
PEDESTRIAN ACTUATED SIGNAL NOT WARRANTED

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

Time (15 minute intervals)	Vehicle Counts				Pedestrian Counts							
					North Crosswalk				South Crosswalk			
	SB	WB	NB	EB	Child	Teen	Adult	Senior / Impaired	Senior / Impaired	Adult	Teen	Child
7:00												
7:15										3		
7:30										1		
7:45												
8:00	135		231	4						1		
8:15	136	1	140	4						2		
8:30	123	2	162	11						1		
8:45	109	6	187	3								
9:00												
9:15												
9:30												
9:45												
AM Totals	503	9	720	22						8		
11:30	166	4	148	11						3		
11:45	179	1	143	10								
12:00	145	5	188	16								
12:15	153	4	146	10								
12:30	147	3	159	8						1		
12:45	127	7	186	6						1		
13:00	137	6	165	13						1		
13:15	137	2	168	16						1		
Noon Totals	1,191	32	1,303	90						7		
14:00												
14:15												
14:30												
14:45												
15:00	144	4	133	10						3		
15:15	152	4	165	12						1		
15:30	164	4	143	16								
15:45	135	1	161	10								
16:00	153	1	164	13			1			2		
16:15	143	3	146	21						2		
16:30	137	3	135	16						3		
16:45	150		148	7								
17:00										2		
17:15										1		
17:30										1		
17:45												
18:00												
18:15												
18:30												
18:45												
19:00												
19:15												
19:30												
19:45												
20:00												
20:15												
20:30												
20:45												
PM Totals	1,178	20	1,195	105						15		
Totals	**2,872**	**61**	**3,218**	**217**			**1**			**30**		
					North Crosswalk =			**1**	**South Crosswalk =**			**30**

Pedestrian Corridor Warrant Calculation

Millar Avenue & 52nd Street

Time (15 minute intervals)	Vehicle Counts		Pedestrian Counts							P.C. Warrant Points	Periods Wrnt'd (1=Yes)	Points of Wrnt'd Periods
			Total Both Sides					Factored Counts				
	15 min.	30 min.	Child	Teen	Adult	Senior / Impaired	Total	15 min.	30 min.			
7:00					1		1	0.5				
7:15									0.5			
7:30					1		1	0.5	0.5			
7:45					1		1	0.5	1			
8:00	325	325							0.5	163		
8:15	313	638										
8:30	309	622										
8:45	327	636										
9:00		327										
9:15												
9:30												
9:45												
AM Totals	1,274				3		3					
11:30	388											
11:45	355	743			2		2	1	1	743		
12:00	398	753							1	753		
12:15	352	750			1		1	0.5	0.5	375		
12:30	319	671			1		1	0.5	1	671		
12:45	321	640							0.5	320		
13:00	363	684										
13:15	307	670										
Noon Totals	2,803				4		4					
14:00												
14:15												
14:30												
14:45												
15:00	346	346										
15:15	317	663										
15:30	366	683										
15:45	325	691										
16:00	341	666										
16:15	310	651										
16:30	373	683										
16:45	302	675			1		1	0.5	0.5	338		
17:00		302							0.5	151		
17:15												
17:30												
17:45												
18:00												
18:15												
18:30												
18:45												
19:00												
19:15												
19:30												
19:45												
20:00												
20:15												
20:30												
20:45												
PM Totals	2,680				1		1					
Totals	**6,757**				**8**		**8**					
					100%		100%					
			North Crosswalk =				**8**	<<< install crosswalk on this side of the int.				
			South Crosswalk =									

SUMMARY

Total Warranted PC Points:		**or**	**/ period**
Highest PC point value:	**753**	**at**	
Average PC point value:	**234**		
No. of periods warranted:			

Pedestrian Actuated Signal Warrants

Millar Avenue & 52nd Street

Prepared By: Yang L **Date:** Monday, July 24, 2017

ıtion & Roadway Classification: Millar Ave & 52nd St Aterial & Local
Date of Count: Day of wk: Tuesday Mth, Day, Yr: 07,11,2017
Weather: cloudy
Traffic Control Devices: stop
Current Pedestrian Control: standard crosswalk
Other Notes:

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

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

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

Distance to nearest protected crosswalk 210 m
Location: 51st St & Millar Ave
Type: signalized

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

Duration of pedestrian count 6 hrs

Elementary:		**Total Warranted PC Points:**		**or**	**/ period**
High School:		**Highest PC point value:**	**753**	**at**	
Adult:	**8**	**Active Ped Corridor Points:**			
Senior:		**Pedestrian Actuated Signal Points:**	**24**		
Vehicles passing through crosswalk(s):	**6,757**				

ACTIVE PEDESTRIAN CORRIDOR NOT WARRANTED
PEDESTRIAN ACTUATED SIGNAL NOT WARRANTED

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

Time (15 minute intervals)	Vehicle Counts				Pedestrian Counts							
					North Crosswalk				South Crosswalk			
	SB	WB	NB	EB	Child	Teen	Adult	Senior / Impaired	Senior / Impaired	Adult	Teen	Child
7:00							1					
7:15												
7:30							1					
7:45							1					
8:00	133		191	1								
8:15	151	3	157	2								
8:30	148	2	158	1								
8:45	163	2	161	1								
9:00												
9:15												
9:30												
9:45												
AM Totals	595	7	667	5								
11:30	232	3	152	1								
11:45	212	2	140	1			2					
12:00	249	4	145									
12:15	214	2	136				1					
12:30	158	1	157	3			1					
12:45	157	2	160	2								
13:00	177	1	185									
13:15	163		143	1								
Noon Totals	1,562	15	1,218	8								
14:00												
14:15												
14:30												
14:45												
15:00	205	1	139	1								
15:15	185	3	129									
15:30	247	4	114	1								
15:45	195	1	129									
16:00	218	2	121									
16:15	208	3	99									
16:30	248	2	123									
16:45	192	2	107	1			1					
17:00												
17:15												
17:30												
17:45												
18:00												
18:15												
18:30												
18:45												
19:00												
19:15												
19:30												
19:45												
20:00												
20:15												
20:30												
20:45												
PM Totals	1,698	18	961	3								
Totals	**3,855**	**40**	**2,846**	**16**			**8**					
					North Crosswalk =			**8**	**South Crosswalk =**			

Pedestrian Corridor Warrant Calculation

Millar Avenue & 57th Street

Time (15 minute intervals)	Vehicle Counts		Pedestrian Counts							P.C. Warrant Points	Periods Wrnt'd (1=Yes)	Points of Wrnt'd Periods
			Total Both Sides					Factored Counts				
	15 min.	30 min.	Child	Teen	Adult	Senior / Impaired	Total	15 min.	30 min.			
7:00												
7:15												
7:30												
7:45												
8:00	260	260										
8:15	264	524										
8:30	274	538										
8:45	243	517										
9:00		243										
9:15												
9:30												
9:45												
AM Totals	1,041											
11:30	275											
11:45	299	574										
12:00	286	585										
12:15	265	551										
12:30	299	564										
12:45	277	576										
13:00	254	531										
13:15	239	493										
Noon Totals	2,194											
14:00												
14:15												
14:30												
14:45												
15:00	244	244										
15:15	275	519										
15:30	325	600										
15:45	267	592										
16:00	264	531										
16:15	297	561			1		1	0.5	0.5	281		
16:30	349	646							0.5	323		
16:45	295	644										
17:00		295										
17:15												
17:30												
17:45												
18:00												
18:15												
18:30												
18:45												
19:00												
19:15												
19:30												
19:45												
20:00												
20:15												
20:30												
20:45												
PM Totals	2,316				1		1					
Totals	**5,551**				**1**		**1**					
					100%		100%					
			North Crosswalk =				**1**	<<< install crosswalk on this side of the int.				
			South Crosswalk =									

SUMMARY

Total Warranted PC Points:		**or**	**/ period**
Highest PC point value:	**323**	**at**	
Average PC point value:	**40**		
No. of periods warranted:			

Pedestrian Actuated Signal Warrants

Millar Avenue & 57th Street

Prepared By: Yang Li **Date:** Monday, July 17, 2017

ıtion & Roadway Classification: Miller Ave & 57th St E(arterial/local)
Date of Count: Day of wk: Wed Mth, Day, Yr: Wednesday, May 17, 2017
Weather: Sunny
Traffic Control Devices: Stop Control on 57th
Current Pedestrian Control: unmarked
Other Notes:

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

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

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

Distance to nearest protected crosswalk 1,000 m
Location: 51st and Miller
Type: Traffic Signal

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

Duration of pedestrian count 5 hrs

Elementary:		**Total Warranted PC Points:**		**or**	**/ period**
High School:		**Highest PC point value:**	**323**	**at**	
Adult:	**1**	**Active Ped Corridor Points:**			
Senior:		**Pedestrian Actuated Signal Points:**	**35**		
Vehicles passing through crosswalk(s):	**5,551**				

ACTIVE PEDESTRIAN CORRIDOR NOT WARRANTED
PEDESTRIAN ACTUATED SIGNAL NOT WARRANTED

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

Time (15 minute intervals)	Vehicle Counts				Pedestrian Counts							
					North Crosswalk				South Crosswalk			
	SB	WB	NB	EB	Child	Teen	Adult	Senior / Impaired	Senior / Impaired	Adult	Teen	Child
7:00												
7:15												
7:30												
7:45												
8:00	116		142	2								
8:15	146		116	2								
8:30	136		136	2								
8:45	116		124	3								
9:00												
9:15												
9:30												
9:45												
AM Totals	514		518	9								
11:30	178		93	4								
11:45	176		122	1								
12:00	161	1	123	1								
12:15	119	1	143	2								
12:30	132	1	164	2								
12:45	132		145									
13:00	107	1	142	4								
13:15	121		116	2								
Noon Totals	1,126	4	1,048	16								
14:00												
14:15												
14:30												
14:45												
15:00	137		107									
15:15	158	1	114	2								
15:30	200		123	2								
15:45	133		132	2								
16:00	137		122	5								
16:15	162		132	3			1					
16:30	198		141	10								
16:45	158		132	5								
17:00												
17:15												
17:30												
17:45												
18:00												
18:15												
18:30												
18:45												
19:00												
19:15												
19:30												
19:45												
20:00												
20:15												
20:30												
20:45												
PM Totals	1,283	1	1,003	29								
Totals	**2,923**	**5**	**2,569**	**54**			**1**					
					North Crosswalk =			**1**	**South Crosswalk =**			

APPENDIX D: TRAFFIC SIGNALS ASSESSMENTS

City of Saskatoon Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	Faithfull Avenue	Direction (EW or NS)	NS
Side Street (name)	46th Street	Direction (EW or NS)	EW
Quadrant / Int #		Comments	YL
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET		

Road Authority:	City of Saskatoon
City:	Saskatoon
Analysis Date:	2017 Jul 18, Tue
Count Date:	2017 Jul 11, Tue
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Faithfull Avenue	NB				1			735	1
Faithfull Avenue	SB				1			925	1
46th Street	WB				1				
46th Street	EB				1				
Are the 46th Street WB right turns significantly impeded by through movements? (y/n)							n		
Are the 46th Street EB right turns significantly impeded by through movements? (y/n)							n		

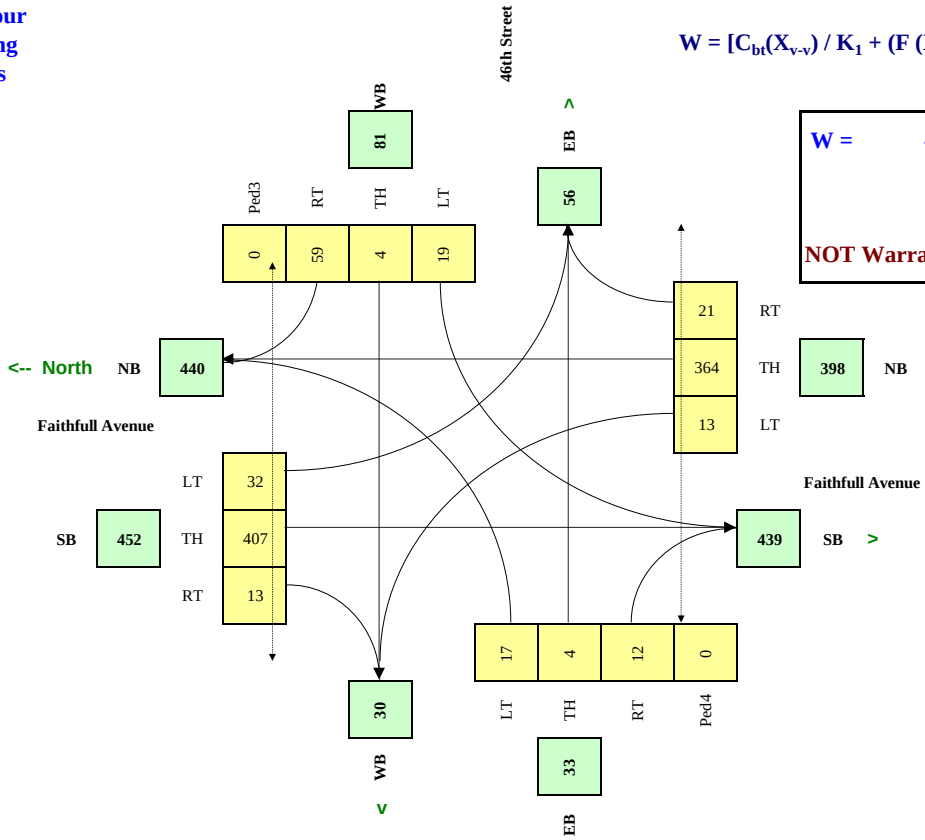
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	230,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Faithfull Avenue	NS	50	7.0%	y	
46th Street	EW		7.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	13	435	38	33	272	12	15	0	44	4	0	6	2	2	0	0
8:00 - 9:00	17	355	34	41	356	16	8	4	61	13	4	6	1	0	0	0
11:30 - 12:30	12	393	25	26	467	15	21	6	65	24	3	16	2	0	0	1
12:30 - 13:30	14	384	14	38	425	19	13	3	69	18	3	15	0	2	0	0
4:00 - 5:00	11	386	8	34	566	15	35	7	75	22	8	15	0	1	0	0
5:00 - 6:00	11	232	6	20	358	1	22	2	38	22	3	15	0	0	0	0
Total (6-hour peak)	**78**	**2,185**	**125**	**192**	**2,444**	**78**	**114**	**22**	**352**	**103**	**21**	**73**	**5**	**5**	**0**	**1**
Average (6-hour peak)	**13**	**364**	**21**	**32**	**407**	**13**	**19**	**4**	**59**	**17**	**4**	**12**	**1**	**1**	**0**	**0**

Average 6-hour Peak Turning Movements



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

W =	42	42	0
		Veh	*Ped*

NOT Warranted

RESET SHEET

City of Saskatoon Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	Millar Avenue	Direction (EW or NS)	NS
Side Street (name)	58th Street	Direction (EW or NS)	EW
Quadrant / Int #		Comments	YL
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET		

Road Authority:	City of Saskatoon
City:	Saskatoon
Analysis Date:	2017 Jul 20, Thu
Count Date:	2017 Jul 11, Tue
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Millar Avenue	NB		1			1		1,600	2
Millar Avenue	SB		1			1		1,000	2
58th Street	WB				1				
58th Street	EB				1				
Are the 58th Street WB right turns significantly impeded by through movements? (y/n)							n		
Are the 58th Street EB right turns significantly impeded by through movements? (y/n)							n		

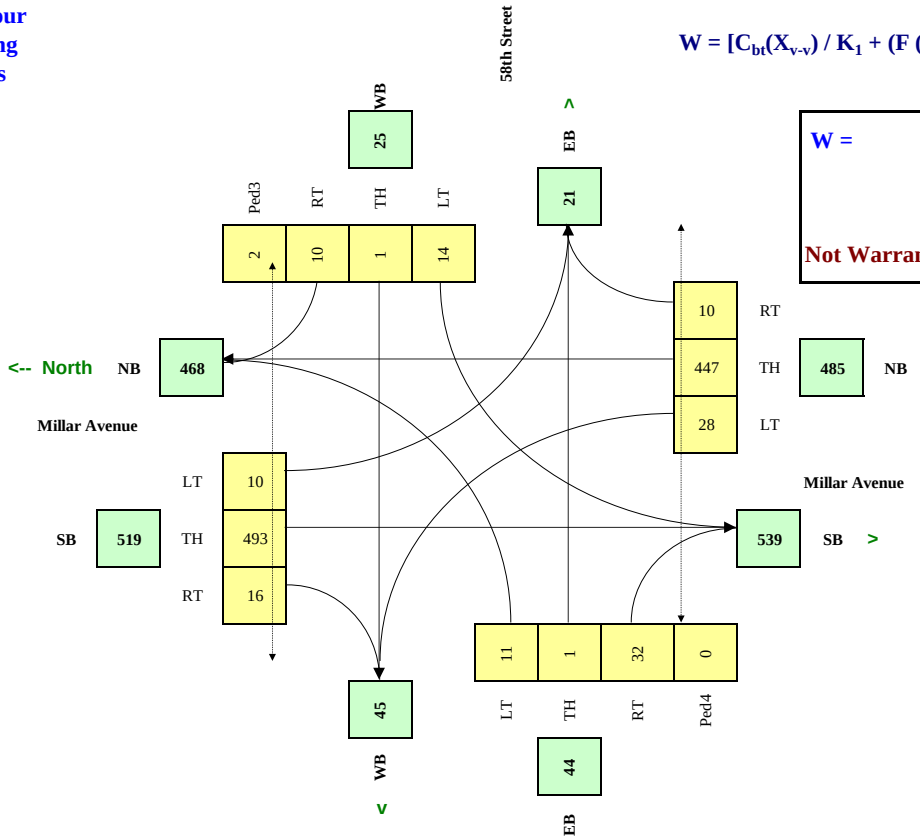
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	230,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Millar Avenue	NS	50	7.0%	y	
58th Street	EW		7.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	44	505	21	29	436	23	10	0	8	5	0	10	6	3	1	
8:00 - 9:00	47	470	11	7	458	13	11	2	7	10	2	25	7	1	7	
11:30 - 12:30	28	448	10	9	629	19	31	2	11	9	0	37	1	1		
12:30 - 13:30	26	499	14	5	467	13	6	0	8	10	3	40	5	0		
16:00 - 17:00	18	437	5	4	582	20	18	2	13	27	2	52	9	2	6	
17:00 - 18:00	5	323	0	5	386	6	8	2	12	4	1	29	1	0	0	
Total (6-hour peak)	**168**	**2,682**	**61**	**59**	**2,958**	**94**	**84**	**8**	**59**	**65**	**8**	**193**	**29**	**7**	**14**	**0**
Average (6-hour peak)	**28**	**447**	**10**	**10**	**493**	**16**	**14**	**1**	**10**	**11**	**1**	**32**	**5**	**1**	**2**	**0**

Average 6-hour Peak Turning Movements



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

W =	32	29	3
		Veh	*Ped*

Not Warranted - Vs<75

RESET SHEET

City of Saskatoon Canadian Matrix Traffic Signal Warrant Analysis

Main Street (name)	Millar Avenue	Direction (EW or NS)	NS
Side Street (name)	60th Street	Direction (EW or NS)	EW
Quadrant / Int #		Comments	YL
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET		

Road Authority:	City of Saskatoon
City:	Saskatoon
Analysis Date:	2017 Jul 20, Thu
Count Date:	2017 Jul 11, Tue
Date Entry Format:	(yyyy-mm-dd)

Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	UpStream Signal (m)	# of Thru Lanes
Millar Avenue	NB		1			1		1,600	2
Millar Avenue	SB		1			1		1,000	2
60th Street	WB				1				
60th Street	EB				1				
Are the 60th Street WB right turns significantly impeded by through movements? (y/n)							n		
Are the 60th Street EB right turns significantly impeded by through movements? (y/n)							n		

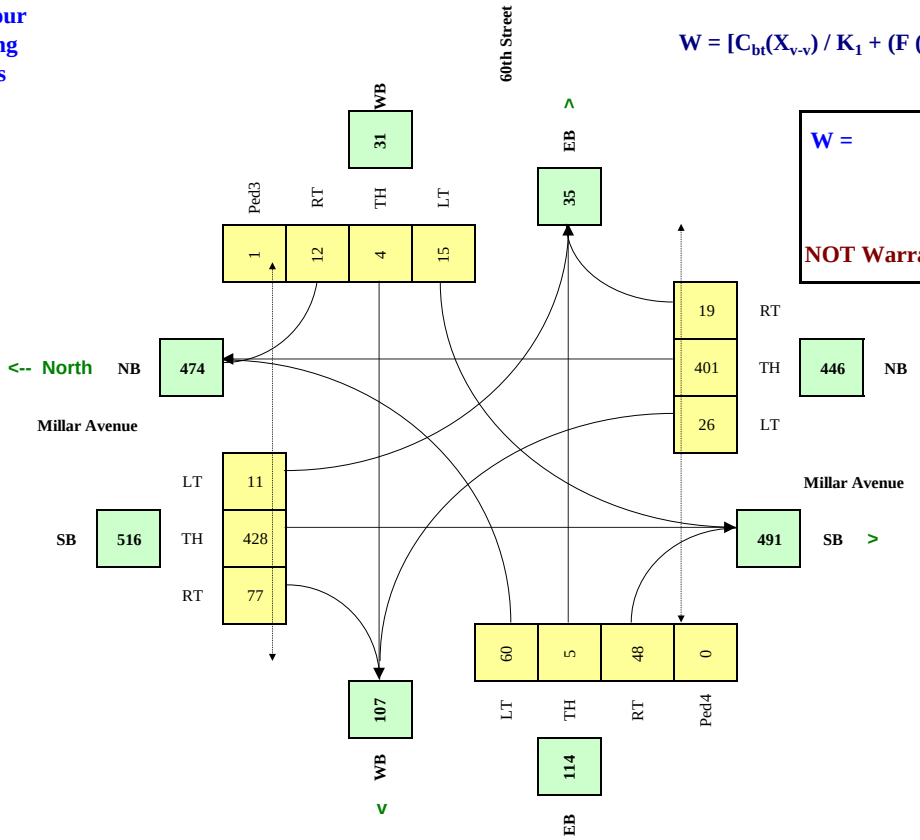
Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	230,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Millar Avenue	NS	50	7.0%	y	
60th Street	EW		7.0%	n	

Set Peak Hours

Traffic Input	NB			SB			WB			EB			Ped1 NS	Ped2 NS	Ped3 EW	Ped4 EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	30	398	26	29	439	85	11	4	8	36	9	43		1		
8:00 - 9:00	30	397	22	9	414	66	13	4	12	56	11	46	1		3	
11:30 - 12:30	30	396	18	8	533	74	26	5	13	86	1	67				
12:30 - 13:30	32	430	29	12	399	70	12	3	9	78	6	57				
16:00 - 17:00	21	463	9	4	482	112	19	5	12	67	1	51				
17:00 - 18:00	12	324	7	2	300	57	8	2	18	38	4	25				
Total (6-hour peak)	**155**	**2,408**	**111**	**64**	**2,567**	**464**	**89**	**23**	**72**	**361**	**32**	**289**	**1**	**1**	**3**	**0**
Average (6-hour peak)	**26**	**401**	**19**	**11**	**428**	**77**	**15**	**4**	**12**	**60**	**5**	**48**	**0**	**0**	**1**	**0**

Average 6-hour Peak Turning Movements



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

W =	56	56	0
		Veh	*Ped*

NOT Warranted

RESET SHEET

APPENDIX E: PARKING UTILIZATION STUDY

Faithfull Avenue Street Segment	Parking Spaces	Date: Wednesday, July 19, 2017											
		9:00:00 AM		10:00:00 AM		11:00:00 AM		1:00:00 PM		2:00:00 PM		3:00:00 PM	
		# of Parked Vehicles	Pecentage Utilized	# of Parked Vehicles	Pecentage Utilized	# of Parked Vehicles	Pecentage Utilized	# of Parked Vehicles	Pecentage Utilized	# of Parked Vehicles	Pecentage Utilized	# of Parked Vehicles	Pecentage Utilized
43rd Street to 44th Street													
East	13	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
West	7	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
44th Street to 45th Street													
East	11	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
West	4	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
45th Street to 45th a Street													
East	4	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
West	14	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
45th a Street to 46th Street													
East	8	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
West	12	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
46th Street to 47th Street													
East	15	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
West	21	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
47th Street to 48th Street													
East	19	1	5%	0	0%	0	0%	1	5%	2	10%	1	5%
West	19	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
48th Street to 50th Street													
East	27	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
West	24	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
51st Street to 52th Street													
East	18	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
West	21	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
52th Street to 56th Street													
East	56	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
West	77	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
56th Street to 58th Street													
East	33	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
West	37	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
58th Street to 59th Street													
East	17	2	12%	2	12%	2	12%	3	18%	3	18%	2	12%
West	19	1	5%	1	5%	1	5%	1	5%	1	5%	1	5%
59th Street to 60th Street													
East	25	24	95%	24	95%	24	95%	22	87%	22	87%	21	83%
West	20	18	90%	19	95%	19	95%	18	90%	19	95%	20	100%

APPENDIX F: FOLLOW-UP CONSULTATION #2 – SEPTEMBER 14, 2017

Comments and Concerns Received in the Follow-Up Meeting and Online

- It is very unsafe to turn left onto Miners Avenue from 56th Street East. There's lots of vehicles parked which makes it difficult to see traffic heading Northbound. In the winter, there's many close calls as vehicles slide through this intersection and with there being so many semis in the area, it's extremely risky.
- New lane signage for Eastbound Marquis Drive when crossing Idylwyld suggests left turn lane heading northbound plus 2 straight through eastbound lanes. However, there is a left turn lane and only one straight through lane approaching intersection. The potholes and unfinished shoulder should be properly paved and made into an additional lane, properly aligning with the lanes after crossing Idylwyld to the East.
- I hope these changes do not make traffic flow worse like what was do to the Warman Road/51st Street intersection. The yield sign at the turn from 51st to Warman Road is backing up traffic far worse than the continuous turn that used to be there. The lanes going north on Warman, especially the turn lanes are way too short and back up traffic for anyone trying to go straight. Please think these changes thru before you make any more substantial changes as it seems that there was not a lot of thought put into these changes and has made things worse rather than better.
- The proposed recommendation of removing on street parking from 43rd street to 60th street creating an extra traffic lane in each direction will displace a large number of on street parking to the smaller side roads. With no sidewalks in this industrial area there will be an increase in safety concerns for people attempting to walk down Faithfull Avenue. In winter, the safety concerns will increase. If you are removing street parking please consider putting in sidewalks and having them cleared in winter. Safety should apply to both drivers and pedestrians. You cannot justify making the streets safer for vehicles and by doing so force pedestrians to walk in traffic.
- We require parking on Faithfull up to 60th as there are no sidewalks available and this would be a hazard for staff to park anywhere other than on Faithfull.
- The elimination of parking lanes along Faithfull Ave. will create serious safety issues. At the minimum, sidewalks must be installed for pedestrian safety if this proposal is to proceed. Moreover, traffic lights must be installed at Faithfull and 60th St. It is already becoming a dangerous intersection for pedestrians, and once the extension of Faithfull opens to Marquis, the problem will get worse if there is only a four way stop at that intersection. Drivers consistently speed and there is a definite lack of speed limit enforcement. The North Industrial in general is not pedestrian friendly; this proposal continues to enable a hierarchy of drivers being prioritized over pedestrians, cyclists and bus commuters (who must walk from their stop to their work site). In addition, many drivers will also be inconvenience due to the displacement of a very large number of parking spots. It is very difficult at many stop signs in Saskatoon to see if traffic is approaching because parking is allowed almost right up to the stop sign. It is tough to see over a big truck parked by an intersection. Other cities do not permit any parking within 5 metres of a stop sign to ensure visibility, and such a measure would reduce accidents in Saskatoon. Second, there is no right hand turning lane on Idylwyld northbound on to 60th Street. This is a dangerous situation because some drivers break almost fully before turning right in what is an otherwise 90 km/h zone (in which most drivers do 100 to 110 km/h anyways). Driving on the shoulder in approaching 60th St. was a car-wrecking experience due to large potholes, most of which have been

thankfully filled. However, a proper turning lane is definitely required here before someone gets killed. I stopped using that route to work a while ago as I felt it unsafe.

- I too do not wish to have parking removed on Faithful Avenue. There is minimal side street parking near Faithful and 60th and no sidewalks. Also agree that there should be a right hand turning lane off of Idylwyld on to 60th as it is indeed a hazard turning at this corner; I too discontinued using this route to work because of this.
- I do not wish to have parking removed on Faithful Avenue. There is minimal side street parking near Faithful and 60th.
- I do not wish to have parking removed on Faithful Avenue. There is minimal side street parking near Faithful and 60th. And, will making Faithful Ave from 51st St. to 60th St. a double lane improve or increase traffic congestion? I don't believe it will do anything to improve it.
- I also agree that there should be a turning lane going off of Idylwyld onto 60th St. as well as a merging lane from 60th St. onto Idylwyld as this corner is very hazardous. Especially in slippery road conditions.
- I am not sure if the double lane will increase or improve. I would like to emphasize my concerns on the turn on Idylwyld onto 60th turn off. I almost have someone hit me on a daily basis because no one understands how this intersections works. Very dangerous especially when it is winter. Please do something about this turn off and don't wait until someone gets seriously injured before you do.
- Agree with all comments made. With regards to parking on the street around our building, it is very dangerous on Faithfull and on 60th. Possibly the City could talk to our landlord to lower the parking rates so we can park in this beautiful parking lot they created when they built the building.
- I am not in favour of the removal of on-street parking in such a large area on Faithfull Ave. My businesses in this area employ large amounts of people and these employees will be forced to walk longer distances on the street and through traffic which will be unsafe with no sidewalks available. The risk exists year round but becomes especially problematic in winter conditions.
- The suggestion in the comments above of a right turning lane on idylwyld drive when turning onto 60th street is very important. The shoulder on idylwyld in this area is often in poor repair (likely do to it being used as an impromptu turning lane out of necessity and it not being constructed for this traffic volume) and this creates a situation in which many drivers are slowing to a speed to turn in the driving lane. The three-way stop at the intersection can be problematic to begin with for the other drivers at the intersection - a turning lane would allow those waiting at the stop to much more easily determine if traffic is turning off of idylwyld or not and thereby prevent accidents.
- I am in agreement with the comments opposing the removal of parking on Faithful, as well as, the suggestion to have sidewalks installed, and a turning lane onto 60th from Idylwyld. I have a perfect view of the intersection at Faithful and 60th and have seen many frightening close calls, both to individuals and vehicle collisions. I would like to further recommend that a traffic light be installed at this intersection, for pedestrian safety and better traffic flow. In my opinion, the stop signs may cause congestions.
- Oppose the removal of street parking on Faithfull Avenue. I am also in favor of installing a right hand turning lane in the northbound lane of Idylwyld at 60th to increase safety at

a dangerous intersection. There are a very large number of people working in this area and the street parking is a necessity. Sidewalks are a very good idea to increase safety for people walking to work from their vehicle, and would be especially necessary if street parking is removed. I would suggest adding a walking path along Faithfull from 51st street to Marquis Drive to link to the new trail along Marquis. It would be great to have a safer option for people to go for a walk on their lunch breaks in an area that currently makes it difficult or unsafe to get any exercise.

- Before this additional lane is opened, to come observe the area along Faithful and 60th street during the work week to witness the amount of vehicles that will be displaced and the safety concerns for pedestrians and cyclists. If you still choose to open up a second driving lane on Faithful Ave I urge you to consider creating sidewalks along Faithful and along 60th street for pedestrians to get to their vehicles and bus stops safely.
- I also agree that opening up two lanes of traffic on Faithfull Avenue creates an unsafe environment for everyone uses this area. With the lack of sidewalks and pedestrian crossings is a safety concern for both pedestrians walking from the bus stop or parking spot on the street to their place of work and to vehicles driving the street. Faithful avenue and 60th street see a lot of semi traffic so to have people walking on the street when they drive by is very unsafe.
- Two comments. First, the environment in this area is not conducive to safe pedestrian traffic. Those of us that choose to not spend the significant money required to park in our parking lot in this industrial area must walk along the road in dangerous proximity to both large and fast moving traffic. And, given the inconsistency of snow removal, the issue becomes that much more dangerous in the winter. Second, I feel it would be a benefit to remove the awkward access to 60th Street from Idylwyld. This intersection increases the traffic on 60th Street. If this intersection was closed to Idylwyld, it would push the big truck traffic up to the newly refurbished Marquis Drive and leave 60th Street to support local traffic only, making it safer for the people parking and walking.
- In regard to your parking study for Faithfull Avenue as noted in the North Industrial Area Wide Traffic Plan (pdf, pg 8). Why was the study only completed from 42 - 59th street rather than right up to the affected area of 60th street? If the study continued on from 59th to 60th street it would have noted significant usage of on-street parking. Thus creating skewed results of your parking study which indeed causes significant impact for on street parking. Below is an excerpt from page 8 of your report: "The results of parking study indicate that the use of on-street parking on Faithfull Avenue from 42nd Street to 59th Street was very low, and ample parking was available on the side streets and off-street. Therefore, the impact of removing on-street parking for Faithfull Avenue is expected to be minimal."
- Yes, this parking study appears to have purposely decided to leave out 60th Street due to the fact that this is the one busy street and if it had been included the results of the study would have been much different. As others have mentioned, our building charges costly parking fees to park in the parking lot; not particularly fair given the building is in an area that is in the middle of no where, not downtown or in high demand for parking spots. Odds are that no employees of businesses within the area are charged for parking so it is questionable why we are. Many of us as such choose to park on the street and

should continue to be able to do so. This "minimal" impact is not "minimal" for those of us parking in the area of 60th and Faithfull.

- Further to our discussion last week, I concur with the plan to restrict parking along Faithfull Ave. However, I am concerned more parking will take place on 59th St which will impede truck access to my property at the SW corner of Faithfull and 59th (3339 Faithfull and currently occupied by CIMS). I want to ensure (in the event of a problem) the city will come up with some type of barrier to keep cars from blocking access to my yard, especially for large trucks requiring wide turning radiuses. Thank you for your assurance that the city will provide some type of safeguard in the event of access problems.
- As of Monday Oct 16th there has been a change to the intersection of Millar and 60th street - the concern is that the employees of 3427 Millar Ave (Corrections Canada) at 60th St & Faithfull Ave park on all streets creating blind spots on this newly created intersection. Corrections Canada has over 200 parking stalls on its property with only 1/3 being utilized.
- The intersection at Circle Dr & Quebec Ave and surrounding areas were not designed for larger and long trucks. They are not able to going around these corners.