

# Meadowgreen Neighbourhood Traffic Review

January 14, 2016

## Authorization

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## **Acknowledgements**

The completion of this review would not be possible without the contribution of the following organizations and individuals:

- Meadowgreen residents
- Meadowgreen Community Association
- Saskatoon Police Services
- Saskatoon Light & Power
- Saskatoon Fire Department
- City of Saskatoon Environmental Services
- City of Saskatoon Transit
- City of Saskatoon Planning & Development
- City of Saskatoon Public Works
- City of Saskatoon Community Standards
- City of Saskatoon Transportation
- Great Works Consulting
- Councillor Pat Lorje

*Cover Photograph Kara Toews*

## 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 revised program involves additional community and stakeholder consultation that provides the environment for neighbourhood residents and City staff to work together in developing solutions that address traffic concerns. The process is outlined in the *Traffic Calming Guidelines and Tools*, City of Saskatoon, 2013.

A public meeting was held in January of 2015 to identify traffic concerns and potential solutions within the Meadowgreen neighbourhood. As a result of the meeting a number of traffic assessments were completed to confirm and quantify the concerns raised by the residents. Based on the residents input and the completed traffic assessments, a Traffic Management Plan was developed and presented to the community at a follow-up meeting held in September 2015.

A summary of recommended improvements for the Meadowgreen neighbourhood are included in **Table ES-1**. The summary identifies the locations, the recommended improvement, and a schedule for implementation. The schedule to implement the Traffic Management Plan can vary depending on the complexity of the proposed improvement. According to the *Traffic Calming Guidelines and Tools* document, the time frame may range from short-term (1 to 2 year); medium-term (3 to 5 years) and long-term (5 years plus). Accordingly, the specific time frame to implement the improvements for these neighbourhoods ranges from 1 to 5 years.

The resulting proposed Meadowgreen Traffic Management Plan is illustrated in **Exhibit ES-1**.

**Table ES-1: Meadowgreen Neighbourhood Recommended Improvements**

Item	Location	Recommendation	Reason
1	Witney Avenue & 19 <sup>th</sup> Street	Change east-west yield to north-south stop	Improve safety at intersection & discourage speeding on Witney Avenue
2	Witney Avenue & 20 <sup>th</sup> Street	4-way stop	Improve driver & pedestrian safety (visibility concerns due to parked cars & high collisions)
3	Avenue W & 18 <sup>th</sup> Street	Install active pedestrian corridor	Improve pedestrian safety
4	18 <sup>th</sup> Street & Avenue Y	Install curb extension (southeast corner) & median island (east side)	Improve pedestrian safety & reduce speed near elementary school
5	21 <sup>st</sup> Street between Witney Avenue & Avenue W	Install sidewalk on south side	Improve pedestrian safety near park
6	Avenue X between 2 <sup>nd</sup> driveway (behind 'Touch of Ukraine') south of 22 <sup>nd</sup> Street to 125 Avenue X	Install parking restrictions on west side	Improve visibility for driveways (Bylaw 7200 states that motorists cannot park within 1m of a driveway due to safety reasons/visibility. Beginning at the driveway behind 'Touch of Ukraine' to 125 Avenue X South, motorists do not have adequate space to legally park because they're encroaching 1m from a driveway.)
7	21 <sup>st</sup> Street & Avenue W	Add hazard boards to stop signs & enhance pedestrian signs	Enhance visibility of stop signs & driver compliance; improve pedestrian safety
8	21 <sup>st</sup> Street & Avenue Y	Change yield signs to stop signs	Enhance driver compliance
9	Witney Avenue & 21 <sup>st</sup> Street	Install curb extension (northeast corner)	Reduce speed & discourage shortcutting on Witney Ave
10	18 <sup>th</sup> Street - Avenue W to Vancouver Avenue	Install sidewalk on north side (with priority for area in front of school - Ave X to Montreal Ave)	Improve pedestrian safety & connectivity on school route

Exhibit ES-1: Meadowgreen Traffic Plan

(refer to *Meadowgreen Traffic Plan*)

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## 1 INTRODUCTION

As the City of Saskatoon continues to grow many neighbourhoods face growing issues such as pedestrian safety, cut-through traffic, and increased speeds on local roads within neighbourhoods. In August 2013, City Council adopted the *City of Saskatoon Traffic Guidelines and Tools* that outlined a procedure for completing traffic reviews on a neighbourhood-wide basis. Prior to this neighbourhood traffic issues were dealt with on a case-by-case basis with mixed results. Since 2013 the formal process has proven to be very successful in providing recommendations that improve neighbourhood traffic conditions and pedestrian safety that were developed by the Administration and residents in collaborative fashion. Accordingly, this report provides the Traffic Management Plan for Meadowgreen.

The Meadowgreen neighbourhood is located on the west side of the South Saskatchewan River and is bound by railway line to the south, Avenue W to the east, Circle Drive to the west, and 22<sup>nd</sup> Street to the north. The area use is mostly residential, with an elementary school (W.P. Bate School) on 18<sup>th</sup> Street, and some commercial land use along 22<sup>nd</sup> Street.

The development and implementation of the traffic management plan includes four stages:

- **Stage 1** - Identify existing problems, concerns and possible solutions through the initial neighbourhood consultation and the Shaping Saskatoon Website.
- **Stage 2** - Develop a draft traffic plan based on resident's input and traffic assessments.
- **Stage 3** - Present the draft traffic plan to the neighbourhood 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).

## 2 IDENTIFYING ISSUES, CONCERNS, AND POSSIBLE SOLUTIONS

A public meeting was held in January of 2015 to identify traffic concerns within the neighbourhood. At the meeting, residents were given the opportunity to express their concerns and suggest possible solutions. The meeting minutes are included in **Appendix A**.

The following pages summarize the concerns and suggested solutions identified during the initial consultation with the neighbourhood residents.

### 2.1 Concern 1 – Speeding and Shortcutting

Shortcutting occurs when non-local traffic passes through the neighbourhood on streets that are designed and intended for low volumes of traffic (i.e. local streets). In the case of Meadowgreen, the bordering arterial streets (22<sup>nd</sup> Street and Avenue W) are designated to accommodate larger traffic volumes.

As speeding often accompanies shortcutting, these concerns have been grouped into one category.

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

- Witney Ave between 18<sup>th</sup> Street & 20<sup>th</sup> Street
- Montreal Avenue
- 18<sup>th</sup> Street
- 21<sup>st</sup> Street (near park)
- Avenue X between 20<sup>th</sup> Street & 22<sup>nd</sup> Street
- Avenue Y between 20<sup>th</sup> Street & 22<sup>nd</sup> Street
- Back lane west of Witney Ave (south of 22<sup>nd</sup> Street)

Proposed solutions identified by residents:

- Install traffic calming (i.e. median islands, roundabouts, speed humps)
- Install four-way stop
- Provide more links in and out of Meadowgreen
- Create connections to Circle Drive

## 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.”

Neighbourhood concerns regarding pedestrian safety were at the following locations:

- 18<sup>th</sup> Street & Avenue W
- Witney Avenue & 20<sup>th</sup> Street
- 22<sup>nd</sup> Street – dips in median are not safe to cross at; crosswalk lights take too long to activate

Proposed solutions identified by residents:

- 18<sup>th</sup> Street & Avenue W – install pedestrian signal; install bus shelter
- 21<sup>st</sup> Street (near park) – install sidewalk

## 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 volume, collision history, and must have a balanced volume from each leg to operate sufficiently.

Neighbourhood concerns regarding traffic controls were at the following locations:

- Witney Avenue & 20<sup>th</sup> Street
- Witney Avenue & 19<sup>th</sup> Street

Proposed solutions identified by residents:

- Install four-way stop (Witney Avenue & 20<sup>th</sup> Street, 21<sup>st</sup> Street & Avenue Y, 21<sup>st</sup> Street & Avenue X)
- Change the direction of the stop signs (Witney Avenue & 19<sup>th</sup> Street)

#### 2.4 Concern 4 – Parking

Parking is allowed on all city streets unless signage is posted. According to 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 crossing.

Neighbourhood concerns regarding parking were at the following locations:

- Avenue X (near Sarcan)
- Witney Avenue & 20<sup>th</sup> Street
- Back lane near Avenue X & 22<sup>nd</sup> Street

Proposed solutions identified by residents:

- Parking restrictions
- Parking enforcement
- Back lane closure
- Blocking driveways

#### 2.5 Concern 5 – Maintenance

Condition of the streets in Meadowgreen was identified as a concern (i.e. snow clearing, potholes, tree trimming, and temporary traffic calming devices).

Neighbourhood concerns regarding maintenance were:

- Back lane maintenance
- Snow removal (especially on bus routes)
- Trees blocking signs

## 2.6 Concern 6 – Major Intersections

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

Neighbourhood concerns regarding major intersections:

- 22<sup>nd</sup> Street & Witney Avenue
- 22<sup>nd</sup> Street & Avenue W

Proposed solutions identified by residents:

- 22<sup>nd</sup> Street & Witney Avenue:
  - Install a right-turn lane on 22<sup>nd</sup> Street to accommodate eastbound traffic to turn southbound onto Witney Avenue.
  - Move the lane marking on Witney Avenue to the centre of the road. It is offset to the west to make that side of the street narrower.
  - The intersection requires an advance left-turn signal for south bound traffic on Witney Avenue.
  - Install an advanced green turning light for traffic turning west (left) onto 22<sup>nd</sup> Street from Witney Avenue.
  - Install concrete barriers on Witney Avenue in front of gas station access to restrict entering and exiting going southbound.
  - No left turns allowed between 4:00pm – 6:00 pm.
  - Add another southbound lane.
- 22<sup>nd</sup> Street & Avenue W:
  - North traffic should be one lane for left turn, one lane for straight or right.
  - Remove the traffic calming at 23<sup>rd</sup> Street (causes queuing at 22<sup>nd</sup> Street)
  - Even though there is a left hand turning arrow, it is not long enough. There is so much traffic (vehicular and pedestrian) from the Agrium buses coming from the parking lot (No Frills parking lot) it can be dangerous.
  - Walk light northbound should be longer.

## 3 ASSESSMENT

### 3.1 Methodology

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

- Create a detailed list of all the issues provided by the residents.
- Collect historical traffic studies and information the City has on file for the neighbourhood.
- Prepare a data collection program that will provide the appropriate information needed to undertake the assessments.
- Complete the data collection, which may include:
  - Intersection turning moving counts
  - Pedestrian counts
  - Daily and weekly traffic counts
  - Average speed measurements
- 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 judgement.

The following sections provide details on the data collected for traffic volumes (peak hours, daily, and weekly), travel speed, and pedestrian movements. A map of the traffic data collection is shown in **Appendix B**.

### 3.2 Travel Volumes and Travel Speeds

Traffic volumes and travel speeds were measured to assist in determining the need for traffic calming devices. In Saskatoon the neighbourhood streets are classified typically as either local or collector 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	
	Residential	Commercial	Residential	Commercial	Residential	Commercial
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	
Average Daily Traffic (vehicles per day)	<500	<1,000	<1,000	<5,000	<5,000	8,000-10,000
Typical Speed Limits (kph)	20		50		50	
Transit Service	Not permitted		Generally avoided		Permitted	
Cyclist	No restrictions or special facilities		No restrictions or special facilities		No restrictions or special facilities	
Pedestrians	Permitted, no special facilities		Sidewalks on one or both sides	Sidewalks provided where required	Typically sidewalks provided both sides	Sidewalks provided where required
Parking	Some restrictions		No restrictions or restriction on one side only		Few restrictions other than peak hour	

Travel speeds were measured to determine the 85<sup>th</sup> percentile speed, which is the speed at which 85 percent of vehicles are travelling at or below. The speed limit in the Meadowgreen neighbourhood is 50kph, except for school zones where the speed limit is 30kph from September and June, 8:00am to 5:00pm, excluding weekends.

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 (2014)**

Street	Between	Class	Average Daily Traffic (vpd)	Speed (kph)
Back lane south of 22 <sup>nd</sup> Street	Witney Avenue & Vancouver Avenue	lane	<100	NA
Witney Avenue	21 <sup>st</sup> Street to 20 <sup>th</sup> Street	local	4,100	48.7
Witney Avenue	19 <sup>th</sup> Street to 20 <sup>th</sup> Street		1,100	46.5
Montreal Avenue	19 <sup>th</sup> Street to 20 <sup>th</sup> Street		459	49.8
21 <sup>st</sup> Street	Avenue Y to Avenue X		510	39.9
Avenue X	20 <sup>th</sup> Street to 21 <sup>st</sup> Street		635	45.6
Avenue Y	21 <sup>st</sup> Street & 20 <sup>th</sup> Street		922	38.7
18 <sup>th</sup> Street	Avenue Y to Avenue X		collector	1,600
18 <sup>th</sup> Street	Ottawa Avenue to Montreal Avenue	786		47.2
20 <sup>th</sup> Street	Witney Avenue to Montreal Avenue	minor arterial	1,845	51.6
20 <sup>th</sup> Street	Witney Avenue to Vancouver Avenue		2,511	52.3

### 3.3 Traffic Control Assessments

Yield, stop, and all-way stop controls need to meet 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 or 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 200m.

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

**Table 3-3: All-Way Stop Assessments**

Location	Criteria 1: Peak Hour Count	Criteria 2: Average Daily Traffic (vpd)	Criteria 3: # of Collisions within most recent 12 months	Condition 1: % of Traffic from minor street	Condition 2: Traffic Signals or all-way stop within 200m	All-Way Stop Warrant
18 <sup>th</sup> Street & Avenue W	561	6,260	2	18%	no	All-Way Stop Not Warranted
Avenue W & 21 <sup>st</sup> Street	875	8,770	5	16%	yes	
21 <sup>st</sup> Street & Avenue Y	138	1,440	1	30%	no	
20 <sup>th</sup> Street & Witney Avenue	488	5,600	4	46%	no	Additional Review

20<sup>th</sup> Street & Witney Avenue was further reviewed due to high collisions and concerns raised during the public consultation. Since the additional conditions (percent of traffic on the minor street and distance from the nearest traffic signals or all-way stop) are met, a four-way stop should improve safety while maintaining adequate traffic flow. For these reasons, a four-way stop will be included in the recommendations. Traffic volumes will be monitored after the installation to determine the effectiveness.

Details of the all-way stop assessments are provided in **Appendix C**.

### 3.4 Pedestrian Assessments

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

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

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

In addition, if a pedestrian actuated crosswalk is not warranted, a standard marked pedestrian crosswalk, or a zebra crosswalk (i.e. striped) may be considered. A summary of the pedestrian studies are provided in **Table 3-4**.

**Table 3-4: Pedestrian Assessment**

Location	Number of Pedestrians Crossing During Peak Hours	Results
18 <sup>th</sup> Street & Avenue W	172	Active Pedestrian Corridor Warranted
Avenue W & 21 <sup>st</sup> Street	86	Pedestrian Device Not Warranted
20 <sup>th</sup> Street & Witney Avenue	33	

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

### **3.5 Collision Analysis**

The most recently available five year collision statistics (2009 to 2013) were provided by SGI. High-collision locations, typically noted as the locations with an average of two or more collisions per year, were reviewed in more depth to identify trends. These include:

- Avenue W & 21<sup>st</sup> Street
- 20<sup>th</sup> Street & Witney Avenue
- Avenue W & 18<sup>th</sup> Street
- Avenue X & 19<sup>th</sup> Street
- Avenue W & 19<sup>th</sup> Street

Details of the collision analysis are provided **Appendix E**.

## 4 PLAN DEVELOPMENT

### 4.1 Methodology

Stage 3 of the review included 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 residents at a follow-up public meeting
- Circulate the draft plan to the Civic Divisions for comment
- Revise the draft plan based on feedback from the stakeholders
- 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 Speeding and Shortcutting Improvements**

Location	Recommended Improvement	Justification
18 <sup>th</sup> Street & Avenue Y	Install curb extension (southeast corner) & median island (east side)	Improve pedestrian safety & reduce speed near elementary school
Witney Avenue & 21 <sup>st</sup> Street	Install curb extension (northeast corner)	Reduce speed & discourage shortcutting on Witney Avenue

### 4.3 Pedestrian Safety

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

**Table 4-2: Recommended Pedestrian Safety Improvements**

Location	Recommended Improvement	Justification
Avenue W & 18 <sup>th</sup> Street	Install active pedestrian corridor	Improve pedestrian safety
18 <sup>th</sup> Street & Avenue Y	Install curb extension (southeast corner) & median island (east side)	Improve pedestrian safety & reduce speed near elementary school
21 <sup>st</sup> Street between Witney Avenue & Avenue W	Install sidewalk on south side	Improve pedestrian safety near park
21 <sup>st</sup> Street & Avenue W	Enhance pedestrian signs	Enhance visibility of stop signs & driver compliance; improve pedestrian safety
18 <sup>th</sup> Street - Avenue W to Vancouver Avenue	Install sidewalk on north side	Improve pedestrian safety & connectivity on school route

### 4.4 Traffic Control

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 Traffic Control Improvements**

Location	Recommended Improvement	Justification
Witney Avenue & 19 <sup>th</sup> Street	Change east-west yield to north-south stop	Improve safety at intersection & discourage speeding on Witney Avenue
Witney Avenue & 20 <sup>th</sup> Street	four-way stop	Improve driver safety
21 <sup>st</sup> Street & Avenue W	Add hazard boards to stop signs	Enhance visibility of stop signs & driver compliance
21 <sup>st</sup> Street & Avenue Y	Change yield signs to stop signs	Enhance driver compliance

## 4.5 Parking Improvements

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

**Table 4-4: Recommended Parking Improvements**

Location	Recommended Improvement	Justification
Avenue X between 2nd driveway (behind 'Touch of Ukraine') south of 22nd Street to 125 Avenue X	Install parking restrictions on west side	Improve visibility for driveways (Bylaw 7200, The Traffic Bylaw states that motorists cannot park within 1m of a driveway due to safety reasons/visibility. Beginning at the driveway behind 'Touch of Ukraine' to 125 Avenue X South, motorists do not have adequate space to legally park because they're encroaching 1m from a driveway.)

## 4.6 Transit Improvements

During the consultation a bus shelter was requested at the bus stop north of 18<sup>th</sup> Street on the east side of Avenue W. During the site reviews it was noted that this location had many riders waiting to get on the bus. Unfortunately the stop is not ideal for a bus shelter, as the space is limited due to the narrow boulevard. A bus shelter is recommended on the south side of the intersection, as there is adequate space for implementation. Furthermore, the active pedestrian corridor at 18<sup>th</sup> Street and Avenue W is recommended to be installed on the south side, which will provide a better connection. These comments were forwarded to Transit Services for further consideration of installation of the bus shelter through their programs.

## 4.7 Follow Up Consultation – Presentation of Traffic Management Plan

The initial recommended improvements were presented at a follow-up public meeting in September 2015. Recommended improvements that were not supported by the residents were eliminated or altered accordingly. A decision matrix detailing the list of recommended improvements presented at the follow-up meeting are included in **Appendix F**. A decision matrix for additional comments received after the draft traffic plan is also included in **Appendix F**.

The recommendations were circulated to the Civic Divisions (including Police Service, Light & Power, Saskatoon Fire Department, Environmental Services, and Transit) to gather comments and concerns. General support was received.

## **4.8 Major Intersection Reviews and Corridor Studies**

The mandate for the Neighbourhood Traffic Management Reviews is to focus on neighbourhood streets such as local roads and collector roads. As almost all neighbourhoods are bound by arterial streets, such as 22<sup>nd</sup> Street or Avenue W, it is not uncommon to have residents raise issues regarding these streets. However, arterial streets are much more complex than local or collector streets due to larger traffic volumes, different types of drivers (commuters), coordinated traffic signals, transit accommodation, and potentially many commercial accesses. To properly address these, the typical transportation engineering approach would require a corridor study or a major intersection review, both of which are expensive and require significant resources. Through the Neighbourhood Traffic Reviews, the City is compiling a list of issues on arterial streets. The Transportation Division is working to prioritize the issues, identify the work requirements, and secure funding to complete these types of assessments.



## 5 RECOMMENDED PLAN & COST ESTIMATES

Stage 4, the last stage of the process, is to install the recommended improvements for the Meadowgreen neighbourhood 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 signage will be completed short-term (1 to 2 years).

Major intersection reviews are based on the number of other locations to be reviewed city-wide and the availability of funding. The timeline for review will be medium-term (3 to 5 years).

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

- **Table 5-1:** Traffic Calming Cost Estimate
- **Table 5-2:** Traffic Control Signs Cost Estimate
- **Table 5-3:** Pedestrian Devices Cost Estimate
- **Table 5-4:** Miscellaneous Signs Cost Estimate
- **Table 5-5:** Sidewalk Cost Estimate
- **Table 5-6:** Total Cost Estimate

**Table 5-1: Traffic Calming Cost Estimate**

Location	Device	Cost Estimate		Time Frame
		Temporary	Permanent	
18th Street & Avenue Y	Curb extension & Median island	\$1,000	\$50,000	1 to 5 years (traffic calming devices will be installed temporarily until proven effective)
Witney Avenue & 21st Street	Curb extension	\$500	\$45,000	
	Total=	\$1,500	\$95,000	

**Table 5-2: Traffic Control Signs Cost Estimate**

Location	Device	Number of Signs	Cost Estimate	Time Frame
Witney Avenue & 19 <sup>th</sup> Street	Stop signs	2	\$500	1 to 2 years
Witney Avenue & 20 <sup>th</sup> Street	Stop signs	4	\$1,000	
21 <sup>st</sup> Street & Avenue Y	Stop signs	2	\$500	
<b>Totals</b>		<b>8</b>	<b>\$2,000</b>	

**Table 5-3: Pedestrian Devices Cost Estimate**

Location	Device	Cost Estimate	Time Frame
Avenue W & 18 <sup>th</sup> Street	Active pedestrian corridor	\$20,000	1 to 5 years
<b>Total</b>		<b>\$20,000</b>	

**Table 5-4: Miscellaneous Signs Cost Estimate**

Location	Device	Number of Signs	Cost Estimate	Time Frame
21 <sup>st</sup> Street & Avenue W	Add hazard boards to stop signs	2	\$500	1 to 2 years
21 <sup>st</sup> Street & Avenue W	Oversized pedestrian signs	4	\$1,000	
Avenue X between 2nd driveway (behind 'Touch of Ukraine') south of 22 <sup>nd</sup> Street to 125 Avenue X	"No Parking" sign	2	\$500	
Back lane south of 22 <sup>nd</sup> Street - access from Witney Avenue	20kph speed sign	1	\$250	
<b>Totals</b>		<b>9</b>	<b>\$2,250</b>	

**Table 5-5: Sidewalk Cost Estimate**

Street	Between	Length (metres)	Cost Estimate	Time Frame
21 <sup>st</sup> Street	Witney Avenue & Avenue W (south side only)	270	\$94,500	5 years plus
18 <sup>th</sup> Street	Avenue W to Vancouver Avenue (north side only)	630	\$220,500	
<b>Totals</b>		<b>900</b>	<b>\$315,000</b>	

**Table 5-6: Total Cost Estimate**

Category	Signing & Temporary Traffic Calming	Permanent
Traffic Calming	\$1,500	\$95,000
Traffic Control Signs	\$2,000	0
Pedestrian Devices	\$0	\$20,000
Miscellaneous Signs	\$2,000	0
Sidewalk	\$0	\$315,000
<b>Totals</b>	<b>\$5,500</b>	<b>\$430,000</b>

The total cost estimate for the signage and temporary traffic calming to be installed in 2016 is **\$5,500**. The total cost estimate for the installation of future permanent devices, including the active pedestrian corridor, and sidewalks, is **\$430,000**.

Resulting from the plan development process, the recommended improvements, including the location, type of improvement, and schedule for implementation are summarized in **Table 5-7**. The resulting recommended Meadowgreen Neighbourhood Traffic Management Plan is illustrated in **Exhibit 5-1**.

**Exhibit 5-1: Recommended Meadowgreen Traffic Management Plan**

(refer to *Meadowgreen Traffic Plan*)

**Table 5-7: Meadowgreen Neighbourhood Recommended Improvements**

Item	Location	Recommendation	Reason
1	Witney Avenue & 19 <sup>th</sup> Street	Change east-west yield to north-south stop	Improve safety at intersection & discourage speeding on Witney Avenue
2	Witney Avenue & 20 <sup>th</sup> Street	four-way stop	Improve driver & pedestrian safety (visibility concerns due to parked cars & high collisions)
3	Avenue W & 18 <sup>th</sup> Street	Install active pedestrian corridor	Improve pedestrian safety
4	18 <sup>th</sup> Street & Avenue Y	Install curb extension (southeast corner) & median island (east side)	Improve pedestrian safety & reduce speed near elementary school
5	21 <sup>st</sup> Street between Witney Avenue & Avenue W	Install sidewalk on south side	Improve pedestrian safety near park
6	Avenue X between 2nd driveway (behind 'Touch of Ukraine') south of 22 <sup>nd</sup> Street to 125 Avenue X	Install parking restrictions on west side	Improve visibility for driveways (Bylaw 7200 states that motorists cannot park within 1m of a driveway due to safety reasons/visibility. Beginning at the driveway behind 'Touch of Ukraine' to 125 Avenue X South, motorists do not have adequate space to legally park because they're encroaching 1m from a driveway.)
7	21 <sup>st</sup> Street & Avenue W	Add hazard boards to stop signs & enhance pedestrian signs	Enhance visibility of stop signs & driver compliance; improve pedestrian safety
8	21 <sup>st</sup> Street & Avenue Y	Change yield signs to stop signs	Enhance driver compliance
9	Witney Avenue & 21 <sup>st</sup> Street	Install curb extension (northeast corner)	Reduce speed & discourage shortcutting on Witney Ave
10	18 <sup>th</sup> Street - Avenue W to Vancouver Avenue	Install sidewalk on north side (with priority for area in front of school - Ave X to Montreal Ave)	Improve pedestrian safety & connectivity on school route

APPENDIX A: MEETING MINUTES

(refer to *Meeting Minutes – January 14, 2015* & *Meeting Minutes - September 15, 2015*)

APPENDIX B: TRAFFIC DATA COLLECTION

(refer to *Traffic Data Collection*)

## APPENDIX C: ALL-WAY STOP ASSESSMENTS



## All-way Stop Assessment (Policy C07-007 – Traffic Control – Use of Stop & Yield Signs)

Step 1:

The following conditions must be met for all-way stop control to be considered:

i) The combined volume of traffic entering the intersection over the five peak hour periods from the minor street must be at least 25% of the total volume for a three-way stop control, and at least 35% of the total volume for a four-way stop control.

ii) There can be no all-way stop control and traffic signal within 200 metres of the proposed intersection being considered for all-way stop control on either of the intersecting streets.

Location	Condition 1: % of Traffic from minor street	Condition 2: Traffic Signals or all-way stop within 200m	All-Way Stop Warrant
18th Street & Ave W	18% (no)	no	Conditions NOT met.
Ave W & 21st St	16% (no)	yes	
21st St & Ave Y	30% (no)	no	
20th St & Witney Ave	46% (yes)	no	Conditions met. Proceed to Step 2.

Step 2:

Provided the above criteria are met, the following conditions, singly or in combination, may warrant the installation of all-way stop signs:

i) 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.

ii) When the total number of vehicles entering the intersection from all approaches averages at least 600 per hour for the peak hour or the total intersection entering volume exceeds 6,000 vehicles per day.

iii) The average delay per vehicle to the minor street traffic must be 30 seconds or greater during the peak hour.

iv) As an interim measure to control traffic while arrangements are being made for the installation of traffic signals.

Location	Condition 1: 5 or more collisions in most recent 12 months	Condition 2: total number of vehicles entering the intersection from all approaches averages at least 600 per hour for the peak hour	Condition 3: total intersection entering volume exceeds 6,000 vehicles per day	Results
20th St & Witney Ave	4 - Condition NOT met	488 - Condition NOT met	5,600 - Condition NOT met	Further consideration due to high collisions.

## APPENDIX D: PEDESTRIAN DEVICE ASSESSMENTS

## Pedestrian device assessment (Traffic Controls at Pedestrian Crossing, 2004)

### Witney Avenue & 20th Street:

#### 1. Lanes Priority Points:

$L = 2$  lanes = number of lanes.

$LANF = 0.0$  points =  $(L-2) \times 3.6$  to a max of 15 points, urban x-section only.

#### 2. Median Priority Points:

$MEDF = 6.0$  points = indicating there is no physical median here.

#### 3. Speed Priority Points:

$S = 50$  kph = speed limit or 85th percentile speed.

$SPDF = 6.7$  points =  $(S-30) / 3$  to a maximum of 10 points.

#### 4. Pedestrian Protection Location:

$D = 340$  m = distance from study location to nearest protected crosswalk.

$LOCF = 10.5$  points =  $(D-200) / 13.3$  to a maximum of 15 points.

#### 5. Pedestrian/Vehicle Volume Priority Points:

$H = 5.0$  = ( hours ) duration of counting period.

$Ps = 33.0$  = total number of children, teenagers, seniors and/or impaired counted.

$Pa = 0.0$  = total number of adults counted.

$Pw = 49.5$  = weighted average of pedestrians crossing the main street.

$Pcm = 9.9$  = weighted average hourly pedestrian volume crossing the main street.

$V = 2042.0$  = volume of traffic passing through the crossing(s).

$Vam = 408.4$  = average hourly volume of traffic passing through the crossing(s).

$$\text{VOLF} = 8.1 \text{ points} = \text{Vam} \times \text{Pcm} / 500$$

6. Satisfaction of Installation Criteria:

$$\text{SUMF} = (\text{LANF} + \text{MEDF} + \text{SPDF} + \text{LOCF} + \text{VOLF})$$

$$\text{SUMF} = 31 \text{ points}$$

(P.A. Signal Warrant Points)

The total of the warrant points is less than 100 indicating that a pedestrian actuated signal is NOT warranted.

**Avenue W & 18th Street:**

1. Lanes Priority Points:

$$L = 2 \text{ lanes} = \text{number of lanes.}$$

$$\text{LANF} = 0.0 \text{ points} = (L-2) \times 3.6 \text{ to a max of 15 points, urban x-section only.}$$

2. Median Priority Points:

$$\text{MEDF} = 6.0 \text{ points} = \text{indicating there is no physical median here.}$$

3. Speed Priority Points:

$$S = 50 \text{ kph} = \text{speed limit or 85th percentile speed.}$$

$$\text{SPDF} = 6.7 \text{ points} = (S-30) / 3 \text{ to a maximum of 10 points.}$$

4. Pedestrian Protection Location:

$$D = 410 \text{ m} = \text{distance from study location to nearest protected crosswalk.}$$

$$\text{LOCF} = 15.0 \text{ points} = (D-200) / 13.3 \text{ to a maximum of 15 points.}$$

$$\text{Actual value} = 15.78947 \text{ points.}$$

5. Pedestrian/Vehicle Volume Priority Points:

$$H = 5.0 = (\text{hours}) \text{ duration of counting period.}$$

counted.  $P_s = 113.0$  = total number of children, teenagers, seniors and/or impaired

$P_a = 60.0$  = total number of adults counted.

$P_w = 229.5$  = weighted average of pedestrians crossing the main street.

street.  $P_{cm} = 45.9$  = weighted average hourly pedestrian volume crossing the main

$V = 2481.0$  = volume of traffic passing through the crossing(s).

crossing(s).  $V_{am} = 496.2$  = average hourly volume of traffic passing through the

$VOLF = 45.6$  points =  $V_{am} \times P_{cm} / 500$

#### 6. Satisfaction of Installation Criteria:

$SUMF = (LANF + MEDF + SPDF + LOCF + VOLF)$

$SUMF = 73$  points

(P.A. Signal Warrant Points)

The total of the warrant points is less than 100 indicating that a pedestrian actuated signal is NOT warranted.

#### 18th Street & Wardlow Ave:

##### 1. Lanes Priority Points:

$L = 2$  lanes = number of lanes.

$LANF = 0.0$  points =  $(L-2) \times 3.6$  to a max of 15 points, urban x-section only.

##### 2. Median Priority Points:

$MEDF = 3.0$  points = indicating there is a physical median here.

##### 3. Speed Priority Points:

$S = 50$  kph = speed limit or 85th percentile speed.

$SPDF = 6.7$  points =  $(S-30) / 3$  to a maximum of 10 points.

4. Pedestrian Protection Location:

$D = 103$  m = distance from study location to nearest protected crosswalk.

$LOCF = 0.0$  points =  $(D-200) / 13.3$  to a maximum of 15 points.

5. Pedestrian/Vehicle Volume Priority Points:

$H = 5.0$  = ( hours ) duration of counting period.

$P_s = 25.0$  = total number of children, teenagers, seniors and/or impaired counted.

$P_a = 0.0$  = total number of adults counted.

$P_w = 37.5$  = weighted average of pedestrians crossing the main street.

$P_{cm} = 7.5$  = weighted average hourly pedestrian volume crossing the main street.

$V = 225.0$  = volume of traffic passing through the crossing(s).

$V_{am} = 45.0$  = average hourly volume of traffic passing through the crossing(s).

$VOLF = 0.7$  points =  $V_{am} \times P_{cm} / 500$

6. Satisfaction of Installation Criteria:

$SUMF = ( LANF + MEDF + SPDF + LOCF + VOLF )$

$SUMF = 10$  points

(P.A. Signal Warrant Points)

The total of the warrant points is less than 100 indicating that a pedestrian actuated signal is NOT warranted.

**Avenue W & 21st St:**

1. Lanes Priority Points:

$L = 2$  lanes = number of lanes.

$LANF = 0.0$  points =  $(L-2) \times 3.6$  to a max of 15 points, urban x-section only.

2. Median Priority Points:

$MEDF = 6.0$  points = indicating there is no physical median here.

3. Speed Priority Points:

$S = 50$  kph = speed limit or 85th percentile speed.

$SPDF = 6.7$  points =  $(S-30) / 3$  to a maximum of 10 points.

4. Pedestrian Protection Location:

$D = 170$  m = distance from study location to nearest protected crosswalk.

$LOCF = 0.0$  points =  $(D-200) / 13.3$  to a maximum of 15 points.

5. Pedestrian/Vehicle Volume Priority Points:

$H = 5.0$  = ( hours ) duration of counting period.

$Ps = 40.0$  = total number of children, teenagers, seniors and/or impaired counted.

$Pa = 46.0$  = total number of adults counted.

$Pw = 106.0$  = weighted average of pedestrians crossing the main street.

$Pcm = 21.2$  = weighted average hourly pedestrian volume crossing the main street.

$V = 3036.0$  = volume of traffic passing through the crossing(s).

$Vam = 607.2$  = average hourly volume of traffic passing through the crossing(s).



$$\text{VOLF} = 25.7 \text{ points} = \text{Vam} \times \text{Pcm} / 500$$

6. Satisfaction of Installation Criteria:

$$\text{SUMF} = (\text{LANF} + \text{MEDF} + \text{SPDF} + \text{LOCF} + \text{VOLF})$$

$$\text{SUMF} = 38 \text{ points}$$

(P.A. Signal Warrant Points)

The total of the warrant points is less than 100 indicating that a pedestrian actuated signal is NOT warranted.

**Pedestrian Corridor Warrant Calculation**

**Witney Avenue & 20th Street:**

Time

(15 minute intervals)	Vehicle Counts		Pedestrian Counts					P.C.	Periods
	Points of	Total Both Sides	Factored Counts		Warrant			Wrnt'd	Wrnt'd
15 min. 30 min.	15 min. Points	30 min. (1=Yes)Periods	Child	Teen	Adult	Senior / Impaired		Total	15 min.
7:00									
7:15									
7:30									
7:45									
8:00	79	79							
8:15	85	164							
8:30	132	217	1		1	1	1	217	
8:45	123	255	2		2	2	3	765	
9:00	44	167					2	334	

9:15	44							
9:30								
9:45								
AM Totals	463		3		3			
11:30	69		1	1	1			
11:45	83	152	2	2	2	3		456
12:00	82	165	3	3	3	5		825
12:15	83	165	1	1	1	4		660
12:30	65	148	4	4	4	5		740
12:45	90	155	3	3	3	7		1,085
13:00	79	169				3		507
13:15	88	167	1	1	1	1		167
Noon Totals	639		15		15			
14:00								
14:15								
14:30								
14:45								
15:00	81	81						
15:15	116	197	4	4	4	4		788
15:30	127	243	4	4	4	8		1,944
15:45	136	263	3	3	3	7		1,841
16:00	113	249				3		747
16:15	124	237	1	1	1	1		237
16:30	109	233	3	3	3	4		932
16:45	134	243				3		729
17:00		134						

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	940	15	15
Totals	2,042	33	33
		100%	100%

West Crosswalk = 13

East Crosswalk = 20 <<< install crosswalk on this

side of the int.

SUMMARY

Total Warranted PC Points: or / period

Highest PC point value: 1,944 at

Average PC point value: 865

No. of periods warranted:

**Avenue W & 18th Street:**

Time

(15 minute intervals) Vehicle Counts Pedestrian Counts P.C. Periods  
Points of

Total Both Sides Factored Counts Warrant Wrnt'd Wrnt'd  
15 min. 30 min. Child Teen Adult Senior / Impaired Total 15 min.  
30 min. Points (1=Yes)Periods

7:00

7:15

7:30

7:45

8:00 110 110 5 2 7 4.5 4.5 495

8:15 117 227 6 2 2 2 12 10.34 14.84 3,369

8:30 129 246 6 5 2 13 10.5 20.84 5,127 1 5,127

8:45 134 263 6 5 11 8.5 19 4,997

9:00 134 8.5 1,139

9:15

9:30

9:45



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	1,138	31	4	25	8	68		14,164
Totals	2,481	79	14	60	20	173		
		46%	8%	35%	12%	100%		

North Crosswalk = 60

South Crosswalk = 113 <<< install crosswalk on this

side of the int.

SUMMARY

Total Warranted PC Points: 19,291 or 6,430 / period

Highest PC point value: 7,303 at

Average PC point value: 4,299

No. of periods warranted: 3

**Wardlow Ave & 18th St:**

Time

Time (15 minute intervals)	Vehicle Counts		Pedestrian Counts					P.C.	Periods
	Points of		Factored Counts		Warrant	Wrnt'd Wrnt'd		Total	15 min.
	15 min. 30 min.	30 min. Points (1=Yes)Periods	Child	Teen	Adult	Senior / Impaired	Wrnt'd		
7:00									
7:15									
7:30									
7:45									
8:00	12	12							
8:15	17	29	1		1	1	1	29	
8:30	9	26	1		1	1	2	52	
8:45	22	31					1	31	
9:00		22							
9:15									
9:30									
9:45									
AM Totals	60	2			2				
11:30	8	2			2	2			
11:45	5	13	1		1	1	3	39	
12:00	14	19					1	19	

12:15	11	25	1		1	1	1	25
12:30	8	19	1		1	1	2	38
12:45	4	12					1	12
13:00	7	11						
13:15	6	13						
Noon Totals	63		5			5		
14:00								
14:15								
14:30								
14:45								
15:00	13	13						
15:15	10	23	4		4	4	4	92
15:30	10	20	8		8	8	12	240
15:45	15	25	4		4	4	12	300
16:00	7	22	1		1	1	5	110
16:15	16	23	1		1	1	2	46
16:30	15	31					1	31
16:45	16	31						
17:00		16						
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	102	18	18
Totals	225	25	25
		100%	100%

side of the int. West Crosswalk = 16 <<< install crosswalk on this  
East Crosswalk = 9

SUMMARY

Total Warranted PC Points: or / period

Highest PC point value: 300 at

Average PC point value: 71

No. of periods warranted:

**Avenue W & 21st St:**

Time

	(15 minute intervals) Vehicle Counts			Pedestrian Counts				P.C.	Periods
	Points of			Factored Counts		Warrant	Wrnt'd	Wrnt'd	
	15 min.	30 min.	30 min.	Child	Teen	Adult	Senior / Impaired	Total	15 min.
7:00									
7:15									
7:30									
7:45									
8:00	105	105		1		1	0.5	0.5	53
8:15	103	208	1	3		4	2.5	3	624
8:30	135	238	1	1		2	1.17	3.67	873
8:45	150	285	2	2		4	3	4.17	1,188
9:00		150						3	450
9:15									
9:30									
9:45									
AM Totals	493		3	1	7		11		
11:30	106		1	1		2	1.17		
11:45	127	233		2		2	1	2.17	506
12:00	126	253	2	1		3	2.5	3.5	886
12:15	139	265	1	3		4	2.5	5	1,325
12:30	116	255	1	3		4	2.5	5	1,275
12:45	128	244	1	3		4	2.5	5	1,220
13:00	141	269						2.5	673
13:15	125	266	2			2	2	2	532



20:15

20:30

20:45

PM Totals	1,535	23	5	26	54	7,832
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Totals	3,036	33	7	46	86
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	38%	8%	53%	100%
--	-----	----	-----	------

side of the int. North Crosswalk = 66 <<< install crosswalk on this

South Crosswalk = 20

### SUMMARY

Total Warranted PC Points: 7,832 or 7,832 / period

Highest PC point value: 7,832 at

Average PC point value: 2,420

No. of periods warranted: 1

## APPENDIX E: COLLISION ANALYSIS

## Collision Analysis

Collision data provided by SGI (2009 to 2013)

Street 1	Street 2	Ugrid	All Collisions	All collisions - 2013	RA, LT, RT	RA, LT, RT - 2013 only	Collector or Arterial	Ave
21st St	Avenue W	D8-53	20	5	10	5	yes	4
20th St	Witney Avenue	C8-8	17	3	11	2	yes	3
18th St	Avenue W	D9-29	12	2	5	1	yes	2
19th St	Avenue X	C8-1	11	2	8	2	no	2
19th St	Avenue W	D8-36	11	2	7	1	yes	2
21st St	Avenue Y	C8-5	6	1	5	1	no	1
20th St	Avenue Y	C8-3	4	1	2	1	yes	1
Appleby Dr	Wardlow Rd	C9-32	4	1	1	1	no	1
21st St	Avenue X	C8-45	3	0	3	0	no	1
20th St	Montreal Avenue	C8-25	3	0	2	0	yes	1
20th St	Avenue X	C8-2	3	0	0	0	no	1
20th St	Ottawa Avenue	C8-20	3	1	0	0	no	1
19th St	Witney Avenue	C8-66	2	0	2	0	no	0
19th St	Avenue Y	C8-29	2	1	1	0	no	0
18th St	Avenue X	C9-19	2	0	1	0	yes	0
18th St	Montreal Avenue	C9-20	2	0	1	0	yes	0
18th St	Witney Avenue	C9-2	2	0	0	0	no	0
Appleby Dr	Wardlow Rd	C9-37	1	0	1	0	no	0
21st St	Witney Avenue	C8-10	1	1	0	0	no	0
Montreal Avenue	Winnipeg Avenue	C8-70	1	1	0	0	no	0
19th St	Vancouver Avenue	C8-72	1	0	0	0	no	0
18th St	Ottawa Avenue	C9-10	1	0	0	0	no	0

18th St	Winnipeg Avenue	C9-38	1	0	0	0	no	0
Appleby Dr	Dundurn Pl	C9-28	1	0	0	0	no	0
Appleby Dr	Blake Pl	C9-25	1	0	0	0	no	0
20th St	Winnipeg Avenue	C8-11	0	0	0	0	no	0
20th St	Vancouver Avenue	C8-12	0	0	0	0	no	0
Vancouver Avenue	Ottawa Avenue	NA	0	0	0	0	no	0
19th St	Montreal Avenue	C8-79	0	0	0	0	no	0
19th St	Winnipeg Avenue	C8-91	0	0	0	0	no	0
18th St	Avenue Y	C9-48	0	0	0	0	no	0
18th St	Vancouver Avenue	C9-84	0	0	0	0	no	0
Ottawa Avenue	Winnipeg Avenue	NA	0	0	0	0	no	0
Ottawa Avenue	Winnipeg Avenue	NA	0	0	0	0	no	0
Appleby Dr	Wardlow Cres (north leg)	NA	0	0	0	0	no	0
Appleby Dr	Wardlow Rd (south leg)	NA	0	0	0	0	no	0
Appleby Dr	Appleby Crt	C9-41	0	0	0	0	no	0
Appleby Dr	Sclandens Pl	C9-57	0	0	0	0	no	0
Appleby Dr	Shaftsbury Pl	NA	0	0	0	0	no	0
Appleby Dr	Short Pl	NA	0	0	0	0	no	0
Appleby Dr	Appleby Dr	C9-42	0	0	0	0	no	0
Appleby Dr	Wark Pl	C9-59	0	0	0	0	no	0
Appleby Dr	Carling Pl	C9-55	0	0	0	0	no	0

APPENDIX F: DECISION MATRIX

(refer to *Meeting Minutes - September 15, 2015*)



## Decision Matrix – Additional Issues raised at the September 15, 2015 meeting

Item	Location	Concern	Decision
1	Various	tree maintenance to prevent visibility issues, pedestrian enforcement, cycling enforcement/training	Noted.
2	22nd St & Witney Ave	possible to use jersey barriers; loop detection is broken	Documented for further consideration as part of the Major Intersection Reviews
3	Witney Ave between 20th-22nd	lane painting	Not recommended because Witney Avenue is a local roadway.
4	18th St between Ave W to Vancouver Ave	sidewalk needed	Added to recommendations. Priority 1- in front of school between Ave X and Montreal Ave; Priority 2 - Ave X to Ave W and Montreal Ave to Vancouver Ave
5	22nd St & Ave W (facing northbound)	needs signs identifying lanes; make inside lane left turn & outside lane Thru/Right Turn	Documented for further consideration as part of the Major Intersection Reviews
6	Ave W	speeding	Traffic calming devices not recommended on arterials. No further recommendations.
7	21st St & Ave X	trim tree on northwest corner	Site check determined trimming not needed.
8	Wardlow Cres & Wardlow Rd	trim evergreen on northwest corner	Site check determined trimming not needed.
9	Back lanes	speed limit signs	Need specific locations.