

WILLOWGROVE

2016 Neighbourhood Traffic Reviews

CITY OF SASKATOON

February 9, 2017

Willowgrove Neighbourhood Traffic Review

February 9, 2017

Authorization

Prepared By:



Justine Marcoux, P. Eng.
Transportation Engineer

Checked By:



Jay Magus, P. Eng.
Transportation Engineering Manager

Acknowledgements

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

- Willowgrove residents
- Willowgrove Community Association
- Saskatoon Police Service
- Saskatoon Light & Power
- Saskatoon Fire Department
- 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
- Great Works Consulting
- Councillor Zach Jeffries

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 additional 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.

A public meeting was held in June 2016 to identify traffic concerns and potential solutions within the Willowgrove 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 Plan was developed and presented to the community at a follow-up meeting held in November 2016.

A summary of recommended improvements for the Willowgrove 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 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 years); medium-term (3 to 5 years) and long-term (5 years plus). Accordingly, the specific time frame to implement the improvements ranges from 1 to 5 years.

The Willowgrove Traffic Plan is illustrated in **Exhibit ES-1**.

Table ES-I: Willowgrove Neighbourhood Recommended Improvements

Item	Location	Recommendation	Reason
1	Stensrud Road & Muzyka Road	Add temporary curb extension on southeast corner; permanent median island; zebra crosswalks	Reduce driver speed; improve pedestrian safety near park
2	Stensrud Road - north of Keewell Street	Temporary speed display board facing southbound traffic	Reduce driver speed
3	Stensrud Road & Van Impe Court / Lamarsh Road	Permanent median island	Reduce driver speed & improve pedestrian safety
4	Stensrud Road & Willowgrove Boulevard / Square (east side)	Lane designation for Willowgrove Boulevard - left lane is left turn only, right lane is shared through / right turn	Improve traffic flow
5	Stensrud Road & Willowgrove Boulevard / Square (west side)	Active Pedestrian Corridor	Improve pedestrian safety near park / school
6	Stensrud Road & Addison Road / Shepherd Crescent	Permanent median islands	Enhance visibility of stop signs; improve pedestrian safety near school
7	Stensrud Road & Paton Crescent (south)	Permanent median island	Reduce driver speed & improve pedestrian safety near park
8	Addison Road & Waters Crescent (east)	Permanent median island & curb extension; Active Pedestrian Corridor; parking restrictions on southeast corner (park side)	Reduce driver speed & improve pedestrian safety near park / school; ensure clearance for buses to pass through median island & parked vehicles
9	Addison Road between Waters Crescent (east) & Waters Crescent (west)	Temporary speed display board facing eastbound traffic; forward speed data to Saskatoon Police Service for enforcement	Reduce driver speed near park
10	Willowgrove Boulevard & Maguire Crescent (east)	Permanent curb extensions	Reduce driver speed & improve pedestrian safety near park / school
11	Willowgrove Boulevard & Maguire Crescent (east)	No Parking sign on Willowgrove Boulevard 10 m from intersection on southwest corner	Enhance visibility / sightlines
12	Willowgrove Boulevard at midblock crosswalk between Maguire Crescent & Stensrud Road	No Stopping signs on the south side (northbound side) 10 m on either side of the crosswalk	Enhance visibility / sightlines
13	Muzyka Road & Patrick Crescent (south)	Permanent median island	Reduce driver speed for right turn onto Patrick Cres
14	Patrick Crescent (north) & Patrick Lane	No Parking signs on Patrick Crescent 20 m from intersection on southeast corner	Enhance visibility / sightlines
15	Patrick Crescent - driveways to Ginger Loft condominiums	No Parking signs 5 m on either side	Enhance visibility / sightlines
16	Patrick Crescent & Patrick Lane / Stefaniuk Crescent	Yield signs (facing Patrick Lane / Stefaniuk Crescent)	Improve intersection safety
17	Patrick Avenue & Patrick Crescent (north)	Yield sign	Improve intersection safety

Table ES-I Continued

Item	Location	Recommendation	Reason
18	Patrick Avenue & Patrick Crescent (south)	Yield sign	Improve intersection safety
19	Paton Crescent (south) east of Paton Avenue	Playground Ahead sign facing westbound traffic	Improve pedestrian safety near park
20	Willowgrove Terrace & Willowgrove Court	Yield signs (facing Willowgrove Court)	Improve intersection safety
21	Willowgrove Avenue & Willowgrove Crescent	Yield signs (facing Willowgrove Avenue)	Improve intersection safety
22	Back lane behind 510 Stensrud Road	20 kph sign	Reduce driver speed
23	Back lane behind 810 Stensrud Road	20 kph signs	Reduce driver speed
24	Lamarsh Terrace	Cul-de-sac sign	Reduce traffic volumes
25	Paton Place		
26	Willowgrove Terrace		

TABLE OF CONTENTS

Executive Summary	i
TABLE OF CONTENTS	v
1 Introduction	1
2 Stage 1: Identifying Issues, Concerns, and Possible Solutions.....	2
2.1 Concern 1 – Speeding and Shortcutting	2
2.2 Concern 2 – Pedestrian Safety.....	3
2.3 Concern 3 – Traffic Control	4
2.4 Concern 4 – Parking.....	5
2.5 Concern 5 – Maintenance.....	6
2.6 Concern 6 – Major Intersections & Corridors	7
3 Stage 2: Development of Draft Traffic Plan.....	8
3.1 Methodology	8
3.2 Traffic Volume and Speed Assessments.....	8
3.3 Traffic Control Assessments	11
3.4 Pedestrian Assessments.....	12
3.5 Traffic Signal Assessments.....	13
3.6 Collision Analysis	13
4 Stage 3: Presentation of Traffic Plan.....	14
4.1 Methodology	14
4.2 Speeding and Shortcutting.....	14
4.3 Pedestrian Safety	16
4.4 Intersection Safety	16
4.5 Parking	17
4.6 Follow Up Consultation – Presentation of Traffic Plan.....	17
5 Stage 4: Implementation.....	18

APPENDIX A: PUBLIC MEETING #1 – JUNE 7, 2016 MINUTES

APPENDIX B: TRAFFIC DATA COLLECTION

APPENDIX C: PEDESTRIAN DEVICE ASSESSMENTS

APPENDIX D: TRAFFIC SIGNAL ASSESSMENTS

APPENDIX E: COLLISION ANALYSIS

APPENDIX F: PUBLIC MEETING #2 – NOVEMBER 23, 2016 MINUTES

APPENDIX G: DECISION MATRIX

APPENDIX H: ADDITIONAL CONCERNS RECEIVED AFTER PRESENTATION OF DRAFT
PLAN

LIST OF TABLES

Table 3-1: City of Saskatoon Street Classifications and Characteristics.....	9
Table 3-2: Speed Studies and Average Daily Traffic Counts (2016)	10
Table 3-3: All-Way Stop Warrant Criteria.....	11
Table 3-4: All-Way Stop Warrant Condition Requirements.....	12
Table 3-5: Pedestrian Assessments.....	12
Table 3-6: Traffic Signal Assessments.....	13
Table 4-1: Recommended Improvements – Speeding and Shortcutting	15
Table 4-2: Recommended Improvements - Pedestrian Safety.....	16
Table 4-3: Recommended Improvements – Intersection Safety	16
Table 4-4: Recommended Improvements – Parking.....	17
Table 5-1: Signs, Pavement Markings & Temporary Traffic Calming Cost Estimate	19
Table 5-2: Speed Enforcement & Speed Display Boards Cost Estimate	20
Table 5-3: Pedestrian Safety Devices Cost Estimate	20
Table 5-4: Permanent Traffic Calming Cost Estimate	20
Table 5-5: Total Cost Estimate.....	21
Table 5-6: Willowgrove Neighbourhood Recommended Improvements	22

LIST OF EXHIBITS

Exhibit 5-1: Recommended Willowgrove Traffic Plan	24
---	----

I INTRODUCTION

As the City of Saskatoon continues to grow, many neighbourhoods face issues such as pedestrian safety, cut-through traffic, and increased speeds. In August 2013, City Council adopted the City of Saskatoon *Traffic Guidelines and Tools* document that outlines 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. Recommendations are developed by the Administration and residents in a collaborative fashion. Accordingly, this report provides the Traffic Plan for the Willowgrove neighbourhood.

The Willowgrove neighbourhood is located on the east portion of Saskatoon and is bound by McOrmond Drive to the west, Highway 5 to the south, and the city limits to the east. The land use is mostly residential, with an elementary school on Stensrud Road (Willowgrove School) and some commercial on Willowgrove Square.

The neighbourhood traffic review includes four stages:

- **Stage 1** - Identify issues, concerns and possible solutions through the initial neighbourhood consultation and the Shaping Saskatoon online discussion.
- **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).

This report presents the study findings and recommendations.

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

A public meeting was held in June 2016 to identify traffic concerns within the Willowgrove neighbourhood. At the meeting, residents were given the opportunity to express concerns and suggest possible solutions. The meeting minutes 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 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). As speeding often accompanies shortcutting, these concerns have been grouped into one category.

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

- Addison Road
- Stensrud Road
- Keedwell Street
- Paton Crescent
- Lamarsh Road
- Patrick Crescent
- Willowgrove Square
- Back lanes:
 - Behind 510 Stensrud Road
 - Near Willowgrove School
- Cul-de-sacs:
 - Lamarsh Terrace
 - Paton Crescent
 - Willowgrove Terrace

Proposed solutions identified by residents:

- Enforcement throughout neighbourhood
- Implement 40 kph speed limit neighbourhood-wide
- Include another access to Highway 5 from Willowgrove
- Addison Road – install speed humps, cameras, extend school zone
- Stensrud Road near Willowgrove School – install more signs or enforcement to address U-turns
- Stensrud Road between Keedwell Street and Greaves Crescent - install speed humps, speed display board or speed camera
- Patrick Crescent – install signs to remind people to slow down or “children at play”, speed bumps or speed indicator signs
- Cul-de-sacs – install a "Cul-de-Sac" sign or "No Throughway" sign

2.2 Concern 2 – Pedestrian Safety

It is important to address pedestrian safety concerns to support active transportation as encouraging 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.”

Willowgrove neighborhood pedestrian safety concerns were noted at the following locations:

- Addison Road & Waters Crescent (east) - a park connecting Willowgrove Park to Willowgrove School has pathways sloped to the crosswalk making it difficult to see pedestrians on the pathway resulting in vehicles not stopping for pedestrians
- Addison Road & Waters Crescent (west) – high volume of traffic makes it difficult to cross
- Stensrud Road & Muzyka Road / Greaves Crescent – dangerous for pedestrians; drivers don’t slow down
- Stensrud Road near the Willowgrove School – vehicles don’t stop for pedestrians
- Stensrud Road & Willowgrove Square – people often cross here to park and go to the school (difficult to cross); highly used pedestrian crossing (primarily children) especially at the start and end of the school day for both schools and day care
- Stensrud Road & Lamarsh Road – difficult to cross

Proposed solutions identified by residents:

- Addison Road & Waters Crescent (east) – lighted crosswalk or active pedestrian signal
- Addison Road & Waters Crescent (west) – mark crosswalk with pavement markings and signs; crosswalk needed on the east side
- Stensrud Road & Muzyka Road / Greaves Crescent – crosswalk lights are ideal or more signage and painted lines on all four sides
- Stensrud Road near the Willowgrove School – extend school zone hours (i.e. all day and all year) and location because there are playgrounds, ball diamonds and lots of kids
- Stensrud Road & Willowgrove Square – install Pedestrian Actuated Signal
- Stensrud Road & Lamarsh Road – install Pedestrian Actuated Signal
- Patrick Crescent – install crosswalk signs at intersections
- Install speed bumps at active pedestrian signal locations

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 a balanced volume from each leg to operate sufficiently.

Concerns regarding traffic control in the Willowgrove neighborhood were identified at the following locations:

- Keedwell Street & Muzyka Road / Lamarsh Road – lack of adherence to yield signs; yield signs face busier street
- Stensrud Road & Keedwell Street – left-turn onto Stensrud Road is a challenge
- Patrick Avenue & Patrick Way – no one yields
- Stensrud Road & Willowgrove Square – vehicles driving the wrong way
- Willowgrove Avenue & Willowgrove Crescent – few people yield to oncoming traffic

Proposed solutions identified by residents:

- Stensrud Road & Muzyka Road / Greaves Crescent – install four-way stop
- Willowgrove Boulevard & Maguire Crescent (south) – install stop signs
- Patrick Avenue & Patrick Way – uncontrolled intersections need to be signed; install yield signs
- Patrick Crescent & Patrick Avenue – install four-way stop; install yield signs
- Patrick Crescent & Patrick Lane / Stefaniuk Crescent – install stop or yield signs
- Stensrud Road & Willowgrove Square - need some type of control, lane markings or signage to delineate traffic; more signage needed; pavement markings needed
- Willowgrove Avenue & Willowgrove Crescent – install stop or yield signs

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 within one metre of a driveway or back lane.

Willowgrove neighborhood parking concerns were at the following locations:

- Addison Road & Waters Crescent (east) – vehicles parking on south side blocking crosswalk (east leg)
- Stensrud Road & Muzyka Road / Greaves Crescent – parking too close to the intersection
- Stensrud Road & Willowgrove Crescent (north leg) – vehicles parking along west side of intersection blocking the Active Pedestrian Corridor; parking too close to the intersection
- Stensrud Road & Willowgrove Square – parking too close to the intersection
- Keedwell Street – parking on both sides of the street makes it very narrow
- Stensrud Road & Keedwell Street – parking blocking the view
- Patrick Avenue & Patrick Way – large vehicles parked next to intersection
- Patrick Crescent & Patrick Lane – large vehicles parked on bend making it difficult to see
- Willowgrove Avenue – narrow due to parking
- Willowgrove Boulevard & Maguire Crescent (east) – parking is blocking crosswalk
- Willowgrove Boulevard at midblock crosswalk between Maguire Crescent & Stensrud Road – parking is blocking crosswalk
- Residential parking in front of community mailboxes (i.e. Stensrud Road & Pickard Bay). Many elderly residents find it hard to walk to mailboxes in the winter.

Proposed solutions identified by residents:

- Addison Road & Waters Crescent (east) – “No parking” signs to delineate the restricted parking areas at the T-intersection; buses have difficulty passing temporary median island when vehicles are parked
- Stensrud Road near the Willowgrove School – curb side parking should be eliminated on both sides by the east side of the school property
- Stensrud Road & Willowgrove Crescent (north leg) – “No parking” signs recommended to clarify the restrictions of a T-intersection
- Keedwell Street – remove parking on one side of the street; remove parking on the south side of the street
- Patrick Crescent & Patrick Lane – limit parking to north side of street
- Patrick Crescent at Ginger Lofts – “No Parking” signs needed to improve visibility at driveways
- Willowgrove Avenue – prohibit parking on one side
- Install 5-minute parking zones in front of mailboxes

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).

Willowgrove neighborhood maintenance concerns were at the following locations:

- Stensrud Road & Willowgrove Square – bushes obstruct visibility and need trimming
- Muzyka Road & Patrick Crescent – large concrete barriers are unsightly

Willowgrove neighborhood solutions identified by residents:

- All median island locations (Stensrud Road & Paton Crescent for example) – wrap signs with reflective tape so they are visible at all sides.

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.

Willowgrove neighborhood concerns regarding major intersection concerns were identified at the following locations:

- McOrmond Road & Addison Road - difficult to make right-turn from Addison Road (westbound) onto McOrmond Road
- McOrmond Road & Willowgrove Boulevard / Attridge Drive – long waits to get in / out of Willowgrove

Proposed solutions identified by residents:

- McOrmond Road & Addison Road - add right-turn merge lane (westbound to northbound)

3 STAGE 2: DEVELOPMENT OF DRAFT TRAFFIC PLAN

3.1 Methodology

Stage 2 of the Neighborhood 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 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:
 - 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, traffic signal assessments and collision analysis. 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. Neighborhood streets are classified typically as either local or collector streets. Traffic volumes (referred to as Average Daily Traffic) on local / collector 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 85th percentile speed, which is the speed at which 85 percent of vehicles are travelling at or below. The speed limit in the Willowgrove neighbourhood is 50 kph, except for school zones where the speed limit is 30 kph from September and June, Monday to Friday, 8:00am to 5:00pm.

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 (2016)

Street	Between	Class	Average Daily Traffic (vehicles per day)	Speed (kph)
Keedwell Street	Stensrud Road & Larmarsh Road	Local	1,850	42
Patrick Crescent	Patrick Lane & Patrick Place		650	45
Patrick Crescent	Patrick Rise & Patrick Bay		600	44
Stensrud Road	Greaves Crescent & Keedwell Street	Collector	4,200	49
Stensrud Road	Greaves Crescent & Greaves Crescent		5,050	56
Addison Road	Waters Crescent & Waters Crescent		6,050	51
Muzyka Road	Bennion Crescent & Bennion Crescent		1,750	52
Muzyka Road	Lucyk Crescent & Lucyk Crescent		1,900	52
Willowgrove Boulevard	Maguire Crescent & Maguire Crescent		2,100	44

A number of traffic studies were completed in Willowgrove prior to the Neighborhood Traffic Review to address speeding and shortcutting concerns. Locations of concern included:

- Muzyka Road
- Stensrud Road
- Addison Road
- Patrick Crescent
- Willowgrove Boulevard

As a result temporary traffic calming was installed at the following locations:

- Stensrud Road – median islands at Muzyka Road, Van Impe Crescent / Lamarsh Road, Paton Crescent / Trimble Crescent and Addison Road / Shepherd Road
- Addison Road - curb extension and median island at Waters Crescent (east)
- Willowgrove Boulevard – curb extensions at Maguire Crescent (east)
- Patrick Crescent – median island at Muzyka Road

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;
- an ADT greater than 6,000 vehicles per day; or
- 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 m.

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 6,000vpd)	Criteria 3: Collisions within most recent 12 months (5 or more)	Results
Stensrud Road & Muzyka Road / Greaves Crescent	1,036 (yes)	13,770 vpd (yes)	0 (no)	Continue to Step 2.
Keedwell Street & Muzyka Road / Lamarsh Road	120 (no)	1,830 vpd (no)	0 (no)	All-Way Stop Not Warranted
Stensrud Road & Lamarsh Road	452 (no)	4,600 vpd (no)	0 (no)	
Stensrud Road & Willowgrove Square (north)	362 (no)	3,740 vpd (no)	3 (no)	

Provided one of the above criteria are met, continue to Step 2 to check the condition requirements.

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
Stensrud Road & Muzyka Road / Greaves Crescent	28% (no)	160m (no)	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 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.

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.

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
Addison Road & Water Crescent (east)	128	Active Pedestrian Corridor Warranted
Stensrud Road & Willowgrove Square (north)	345	
Stensrud Road & Muzyka Road / Greaves Crescent	38	Pedestrian Device Not Warranted
Keedwell Street & Muzyka Road / Greaves Crescent	16	
Stensrud Road & Lamarsh Road	14	

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: 8:00am to 9:00am, 11:30am to 1:30pm, and 4:00pm to 6:00pm.

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
Stensrud Road & Muzyka Road / Greaves Crescent	56	Traffic Signal Not Warranted

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

3.6 Collision Analysis

The most recently available five year collision data (2011 to 2015) was 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 and possible improvements. Locations with two or more collisions per year include:

- Stensrud Road & Muzyka Road / Greaves Crescent
- Stensrud Road & Willowgrove Square (west)
- Stensrud Road & Willowgrove Square (east)

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

4 STAGE 3: PRESENTATION OF TRAFFIC PLAN

4.1 Methodology

Stage 3 of the neighbourhood traffic 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 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
Stensrud Road & Muzyka Road	Add temporary curb extension on southeast corner; permanent median island	Reduce driver speed near park
Stensrud Road - north of Keedwell Street	Temporary speed display board facing southbound traffic	Reduce driver speed
Stensrud Road & Van Impe Court / Lamarsh Road	Permanent median island	Reduce driver speed
Stensrud Road & Paton Crescent (south)	Permanent median island	Reduce driver speed near park
Addison Road & Waters Crescent (east)	Permanent median island & curb extension	Reduce driver speed near park / school
Addison Road between Waters Crescent (east) & Waters Crescent (west)	Temporary speed display board facing eastbound traffic; forward speed data to Saskatoon Police Service for enforcement	Reduce driver speed near park
Willowgrove Boulevard & Maguire Crescent (east)	Permanent curb extensions	Reduce driver speed near park / school
Muzyka Road & Patrick Crescent (south)	Permanent median island	Reduce driver speed for right turn onto Patrick Crescent
Back lane behind 510 Stensrud Road	20 kph sign	Reduce driver speed
Back lane behind 810 Stensrud Road		
Lamarsh Terrace	Cul-de-sac sign	Reduce traffic volumes
Paton Place		
Willowgrove Terrace		

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
Stensrud Road & Muzyka Road	Add temporary curb extension on southeast corner (existing median island) & zebra crosswalks	Improve pedestrian safety near park
Stensrud Road & Van Impe Court / Lamarsh Road	Permanent median island	Improve pedestrian safety
Stensrud Road & Willowgrove Boulevard (west side)	Active pedestrian corridor	Improve pedestrian safety near park / school
Stensrud Road & Addison Road / Shepherd Crescent	Permanent median islands	Improve pedestrian safety near school
Stensrud Road & Paton Crescent (south)	Permanent median island	Improve pedestrian safety near park
Addison Road & Waters Crescent (east)	Permanent median island & curb extension; active pedestrian corridor	Improve pedestrian safety near park / school

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
Stensrud Road & Willowgrove Boulevard / Square (east side)	Lane designation for Willowgrove Boulevard - left lane is left-turn only, right lane is shared through / right-turn	Improve traffic flow
Stensrud Road & Addison Road / Shepherd Crescent	Permanent median islands	Enhance visibility of stop signs
Patrick Crescent & Patrick Lane / Stefaniuk Crescent	Yield signs (facing Patrick Lane / Stefaniuk Crescent)	Improve intersection safety
Patrick Avenue & Patrick Crescent (north)	Yield sign	Improve intersection safety
Patrick Avenue & Patrick Crescent (south)	Yield sign	Improve intersection safety
Willowgrove Terrace & Willowgrove Court	Yield signs (facing Willowgrove Court)	Improve intersection safety
Willowgrove Avenue & Willowgrove Crescent	Yield signs (facing Willowgrove Avenue)	Improve intersection safety

4.5 Parking

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

Table 4-4: Recommended Improvements – Parking

Location	Recommended Improvement	Justification
Addison Road & Waters Crescent (east)	Parking restrictions on southeast corner (park side)	Ensure clearance for buses to pass through median island & parked vehicles
Willowgrove Boulevard & Maguire Crescent (east)	“No Parking” sign on Willowgrove Boulevard 10 m from intersection on southwest corner	Enhance visibility / sightlines
Willowgrove Boulevard at midblock crosswalk between Maguire Crescent & Stensrud Road	No Stopping signs on the south side (northbound side) 10 m on either side of the crosswalk	Enhance visibility / sightlines
Patrick Crescent (north) & Patrick Lane	“No Parking” signs on Patrick Crescent 20 m from intersection on southeast corner	Enhance visibility / sightlines
Patrick Crescent - driveways to Ginger Loft condominiums	“No Parking” signs 5 m on either side	Enhance visibility / sightlines

4.6 Follow Up Consultation – Presentation of Traffic Plan

The recommended improvements were presented to residents and stakeholders at a follow-up public meeting in November 2016. Meeting minutes are provided in **Appendix F**. Recommended improvements that were not supported were eliminated or altered accordingly.

A decision matrix detailing the list of recommended improvements presented at the follow-up meeting are included in **Appendix G**. Additional issues raised during the follow-up meeting were assessed and outlined in **Appendix H**. 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 Neighborhood Traffic Review, is to install the recommended improvements within the specified time frame. The time frame depends upon the complexity and cost of the solution. A short-term time frame is defined by implementing the improvements within short-term (1 to 2 years); medium-term (3 to 5 years); and long-term (5 years plus).

The placement of signs, pavement markings and temporary traffic calming will be completed short-term (1 to 2 years). Most often the installations take place in spring / summer of the following year. Therefore installations for Willowgrove are likely to take place in spring / summer 2017.

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

- **Table 5-1:** Signs, Pavement Markings & Temporary Traffic Calming Cost Estimate
- **Table 5-2:** Speed Enforcement & Speed Display Boards Cost Estimate
- **Table 5-3:** Pedestrian Safety Devices Cost Estimate
- **Table 5-4:** Permanent Traffic Calming Cost Estimate
- **Table 5-5:** Total Cost Estimate

Table 5-1: Signs, Pavement Markings & Temporary Traffic Calming Cost Estimate

Location	Device (No. of Devices)	Cost Estimate	Time Frame
Stensrud Road & Muzyka Road	Curb extension (1)	\$500	1 to 5 years (traffic calming devices will be installed temporarily until proven effective)
Back lane behind 510 Stensrud Road	20 kph sign (1)	\$250	1 to 2 years
Back lane behind 810 Stensrud Road	20 kph signs (2)	\$250	
Lamarsh Terrace	Cul-de-sac sign (3)	\$250	
Paton Place		\$250	
Willowgrove Terrace		\$250	
Stensrud Road & Muzyka Road	Zebra crosswalks (2)	\$500	
Paton Crescent (south) east of Paton Avenue	Playground Ahead sign (1)	\$250	
Stensrud Road & Willowgrove Boulevard / Square (east side)	Lane designation signs (2) & pavement markings	\$750	
Patrick Crescent & Patrick Lane / Stefaniuk Crescent	Yield signs (2)	\$500	
Patrick Avenue & Patrick Crescent (north)	Yield sign (1)	\$250	
Patrick Avenue & Patrick Crescent (south)	Yield sign (1)	\$250	
Willowgrove Terrace & Willowgrove Court	Yield signs (2)	\$500	
Willowgrove Avenue & Willowgrove Crescent	Yield signs (2)	\$500	
Addison Road & Waters Crescent (east)	"No Parking" signs (2)	\$500	
Willowgrove Boulevard & Maguire Crescent (east)	"No Parking" sign (1)	\$500	
Willowgrove Boulevard at midblock crosswalk between Maguire Crescent & Stensrud Road	No Stopping signs (2)	\$500	
Patrick Crescent (north) & Patrick Lane	"No Parking" sign (1)	\$500	
Patrick Crescent - driveways to Ginger Loft condominiums	"No Parking" signs (2)	\$500	
Total		\$7,750	

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

Location	Device	Cost Estimate	Time Frame
Stensrud Road - north of Keedwell Street	Temporary speed display board	\$0 (funded through Speed Program)	1 to 2 years
Addison Road between Waters Crescent (east) & Waters Crescent (west)	Temporary speed display board; Saskatoon Police Service enforcement	\$0 (provided by Saskatoon Police Service)	
Total		\$0	

Table 5-3: Pedestrian Safety Devices Cost Estimate

Location	Device (# of Devices)	Cost Estimate	Time Frame
Stensrud Road & Willowgrove Boulevard (west side)	Active Pedestrian Corridor (1)	\$20,000	3 to 5 years
Addison Road & Waters Crescent (east)	Active Pedestrian Corridor (1)	\$20,000	
Total		\$40,000	

Table 5-4: Permanent Traffic Calming Cost Estimate

Location	Device (# of Devices)	Cost Estimate	Time Frame
Stensrud Road & Muzyka Road	Curb extension (1) & median island (1)	\$ 45,000	3 to 5 years
Stensrud Road & Van Impe Court / Lamarsh Road	Median island (1)	\$ 5,000	
Stensrud Road & Paton Crescent (south)	Median island (1)	\$ 5,000	
Willowgrove Boulevard & Maguire Crescent (east)	Curb extensions (2)	\$ 90,000	
Muzyka Road & Patrick Crescent (south)	Median island (1)	\$ 5,000	
Addison Road & Waters Crescent (east)	Median island (1) & curb extension (1)	\$ 95,000	
Stensrud Road & Addison Road / Shepherd Crescent	Median islands (4)	\$ 20,000	
Total		\$265,000	

Table 5-5: Total Cost Estimate

Category	Time Frame	
	Short-Term (1 to 2 years)	Medium-Term (3 to 5 years)
Signs, Pavement Markings & Temporary Traffic Calming	\$7,750	NA
Speed Enforcement & Temporary Speed Display Boards	\$0	NA
Pedestrian Safety Devices	NA	\$ 265,000
Permanent Traffic Calming	NA	\$ 40,000
Total	\$7,750	\$305,000

The total cost estimate for short-term improvements (signs, pavement markings and temporary traffic calming) is **\$7,750**. The total cost estimate for long-term improvements (permanent traffic calming and pedestrian safety devices) is **\$305,000**.

Resulting from the Neighborhood Traffic Review is a list of recommended improvements, including the location and justification as summarized in **Table 5-6**.

The resulting recommended Willowgrove Neighbourhood Traffic Plan is illustrated in **Exhibit 5-1**.



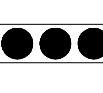


Table 5-6: Willowgrove Neighbourhood Recommended Improvements

Item	Location	Recommendation	Reason
1	Stensrud Road & Muzyka Road	Add temporary curb extension on southeast corner; permanent median island; zebra crosswalks	Reduce driver speed; improve pedestrian safety near park
2	Stensrud Road - north of Keewell Street	Temporary speed display board facing southbound traffic	Reduce driver speed
3	Stensrud Road & Van Impe Court / Lamarsh Road	Permanent median island	Reduce driver speed & improve pedestrian safety
4	Stensrud Road & Willowgrove Boulevard / Square (east side)	Lane designation for Willowgrove Boulevard - left lane is left-turn only, right lane is shared through / right-turn	Improve traffic flow
5	Stensrud Road & Willowgrove Boulevard / Square (west side)	Active pedestrian corridor	Improve pedestrian safety near park / school
6	Stensrud Road & Addison Road / Shepherd Crescent	Permanent median islands	Enhance visibility of stop signs; improve pedestrian safety near school
7	Stensrud Road & Paton Crescent (south)	Permanent median island	Reduce driver speed & improve pedestrian safety near park
8	Addison Road & Waters Crescent (east)	Permanent median island & curb extension; Active pedestrian corridor; parking restrictions on southeast corner (park side)	Reduce driver speed & improve pedestrian safety near park / school; ensure clearance for buses to pass through median island & parked vehicles
9	Addison Road between Waters Crescent (east) & Waters Crescent (west)	Temporary speed display board facing eastbound traffic; forward speed data to Saskatoon Police Service for enforcement	Reduce driver speed near park
10	Willowgrove Boulevard & Maguire Crescent (east)	Permanent curb extensions	Reduce driver speed & improve pedestrian safety near park / school
11	Willowgrove Boulevard & Maguire Crescent (east)	"No Parking" sign on Willowgrove Boulevard 10 m from intersection on southwest corner	Enhance visibility / sightlines
12	Willowgrove Boulevard at midblock crosswalk between Maguire Crescent & Stensrud Road	No Stopping signs on the south side (northbound side) 10 m on either side of the crosswalk	Enhance visibility / sightlines
13	Muzyka Road & Patrick Crescent (south)	Permanent median island	Reduce driver speed for right-turn onto Patrick Cres
14	Patrick Crescent (north) & Patrick Lane	"No Parking" signs on Patrick Crescent 20 m from intersection on southeast corner	Enhance visibility / sightlines
15	Patrick Crescent - driveways to Ginger Loft condominiums	"No Parking" signs 5 m on either side	Enhance visibility / sightlines
16	Patrick Crescent & Patrick Lane / Stefaniuk Crescent	Yield signs (facing Patrick Lane / Stefaniuk Crescent)	Improve intersection safety
17	Patrick Avenue & Patrick Crescent (north)	Yield sign	Improve intersection safety

Table 5-6 Continued

Item	Location	Recommendation	Reason
18	Patrick Avenue & Patrick Crescent (south)	Yield sign	Improve intersection safety
19	Paton Crescent (south) east of Paton Avenue	Playground Ahead sign facing westbound traffic	Improve pedestrian safety near park
20	Willowgrove Terrace & Willowgrove Court	Yield signs (facing Willowgrove Court)	Improve intersection safety
21	Willowgrove Avenue & Willowgrove Crescent	Yield signs (facing Willowgrove Avenue)	Improve intersection safety
22	Back lane behind 510 Stensrud Road	20 kph sign	Reduce driver speed
23	Back lane behind 810 Stensrud Road	20 kph signs	Reduce driver speed
24	Lamarsh Terrace	Cul-de-sac sign	Reduce traffic volumes
25	Paton Place		
26	Willowgrove Terrace		

LEGEND

-  EXISTING STOP SIGN
-  EXISTING YIELD SIGN
-  BUS ROUTE
-  SCHOOL ZONE
-  EXISTING TRAFFIC SIGNAL
-  PEDESTRIAN ACTUATED SIGNAL LOCATION
-  ACTIVE PEDESTRIAN CORRIDOR SIGNAL LOCATION

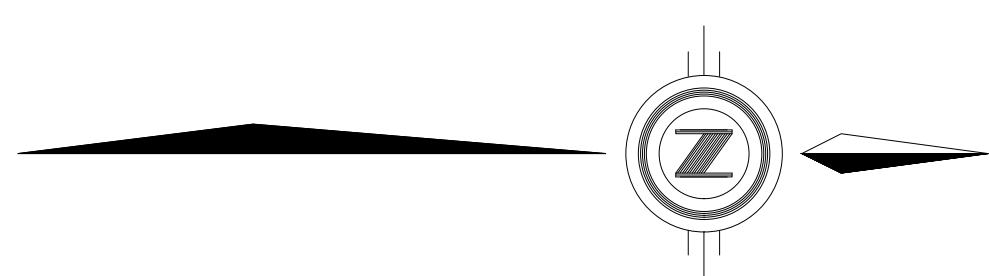
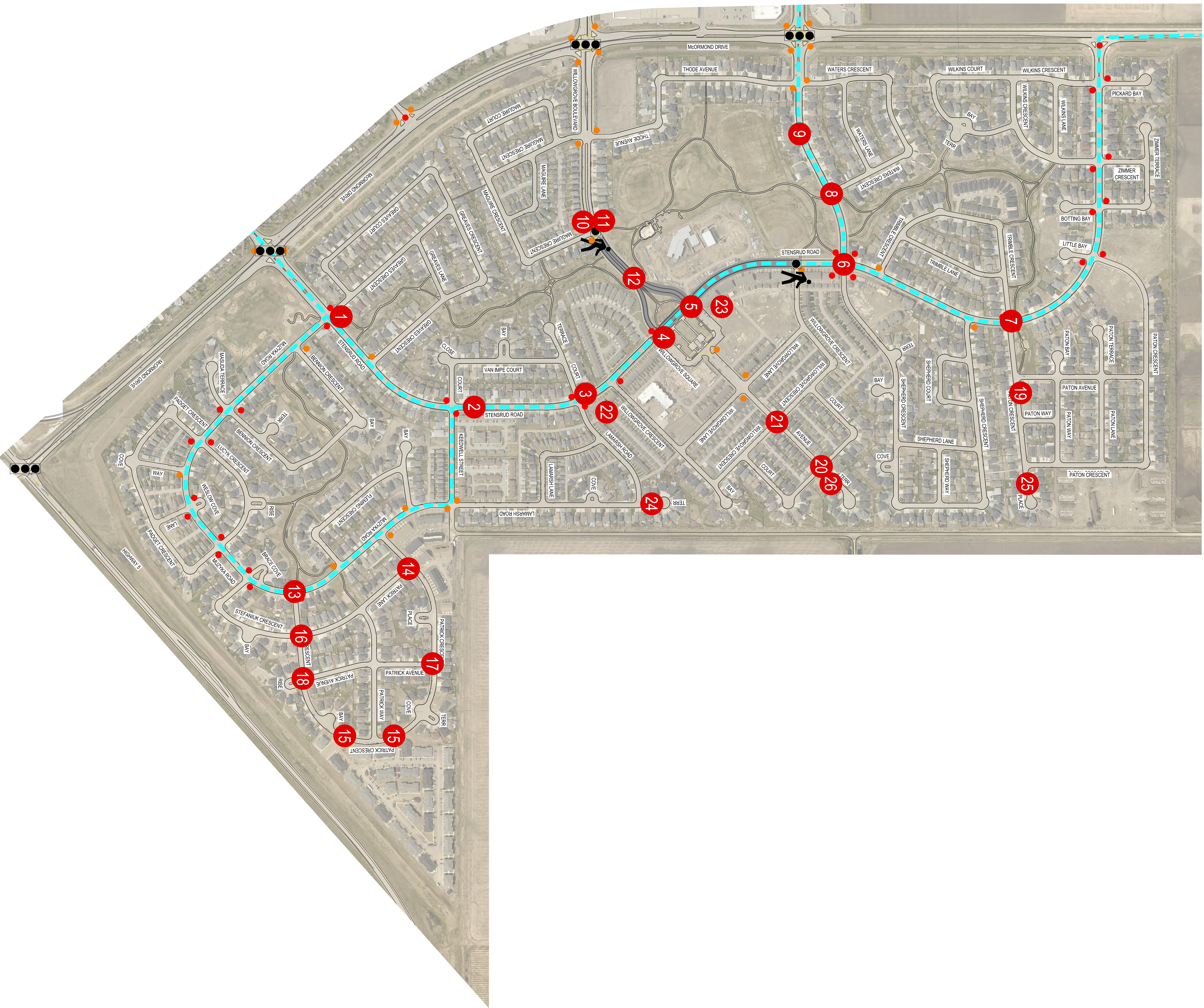


Exhibit 5-1



APPENDIX A: PUBLIC MEETING No.1 – JUNE 7, 2016 MINUTES

**Willowgrove Neighbourhood
Traffic Review
Tuesday, June 7, 2016, 7:00 – 9:00 P.M.
Holy Family School**

Facilitators:

- Mitch Riabko & Kathy Dahl (Great Works Consulting)

City of Saskatoon Representatives:

- Jay Magus, Mariniel Flores, Yang Li

Councillor Clark attended.

Agenda

- Welcome & introductions
- Presentation from the Transportation Division
- Small group discussions
- Small group discussion – report back to large group
- Next Steps
- Question / Answers

Presentation from Transportation Division – Willowgrove Neighbourhood Traffic Review
(Presented by Jay Magus – Transportation Engineer)

Presentation Outline:

- Neighbourhood Traffic Review Process
- Willowgrove Review Schedule
- Sources of Information
- Past Concerns Received
- Description of Traffic Calming & Pedestrian Safety Devices
- Corridor & Major Intersection Reviews

Neighbourhood Review Process:

- **August 2013** – New process; neighbourhood review vs issue by issue; eight neighbourhoods reviewed per year
- **Mandate** – Reduce & calm traffic, improve safety within neighbourhoods
- **2014** – 11 neighbourhoods
- **2015** – 8 neighbourhoods
- **2016** – Willowgrove, Sutherland, Parkridge, Hampton Village, Grosvenor Park, Stonebridge, Silverspring, Lakeridge

Timeline for Willowgrove Review:

- **Stage 1** – Identify issues & possible solutions through community consultation (June to fall 2016)

- **Stage 2** – Develop a draft traffic plan (fall 2016)
- **Stage 3** – Present draft traffic plan to community for feedback (fall 2016)
- **Stage 4** – Implement the changes over time

Sources of Information:

- Past Studies
- Collision Analysis
- Feedback from Public Consultation
- Traffic Counts & Assessments

Past Concerns Received:

- Muzyka Road - speeding
- Stensrud Road - speeding, pedestrian safety
- Willowgrove Boulevard - speeding, pedestrian safety
- Addison Road – speeding, pedestrian safety
- Patrick Crescent - speeding

Interim Measures:

- Stensrud Road:
 - Median islands (Muzyka Road, Van Impe Court/Lamarsh Road, Addison Road)
 - 4-way stop (Addison Road)
 - Active pedestrian corridor (Willowgrove Crescent)
 - Speed display board
- Addison Road & Waters Crescent – zebra crosswalk, median island & curb extension
- Willowgrove Boulevard & Maguire Crescent – curb extensions & active pedestrian corridor
- Patrick Crescent & Muzyka Road – median island

Traffic Calming Devices (Examples of devices used in Saskatoon):

1. Speed Display Boards
2. Raised Median Island – narrows road; provides center refuge for pedestrians
3. Curb Extensions – narrows road
4. Roundabouts
5. Diverter – used to address high traffic volumes
6. Right-in/right-out island - used to address high traffic volumes
7. Directional Closure – restrict movements onto the street from one direction
8. Raised median through intersection – restrict movements
9. Full closure

Pedestrian Devices:

1. Standard crosswalk
2. Zebra crosswalk (striped pavement markings)
3. Active pedestrian corridor (flashing yellow lights)
4. Pedestrian-activated signals

Corridor Reviews & Major Intersection Review:

- Created to address issues at intersections along arterial streets as Neighbourhood Traffic Reviews address local and collector streets
- Recommendations will be identified and projects will be prioritized for funding approval

Presentation from Islamic Association of Saskatchewan/Neighbourhood Committee
Members provided information on the history of their group and initiatives.

Saskatoon Police Services: 306-975-8300 OR 306-975-8068 to report a traffic complaint or a concern.

Small Group Discussions

- Breakout into small groups to discuss traffic concerns in Willowgrove and potential solutions

Group 1: Mariniel Flores

- Stensrud Rd:
 - install active pedestrian corridor, zebra crosswalks
 - U-turns in school zone – install more signs or enforcement
 - School zone is only from 8am to 5pm, extend school zone hours (ie. all day and all year) and location because there are playgrounds, ball diamonds and lots of kids
 - No cars are stopping for pedestrians
 - Paton Crescent – park with many children; speeding; speed bumps suggested
 - Speeding to McOrmond Dr to catch green light
 - Install speed display board between Greaves Cres (south) and Greaves Crescent (north)
 - Muzyka Rd – rubber median island might not be that effective; not safe to stand here
 - Transit speeding
- Waters Crescent & Addison Road (east) – pedestrian issues; extend school zone here; parking restrictions needed; active pedestrian signal suggested
- Speed bumps suggested at active pedestrian signal locations
- Waters Crescent & Addison Road (west) – mark the crosswalk with pavement markings and signs; lots of traffic
- More enforcement in neighbourhood needed
- Willowgrove Square “y” roadway – need some type of control, lane markings or signage to delineate traffic; car mirrors are getting side-swiped; southbound speeding
- Crosswalk at Willowgrove Square:
 - bushes obstruct visibility and need trimming
 - signage, and pavement markings needed
 - Break in median

- Vehicles driving the wrong way. More signage needed.
- No close to the nice pathway to Attridge Dr. Have to go through commercial area.
- Implement 40kph speed limit neighbourhood-wide
- Another access to Highway 5 is needed

Group 2: Yang Li

Location	Issue	Suggestion
Stensrud Rd	Speeding on entire Stensrud Rd, include transit bus	Increase enforcement, install speed camera, speed hump
Muzyka Rd & Stensrud Rd intersection	cars parking too close to this intersection on Muzyka SB	install no parking sign, increase enforcement
Stensrud Rd & Willowgrove Cres & Square	cars parking too close to this intersection on Stensrud Rd, block the sight line, sight line is very bad on this curve	prohibit parking on this section of Stensrud Rd, install no parking sign at each intersection to improve sight line
Patrick Ave & Way, Cres & Ave, Way & Cres	few people yield the oncoming traffic	install stop or yield sign
Willowgrove Blvd	people drive into the wrong way, wrong lane	bigger signs, pavement marking
Willowgrove Square & Stensrud Rd	difficult to cross the Stensrud Rd, people often cross from here to park and school	install ped actuated signal
Addison Rd	speeding, dangerous for kids	enforcement, speed hump, speed camera, extend the school zone to Addison Rd
Willowgrove Ave btw Cres and Terrace	too narrow, dangerous to pass by each other	prohibit one side parking
Willowgrove Ave & Cres	few people yield the oncoming traffic	install yield sign or stop sign
Lamarsh Rd	hard to cross Stensrud Rd	install ped actuated signal
Lamarsh Terr	lots people drive down here from Lamarsh Rd and make u turn here, dangerous for people living here	use garbage bin to block the non-local traffic
Addison Rd & McOrmond Rd intersection	hard to make right turn from Addison Rd EB onto McOrmond Rd	Add right turn merge lane
	date magnet on street sweeping sign is too small	need larger date

Next Steps

1. Continue monitoring traffic issues in your neighbourhood
2. Mail-in or email comments no later than July 7/16
3. Additional public input via City on-line Community Engagement webpage no later than July 7/16

<http://shapingsaskatoon.ca/discussions/willowgrove-neighbourhood-traffic-review>

4. Traffic count data collection – summer/fall 2016
5. City review of public input and data collected from traffic studies and prepare draft Traffic Plan

6. Follow-up public input meeting to provide input on draft
7. Determine revisions and finalize Traffic Plan
8. Present Traffic Plan to City Council for approval

Question & Answer

Resident: Has the city ever tried speed humps in a community?

City: Westmount has them. We typically don't recommend these devices due to concerns with Fire & Emergency response times, as well as concerns from citizens regarding noise (ie. stopping/starting and cargo in trucks).

Resident: 4-way stop at Stensrud & Shepherd. Any data that it's effective to address speeding?

City: We don't have data now. It's a temporary measure with the median islands. We have the 'before' data and will be doing 'after' studies going forward.

Resident: If we want speed humps, what would it take? Not neighbourhood-wide. Just a few specific locations.

City: Present petition to Council. Give us a chance to present data and suggest solutions like we are doing in other neighbourhoods first.

Resident: Time frame concern. People are driving fast and lots of pedestrians. What will it take to address these issues now?

City: As part of the process, we have to look at data.

Resident: If not speed humps, then how about 'Playground' signs?

City: We'll consider that.

Resident: Why are school zones not in effect all year?

City: Council set them in 2001. It was researched and decided back then. Transportation is not reviewing it. Not just in Willowgrove. It's a city-wide initiative.

Resident: Are there any communities that have 40kph speed limits?

City: Montgomery will this fall. Based on research, does not reduce collisions of reduce speeds. But Montgomery has no sidewalks.

Resident: What resources are spent in neighbourhood traffic?

Police: Case-by-case. Complaint-based. Call Police Services and provide information such as name, address, and the traffic issue.

Resident: Are there areas in Willowgrove where enforcement is set up?

Police: None that come to mind. Priority are arterials and collectors. McOrmond Drive for example.

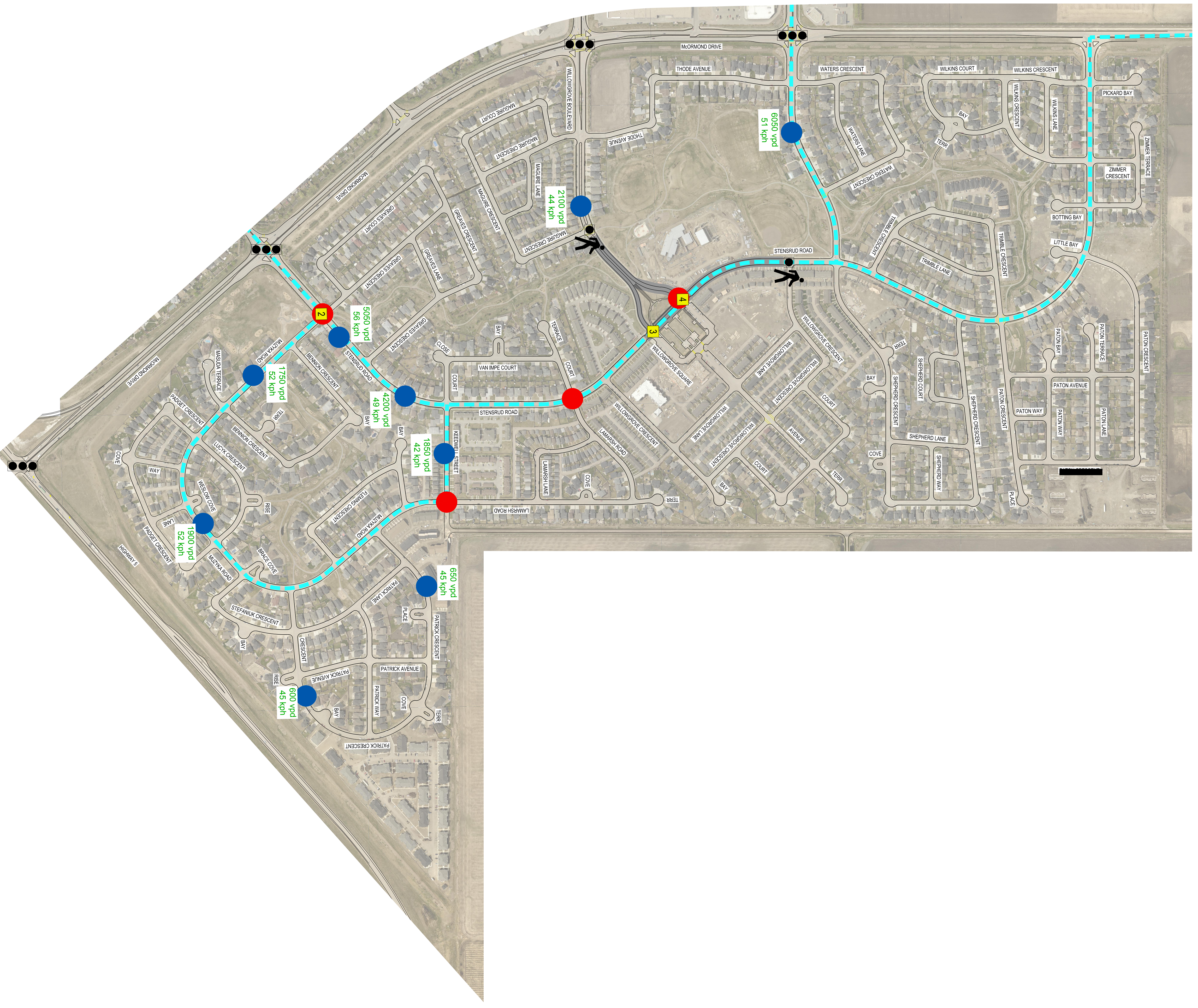
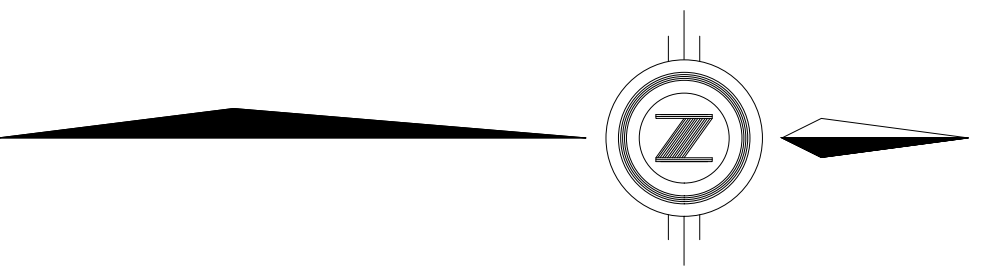
APPENDIX B: TRAFFIC DATA COLLECTION

WILLOWGROVE TRAFFIC DATA



LEGEND

- 3 AVERAGE NUMBER OF COLLISIONS PER YEAR [2011-2015]
- TRAFFIC + PEDESTRIAN COUNT
- 7-DAY TRAFFIC VOLUME + SPEED STUDY
- 786 vpd — NUMBER OF VEHICLES PER DAY
- 47.2 kph — 85th PERCENTILE SPEED



APPENDIX C: PEDESTRIAN DEVICE ASSESSMENTS

Addison Rd & Water Cres (east):

Location & Roadway Classification: Addison Rd & Waters Cres (east)
Date of Count: Day of wk: Wed Mth, Day, Yr: Sep 9/15
Weather: fair
Traffic Control Devices: stop sign
Current Pedestrian Control: zebra
Other Notes: median island & curb extension; lots of kids on bikes; lots of strollers; park paths on both sides

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

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

Speed limit (or 85th percentile speed) 50 km/h

85th percentile (check one)

Posted Limit

Distance to nearest protected crosswalk 150 m

Location: Stensrud

Type: 4-way stop

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

Duration of pedestrian count 5 hrs

Elementary:	95	Total Warranted PC Points:	22,340	or	5,585	/ period
High School:		Highest PC point value:	6,728	at		
Adult:	41	Active Ped Corridor Points:	4			
Senior:		Pedestrian Actuated Signal Points:	29			
Vehicles passing through crosswalk(s):	1,288					

ACTIVE PEDESTRIAN CORRIDOR WARRANTED

PEDESTRIAN ACTUATED SIGNAL NOT WARRANTED

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	75	75			1		1	0.5	0.5	38	
8:15	102	177	13		3		16	14.5	15	2,655	
8:30	93	195	17		6		23	20	34.5	6,728	1
8:45	55	148	13		3		16	14.5	34.5	5,106	1
9:00		55							14.5	798	
9:15											
9:30											
9:45											
AM Totals	325		43		13		56				
11:30	38										
11:45	40	78									
12:00	49	89									
12:15	37	86									
12:30	62	99									
12:45	43	105									
13:00	53	96									
13:15	38	91									
Noon Totals	360										
14:00											
14:15											
14:30											
14:45											
15:00	66	66	4		5		9	6.5	6.5	429	
15:15	74	140	9		1		10	9.5	16	2,240	
15:30	98	172	18		5		23	20.5	30	5,160	1
15:45	64	162	10		5		15	12.5	33	5,346	1
16:00	70	134	2				2	2	14.5	1,943	
16:15	73	143	5		4		9	7	9	1,287	
16:30	94	167	2		3		5	3.5	10.5	1,754	
16:45	64	158	2		5		7	4.5	8	1,264	
17:00		64							4.5	288	
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	603		52		28		80				
Totals	1,288		95		41		136				
			70%		30%		100%				
			West Crosswalk =			1					
			East Crosswalk =			135					

<<< install crosswalk on this side of the int.

Stensrud Rd & Muzyka Rd / Greaves Cres:

Location & Roadway Classification: Stensrud & Muzyka / Greaves - collector / collector
Date of Count: Day of wk: Tues Mth, Day, Yr: Sep 13/16
Weather: fair
Traffic Control Devices: stop sign
Current Pedestrian Control: standard (north side)
Other Notes: _____

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

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

Speed limit (or 85th percentile speed) 50 km/h

85th percentile (check one)

Posted Limit

Distance to nearest protected crosswalk 230 m

Location: McOrmond

Type: TS

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

Duration of pedestrian count 5 hrs

Elementary:		Total Warranted PC Points:		or	/ period
High School:		Highest PC point value:	2,490	at	
Adult:	38	Active Ped Corridor Points:			
Senior:		Pedestrian Actuated Signal Points:	23		
Vehicles passing through crosswalk(s):	3,571				

ACTIVE PEDESTRIAN CORRIDOR NOT WARRANTED
PEDESTRIAN ACTUATED SIGNAL NOT WARRANTED

Time (15 minute intervals)	Vehicle Counts		Pedestrian Counts					P.C.		Periods Wrnt'd (1=Yes)	Points of Wrnt'd Periods	
			Total Both Sides					Factored Counts				Warrant
	15 min.	30 min.	Child	Teen	Adult	Senior / Impaired	Total	15 min.	30 min.	Points		
7:00												
7:15												
7:30												
7:45												
8:00	244	244										
8:15	238	482										
8:30	202	440			2		2	1	1	440		
8:45	158	360							1	360		
9:00		158										
9:15												
9:30												
9:45												
AM Totals	842				2		2					
11:30	94				1		1	0.5				
11:45	111	205							0.5	103		
12:00	144	255			1		1	0.5	0.5	128		
12:15	131	275			1		1	0.5	1	275		
12:30	140	271			1		1	0.5	1	271		
12:45	157	297							0.5	149		
13:00	121	278										
13:15	112	233			1		1	0.5	0.5	117		
Noon Totals	1,010				5		5					
14:00												
14:15												
14:30												
14:45												
15:00	152	152			4		4	2	2	304		
15:15	167	319			7		7	3.5	5.5	1,755		
15:30	221	388			3		3	1.5	5	1,940		
15:45	194	415			9		9	4.5	6	2,490		
16:00	215	409			2		2	1	5.5	2,250		
16:15	254	469			1		1	0.5	1.5	704		
16:30	248	502			3		3	1.5	2	1,004		
16:45	268	516			2		2	1	2.5	1,290		
17:00		268							1	268		
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	1,719				31		31					
Totals	3,571				38		38					
					100%		100%					
					West Crosswalk =		1					
					East Crosswalk =		37					

<<< install crosswalk on this side of the int.

Keedwell St & Muzyka Rd / Lamarsh Rd:

Location & Roadway Classification: Keedwell & Muzyka/Lamarsh
Date of Count: Day of wk: Wed Mth, Day, Yr: Jul 6/16
Weather: fair
Traffic Control Devices: yield sign
Current Pedestrian Control: none
Other Notes: _____

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

Type: _____

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

Duration of pedestrian count 5 hrs

Elementary:	5	Total Warranted PC Points:		or	/ period
High School:		Highest PC point value:	266	at	
Adult:	11	Active Ped Corridor Points:			
Senior:		Pedestrian Actuated Signal Points:	28		
Vehicles passing through crosswalk(s):	490				

ACTIVE PEDESTRIAN CORRIDOR NOT WARRANTED
PEDESTRIAN ACTUATED SIGNAL NOT WARRANTED

Time (15 minute intervals)	Vehicle Counts		Pedestrian Counts					P.C.		Periods Wrnt'd (1=Yes)	Points of Wrnt'd Periods	
			Total Both Sides					Factored Counts				Warrant
	15 min.	30 min.	Child	Teen	Adult	Senior / Impaired	Total	15 min.	30 min.	Points		
7:00												
7:15												
7:30												
7:45												
8:00	17	17										
8:15	17	34										
8:30	23	40										
8:45	23	46										
9:00		23										
9:15												
9:30												
9:45												
AM Totals	80											
11:30	20											
11:45	24	44										
12:00	31	55										
12:15	27	58										
12:30	22	49										
12:45	24	46										
13:00	27	51			1		1	0.5	0.5	26		
13:15	19	46			1		1	0.5	1	46		
Noon Totals	194				2		2					
14:00												
14:15												
14:30												
14:45												
15:00	14	14			1		1	0.5	0.5	7		
15:15	23	37			1		1	0.5	1	37		
15:30	22	45	1				1	1	1.5	68		
15:45	29	51	2				2	2	3	153		
16:00	30	59	2		1		3	2.5	4.5	266		
16:15	29	59							2.5	148		
16:30	44	73			3		3	1.5	1.5	110		
16:45	25	69			3		3	1.5	3	207		
17:00		25							1.5	38		
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	216		5		9		14					
Totals	490		5		11		16					
			31%		69%		100%					
			West Crosswalk =				11	<<< install crosswalk on this side of the int.				
			East Crosswalk =				5					

Stensrud Rd & Lamarsh Rd

Location & Roadway Classification: Stensrud & Lamarsh - collector / local
Date of Count: Day of wk: Wed Mth, Day, Yr: Jul 6/16
Weather: fair
Traffic Control Devices: stop sign
Current Pedestrian Control: standard (north side)
Other Notes: _____

Number of travel lanes passing through the crosswalk(s) 2 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 500 m

Location: NA

Type: _____

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

Duration of pedestrian count 5 hrs

Elementary:	5	Total Warranted PC Points:		or	/ period
High School:		Highest PC point value:	471	at	
Adult:	9	Active Ped Corridor Points:			
Senior:		Pedestrian Actuated Signal Points:	30		
Vehicles passing through crosswalk(s):	1,419				

ACTIVE PEDESTRIAN CORRIDOR NOT WARRANTED
PEDESTRIAN ACTUATED SIGNAL NOT WARRANTED

Time (15 minute intervals)	Vehicle Counts		Pedestrian Counts					P.C.		Periods Wrnt'd (1=Yes)	Points of Wrnt'd Periods	
			Total Both Sides					Factored Counts				Warrant
	15 min.	30 min.	Child	Teen	Adult	Senior / Impaired	Total	15 min.	30 min.	Points		
7:00												
7:15												
7:30												
7:45												
8:00	61	61										
8:15	67	128										
8:30	64	131	2				2	2	2	262		
8:45	64	128							2	256		
9:00		64										
9:15												
9:30												
9:45												
AM Totals	256		2				2					
11:30	62											
11:45	74	136			1		1	0.5	0.5	68		
12:00	59	133			4		4	2	2.5	333		
12:15	53	112							2	224		
12:30	62	115										
12:45	60	122										
13:00	54	114										
13:15	68	122										
Noon Totals	492				5		5					
14:00												
14:15												
14:30												
14:45												
15:00	61	61			1		1	0.5	0.5	31		
15:15	73	134	1				1	1	1.5	201		
15:30	71	144							1	144		
15:45	78	149	2		1		3	2.5	2.5	373		
16:00	79	157			1		1	0.5	3	471		
16:15	89	168							0.5	84		
16:30	107	196										
16:45	113	220			1		1	0.5	0.5	110		
17:00		113							0.5	57		
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	671		3		4		7					
Totals	1,419		5		9		14					
			36%		64%		100%					
			North Crosswalk =				13	<<< install crosswalk on this side of the int.				
			South Crosswalk =				1					

Stensrud Rd & Willowgrove Blvd / Square (west):

Location & Roadway Classification: Stensrud & Willowgrove Square (east)
Date of Count: Day of wk: Tues Mth, Day, Yr: Jan 24/17
Weather: fair
Traffic Control Devices: stop sign
Current Pedestrian Control: zebras, curb extensions
Other Notes: _____

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

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

Speed limit (or 85th percentile speed) 30 km/h

85th percentile (check one)

Posted Limit

Distance to nearest protected crosswalk 210 m

Location: Willowgrove Cres

Type: APC

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

Duration of pedestrian count 5 hrs

Elementary:	225	Total Warranted PC Points:	108,888	or	15,555	/ period
High School:		Highest PC point value:	27,547	at		
Adult:	120	Active Ped Corridor Points:	7			
Senior:		Pedestrian Actuated Signal Points:	74			
Vehicles passing through crosswalk(s):	1,841					

ACTIVE PEDESTRIAN CORRIDOR WARRANTED
PEDESTRIAN ACTUATED SIGNAL NOT WARRANTED

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	134	134			2		2	1	1	134		
8:15	120	254	17		4		21	19	20	5,080	1	
8:30	176	296	44		10		54	49	68	20,128	1	
8:45	150	326	29		13		42	35.5	84.5	27,547	1	
9:00		150							35.5	5,325	1	
9:15												
9:30												
9:45												
AM Totals	580		90		29		119					
11:30	49		3		10		13	8				
11:45	46	95			1		1	0.5	8.5	808		
12:00	49	95	2		2		4	3	3.5	333		
12:15	65	114	5		3		8	6.5	9.5	1,083		
12:30	71	136	5		3		8	6.5	13	1,768		
12:45	54	125	2		4		6	4	10.5	1,313		
13:00	49	103			1		1	0.5	4.5	464		
13:15	45	94							0.5	47		
Noon Totals	428		17		24		41					
14:00												
14:15												
14:30												
14:45												
15:00	73	73	25		16		41	33	33	2,409		
15:15	112	185	66		20		86	76	109	20,165	1	
15:30	121	233	19		15		34	26.5	102.5	23,883	1	
15:45	87	208	4		4		8	6	32.5	6,760	1	
16:00	116	203			6		6	3	9	1,827		
16:15	118	234	2		2		4	3	6	1,404		
16:30	92	210	2		2		4	3	6	1,260		
16:45	114	206			2		2	1	4	824		
17:00		114							1	114		
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	833		118		67		185					
Totals	1,841		225		120		345					
			65%		35%		100%					
			North Crosswalk =				319	<<< install crosswalk on this side of the int.				
			South Crosswalk =				26					

APPENDIX D: TRAFFIC SIGNALS ASSESSMENTS

Main Street (name)	Stensrud	Direction (EW or NS)	EW
Side Street (name)	Muzyka	Direction (EW or NS)	NS
Quadrant / Int #		Comments	JM
for Warrant Calculation Results, please hit 'Page Down'	CHECK SHEET		

Road Authority:	City of Saskatoon
City:	Saskatoon
Analysis Date:	11/14/2016
Count Date:	09/13/2016
Date Entry Format:	(yyyy-mm-dd)

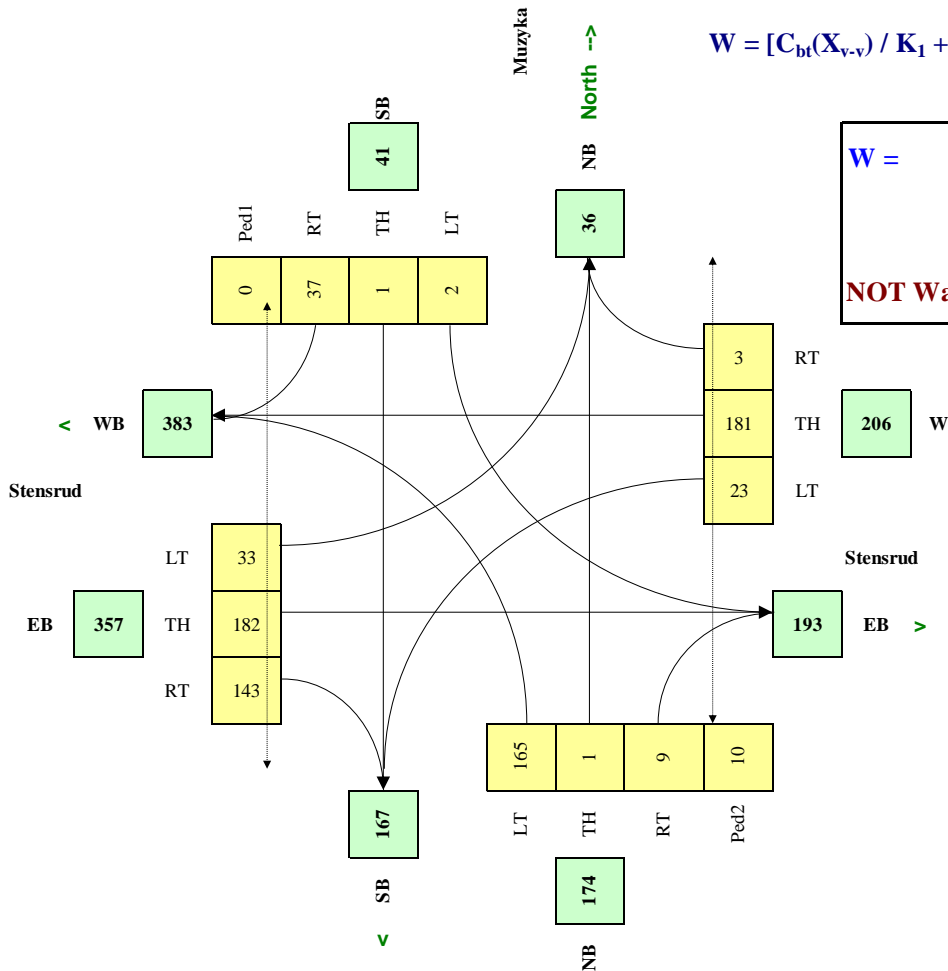
Lane Configuration		Excl LT	Th & LT	Through	Th+RT+LT	Th & RT	Excl RT	Upstream Signal (m)	# of Thru Lanes
Stensrud	WB		1				1	800	1
Stensrud	EB		1				1	300	1
Muzyka	NB		1				1		
Muzyka	SB		1				1		

Demographics		
Elem. School/Mobility Challenged	(y/n)	n
Senior's Complex	(y/n)	n
Pathway to School	(y/n)	n
Metro Area Population	(#)	250,000
Central Business District	(y/n)	n

Other input		Speed (Km/h)	Truck %	Bus Rt (y/n)	Median (m)
Stensrud	EW	50	1.0%	y	
Muzyka	NS	50	1.0%	y	

Traffic Input	Set Peak Hours												Ped1	Ped2	Ped3	Ped4
	NB			SB			WB			EB			NS	NS	EW	EW
	LT	Th	RT	LT	Th	RT	LT	Th	RT	LT	Th	RT	W Side	E Side	N Side	S Side
7:00 - 8:00	292	0	4	2	1	59	1	333	0	4	57	34		12	1	
8:00 - 9:00	226	2	22	4	2	53	8	306	4	9	127	79		5	3	
11:30 - 12:30	97	0	5	1	3	18	97	0	5	26	130	108		5	2	
12:30 - 13:30	118	0	0	2	0	23	5	120	1	27	126	108		3	1	
4:00 - 5:00	134	0	12	2	0	35	14	162	3	59	318	246	1	13	12	
5:00 - 6:00	121	2	10	2	2	36	11	165	2	70	334	281	1	19	19	
Total (6-hour peak)	988	4	53	13	8	224	136	1,086	15	195	1,092	856	2	57	38	0
Average (6-hour peak)	165	1	9	2	1	37	23	181	3	33	182	143	0	10	6	0

Average 6-hour Peak Turning Movements



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

W =	56	52	4
		Veh	Ped
NOT Warranted			

RESET SHEET

APPENDIX E: COLLISION ANALYSIS

Street 1	Street 2	Ugrid	All collisions (2011-2015)	All collisions (2015)	Right Angle, Left Turn & Right Turn only (2011-2015)	Right Angle, Left Turn & Right Turn only (2015)	Average # of Collisions (2011 - 2015)
Stensrud Rd	Pickard Bay	P4-8	1	0	0	0	0
Stensrud Rd	Pickard Bay to Zimmer Cres	P4-3	2	0	0	0	0
Stensrud Rd	Paton Cres / Trimble Cres	Q4-1	7	1	2	0	1
Stensrud Rd	Addison Rd	Q5-8	7	0	2	0	1
Stensrud Rd	Addison Rd to Willowgrove Blvd	Q5-26	1	0	0	0	0
Stensrud Rd	Willowgrove Blvd / Square (west)	Q5-7	18	3	7	1	4
Stensrud Rd	Willowgrove Blvd / Square (east)	Q5-34	17	0	7	0	3
Stensrud Rd	Willowgrove Blvd to Willowgrove Cres	Q5-22	4	2	1	0	1
Stensrud Rd	Lamarsh Rd	Q5-16	7	2	2	1	1
Stensrud Rd	Lamarsh Rd to Keedwell St	Q5-15	7	1	0	0	1
Stensrud Rd	Muzyka Rd / Greaves Cres	Q6-24	8	1	4	1	2
Zimmer Terrace	midblock	Q4-6	2	1	0	0	0
Paton Ave	Paton Way	Q4-7	2	0	1	0	0
Shepherd Terrace	midblock	Q4-5	6	1	1	0	1
Shepherd Cres	100 block	Q4-8	1	0	0	0	0
Wilkins Crt	midblock	P4-4	2	0	0	0	0
Waters Lane	midblock	Q5-29	1	0	0	0	0
Addison Rd	Water Cres to Waters Cres	Q5-30	1	0	0	0	0
Addison Rd	Waters Cres (east)	Q5-35	1	1	0	0	0
Willowgrove Cres	900 block	Q5-23	2	0	0	0	0
Willowgrove Ave	700 block	Q5-31	1	0	0	0	0
Willowgrove Cres	800 block	Q5-10	3	0	0	0	1
Willowgrove Lane	midblock	Q5-28	1	0	0	0	0
Willowgrove Cres	100 block	Q5-24	3	0	0	0	1
Willowgrove Blvd	McOrmond Dr to Maguire Cres	P5-42	7	4	0	0	1
Willowgrove Blvd	Maguire Cres to Maguire Cres	Q5-4	5	0	0	0	1
Willowgrove Blvd	Maguire Cres (east)	Q5-21	5	2	1	0	1
Maguire Cres	600 block	Q5-5	1	0	0	0	0
Maguire Cres	900 block	Q5-6	2	0	1	0	0
Van Impe Terr	midblock	Q5-32	1	0	0	0	0
Lamarsh Rd	600 block	Q5-20	2	1	0	0	0
Lamarsh Rd	Lamarsh Lane	Q5-33	1	0	0	0	0
Lamarsh Rd	100 block	Q5-25	1	0	0	0	0
Keedwell St	Lamarsh Rd / Muzyka Rd	Q6-29	2	0	1	0	0
Keedwell St	100 block	Q6-26	5	5	1	0	1
Greaves Cres	700 block	Q5-3	2	0	1	0	0
Greaves Cres	900 block	Q6-28	1	0	0	0	0
Greaves Cres	100 block	Q6-35	1	1	0	0	0
Patrick Cres	Patrick Pl	R6-3	2	0	0	0	0
Patrick Cres	Patrick Ave (north)	R6-1	2	0	0	0	0
Patrick Cres	Patrick Way	R6-2	1	0	0	0	0
Patrick Way	Patrick Cres to Patrick Ave	R6-6	1	0	0	0	0
Patrick Cres	Patrick Lane to Patrick Ave (south)	R6-5	1	0	1	0	0
Patrick Rise	midblock	R6-4	3	1	0	0	1
Muzyka Rd	Patrick Cres (north)	R6-9	1	0	0	0	0
Muzyka Rd	Patrick Cres (north) to Fleming Cres (south)	R6-8	3	2	0	0	1
Brace Cove	midblock	R6-7	1	0	0	0	0
Muzyka Rd	Padget Way (south)	Q6-34	1	0	0	0	0
Bennion Cres	600 block	Q6-33	1	0	0	0	0

APPENDIX F: PUBLIC MEETING No. 2 – NOVEMBER 23, 2016 MINUTES

**Willowgrove Neighbourhood
Traffic Review
Wednesday, November 23, 2016, 7:00 – 9:00 P.M.
SaskTel Sports Centre
150 Nelson Road**

Facilitators:

- Mitch Riabko & Kathy Dahl (Great Works Consulting)

Agenda

- Welcome & introductions
- Presentation from the Transportation Division
- Small group discussions
- Small group discussion – report back to large group
- Next Steps
- Question / Answers

Presentation from Transportation Division – Willowgrove Neighbourhood Traffic Review
(Presented by Justine Marcoux – Transportation Engineer)

Presentation Outline:

- Neighbourhood Traffic Review Process
- Willowgrove Review Schedule
- What We Heard
- What We Did
- What We Propose

Neighbourhood Traffic Review Process:

- August 2013 – changes to program
 - Neighbourhood-wide review rather than street-by-street or intersection-by-intersection
 - More community / stakeholder feedback
 - Efficient use of staff resources
- Mandate: improve safety for all road users within neighbourhoods; reduce traffic volumes where necessary, slow vehicular speeds, improve pedestrian crossings & intersections
- 2014 – 11 neighbourhoods
- 2015 – 8 neighbourhoods
- 2016 – Willowgrove, Grosvenor Park, Hampton Village, Sutherland, Parkridge, Silverspring, Lakeridge, Stonebridge

How We Got Here:

- June 2016 – Initial Traffic Meeting
- June to November 2016 – gather feedback, conduct traffic studies, collect data, develop traffic plan
- November 2016 – Follow Up Traffic Meeting - present draft traffic plan and gather feedback
- 2017 – Revise draft traffic plan, approval from Council, implement recommendations

What We Heard:

A. Speeding / Pedestrian Safety:

- Muzyka Rd
- Stensrud Rd
- Willowgrove Blvd
- Addison Rd
- Patrick Cres
- Paton Cres
- Lamarsh Rd

B. Other:

- Keedwell St – high traffic volumes; road is narrow due to parking on both sides
- Cul-de-sacs – drivers entering thinking it's a through road and speeding out
- Back lanes – speeding
- Patrick Ave / Lane / Way – danger at uncontrolled intersections
- Willowgrove Square – lane designation needed

What We Did:

- Collected Data:
 - Past studies
 - Comments from initial meeting
 - Resident responses (phone calls, emails, letters)
 - Recorded comments from Shaping Saskatoon discussions
 - 4 Intersection / Pedestrian counts
 - 9 – 7 day traffic count (24 hour) & Average Speed measurements
 - Collision history
- Field Reviews
- Assessed the Issues
- Generated proposed recommendations

What We Propose:

- Raised Median Islands & Curb Extensions
- Directional Closure
- Speed Display Board
- Active Pedestrian Corridor
- Crosswalks
- Yield signs
- Parking restrictions
- General signs (cul-de-sacs, 20kph, playground)
- **Saskatoon Police Services: 306-975-8300 OR 306-975-8068 to report a traffic complaint or a concern.**

Small Group Discussions

- Breakout into small groups to discuss traffic concerns in Willowgrove and potential solutions

Refer to separate attachment for small group comments.

Next Steps

1. Send comments no later than Dec 23/16
2. Additional public input via City on-line Community Engagement webpage no later than Dec 23/16

<http://shapingsaskatoon.ca/discussions/willowgrove-neighbourhood-traffic-review-meeting>

3. Additional consultation if required
4. Present traffic plan to Transportation Committee
5. Present traffic plan to City Council for approval
6. What happens after City Council approval?
 - Implementation begins. Signs and temporary traffic calming will be installed as early as next spring (2017)
7. What if I don't agree?
 - Opportunities to speak to Transportation Committee as well as Council,
 - After Council approval recommendations are installed temporary. Opportunity to provide feedback on how the devices are working. Feedback will help us decide whether to remove or install permanent.

Q&A

Resident: Will Lowe Road and Nelson Road (currently a 4-way stop) have traffic signals?

Councillor Jeffries: I put in a request to the Administration to review the intersection and traffic signals were recommended.

City: This location is on the city-wide priority list for traffic signals and will be installed when funded.

Resident: When will the McOrmond / Highway 5 Interchange be built?

City: Construction is expected to begin in spring 2017 and wrap up in October 2018. Bids on the project need to be in by December. At that time there will be more information on the design, construction, and public consultation. Information will be posted to the Shaping Saskatoon website if there's any information currently available.

Resident: How will the interchange line up with Brighton? Will it connect to 8th St?

City: Information will be posted to Shaping Saskatoon if available. If information has not yet been released, it will be in the future as part of that project. (Additional information: the interchange will provide a connection to the Brighton neighbourhood and McOrmond Rd

from Highway 5. There is currently a heavy demand for the left turn movement from Highway 5 that needs to be addressed due to safety. The interchange will address these issues.)

List of Representatives

Mitch Riabko, Kathy Dahl – Great Works Consulting, Facilitators

Justine Marcoux, Lanre Akindipe, Yang Li – City of Saskatoon, Transportation & Utilities

APPENDIX G: DECISION MATRIX

APPENDIX G: DECISION MATRIX

Item	Location	Recommendation	Reason	Group 1: Yang Li	Group 2: Lanre Akindipe	Group 3: Justine Marcoux	Additional Comments Received	Decision
1	Stensrud Rd & Muzyka Rd	Add temporary curb extensions on the northeast & southeast corners (existing median island); zebra crosswalk	Reduce driver speed; improve pedestrian safety near park	support recommendation; install 4-way stop or pedestrian light	Need to consider turning radius for buses / fire trucks (southwest corner); crosswalk on the northwest side connecting to the park needed	do not support curb extensions; speeding in northbound is major concern (accelerating) so consider speed display board facing northbound traffic; pedestrian safety is a concern; add zebra crosswalk to south side; trim vegetation on median south of the intersection; parking on Greaves Cres is a concern	This is a really bad intersection to turn left at in the winter. You need to find a way to slow cars down going south bound on Stensrud so that people can have extra time to turn left and leave the neighbourhood. What you are proposing is great for pedestrians and park crossings but does not solve all the issues at this intersection. In addition, the southwest corner of the intersection has a bulb-out which causes problems for large vehicles to turn this corner.	Traffic signals, four-way stop and pedestrian devices are not warranted. No changes recommended to the southwest curb extension as there is a catch basin that requires moving so costs would be high. New curb extensions will be designed taking buses / fire trucks into account. Crosswalks aren't necessary on the same road where a stop sign is facing (ie. northwest side). Remove northeast curb extension from recommendation (because Group 3 did not support) but keep southeast curb extension to address northbound speeding. Add zebra crosswalk on west leg. A request will be sent to Parks to trim the hedges on the median to improve visibility during the spring / summer months if needed. No Parking signs on Greaves Crescent will not improve visibility on the major roadway (ie. Stensrud Rd) therefore signs are not needed.
2	Stensrud Rd - north of Keewell St	Speed display board facing southbound traffic	Reduce driver speed					Carried.
3	Stensrud Rd & Van Impe Cr / Lamarsh Rd	Permanent median island	Reduce driver speed & improve pedestrian safety					Carried.
4	Stensrud Rd & Willowgrove Blvd / Square (east side)	Lane designation for Willowgrove Blvd - left lane is left turn only, right lane is shared through / right turn	Improve traffic flow		Do Not Enter signs need to be more visible; check signs; visibility issues for left turning vehicles due to vegetation; dangerous intersection due to speeding and jaywalking on Stensrud	trim hedge on left side of intersection to improve visibility		Carried. Site check determined Do Not Enter signs were visible (already double signed / signs on both sides of the road). Site check determined hedges / vegetation did not obstruct driver's view. Conditions may be worse in summer. No further recommendations.
5	Stensrud Rd & Addison Rd / Shepherd Cres	Permanent median islands	Enhance visibility of stop signs; improve pedestrian safety near school	add reflective strip to sign post		rolling through stop signs		Carried.
6	Stensrud Rd & Paton Cres (south)	Permanent median island	Reduce driver speed & improve pedestrian safety near park	add reflective strip to sign post		include area in school zone		Carried.
7	Addison Rd & Waters Cres (east)	Permanent median island & curb extension; Active Pedestrian Corridor; Parking restrictions on southeast corner (park side)	Improve pedestrian safety near park / school; ensure clearance for buses to pass through median island & parked vehicles		include Addison Rd in school zone			Carried. School Zone not needed with these additional measures.
8	Addison Rd between Waters Cres (east) & Waters Cres (west)	Speed display board facing eastbound traffic; forward speed data to Saskatoon Police Service for enforcement	Reduce driver speed near park	not necessary when there is Active Pedestrian Corridor				Carried.
9	Willowgrove Blvd & Maguire Cres (east)	Permanent curb extensions	Improve pedestrian safety near park / school					Carried.
10	Keedwell St & Larmarsh Rd / Muzyka Rd	Directional closure (restrict all southbound movements onto Muzyka Rd); change yield signs to stop signs	Reduce traffic volume on Keedwell St (approximately 40% of the traffic at Keedwell & Muzyka / Lamarsh makes an eastbound right turn from Keedwell to Muzyka; encourage drivers to use Muzyka Rd to access properties south of Keedwell); improve intersection safety on Transit route	Keedwell St is too narrow; want less traffic on Keedwell; direct traffic to Muzyka; move southbound traffic onto Muzyka from Stensrud		Not in support; directional closure will move traffic to Lamarsh Rd; parking on Keedwell St makes it too narrow to pass oncoming vehicle; issues with fire / emergency vehicles getting through; restrict parking on one side of Keedwell St	NO SUPPORT. Don't want to take away parking from anyone but if there was an option to create three or four alternating no parking areas along the road (similar to a bus stop zone) where people can pull over as they go through the gauntlet, this could work. Could the Transportation Division look at making the dead-end of Keedwell and RR 3045 a visitor short term angled parking area for any cars that would have parked on Keedwell but now can't? I know the City is not in the business of providing on-street parking for suburban areas but this may be a way to allow traffic to flow on Keedwell and also make the dead-end look finished	Removed. Do not support removal of parking on Keedwell Street as it may create speeding and penalizes residents living on Keedwell Street (ie. less parking). Continue to monitor the area (ie. collisions) to see if changes are needed.

Item	Location	Recommendation	Reason	Group 1: Yang Li	Group 2: Lanre Akindipe	Group 3: Justine Marcoux	Additional Comments Received	Decision
11	Muzyka Rd & Patrick Cres (south)	Permanent median island; add temporary curb extension on park side	Reduce driver speed for right turn onto Patrick Cres			No need for curb extension; speed display board needed for northbound prior to intersection	I am not against making the temp. median permanent but instead of temp. curb extensions, have the same crew that is installing the permanent median, install a permanent curb extension that also includes five or six decorative black bollards. These bollards could be the same as the ones on 25th street and Broadway so that the City has replacement bollards if damage occurs. The existing industrial barricades are unsightly, and get graffitied multiply times a year.	Removed curb extension from recommendation. Median island will address issues.
12	Patrick Cres (north) & Patrick Lane	No Parking signs on Patrick Cres 20m from intersection on southeast corner	Enhance visibility/sightlines					Carried.
13	Patrick Ave & Patrick Way	Yield signs (facing Patrick Ave)	Improve intersection safety		yield signs at each Avenue; shortcutting & slow down speeds on Patrick Cres; look for options		Resident not in favour of yield sign installed on their lawn; visibility is fine, collisions are low therefore removed from recommendations	Yield signs are not used as speed control devices; visibility is good and collisions are low therefore removed from recommendations.
14	Paton Cres (south) east of Paton Ave	Playground Ahead sign facing westbound traffic	Reduce driver speed near park					Carried.
15	Willowgrove Terr & Willowgrove Crt	Yield signs (facing Willowgrove Crt)	Improve intersection safety					Carried.
16	Willowgrove Ave & Willowgrove Cres	Yield signs (facing Willowgrove Ave)	Improve intersection safety					Carried.
17	Back lane behind 510 Stensrud Rd	20kph sign	Reduce driver speed					Carried.
18	Lamarsh Terr	Cul-de-sac sign	Reduce traffic volumes					Carried.
19	Paton Pl							Carried.
20	Willowgrove Terr							Carried.

APPENDIX H: ADDITIONAL CONCERNS RECEIVED AFTER PRESENTATION OF DRAFT
PLAN

APPENDIX H: ADDITIONAL CONCERNS

Item	Location	Comments	Response	Added to Final Recommendations
1	Stensrud & McOrmond	Install Traffic Signals	Traffic signals already proposed in 2018	
2	Back lanes in front of schools on Stensrud	Speeding / shortcutting	Add 20kph signs in the back lane behind 810 Stensrud Road (across from Willowgrove School)	X
3	Patrick Cres at Ginger Loft driveways	No Parking signs needed to improve visibility; the amount of on-street parking restricts visibility for those leaving the Ginger Lots and also those trying to turn onto Patrick Cres. from Patrick Way.	Install No Parking signs on either side of both driveways to the Ginger Lofts on Patrick Crescent	X
4	Willowgrove Blvd / Attridge Dr & McOrmond	Long waits to get in / out of Willowgrove	Comments noted for further consideration as part of the Major Intersection Reviews	
5	Addison & Waters / Thoede	Crosswalk on the east side needed	Only 70 metres from a protected crossing at McOrmond Drive. Encourage crossing at Waters Crescent (east) instead. No further recommendations.	
6	Willowgrove Blvd & Maguire Cres (east)	Parking is blocking crosswalks	Add No Parking sign on the southwest corner on the Willowgrove Blvd to denote 10m	X
7	Willowgrove Blvd at midblock crosswalk between Maguire Cres & Stensrud	Parking is blocking crosswalk	Existing No Stopping signs on north side (southbound side). Add No Stopping signs on the south side (northbound side) 10m on either side of the crosswalk	X
8	Patrick Cres & Patrick Lane / Stefaniuk Cres	Stop or yield signs needed	Install yield signs facing Patrick Lane / Stefaniuk Cres. Only one collision noted therefore stop signs and 4-way stop are not warranted.	X
9	Muzyka & Patrick	Large concrete barricades are unsightly	Jersey barriers were installed to protect the adjacent property owners fence; discussions will need to take place outside of the Willowgrove Neighbourhood Traffic Review with the property owner to discuss other devices	
10	Patrick Ave & Patrick Cres (north); Patrick Ave & Patrick Cres (south)	Install yield signs	As outlined in Policy C07-007, yield signs are warranted where a unique problem exists. In this case, Patrick Crescent is a curved road making it difficult to see from Patrick Avenue, therefore yield signs are recommended at both locations	X
11	Stensrud Rd & Willowgrove Blvd (north side)	Pedestrian controlled lights needed - this is a highly used pedestrian crossing (primarily children), especially at the start and end of a school day for both schools as well as the day care	Active Pedestrian Corridor warranted	X
12	All median island locations	Wrap sign posts with reflective tape so that is visible at all sides. The sign at Paton/Trimble and Stensrud was recently knocked down and you can tell by the tire tracks that it was from someone turning left off of Trimble. These posts are not always clear on the side and there is really next to no cost for the tape.	Comments noted for further consideration for all locations city-wide.	