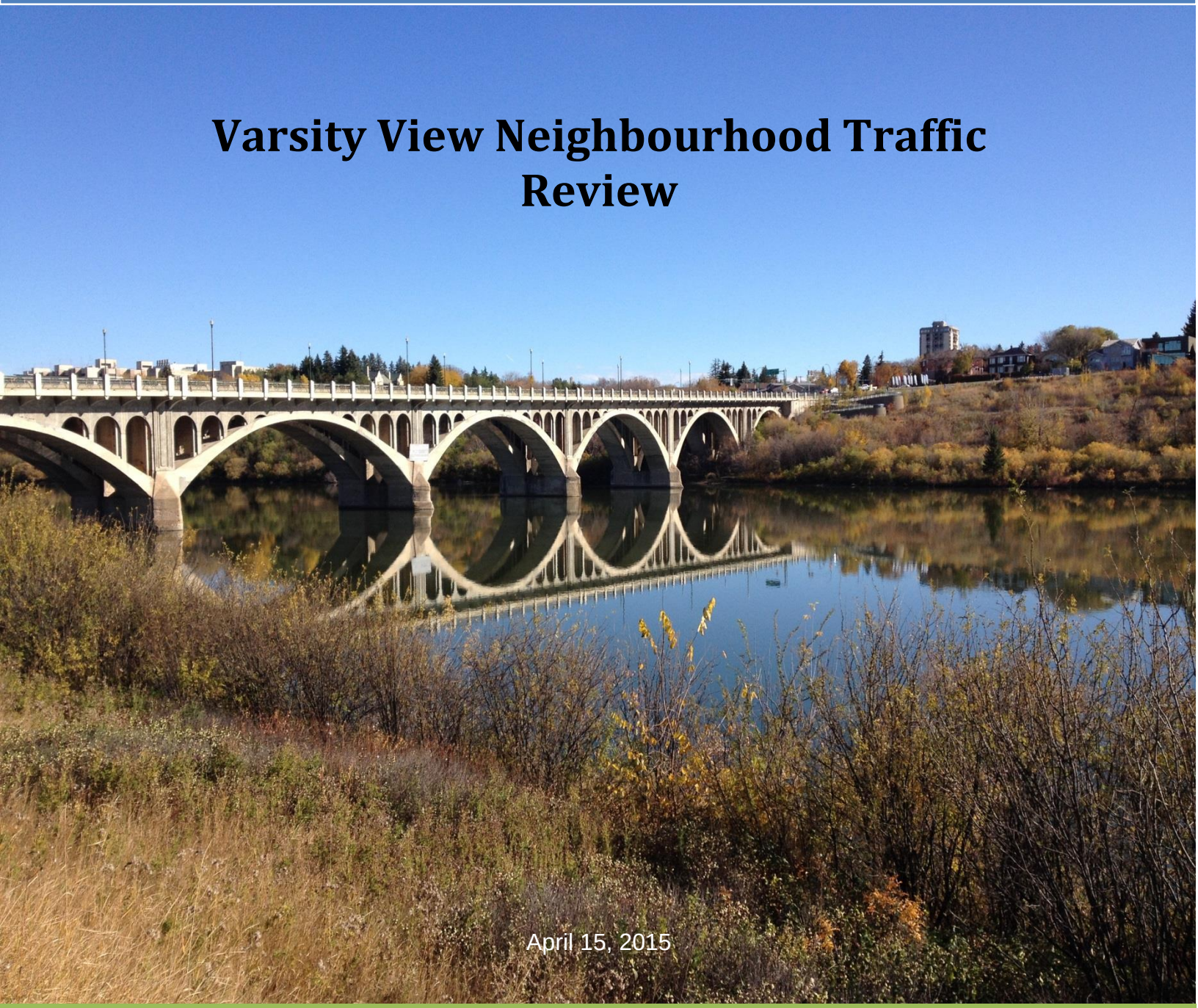
City of Saskatoon

Varsity View Neighbourhood Traffic Review



April 15, 2015

Transportation & Utilities Department

Acknowledgements

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

- Varsity View residents
- Varsity View Community Association
- Saskatoon Police Service
- Saskatoon Light & Power
- Saskatoon Fire Department
- City of Saskatoon Environmental Services
- City of Saskatoon Transit
- City of Saskatoon Transportation
- Great Works Consulting
- Councillor Charlie Clark

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 2014 to identify traffic concerns and potential solutions within the Varsity View 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 December 2014.

A summary of recommended improvements for the Varsity View 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.

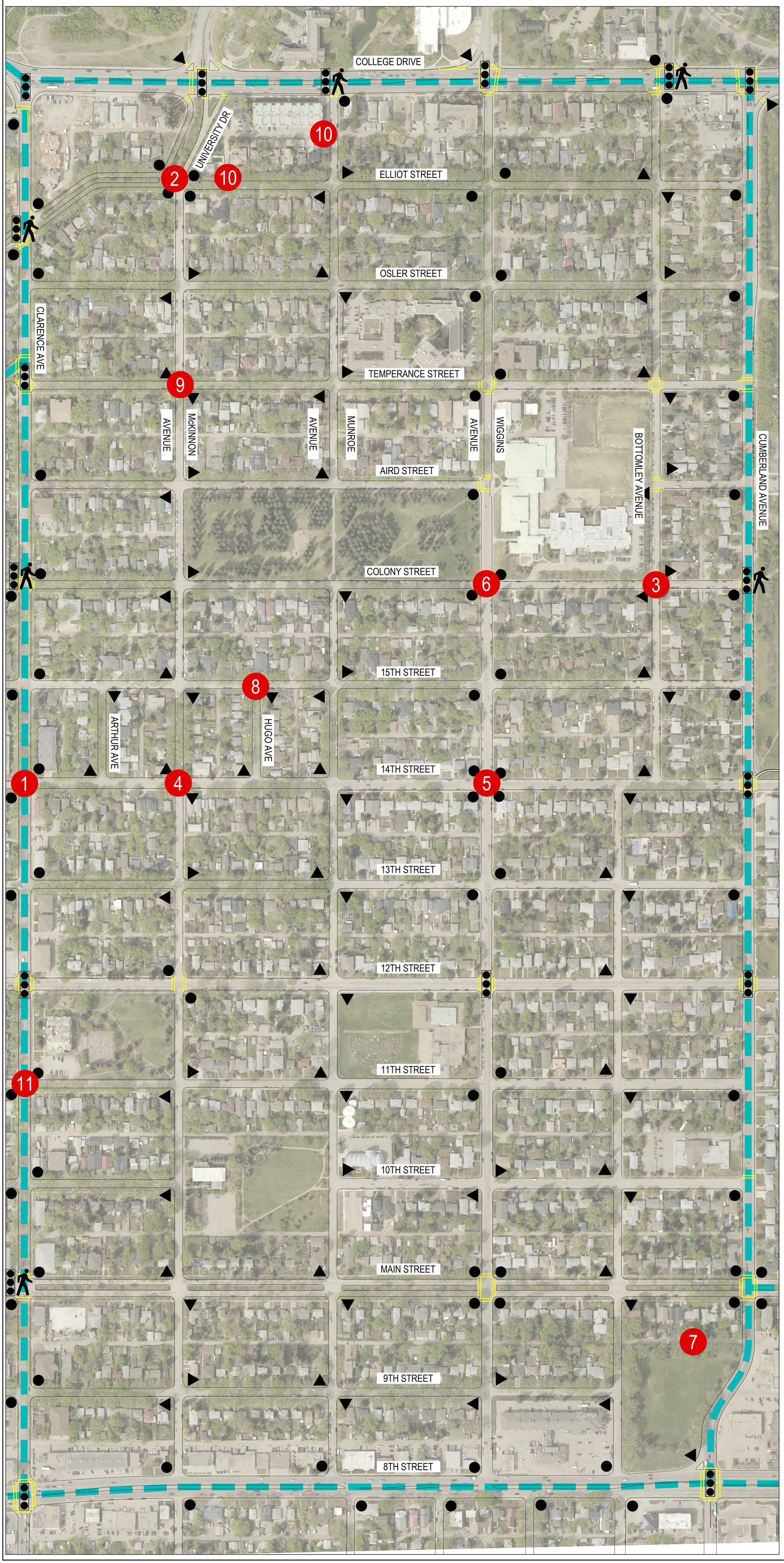
The resulting recommended Varsity View Traffic Management Plan is illustrated in **Exhibit ES-1**.

Table ES-1: Varsity View Neighbourhood Recommended Improvements

Location	Recommended Improvement	Time Frame
Clarence Avenue & 14th Street	Zebra crosswalk; advanced pedestrian sign; enhance pedestrian crossing signs	1 to 2 years
University Drive & McKinnon Avenue	Pavement markings to indicate stop lines for 4-way stop	
Colony Street & Bottomley Avenue	Zebra crosswalk	
14th Street & McKinnon Avenue	Stop signs	
Wiggins Avenue & 14th Street	Move northbound "no parking" sign to stop sign is not obstructed	
McKinnon Avenue & Colony Street	"No parking" sign	
Back lane north of park (Cumberland Avenue & Bottomley Avenue)	20kph & playground signs	
Hugo Avenue & 15th Street	"No parking" signs	
Temperance Street & McKinnon Avenue	4-way stop	
Back lane near 1100 block of Elliott Street (and Munroe Avenue)	20kph speed sign	
Clarence Avenue & 11th Street	Active pedestrian corridor	1 to 5 years
Munroe Avenue between 15th Street & Colony Street; Munroe Avenue between Aird Street & Temperance Street; McKinnon Avenue between 15th Street & Colony Street; 11th Street between Clarence Avenue & multi-use trail behind Albert Community Centre; McKinnon Avenue between 10th Street to 11th Street; Munroe Avenue between 11th Street to 12th Street; & Cumberland Avenue between Main Street and back lane (south)	Sidewalk	5 years plus

VARSITY VIEW TRAFFIC PLAN

City of Saskatoon



LEGEND

- EXISTING STOP SIGN
- EXISTING YIELD SIGN
- BUS ROUTE
- EXISTING TRAFFIC SIGNAL
- PEDESTRIAN ACTUATED SIGNAL LOCATION

ITEM	LOCATION	PROPOSED MEASURE	TIME FRAME
1	Clarence Ave &14th Street	Zebra crosswalk; advanced pedestrian sign; enhanced pedestrain crossing signs	1 to 2 years
2	University Dr & McKinnon Ave	Pavement markings to indicate stop lines for 4-way stop	1 to 2 years
3	Colony St & Bottomley Ave	Zebra crosswalk	1 to 2 years
4	14th Street & McKinnon Ave	Stop signs	1 to 2 years
5	Wiggins Ave & 14th Street	Move northbound "no parking" sign so stop sign is not obstructed	1 to 2 years
6	McKinnon Ave & Colony Street	"no parking" sign	1 to 2 years
7	Back lane north of park (Cumberland Ave & Bottomley Ave)	20kph & playground signs	1 to 2 years
8	Huge Ave & 15th Street	"no parking" signs	1 to 2 years
9	Temperance St & McKinnon Ave	Stop signs or 4-way stop	1 to 2 years
10	Back lane north of Elliot St & west of Munroe Ave	20kph speed limit signs	1 to 2 years
11	Clarence Ave & 11th Street	Active pedestrian corridor	1 to 5 years

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1. Introduction

The purpose of this project was to develop a Traffic Management Plan for the Varsity View neighbourhood following the implementation procedure outlined in the *City of Saskatoon Traffic Calming Guidelines and Tools* adopted by City Council in August 2013.

The Varsity View neighbourhood is located on the east side of the South Saskatchewan River and is bound by 8th Street to the south, Cumberland Avenue to the east, College Drive to the north, and Clarence Avenue to the west. The area use is mostly residential, with schools (Brunskill School and Bishop Murray School) on Wiggins Avenue, and some commercial land use adjacent to College Drive and 8th Street. It houses many University of Saskatchewan students due to its close proximity (to the north).

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, & Possible Solutions

A public meeting was held in January of 2014 to identify traffic concerns within the neighbourhood. At the meeting, residents were given the opportunity to express their concerns and suggest possible solutions.

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

CONCERN 1 – SPEEDING AND SHORTCUTTING

Shortcutting occurs when non-local traffic passes through the neighbourhood on local streets that are designed and intended for low volumes of traffic. In the case of Varsity View, the bordering arterial streets (College Drive, 8th Street, Cumberland Avenue, and Clarence Avenue) 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:

- Clarence Avenue
- Cumberland Avenue
- Area surrounding Brunskill School
- Main Street (especially near the park on 1400 block)
- Stop & Yield Retrofit Program has created speeding (McKinnon Avenue, Temperance Street)
- McKinnon Avenue – shortcutting during morning peak hours (7:00-9:00am) caused by traffic congestion on Clarence Avenue
- Elliott Street – shortcutting westbound to access University Drive and Royal University Hospital (RUH) from Wiggins Avenue
- 9th Street – delivery trucks using route instead of 8th Street; shortcutting between Louise Avenue & Clarence Avenue
- 14th Street
- University Drive
- Back lane on 1100 block of Elliott Street (near J. Black Estates to University Drive)

Proposed solutions identified by residents:

- Install traffic calming (i.e. speed humps, curb extensions)
- Install diverters (McKinnon Avenue)
- Install stop signs
- Install 4-way stop (Temperance Street & McKinnon Avenue)
- Implement 30-40kph speed limit

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:

- Clarence Avenue - 11th Street - lots of children use crosswalk; 14th Street – drivers not stopping for pedestrians; drivers can't see pedestrians over hill
- Albert Community Centre – daycare and lots of children playing in the area
- Cumberland Avenue – pedestrians aren't visible; there's a playground at the front of the Williams Building with many children; drivers don't stop for pedestrians at the crossing in front of the Williams Building
- Wiggins Avenue & 14th Street – 4-way stop has had adverse effects on pedestrian safety; drivers not paying attention to pedestrians
- College Drive & Bottomley Avenue

Proposed solutions identified by residents:

- Install crosswalk light / pedestrian device (Clarence Avenue & 11th Street; Clarence Avenue & 14th Street; Clarence Avenue & Elliott Street)
- Implement school zone around Albert Community Centre
- Install zebra crosswalk
- Implement "children at play" speed zone (near Albert Community Centre)
- Install concrete pad for pedestrians (Clarence Avenue & 14th Street)
- Install traffic calming (surrounding Brunskill School)
- Install sidewalks (Wiggins Avenue, Munroe Avenue, Temperance Street, Aird Street, Colony Street, 14th Street, 11th Street, 10th Street, 8th Street)
- Improve crosswalk markings (Wiggins Avenue & 14th Street)
- Install lighting for visually-impaired (Wiggins Avenue & Temperance Street)

CONCERN 3 - TRAFFIC CONTROL

Traffic control signs are used in order to assign the right-of-way and must meet guidelines in City of Saskatoon Council Policy C07-007 *Traffic Control – Use of Stop and Yield Signs*, January 26, 2009 which 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.

Proposed solutions identified by residents:

- Install signals (Clarence Avenue & University Drive)
- Eliminate option to cross Clarence Avenue (i.e. barriers) at 9th Street, 10th Street, 11th Street
- Install stop signs (Main Street)
- Install 4-way stop

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:

- Wiggins Avenue & Main Street - parking is too close to intersection making it difficult to see on Wiggins Avenue
- Parking on both sides makes road narrow (McKinnon Avenue, Elliott Street)
- Visibility obstructed due to parking (Munroe Avenue & 12th Street)
- Cheaper to park on street than University of Saskatchewan (UofS)
- University students parking on 15th Street near condos are parking within 1m of driveways and 10m of intersection
- Parking restricted zone does not account for the approximately 100 on-street parking spaces adjacent to President Murray Park
- Residents pay for parking while non-residents park for free
- Constant turn-over of vehicles due to the 2-hour time limit; increased traffic flows
- More wear and tear on existing infrastructure due to consistent turn-over of cars
- LutherCare issuing parking permits to staff and visitors
- No maximum number of permits for single family homes, thus homes with multiple students living in them may all qualify (Residential Parking Permit Program – RPP)

Proposed solutions identified by residents:

- Main Street & Wiggins Avenue – increase parking restricted zone in front of stop sign or better enforce
- More parking should be provided on University and RUH property
- Issue two tier parking fees
- More parking enforcement
- Expand parking permit zone to at least 14th Street
- Restrict parking at T-intersections of park
- More restrictive parking limits, especially on weekends (Osler Street, Elliott Street)
- Cumberland Avenue – either remove parking or more enforcement; implement 2-hr parking on east side farther south to 14th Street
- Install “no parking” signs (Wiggins Avenue)
- Increase ticket price
- Install more time restricted parking (include blocks surrounding park and Brunskill School in the 1 and 2-hr regulated parking area)
- Install “no parking” signs at corners of park that identify minimum distance from intersection that vehicles are permitted, and near pathway to improve visibility for pedestrians; increase the “no parking” zones at the north and south access points of President Murray Park on Aird Street and Colony Street to 50m (25m in both directions from center of pathway) to improve sightlines
- City of Saskatoon and the University develop partnership to ensure fine structure for violations are comparable
- Parking enforcement report to Community Association to give update on parking violations statistics and changes
- Encourage more participation in the eco-pass program for LutherCare communities and staff to decrease the number of parking on a daily basis.
- City of Saskatoon work with RUH to increase transit ridership and decrease parking demand
- ‘Parking for sale’ – mail out information reminding property owners that sale of parking on residential is illegal; enforcement will investigate after.

CONCERN 5 – CYCLING

Cycling is a practical mode of transportation in Varsity View, as the neighbourhood is in close proximity to the downtown, the University of Saskatchewan, and other nearby amenities.

Neighbourhood concerns regarding cycling were at the following locations:

- Cyclists riding on sidewalk and not yielding to pedestrians
- Alternating yield signs (Stop & Yield Retrofit Program) do no improve cyclist connectivity

Proposed solutions identified by residents:

- Install a multi-use path (Cumberland Avenue - on east side from 14th Street to Colony Street; College Drive)
- Cyclist signage needed
- Cycling education campaign
- Dedicated cycling routes - better signage, larger, location, cut tree branches (14th Street, Bottomley Avenue, McKinnon Avenue, Munroe Avenue)
- Better bike lanes needed

CONCERN 6 – MAINTENANCE

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

Neighbourhood concerns regarding maintenance were:

- Bus stop maintenance required on Cumberland Avenue near Main Street and Clarence Avenue near College Drive
- Snow removal and shaving ruts causes narrow lanes and pushes parking away from curb
- Snow on sidewalk (Clarence Avenue)
- Snow piled on boulevard (Munroe Avenue, College Drive)

CONCERN 7 – 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: • Clarence Avenue & 12th Street – light is too short and too many drivers are turning right making it difficult to cross
Proposed solutions identified by residents: • Improve traffic signal timing (Clarence Avenue & 12th Street, 8th Street) • Install dedicated left turn intersections with traffic signals (Cumberland Avenue & 8th Street) • Install dedicated turning lanes (Wiggins Avenue & College Drive)

CONCERN 8 – CLARENCE AVENUE & MAIN STREET REVIEW

The intersection of Clarence Avenue and Main Street was reviewed in 2013, and included collecting traffic and pedestrian volumes, assessing collision data, and analysis of operational and safety conditions.

Clarence Avenue is a major arterial roadway with a traffic volume of approximately 11,250 vehicles per day, and Main Street is a local street carrying up to 2,500 vehicles per day, substantially more than acceptable for a local street, which typically carries up to 1,000 vehicles per day. It was determined that approximately 50% of traffic on Main Street was not turning off of Main Street at Clarence Avenue, but were simply making a through movement. As a result, Main Street has been a generator of traffic collisions at the intersection with Clarence Avenue (84 collisions reported in the past five years, 43% right angle collisions).

An effective and practical measure is to prohibit through and left turn movements on Main Street at Clarence Avenue. To force the movements, the median on Main Street would need to be modified to physically prevent cross traffic and left turn movements and to force right turns onto Clarence Avenue. It is anticipated that this measure would reduce traffic volume on Main Street by approximately 50% and would also reduce the number of collisions at this intersection by 46%.

The proposed measure was presented to residents during the initial public consultation and mixed support was received.

Neighbourhood concerns regarding the proposed measure to prohibit through and left turn movements at Clarence Avenue & Main Street:

- Proposed measure will divert traffic onto 9th Street & 10th Street
- In favour of restrictions on Clarence Avenue - may decrease traffic flow on Main Street and slow traffic
- No issues at the intersection; leave as is
- Many condos on Main Street are resulting in high traffic volumes
- Drivers will continue to drive straight through regardless of changes

Proposed solutions identified by residents:

- Install full traffic signals
- Move the right-in right-out islands to Cumberland Avenue & Main Street
- Install flashing yellow lights (at all times) to slow down drivers

3. Assessment

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 data 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.

1. Traffic 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 85th percentile speed, which is the speed at which 85 percent of vehicles are travelling at or below. The speed limit in the Varsity View area 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)
Main Street - back lane 1400 block	Cumberland Avenue & Ewart Avenue	back lane	242	NA
Elliott Street - back lane 1100 block	McKinnon Avenue & Munroe Avenue		<50	31.9
Elliott Street	McKinnon Avenue & Munroe Avenue	local	830	38.4
Bottomley Avenue	Colony Street & Aird Street		<200	40.4
McKinnon Avenue	15th Street & Colony Street		515	36.7
Main Street	McKinnon Avenue & Munroe Avenue		2,000	51.4
University Drive	Clarence Avenue & McKinnon Avenue	local (commercial)	1,700	33.5
Cumberland Avenue	Aird Street & Temperance Street	minor arterial	7,190	52.1
Clarence Avenue	15th Street & Colony Street	major arterial	7,500	56
Clarence Avenue	10th Street & 11th Street		7,744	55
14th Street	McKinnon Avenue & Munroe Avenue	local	Error	
McKinnon Avenue	11th Street & 12th Street			
9th Street	Clarence Avenue & McKinnon Avenue			

2. Traffic Control Assessments

Yield, stop, and all-way stop controls need to the 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. 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 4-way stop and 25% for a 3-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	Peak Hour Count	Average Daily Traffic (vpd)	# of Collisions within most recent 12 months	% of Traffic from minor street	Traffic Signals or all-way stop within 200m	All-Way Stop Warrant
Colony Street & Bottomley Street	148	1,580	1	40%	no	All-Way Stop Not Warranted
Cumberland Avenue & Osler Street	792	8,150	0	8%	no	
Temperance Street & McKinnon Avenue	82	920	4	49%	Yes (165m from traffic signals at Clarence Avenue)	Continue assessment due to high collisions

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

3. 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-9:00am, 11:30am-1:30pm, and 3:00pm-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
Bottomley Avenue & Colony Street	150	Pedestrian Devices Not Warranted
Cumberland Avenue & Elliott Street	30	
Cumberland Avenue & Osler Street	45	
Cumberland Avenue & Aird Street	38	
Clarence Avenue & 14th Street	39	
Clarence Avenue & 11th Street	84	Pedestrian Device Warranted

As a result of the assessment, an Active Pedestrian Corridor is recommended at the intersection of Clarence Avenue and 11th Street. Details of the pedestrian device assessments are provided in **Appendix B**.

A map of the existing pedestrian facilities was also reviewed to determine connectivity to and from amenities throughout the neighbourhood. A pedestrian facilities map is provided in **Appendix C.**

4. Plan Development

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.

1. 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
Back lane - 1100 block of Elliott Street & Munroe Avenue	20kph speed sign	Reduce speed
Back lane north of park (Cumberland Avenue & Bottomley Avenue)	20kph speed sign	Reduce speed

High traffic volumes and speeding were noted on Main Street and Clarence Avenue. More information is provided in the "Main Street Shortcutting" and "Major Intersections and Corridor Studies" sections below.

2. 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
Clarence Avenue & 14th Street	Zebra crosswalk; advanced pedestrian sign; enhance pedestrian crossing signs	Improve pedestrian safety along transit route
Colony Street & Bottomley Avenue	Zebra crosswalk	Improve pedestrian safety near elementary school (connects to pedestrian-activated signals at Cumberland Avenue)
Back lane north of park (Cumberland Avenue & Bottomley Avenue)	Playground signs	Improve pedestrian safety near park
Clarence Avenue & 11th Street	Active pedestrian corridor	Improve pedestrian safety along transit route, near playground, daycare, community centre, & grocery store
Munroe Avenue between 15th Street & Colony Street and between Aird Street & Temperance Street; 11th Street; 12th Street	Sidewalk	Improve pedestrian connectivity along route to University; near park
McKinnon Avenue between 15th Street & Colony Street and 10th Street & 11th Street	Sidewalk	Improve pedestrian connectivity along route to University; near park
11th Street between Clarence Avenue & multi-use trail behind Albert Community Centre	Sidewalk	Improve pedestrian connectivity to park, playground, community centre, grocery store, & transit
Cumberland Avenue between Main Street and back lane (south)	Sidewalk	Improve pedestrian connectivity along transit route & to University

3. 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
University Drive & McKinnon Avenue	Pavement markings to indicate stop lines for 4-way stop	Enhance compliance
14th Street & McKinnon Avenue	Stop signs	Current north-south yield signs (installed as part of Stop & Yield Retrofit Program in fall 2013) have created thoroughfare; alter direction of signs and change to stop signs to enhance compliance
Temperance Street & McKinnon Avenue	4-way stop	Reduce collisions

4. 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
McKinnon Avenue & Colony Street	"No parking" sign	Enhance visibility
Hugo Avenue & 15th Street	"No parking" signs	Enhance visibility

5. Cycling Improvements

The Active Transportation Plan is a comprehensive city-wide study that will help to provide more choices for moving around Saskatoon by addressing community and infrastructure needs for cycling, walking, and other modes of active transportation. All comments received during the public consultation were forwarded to the project leader for further consideration.

6. Main Street Shortcutting

Main Street shortcutting between Cumberland Avenue and Broadway Avenue was identified as a concern during the public consultation for both the Nutana and Varsity View neighbourhoods. The proposed design to prohibit left and through movements at Clarence Avenue and Main Street, in general, was not supported by residents.

The Administration proposed another recommendation to mitigate the short-cutting along Main Street in March and April of 2015. The proposal included installing a raised curb to restrict east-west vehicular movement through the intersection of Main Street and Wiggins Avenue. Curb cuts would be installed to permit the movement of bicycles and pedestrians through the intersection. Vehicles would be able to turn right only arriving at the intersection from the east or west. Vehicles arriving at the intersection from the north or south would not be able to turn left. The proposal outlined that this restriction would be installed in a temporary fashion, and evaluated after one year. A similar recommendation for the intersection of Main Street and Wiggins Avenue is provided in the Varsity View Neighbourhood Traffic Review report.

Letters were sent to the residents of dwellings that front Main Street in Varsity View between Clarence Avenue and Cumberland Avenue for their feedback. In Varsity View 122 letters were mailed out, and 12 responses returned with 8 indicating support and 4 not in support. As a result the proposed recommendation is carried forward.

The effect of the change will be evaluated after one year and a recommendation to either install permanent curbing or remove the temporary curbing will be provided.

It is not expected that much traffic will be displaced to either 10th Street or 9th Street. The Raoul Wallenberg Park intercepts 10th Street between Munroe Avenue and McKinnon Avenue, causing 10th Street not to be an attractive alternate route due to the lack of connection. 9th and 10th Street are not as attractive as to drivers as they are both

narrow undivided local streets when compared with Main Street, a divided road that is easier to drive.

(Not approved by Council. Additional consultation required)

7. Cumberland Avenue – College Quarter Improvements

Traffic conditions, cyclist and pedestrian safety, and parking on Cumberland Avenue between 14th Street and College Drive will be addressed as part of the College Quarter Plan.

Follow up Consultation – Presentation of Traffic Management Plan

The initial recommended improvements were presented at a follow-up public meeting in December 2014. 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 D**. A decision matrix for additional comments received after the draft traffic plan is also included in **Appendix D**.

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

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 Clarence Avenue or 8th Street, 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.

A number of concerns were raised for Clarence Avenue, particularly the intersection at 8th Street. As such, a corridor study is recommended for Clarence Avenue between 8th Street and College Drive, and will be added to the list of Corridor Studies.

5. Recommended Plan and Cost Estimates

Stage 4, the last stage of the process, is to install the recommended improvements for the Varsity View 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**: Posted Speed Sign Cost Estimate
- **Table 5-2**: Marked Pedestrian Crosswalks Cost Estimate
- **Table 5-3**: Traffic Control Signage – Stop & Yield Cost Estimate
- **Table 5-4**: Parking Signage Cost Estimate
- **Table 5-5**: Sidewalk Cost Estimate
- **Table 5-6**: Total Cost Estimate

Table 5-1: Posted Speed Sign Cost Estimate

Location	Device (s)	Cost Estimate	Time Frame
Back lane - 1100 block of Elliott Street & Munroe Avenue	20kph speed sign	$500	1 to 2 years
Back lane north of park (Cumberland Avenue & Bottomley Avenue)	20kph speed sign	$500	
Total		$1,000	

Table 5-2: Marked Pedestrian Crosswalks Cost Estimate

Location	Device (s)	Cost Estimate	Time Frame
Clarence Avenue & 14th Street	Zebra crosswalk; advanced pedestrian sign; enhance pedestrian signs	$1,650	1 to 2 years
Colony Street & Bottomley Avenue	Zebra crosswalk	$1,400	
Back lane north of park (Cumberland Avenue & Bottomley Avenue)	Playground signs	$500	
Clarence Ave & 11th Street	Active pedestrian corridor	$20,000	1 to 5 years
Total		$23,550	

The operating cost on an annual basis to maintain a crosswalk is approximately $60 each.

Table 5-3: Traffic Control Signage – Stop & Yield Cost Estimate

Location	Device (s)	Number of Signs	Cost Estimate	Time Frame
University Drive & McKinnon Avenue	Pavement markings	0	$400	1 to 2 years
14th Street & McKinnon Avenue	Stop signs	2	$500	
Temperance Street & McKinnon Avenue	4-way stop	2	$500	
Total			$1,400	

Table 5-4: Parking Signage Cost Estimate

Location	Device (s)	Number of Signs	Cost Estimate	Time Frame
Wiggins Avenue & 14th Street	Move northbound "no parking" sign to stop sign is not obstructed	0	$0	1 to 2 years
McKinnon Avenue & Colony Street	"No parking" sign	1	$250	
Hugo Avenue & 15th Street	"No parking" sign	2	$500	
Total			$750	

Table 5-5: Sidewalk Cost Estimate

Street	Between	Length (m)	Cost Estimate	Time Frame
Munroe Avenue	Aird Street & Temperance Street	148	$65,120	5 years plus
Munroe Avenue	15th Street & Colony Street	151	$66,440	
Munroe Avenue	11th Street to 12th Street	162	$71,280	
McKinnon Avenue	15th Street & Colony Street	168	$73,920	
McKinnon Avenue	10th Street to 11th Street	180	$79,200	
11th Street	Clarence Avenue & multi-use trail behind Albert Community Centre	35	$15,400	
Cumberland Avenue	Main Street and back lane (south)	42	$18,480	
Total		886	$389,840	

Table 5-6: Total Cost Estimate

Category	Signage & Temporary Traffic Calming	Permanent
Speed Signs	$1,000	N/A
Pedestrian Crosswalk Signage & Pavement Markings	$3,550	N/A
Pedestrian Devices	N/A	$20,000
Traffic Control & Speed Signage	$1,400	N/A
Parking Signage	$750	N/A
Sidewalk	N/A	$389,840
Total	$6,700	$409,840

The total cost estimate for the signage and pavement markings to be installed in 2015 is **$6,700**. The total cost estimate for the installation of future permanent devices, including the active pedestrian corridor, and sidewalks, is **$409,840**.

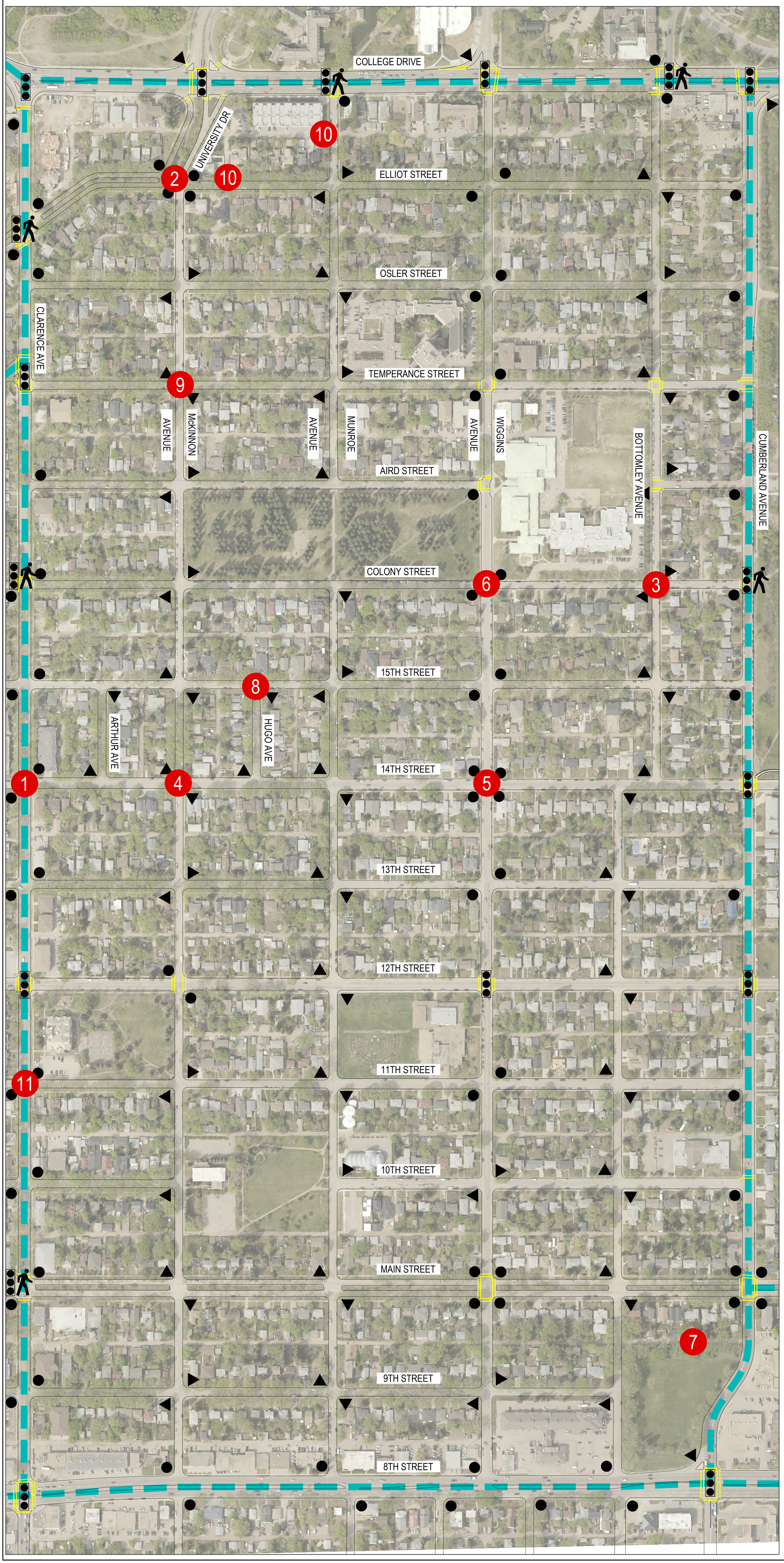
Resulting from the plan development process, the recommended improvements, including the location, type of improvement, and schedule for implementation are summarized in **Table 5-7.** The resulting recommended Varsity View neighbourhood Traffic Management Plan is illustrated in **Exhibit 5-1**.

Table 5-7: Varsity View Neighbourhood Recommended Improvements

Location	Recommended Improvement	Time Frame
Clarence Avenue & 14th Street	Zebra crosswalk; advanced pedestrian sign; enhance pedestrian crossing signs	1 to 2 years
University Drive & McKinnon Avenue	Pavement markings to indicate stop lines for 4-way stop	
Colony Street & Bottomley Avenue	Zebra crosswalk	
14th Street & McKinnon Avenue	Stop signs	
Wiggins Avenue & 14th Street	Move northbound "no parking" sign to stop sign is not obstructed	
McKinnon Avenue & Colony Street	"No parking" sign	
Back lane north of park (Cumberland Avenue & Bottomley Avenue)	20kph & playground signs	
Hugo Avenue & 15th Street	"No parking" signs	
Temperance Street & McKinnon Avenue	4-way stop	
Back lane near 1100 block of Elliott Street (and Munroe Avenue)	20kph speed sign	
Clarence Avenue & 11th Street	Active pedestrian corridor	1 to 5 years
Munroe Avenue between 15th Street & Colony Street; Munroe Avenue between Aird Street & Temperance Street; McKinnon Avenue between 15th Street & Colony Street; 11th Street between Clarence Avenue & multi-use trail behind Albert Community Centre; McKinnon Avenue between 10th Street to 11th Street; Munroe Avenue between 11th Street to 12th Street; & Cumberland Avenue between Main Street and back lane (south)	Sidewalk	5 years plus

VARSITY VIEW TRAFFIC PLAN

City of Saskatoon



LEGEND

- EXISTING STOP SIGN
- EXISTING YIELD SIGN
- BUS ROUTE
- EXISTING TRAFFIC SIGNAL
- PEDESTRIAN ACTUATED SIGNAL LOCATION

ITEM	LOCATION	PROPOSED MEASURE	TIME FRAME
1	Clarence Ave &14th Street	Zebra crosswalk; advanced pedestrian sign; enhanced pedestrain crossing signs	1 to 2 years
2	University Dr & McKinnon Ave	Pavement markings to indicate stop lines for 4-way stop	1 to 2 years
3	Colony St & Bottomley Ave	Zebra crosswalk	1 to 2 years
4	14th Street & McKinnon Ave	Stop signs	1 to 2 years
5	Wiggins Ave & 14th Street	Move northbound "no parking" sign so stop sign is not obstructed	1 to 2 years
6	McKinnon Ave & Colony Street	"no parking" sign	1 to 2 years
7	Back lane north of park (Cumberland Ave & Bottomley Ave)	20kph & playground signs	1 to 2 years
8	Huge Ave & 15th Street	"no parking" signs	1 to 2 years
9	Temperance St & McKinnon Ave	Stop signs or 4-way stop	1 to 2 years
10	Back lane north of Elliot St & west of Munroe Ave	20kph speed limit signs	1 to 2 years
11	Clarence Ave & 11th Street	Active pedestrian corridor	1 to 5 years

Appendix A

All Way Stop Assessments

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

Step 1:
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	Warrant Condition 1: Peak Hour Count is 600 or greater	Warrant Condition 2: Average Daily Traffic Exceeds 6,000 vehicles per day	Warrant Condition 3: Five or more collisions occurred within most recent 12 months	% of Traffic from minor street	Traffic Signals or all-way stop within 200m	All-Way Stop Warrant
Colony Street & Bottomley Street	148	1580	1	40%	no	All-Way Stop Not Warranted
Cumberland Avenue & Osler Street	792	8150	0	8%	no	
Temperance Street & McKinnon Avenue	82	920	4 (4 right angle collisions occurred between Jun/12 to Jan/13)	49%	no	All-way stop warranted based on high collisions; proceed to Step 2

Step 2:
Provided one of the above conditions is met, 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: Combined volume of traffic entering intersection from minor street is at least 25% for 3-way stop or 35% for 4-way stop	Condition 2: There can be no all-way stop or traffic signal within 200m	Results

Temperance Street & McKinnon Avenue	49% - Condition met	165m to traffic signals at Clarence Avenue – Condition NOT met	Since traffic volumes are low, traffic volumes/queuing is not expected to occur at Clarence Avenue (traffic signals 165m west of the proposed intersection); therefore a 4-way stop is recommended due to high collisions

Appendix B

Pedestrian Device Assessments

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

Bottomley Avenue & Colony Street:

1. Lanes Priority Points:

L	=	2	lanes	= number of lanes.
LANF	=	0.0	points	= (L-2) x 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	=	105	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	=	150.0	= total number of children, teenagers, seniors and/or impaired counted.
Pa	=	0.0	= total number of adults counted.
Pw	=	225.0	= weighted average of pedestrians crossing the main street.
Pcm	=	45.0	= weighted average hourly pedestrian volume crossing the main street.
V	=	521.0	= volume of traffic passing through the crossing(s).
Vam	=	104.2	= average hourly volume of traffic passing through the crossing(s).
VOLF	=	9.4 points	= Vam x Pcm / 500

6. Satisfaction of Installation Criteria:

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

SUMF =	**22**	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.

Cumberland Avenue & Elliott Street:

1. Lanes Priority Points:

L =	3	lanes	= number of lanes.
LANF =	3.6	points	= (L-2) x 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 =	100	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 =	30.0	= total number of children, teenagers, seniors and/or impaired counted.
Pa =	0.0	= total number of adults counted.
Pw =	45.0	= weighted average of pedestrians crossing the main street.
Pcm =	9.0	= weighted average hourly pedestrian volume crossing the main street.
V =	3587.0	= volume of traffic passing through the crossing(s).
Vam =	717.4	= average hourly volume of traffic passing through the crossing(s).
VOLF =	12.9 points	= Vam x Pcm / 500

6. Satisfaction of Installation Criteria:

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

SUMF =	**26**	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.

Cumberland Avenue & Osler Street:

1. Lanes Priority Points:

L =	2	lanes	= number of lanes.
LANF =	0.0	points	= (L-2) x 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 =	215	m	= distance from study location to nearest protected crosswalk.
LOCF =	1.1	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 =	45.0	= total number of children, teenagers, seniors and/or impaired counted.
Pa =	0.0	= total number of adults counted.
Pw =	67.5	= weighted average of pedestrians crossing the main street.

Pcm =	13.5		= weighted average hourly pedestrian volume crossing the main street.
V =	3223.0		= volume of traffic passing through the crossing(s).
Vam =	644.6		= average hourly volume of traffic passing through the crossing(s).
VOLF =	17.4	points	= Vam x Pcm / 500

6. Satisfaction of Installation Criteria:

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

SUMF =	**31**	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.

Cumberland Avenue & Aird Street:

1. Lanes Priority Points:

L =	2	lanes	= number of lanes.
LANF =	0.0	points	= (L-2) x 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 =	445	m	= distance from study location to nearest protected crosswalk.
LOCF =	15.0	points	= (D-200) / 13.3 to a maximum of 15 points.
Actual value =	18.42105	points.	

5. Pedestrian/Vehicle Volume Priority Points:

H =	5.0		= (hours) duration of counting period.
Ps =	38.0		= total number of children, teenagers, seniors and/or impaired counted.
Pa =	0.0		= total number of adults counted.
Pw =	57.0		= weighted average of pedestrians crossing the main street.
Pcm =	11.4		= weighted average hourly pedestrian volume crossing the main street.
V =	3075.0		= volume of traffic passing through the crossing(s).
Vam =	615.0		= average hourly volume of traffic passing through the crossing(s).
VOLF =	14.0	points	= Vam x Pcm / 500

6. Satisfaction of Installation Criteria:

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

SUMF =	**42**	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.

Clarence Avenue & 14th Street:

1. Lanes Priority Points:

L =	4	lanes	= number of lanes.
LANF =	7.2	points	= (L-2) x 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 =	210	m	= distance from study location to nearest protected crosswalk.
LOCF =	0.8	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 =	7.0		= total number of children, teenagers, seniors and/or impaired counted.
Pa =	32.0		= total number of adults counted.
Pw =	42.5		= weighted average of pedestrians crossing the main street.
Pcm =	8.5		= weighted average hourly pedestrian volume crossing the main street.
V =	5198.0		= volume of traffic passing through the crossing(s).
Vam =	1039.6		= average hourly volume of traffic passing through the crossing(s).
VOLF =	17.7	points	= Vam x Pcm / 500

6. Satisfaction of Installation Criteria:

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

SUMF =	**38**	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.

Clarence Avenue & 11th Street (Pedestrian-Activated Signal):

1. Lanes Priority Points:

L =	4	lanes	= number of lanes.
LANF =	7.2	points	= (L-2) x 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 =	100	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 =	54.0	= total number of children, teenagers, seniors and/or impaired counted.
Pa =	30.0	= total number of adults counted.
Pw =	111.0	= weighted average of pedestrians crossing the main street.
Pcm =	22.2	= weighted average hourly pedestrian volume crossing the main street.
V =	4866.0	= volume of traffic passing through the crossing(s).
Vam =	973.2	= average hourly volume of traffic passing through the crossing(s).
VOLF =	43.2 points	= Vam x Pcm / 500

6. Satisfaction of Installation Criteria:

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

SUMF =	**63**	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.

Clarence Avenue & 11th Street (Active Pedestrian Corridor):

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												

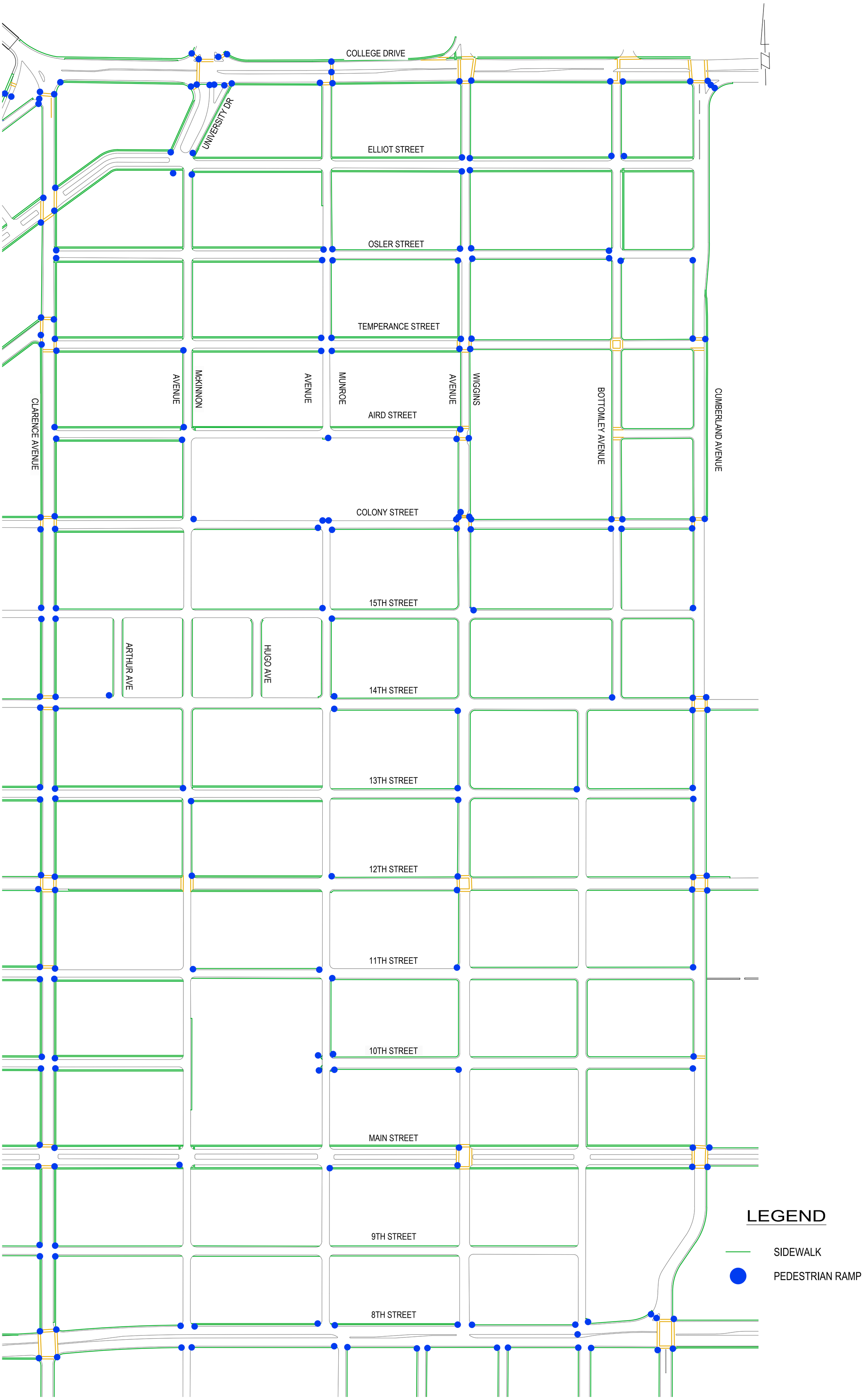
7:15												
7:30												
7:45												
8:00	275	275			1		1	0.5	0.5	138		
8:15	279	554			1		1	0.5	1	554		
8:30	272	551	6		3		9	7.5	8	4,408		
8:45	243	515			3		3	1.5	9	4,635		
9:00		243							1.5	365		
9:15												
9:30												
9:45												
AM Totals	1,069		6		8		14					
11:30	231				2		2	1				
11:45	180	411	5		1		6	5.5	6.5	2,672		
12:00	220	400	8		2		10	9	14.5	5,800	1	5,800
12:15	194	414	16		2		18	17	26	10,764	1	10,764
12:30	208	402			2		2	1	18	7,236	1	7,236
12:45	221	429			1		1	0.5	1.5	644		
13:00	211	432							0.5	216		
13:15	210	421			1		1	0.5	0.5	211		
Noon Totals	1,675		29		11		40					23,800
14:00												
14:15												
14:30												
14:45												
15:00	235	235	18		4		22	20	20	4,700		
15:15	224	459							20	9,180	1	9,180
15:30	237	461			1		1	0.5	0.5	231		
15:45	261	498							0.5	249		
16:00	275	536	1		3		4	2.5	2.5	1,340		
16:15	296	571			2		2	1	3.5	1,999		
16:30	281	577			1		1	0.5	1.5	866		
16:45	313	594							0.5	297		
17:00		313										
17:15												
17:30												
17:45												
18:00												
18:15												

18:30												
18:45												
19:00												
19:15												
19:30												
19:45												
20:00												
20:15												
20:30												
20:45												
PM Totals	2,122		19		11		30					9,180
Totals	**4,866**		**54**		**30**		**84**					
			64%		36%		100%					
						North Crosswalk =	**74**	<<< install crosswalk on this side of the int.				
						South Crosswalk =	**10**					

Appendix C

Pedestrian Facilities Map

VARSITY VIEW PEDESTRIAN FACILITIES



Appendix D

Recommendation Review Matrix

Decision Matrix – Recommendations proposed at initial meeting

Item	Location	Recommendation	Mariniel	Mark	Lanre	Decision
1	Clarence Ave & 11th St	Install active pedestrian corridor (flashing amber lights)				Carried.
2	Clarence Ave & 14th St	Install zebra crosswalk; install advanced pedestrian sign southbound (on hill); enhance pedestrian signs	like advanced signs but not zebra markings since not visible in winter..needs more	has been very unsafe for pedestrians. Need more.		Carried.
3	University Dr & McKinnon Ave	Install pavement markings to indicate stop lines for 4-way stop				Carried.
4	Colony St & Bottomley Ave	Install zebra crosswalk				Carried.
5	Wiggins Ave & Temperance St	Install audible pedestrian signal (ie. chirping sound)	concerned about increase in noise; hedge obstructing sightlines on northeast corner	Good idea but need to ensure we're mindful of sound at night. Time of day will effect. Should be pedestrian activated. Could it be motion-sensitive to help find the button. Should ask Luther whether it will benefit them to help residents. Helps to quantify.		Carried.
6	Wiggins Ave & Colony St	Upgrade pedestrian corridor to active pedestrian corridor (flashing amber lights)				Carried.
7	Wiggins Ave & College Dr	Install signs & pavement markings to indicate one lane for left/through movements & one lane for right turns only on Wiggins Ave northbound	concerned with roadway too narrow for 3 lanes; needs work; no room for cycling	Questions whether road is too naoor. Would like to see both lanes go straight, but group member noted campus side is only one lane. Issue for there turning right onto College Dr is pedestrians crossing both ways. Don't want traffic going straight to be held up by those turning left. Proposal needs more work.	If Wiggins is wide enough to add another lane it should be one for left turn only and the another for shared through and right turns	Removed. Wiggins Avenue is too narrow to accommodate additional lanes.
8	14th St & McKinnon Ave	Remove yield signs; install stop signs (east-west facing)		Now north-south has 3 block stretch. Maybe need 4-way stop somewhere along. Ideas- add full signals at Wiggins & Temperance. Difficult to turn left to go north on Wiggins.		Carried.
9	Munroe Ave between 15th St & Colony St; and between Aird St & Temperance St	Install sidewalk on east side (190m)				Carried.
10	McKinnon Ave between 15th St & Colony St	Install sidewalk on west side (95m)				Carried.
11	11th St between Clarence Ave & multi-use trail behind Albert Community Centre	Install sidewalk on north side (45m)				Carried.
12	Elliott St & Wiggins Ave	Install directional closure on Elliott St westbound	need to improve Wiggins Ave & College Dr if they would like to increase traffic using that intersection as a result of directional closure; should consult Elliott St residents and surrounding (ie Osler St)	May put too much traffic at Wiggins Ave & College Dr. Split support for idea. What about emergency access?	May increase traffic on neighbouring streets; force onto other streets; issues with drainage that needs to be considered	Removed. Install 20kph speed signs in back lane of 1100 block.
13	Corners of President Murray Park	Install "no parking" signs indicating 10m				Carried.
14	Wiggins Ave & 14th St	Install "no parking" signs indicating 10m				Carried.
15	Residential Parking Permit Zone	Survey residents to find 70% support 2-hr to 1-hr and weekends/holidays				Forwarded to Parking Services to review.

Decision Matrix – Additional comments

Item	Location	Recommendation / Concern	Decision
1	Back lane north of park (Cumberland Ave & Bottomley)	speeding & shortcutting; install 20kph or playground signs	Carried. Install 20kph speed & playground signs on both ends of back lane
2	Various locations	Students replicating / selling RPP passes for students	Parking Bylaw being reviewed. Comments will be included.
3	Main St	shortcutting (alternate yield/stop signs; raised median through intersection or 4-way stop at Wiggins Ave; left turn restrictions at Clarence Ave)	1. Clarence Ave between 8th St & College Dr is being reviewed. Comments will be included. 2. Main St - install temporary raised median through intersection and determine if conditions improve; survey will be sent to residents on Main Street; consider additional measures at Lansdowne Avenue & Main Street (Nutana)
4	McKinnon Ave (10th St to 11th St) & Munroe Ave (11th St to 12th St)	Sidewalk missing	Carried. Connects to community centres and parks.
5	College Dr & Clarence Ave	Stop line obstructing sidewalk near sign west side of Clarence Ave	No issues noted during site review.
6	College Dr & Munroe Ave	Sign east-west should be north-south	No issues noted during site review.
7	Main St & Clarence Ave	Concerned with lights being activated for approaching vehicles; needs review; address shortcutting; problem intersection with many accidents; very difficult to cross 4 lanes of traffic yet many people try; need to eliminate left turns and through movements	Clarence Ave between 8th St & 12th St is being reviewed. Comments will be included.
8	Clarence Ave at 9th St, 10th St, & 11th St	eliminate left turn and through movements to improve safety	Clarence Ave between 8th St & 12th St is being reviewed. Comments will be included.
9	Temperance St	One-way street	One-way streets not recommended. May cause speeding.
10	Aird St from Munroe Ave to Wiggins	Narrow due to parking	Noted. Narrow streets prevent speeding.
11	NB at 14th & Wiggins	Visibility issues of stop sign	"No Parking" sign will be moved to improve visibility of stop sign.
12	Cumberland Ave & Aird St	may need lights	Cumberland Ave between College Dr and 14th St is being reviewed as part of the College Quarter Plan. Comments will be included in review.
13	College Dr & Cumberland Ave	Needs work. Pedestrian safety issues.	Cumberland Ave between College Dr and 14th St is being reviewed as part of the College Quarter Plan. Comments will be included in review.
14	Various locations	lower speed limit to 40kph on residential streets	Noted.
15	Main St & Cumberland Ave (west side)	sidewalk needed	Carried. Sidewalk installation on Cumberland Ave between Main St & back lane south of Main St (west side only). Connects to bus stop. Site check indicated walking path through snow/grass. High traffic volumes on Cumberland Ave are also a concern.
16	8th St between Cumberland Ave & Clarence Ave	Allow U-turns	Only median openings on 8th St between Cumberland Ave & Clarence Ave are at Munroe Ave and Wiggins Ave. "No U-turn" signs currently installed. Comments will be included in 8th St Review.
17	Cumberland Ave & 8th St	Include intersection in Cumberland Ave Review (as part of College Quarter); review pedestrian crossings	Cumberland Ave & 8th St is outside of the College Quarter area. Intersection will be added to list for major intersection review.
18	Hugo Ave between 14th St & 15th St	Parking visibility issues	15th St - site check confirmed parking within 10m of intersection on the southwest & southeast corner of 15th St. Install "No parking" signs on both sides to indicate 10m zone. 14th St - fire hydrant on northwest corner, parking within 10m zone wasn't noted during site review. Hedges on the northwest corner may obstruct visibility. Ensure hedges are trimmed in the spring/summer.
19	Back lane between College Dr/Elliott St & Cumberland Ave/Bottomley Ave	shortcutting; large trucks	Speed and traffic volume study will be conducted in spring 2015 to determine if improvements are required.
20	President Murray Park	Install "No parking" signs to indicate 10m from intersection surrouding President Murray Park.	Site check confirmed signs were all in place except on the southwest corner on McKinnon Ave. Install "No parking" sign on McKinnon Ave 10m from Colony St intersection.
21	Temperance St & McKinnon Ave	Speeding on Temperance St caused by installation of yield signs (Stop & Yield Retrofit Program); install 4-way stop	4-way stops are not recommended as speed control devices however a review of the collision history determined 4 collisions occurred in a 5-month span between Jun/12 & Jan/13; speed study will be conducted in spring 2015