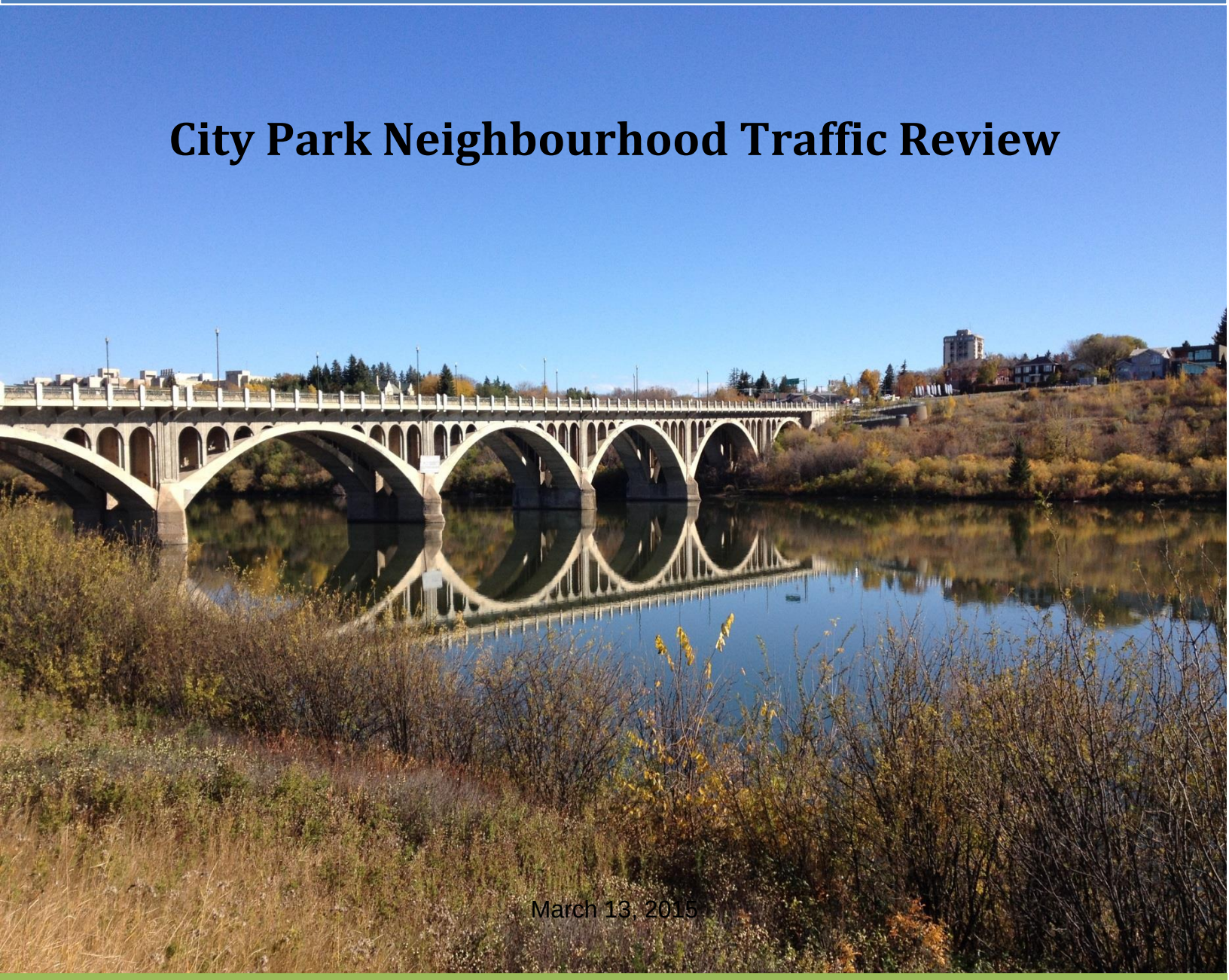
City of Saskatoon

City Park Neighbourhood Traffic Review



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Transportation & Utilities Department

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- City Park residents
- City Park Community Association
- Saskatoon Police Services
- Saskatoon Light & Power
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- City of Saskatoon Transportation
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Executive Summary

The objective of the Neighbourhood Traffic Management Program is to address traffic concerns within neighbourhoods such as speeding, shortcutting, and pedestrian safety. The program was revised in August 2013 to address traffic concerns on a neighbourhood-wide basis. The 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 April of 2014 to identify traffic concerns and potential solutions within the City Park 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.

The recommended improvements for the City Park neighbourhood are included in **Table ES-1.** The summary identifies the locations, the recommended improvement, and a schedule for implementation.

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

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

Table ES-1: City Park Neighbourhood Recommended Improvements

Location	Proposed Measure	Time Frame
7th Avenue & 33rd Street	Install advanced 4-way stop sign; install zebra pavement markings in all crosswalks	1 to 2 years
Spadina Crescent between Queen Street & Duke Street	Install speed display board in summer	
1st Avenue & 26th Street	Remove parking on west side; enhance pedestrian signs; install zebra pavement markings	
26th Street between 2nd Avenue & 5th Avenue	Install "no parking" signs near back lanes	
Bottom of University bridge	Move advanced pedestrian sign; add tab "watch for pedestrians"	
7th Avenue & Princess Street	Install "no parking" signs on northwest corner	
1st Avenue & Queen Street	Install zebra crosswalk	
7th Avenue & Duchess Street	Install curb extensions & "no parking" signs	3 to 5 years
7th Avenue & Duke Street	Install curb extension	
1st Avenue & 26th Street	Install pedestrian accessibility ramps	

Exhibit ES-1: City Park Traffic Plan

(Refer to Attachment 1)

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1. Introduction

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

The City Park neighbourhood is located on the west side of the South Saskatchewan River and is bound by the South Saskatchewan River to the east, 25th Street to the south, 1st Avenue to the west, and 33rd Street to the north. The area is mixed residential and commercial, with most of the residential area bound by Queen Street, Spadina Crescent, Duke Street, and 3rd Avenue. The neighbourhood has one school (City Park Collegiate on 9th Avenue), the Kinsmen Park, Wilson Park, Mendel Art Gallery, and one of Saskatoon's largest hospitals (Saskatoon City Hospital). The Meewasin Trail along the river also invites a lot of pedestrian and cycling traffic to the area.

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 (1 to 5 years) or long term (5 years plus).

2. Identifying Issues, Concerns, & Possible Solutions

A public meeting was held in April 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 to a destination outside of the neighbourhood. These streets are designed and intended for low traffic volumes. In the case of City Park, the bordering arterial streets (33rd Street, Spadina Crescent, 25th Street, and 2nd 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 included:

- 7th Avenue between Queen Street & 33rd Street
- Back lane along Queen Street between Spadina Crescent & 9th Avenue
- Queen Street & 1st Avenue
- Queen Street between 5th Avenue & 7th Avenue
- Spadina Crescent between Queen Street & 33rd Street – excessive speeding; vehicle noise
- Princess Street between 2nd Avenue & 7th Avenue
- Back lane along 9th Avenue 600 block (connects to Queen Street & King Crescent) – speeding & shortcutting causing noise & dust

Proposed solutions identified by residents:

- 7th Avenue between Queen Street & 33rd Street - install traffic calming to discourage traffic
- Back lane along Queen Street between Spadina Crescent & 9th Avenue – implement one-way street
- Queen Street & 1st Avenue – install traffic signal, roundabout, or traffic calming
- Spadina Crescent between Queen Street & 33rd Street - implement seasonal reduced speeds
- Back lane along 9th Avenue 600 block – implement one-way so northbound cannot enter or install “no through road” at entrance

CONCERN 2 - PEDESTRIAN SAFETY

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 included:

- 7th Avenue & Duchess Street – bus stop on the west side requires better marking; white crossing lines are faded; northbound drivers rarely slow down for pedestrians because they likely see the 4-way stop at 33rd Street and aren't paying attention
- 7th Avenue & Duke Street
- 7th Avenue & Princess Street – drivers don't stop for pedestrians
- 33rd Street – unsafe especially for children
- Spadina Crescent between Queen Street & 33rd Street - many pedestrians crossing to use bridge stairs at west side
- 33rd St - crossing isn't clear; traffic backs up at this intersection; solution – build out
- 25th Street – pedestrian light times are too short
- 26th Street & 1st Avenue
- 2nd Avenue
- Princess Street & 2nd Avenue – unsafe to cross; drivers yell at pedestrians
- Bottom of University bridge - pedestrian crossing is dangerous; drivers speeding down bridge may cause a rear end for driver in front who stops for pedestrians;
- Shortcutting through neighbourhood due to trains (7th Avenue, Princess Street, Duke Street etc)

Proposed solutions identified by residents:

- 7th Avenue & Duchess Street – install curb extensions or pedestrian activated light
- 7th Avenue & Duke Street – install curb extensions or pedestrian activated light
- Spadina Crescent between Queen Street & 33rd Street - improve bridge stairs to

increase usage; implement more signage; improve sidewalk angle for drivers to yield; turn roadway into a park

- Spadina Crescent south of 33rd Street – pedestrian light needed where road splits
- 26th Street & 1st Avenue – improve pavement markings; install pedestrian-activated signals
- Princess Street & 2nd Avenue - install pedestrian-activated
- Education across the city about the rights of pedestrians and the obligations of drivers (regardless if they are driving a car, motorcycle, truck, or bike) with regards to stopping for pedestrians at any intersection.
- Bottom of University bridge - move crosswalk farther down Spadina Crescent to give motorists time to react and improve visibility of pedestrians; install warning sign in advance of crosswalk
- Implement one-way streets in core of neighbourhood; streets are not wide enough to drive safely when meeting vehicles

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.

Neighbourhood concerns regarding traffic controls included:

- Spadina Crescent & 33rd Street – crossing isn't clear; traffic backs up
- Spadina Crescent north of University Bridge (across from Kinsmen Park) – confusing sign "right turn on red allowed"
- Bottom of University bridge – missing sign to tell drivers where to go; missing sign to direct drivers to Kinsmen Park
- 25th Street & University bridge (northbound) – traffic doesn't merge during off-peak hours

Proposed solutions identified by residents:

- 7th Avenue & Princess 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 included:

- Parking within restricted zones / vehicles obstructing sight lines:
    - 26th St near back lanes
    - 7th Avenue & Duchess Street (on east side of 7th Avenue)
    - 7th Avenue & Duke Street
    - 7th Avenue & Princess Street
    - Queen Street & 5th Avenue
- Residential Parking Permit Program (RPP):
    - Instead of Hospital employees parking 7am-4pm, they park and move vehicles all day resulting in circulating traffic, parking close to driveways, U-turns in midblock, noise
    - RPP zone doesn't work for blocks located within 3 blocks of hospital; made situation worse due to high parking turnover
    - Residents abuse parking passes (ie. selling)
    - 4th Avenue 900 block - one of the few blocks not part of RPP is full of parked cars; very dangerous getting onto Duke Street because parked cars are obstructing view
    - Visitor parking permits are either being sold, leased, or given to people working at the hospital so they can park all day while they are working
    - Every morning there are cars racing down residential streets rushing to park on the blocks that do not have the 2-hr parking restrictions
    - The streets surrounding parks (ie. King Crescent and Princess Street) are not included in the residential zone
    - There are now hospital workers walking as far as the 700 block on 9th Avenue to move their cars around every 2 hours
- Duchess Street – parking only on north side; widen road to provide parking on south side
- Duke Street between 3rd & 4th Avenue is bumper to bumper parking; road is too narrow

Proposed solutions identified by residents:

- Expand one-way streets on 4th & 5th Ave to Duke St, add one-way on 6th Ave, increase setback of parking at intersections
- City Hospital consider a shuttle service to a remote parking lot
- Change parking restriction in RPP zone from 2-hour to 1-hour
- Duke St between 3rd & 4th Avenue - restrict parking on one side (2 hour limit)
- Parking enforcement
- Paint curbs to indicate restrictions
- Increase parking restrictions (more than 10m) on main thoroughfares
- Update parking bylaw to address selling of parking residential parking passes - result in suspension of the visitor pass or at least a ticket to the permit holder
- Implement parking restrictions on all residential streets in City Park

CONCERN 5 – CYCLING

Cycling is a practical mode of transportation in City Park, as the neighbourhood is in close proximity to the downtown and other nearby amenities.

Neighbourhood concerns regarding cycling included:

- Bike lanes (Spadina Crescent /33rd Street) don't work

Proposed solutions identified by residents:

- Extend proposed protected bike lanes to 4th Ave in City Park neighbourhood
- Bike lanes (Spadina/33rd St) – dedicated bike paths either on road or beside the trail; connect bike route from King Street where City of Saskatoon yards currently is
- Consider/encourage alternate modes of transportation to improve traffic congestion in area
- City should give consideration to impact on cyclists when proposing traffic calming devices
- Implement cycling connections off Princess Street (to connect Spadina Crescent & Blairmore Bikeway)

CONCERN 6 – DETOURS

A number of roadway improvements and new construction is currently taking place in City Park. As a result, detours were implemented throughout the neighbourhood.

Neighbourhood concerns regarding detours included:

- Better detours during construction on 7th Avenue (33rd Street); avoid shortcutting onto 9th Avenue & King Street; don't create detours on narrow streets such as 6th Avenue
- Whenever Spadina Crescent is blocked off going south think about where traffic is being diverted. It's always blocked off after 33rd Street, either at Duchess Street or Duke Street and this is pushing all that traffic down King Crescent and 9th Avenue.
- 8th Avenue – construction causing traffic delays; resident suggested to restrict access to hospital; also near 3rd Ave

Proposed solutions identified by residents:

- Block Spadina Crescent at 33rd Street so traffic is diverted down 33rd Street to 7th Avenue or 2nd Avenue not down the residential streets.
- 8th Avenue – restrict access to hospital during construction
- 3rd Avenue – restrict access to hospital during construction

CONCERN 7 - MAINTENANCE

A majority of the residents were concerned about the condition of the streets in City Park (i.e. snow clearing, potholes, tree trimming, and temporary traffic calming devices).

Neighbourhood concerns regarding maintenance included:

- Trees need trimming along 25th Street and Spadina Crescent
- Enforce bylaw for snow shovelling on sidewalks in front of private properties

3. Assessment

Stage 2 of the plan development included developing a draft traffic management plan was completed by 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% of vehicles are travelling at or below. The speed limit in the City Park area is 50kph, except for school zones where the speed limit is 30kph from September and June, 8:00 a.m. to 5:00 p.m., 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)

Location	Between	Class	Average Daily Traffic (vpd)	Speed (kph)
Back Lane - 9th Avenue 600 block	Queen Street & King Crescent	lane	>50	NA
Princess Street	4th Avenue & 5th Avenue	local	502	44.3
7th Avenue	Duke Street & Princess Street	major collector	2530	49.5
Queen Street	5th Avenue & 6th Avenue		6981	NA
7th Avenue	Duke Street & Duchess Street		1886	51
Spadina Crescent	Duke Street & Duchess Street	arterial	5704	NA

2. Turning Movement Counts

Turning movement counts were completed to determine the need for an all-way (i.e. three-way or four-way) stop control. 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. Criteria outlined in the policy 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 Traffic Count	Average Daily Traffic (vpd)	% of Traffic from minor street (%)	Traffic Signals or all-way stop within 200m	Results
1st Avenue & Queen Street	955	10430	18%	yes (100m from traffic signals at 2nd Avenue)	All-way stop not warranted
7th Avenue & Duke Street	646	6590	14%	no	
7th Avenue & Duchess Street	820	8690	12%	yes (135m from 4-way stop at 33rd Street)	
1st Avenue & 26th Street	999	11200	4%	yes (190m from traffic signals at 25th Street)	
2nd Avenue & Princess Street	2206	22410	2%	no	
Spadina Crescent & Duchess Street	1076	11370	1%	yes (190m from 3-way stop at 33rd Street)	
3rd Avenue & King Street	177	1850	40%	no	
7th Avenue & Princess Street	570	5700	13%	no	

As a result of the assessment there are no all-way stop controls recommended. 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	Results
1st Avenue & 26th Street	45	Pedestrian Devices Not Warranted
1st Avenue & Queen Street	45	
7th Avenue & Duke Street	50	
7th Avenue & Duchess Street	60	
2nd Avenue & Princess Street	8	
Spadina Crescent & Duchess Street	40	
7th Avenue & Princess Street	130	
3rd Avenue & King Street	38	

As a result of the assessment, no pedestrian devices are recommended. Details of the pedestrian device assessments are provided in **Appendix B**.

4. Plan Development

Stage 3 of the project 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 / Shortcutting

The recommended improvements and justification to address speeding and shortcutting are detailed in

Table 4-1**.**

Table 4-1: Recommended Improvements to Reduce Speeding and Shortcutting

Location	Recommended Improvement	Justification
Spadina Crescent between Queen Street & Duke Street	Temporary speed display board during summer	Reduce speed in high pedestrian area
7th Avenue & Duchess Street	Curb extensions	Reduce speed & improve pedestrian safety (transit route)
7th Avenue & Duke Street	Curb extension	Reduce speed & improve pedestrian safety (transit route)

[1] For details on these devices refer to the *City of Saskatoon Traffic Calming Guidelines and Tools*

2. Pedestrian Safety

The safety of the pedestrian environment is important to encourage people to walk to school, work, and nearby amenities. Accordingly, the recommended improvements to increase pedestrian safety are detailed in **Table 4-2**.

Table 4-2: Recommended Pedestrian Safety Improvements

Location	Recommended Improvement	Justification
7th Avenue & 33rd Street	Zebra crosswalks (all legs); advanced 4-way stop sign (northbound)	Enhance visibility of crosswalk; improve pedestrian safety (connects to multi-use path)
1st Avenue & 26th Street	Enhance pedestrian signs; zebra pavement markings; relocate crosswalk so pole isn't obstructing; pedestrian accessibility ramps	Enhance visibility; improve pedestrian safety
Bottom of University bridge	Move advanced pedestrian sign; add tab "watch for pedestrians"	Provide more reaction time to slow / stop for pedestrians (southbound on University bridge)
1st Avenue & Queen Street	Zebra crosswalk	Enhance visibility; improve pedestrian safety

3. Parking Improvements

The recommended improvements to parking that will improve the level of safety at specific intersections are detailed in **Table 4-3**.

Table 4-3: Recommended Parking Improvements

Location	Recommended Improvement	Justification
1st Avenue & 26th Street	Remove parking on west side	Enhance visibility of pedestrian crosswalk (according to Traffic Bylaw 7200 parking within intersections is restricted)
26th Street between 2nd Avenue & 5th Avenue	"No parking" signs near back lanes	Enhance visibility
7th Avenue & Princess Street	"No parking" sign (northwest corner)	Enhance visibility of pedestrian crosswalk
7th Avenue & Duchess Street	"No parking" sign (southeast corner)	Enhance visibility of pedestrian crosswalk

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 A**. A decision matrix for additional comments received after the draft traffic plan is also included in **Appendix A**.

The following table displays a list of the improvements that were adjusted based on the feedback received at the October 2014 follow up meeting.

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

5. Recommended Plan and Cost Estimates

Stage 4, the last stage of the process, is to install the recommended improvements for the City Park 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 1 to 5 years; and long-term is 5 years plus.

The placement of pedestrian and traffic control signage will be completed short-term (1 to 2 years).

All traffic calming measures will be installed temporarily using rubber curbing until proven effective, and will be implemented short-term (1 to 2 years).

Permanent traffic calming often includes removing the temporary barriers and reconstructing with concrete. The timeline for permanent traffic calming may depend on the complexity of the device and the availability of funding; therefore the timeline is medium-term (1 to 5 years).

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

- **Table 5-1**: Traffic Calming Cost Estimate
- **Table 5-2**: Pedestrian Crosswalks Cost Estimate
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- **Table** 5-3:
- **Miscellaneous Signage** Cost Estimate
- **Error! Reference source not found.**

Table 5-1: Traffic Calming Cost Estimate

Location	Device (s)	Cost Estimate		Time Frame
		Temporary	Permanent	
7th Avenue & Duchess Street	2 curb extensions	$1,000	$60,000	3 to 5 years
7th Avenue & Duke Street	1 curb extension	$500	$30,000	
Total		$1,500	$90,000	

Temporary traffic calming will be installed in 2015 and will be monitored to determine its effectiveness. If proven effective, the devices will be made permanent. Until they are made permanent, the devices will remain temporary and maintained on a yearly basis. An estimated cost for maintenance is about $5,000 dollars per year. The maintenance typically involves the replacement of damage curbs as result of the winter- snow season removal, causing damage from vehicle impact, etc.

Table 5-2: Pedestrian Crosswalks Cost Estimate

Location	Device (s)	Cost Estimate	Time Frame
7th Avenue & 33rd Street	Zebra crosswalks (add to existing standard crosswalk on all legs)	$400	1 to 2 years
1st Avenue & 26th Street	4 pedestrian signs; zebra pavement markings	$1,200	
Bottom of University bridge	Move advanced pedestrian sign; add tab "watch for pedestrians"	$250	
1st Avenue & Queen Street	4 pedestrian signs & zebra markings	$1,200	
Total		$3,050	

The operating impact on an annual basis to maintain the painted crosswalks city-wide is $25,000.

Table 5-3: Miscellaneous Signage Cost Estimate

Location	Device (s)	Number of Signs	Cost Estimate	Time Frame
1st Avenue & 26th Street	"No parking" sign	2	$500	1 to 2 years
26th Street between 2nd Avenue & 5th Avenue	"No parking" sign	12	$3,000	
7th Avenue & Princess Street	"No parking" sign	1	$250	
7th Avenue & Duchess Street	"No parking" sign	1	$250	
Spadina Crescent between Queen Street & Duke Street	Temporary speed display board during summer	1	(Funded through Speed Management Program)	
Total			$4,000	

Table 5-4: Pedestrian Accessibility Cost Estimate

Location	Device (s)	Cost Estimate	Time Frame
1st Avenue & 26th Street	2 pedestrian accessibility ramps	$6,400	1 to 5 years
Total		$6,400	

Table 5-5: Total Cost Estimate

Category	Signage, Temporary Traffic Calming, & Accessibility Ramps	Permanent
Traffic Calming	$1,500	$90,000
Pedestrian Crosswalks	$3,050	NA
Miscellaneous Signage	$4,000	NA
Pedestrian Accessibility Ramps	NA	$6,400
Total	$8,550	$96,400

The total cost estimate for signage, pavement markings, and temporary traffic calming devices to be installed in 2015 is **$8,550**. The total cost estimate for the installation of the permanent traffic calming devices and pedestrian accessibility ramps is **$96,400**.

Resulting from the plan development process, the recommended improvements, including the location, type of improvement, and schedule for implementation are summarized in **Table 3-16**. The resulting recommended City Park Neighbourhood Traffic Management Plan is illustrated in **Exhibit 5-2: 1**.

Table 5-6: City Park Neighbourhood Recommended Improvements

Location	Proposed Measure	Time Frame
7th Avenue & 33rd Street	Install advanced 4-way stop sign; install zebra pavement markings in all crosswalks	1 to 2 years
Spadina Crescent between Queen Street & Duke Street	Install speed display board in summer	
1st Avenue & 26th Street	Remove parking on west side; enhance pedestrian signs; install zebra pavement markings	
26th Street between 2nd Avenue & 5th Avenue	Install "no parking" signs near back lanes	
Bottom of University bridge	Move advanced pedestrian sign; add tab "watch for pedestrians"	
7th Avenue & Princess Street	Install "no parking" signs on northwest corner	
1st Avenue & Queen Street	Install zebra crosswalk	
7th Avenue & Duchess Street	Install curb extensions & "no parking" signs	3 to 5 years
7th Avenue & Duke Street	Install curb extension	
1st Avenue & 26th Street	Install pedestrian accessibility ramps	

Exhibit 5-2: Recommended City Park Traffic Management Plan

(Refer to Attachment 1)

Appendix A

Pedestrian Device Assessments

2nd Avenue & Princess 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 =	325	m	= distance from study location to nearest protected crosswalk.
LOCF =	9.4	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 =	8.0	= total number of children, teenagers, seniors and/or impaired counted.
Pa =	0.0	= total number of adults counted.
Pw =	12.0	= weighted average of pedestrians crossing the main street.
Pcm =	2.4	= weighted average hourly pedestrian volume crossing the main street.
V =	9226.0	= volume of traffic passing through the crossing(s).
Vam =	1845.2	= average hourly volume of traffic passing through the crossing(s).

VOLF =	8.9	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.

3rd Avenue & King Crescent:

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 =	125	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 =	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 =	652.0		=	volume of traffic passing through the crossing(s).
Vam =	130.4		=	average hourly volume of traffic passing through the crossing(s).
VOLF =	3.0	points	=	Vam x Pcm / 500

6. Satisfaction of Installation Criteria:

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

SUMF =	**16**	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.

7th Avenue & Duke 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 =	1,000	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 =		60.15038	points.	

5. Pedestrian/Vehicle Volume Priority Points:

H =	5.0	=	(hours) duration of counting period.
Ps =	50.0	=	total number of children, teenagers, seniors and/or impaired counte
Pa =	0.0	=	total number of adults counted.
Pw =	75.0	=	weighted average of pedestrians crossing the main street.
Pcm =	15.0	=	weighted average hourly pedestrian volume crossing the main street
V =	2489.0	=	volume of traffic passing through the crossing(s).
Vam =	497.8	=	average hourly volume of traffic passing through the crossing(s).

VOLF =	14.9	points	=	Vam x Pcm / 500

6. Satisfaction of Installation Criteria:

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

SUMF =	**43**	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.

7th Avenue & Princess 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	=	300	m	= distance from study location to nearest protected crosswalk.
LOCF	=	7.5	points	= (D-200) / 13.3 to a maximum of 15 points.

5. Pedestrian/Vehicle Volume Priority Points:

H	=	5.0		= (hours) duration of counting period.
Ps	=	130.0		= total number of children, teenagers, seniors and/or impaired counted
Pa	=	0.0		= total number of adults counted.
Pw	=	195.0		= weighted average of pedestrians crossing the main street.
Pcm	=	39.0		= weighted average hourly pedestrian volume crossing the main street.
V	=	2155.0		= volume of traffic passing through the crossing(s).
Vam	=	431.0		= average hourly volume of traffic passing through the crossing(s).
VOLF	=	33.6	points	= Vam x Pcm / 500

6. Satisfaction of Installation Criteria:

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

SUMF	=	**54**	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.

7th Avenue & Duchess 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	=	325	m	= distance from study location to nearest protected crosswalk.
LOCF	=	9.4	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	=	60.0		= total number of children, teenagers, seniors and/or impaired counted
Pa	=	0.0		= total number of adults counted.
Pw	=	90.0		= weighted average of pedestrians crossing the main street.
Pcm	=	18.0		= weighted average hourly pedestrian volume crossing the main street.
V	=	2923.0		= volume of traffic passing through the crossing(s).
Vam	=	584.6		= average hourly volume of traffic passing through the crossing(s).
VOLF	=	21.0	points	= Vam x Pcm / 500

6. Satisfaction of Installation Criteria:

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

SUMF	=	**43**	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.

1st Avenue & 26th 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	=	201	m	= distance from study location to nearest protected crosswalk.
LOCF	=	0.1	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	=	4608.0		= volume of traffic passing through the crossing(s).
Vam	=	921.6		= average hourly volume of traffic passing through the crossing(s).
VOLF	=	24.9	points	= Vam x Pcm / 500

6. Satisfaction of Installation Criteria:

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

SUMF	=	**45**	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.

1st Avenue & Queen 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	=	310	m	= distance from study location to nearest protected crosswalk.
LOCF	=	8.3	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	=	4242.0		= volume of traffic passing through the crossing(s).
Vam	=	848.4		= average hourly volume of traffic passing through the crossing(s).
VOLF	=	22.9	points	= Vam x Pcm / 500

6. Satisfaction of Installation Criteria:

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

SUMF	=	**44**	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.

Spadina Crescent & Duchess 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	=	201	m	= distance from study location to nearest protected crosswalk.
LOCF	=	0.1	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	=	40.0		= total number of children, teenagers, seniors and/or impaired counted
Pa	=	0.0		= total number of adults counted.
Pw	=	60.0		= weighted average of pedestrians crossing the main street.
Pcm	=	12.0		= weighted average hourly pedestrian volume crossing the main street.
V	=	4139.0		= volume of traffic passing through the crossing(s).
Vam	=	827.8		= average hourly volume of traffic passing through the crossing(s).
VOLF	=	19.9	points	= Vam x Pcm / 500

6. Satisfaction of Installation Criteria:

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

SUMF	=	**33**	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.

Appendix B

Recommendation Review Matrix

Decision Matrix – Recommendations proposed at initial meeting

Item	Location	Recommendation	Group 1	Group 2	Group 3	Group 4	Decision
1	7th Ave & Duchess St	Install "no parking" signs on southeast corner 10m from intersection; install curb extension (southeast corner) & raised median island (south leg) on 7th Ave	in favour but leave space in curb ext for cyclist; concerns about snow plows; make sure with snow it doesn't make road too narrow	in favour but remove median islands	in favour but install curb extension on west side too; snow removal may be an issue	curb extensions difficult for cyclists; consider opening for cyclist in curb	Raised median islands not recommended on 7th Ave due to high volumes and transit. Remove raised median island. Install additional curb extension on northwest corner. Gap for cyclists in curb extension not necessary on 7th Ave due to parking lane.
2	7th Ave & 33rd St	Install advanced 4-way stop sign northbound (at underpass); install zebra pavement markings in all crosswalks; install median islands with additional 4-way stop signs	in favour but consider traffic signals or 4-way stop	median island makes it tougher for trucks & transit; drivers are compliant; obstructions may create more hazards; no pedestrian issues noted	in favour of curb extensions; median island may not work with bus route	road seems to narrow for median islands; consider chances to widen intersection	Removed. Raised median islands will restrict right turns eastbound and northbound.
3	Spadina Cres between Queen St & Duke St	Install speed display board	install in both northbound & southbound direction	reduce speed limit on Spadina; trees may obstruct solar-powered board	not in favour; reduce speed with other measures	consider location/positioning of board so homeowners view isn't ruined	Carried. Install during summer in both northbound and southbound directions.
4	1st Ave & 26th St	Remove parking on west side (according to Traffic Bylaw 7200 parking within intersections is restricted); enhance pedestrian signs; relocate crosswalk so pole isn't obstructing; install pedestrian ramps	review how many parking spaces will be removed; consider parallel parking instead				Carried. Add zebra markings. Approximately 5-6 parking stalls will be removed. Letter will be sent to effected property owners.
5	26th St between 2nd Ave & 5th Ave	Revise signage to indicate restricted parking areas near back lanes	review all of City Park		low compliance with signs; physical restrictions suggested		Carried.
6	7th Ave & Duke St	Install raised median islands on 7th Ave		not in favour of median islands on 7th Ave (too narrow, snow removal issues); install active pedestrian corridor	no parking on Duke St on north side; install curb extensions instead of median island	road seems to narrow for median islands; consider pedestrian activated light	Change to curb extension on northwest corner (existing pedestrian corridor on north side).

Decision Matrix – Additional comments

Item	Location	Concern	Decision
1	Various	parking survey to residents to change from 2-hr to 1-hr; adding weekends/holidays	Parking Service will follow up with request.
2	Various	parking survey to residents in non-RPP zone asking if they want to join	Parking Service will follow up with request.
3	Various	Any changes to parking near City Hospital, contact site leader (Karen Newman) to discuss first	Noted. Information forwarded to Parking Services.
4	Various	education about rights of pedestrians and obligations of drivers with regards to stopping for pedestrians at any intersection; drivers yell at pedestrians for having "the nerve" to make them slow down; drivers feel that pedestrians are an impedement and this discourages people from walking	Add information to website to educate citizens on pedestrian safety and driver education.
5	Bottom of University of bridge	Needs to have safer crossing or earlier warning for pedestrians crossing; drivers coming down bridge (westbound)- first person stop for pedestrian to cross and would get rear-ended by driver's coming too fast behind; better better warning to insure drivers will stop is needed (site check confirmed there is already additional flashing light facing bridge to alert drivers, no additional recommendations)	Move advanced pedestrian sign on University bridge to increase stopping distance. Add tab "watch for pedestrians".
6	7th Ave & Princess St	install 4-way stop; visibility issues; dangerous to cross; remove parking on northwest corner (1 to 2 car lengths) to improve	4-way stop not warranted. Add parking restrictions as requested to improve visibility.
7	1st Ave & Queen St	Pedestrian safety issues; consider 3-way stop; make similar recommendations to improve crossing as proposed at 26th St; improve sightlines/stop lines; move stop sign ahead (PAS= 44, 45peds (30 on the south), no crosswalk; missing sidewalks; "no parking" begins at intersection->move back 10m to improve visibility; 120m from standard crosswalk at 26th St)	Install zebra crosswalk on south side
8	Detours	when Spadina Crescent if closed first place drivers go is King Crescent; route drivers to 33rd St; Spadina Crescent- divert SB traffic onto 33rd St so they don't turn onto Duke St	Noted. Information forwarded to detours group.
9	Spadina Crescent/33rd St	Sidewalk missing (southbound).	Roundabout proposed as part of 33rd St Master Plan. Temporary sidewalk/interim measures not feasible.
10	1st Ave	speeding	1st Avenue is commercial with high volumes of truck traffic; traffic calming not recommended. Speed study will be conducted in spring 2015 to determine if speeding is an issue. Information will be forwarded to police enforcement.
11	Back lane east of 9th Ave - between Queen St & King Cres	shortcutting/speeding (waiting on count)	Traffic count indicated traffic volumes within acceptabel range.
12	Queen St & Spadina	concern about trailing protected left turn signal; pedestrian concern because southbound vehicles are stopped at red light but northbound vehicles have through green light as pedestrians start to cross	Comments will be forwarded for further consideration.
13	3rd Ave - all unsignalized intersections	difficult to turn left	Comments will be forwarded for further consideration.
14	Queen St & 3rd Ave	difficult to cross; install 4-way stop (currently temporary with construction)	Traffic count will be conducted to determine if 4-way stop is warranted.
15	26th St & 2nd Ave	Review pedestrian construction	Plans were reviewed by Traffic Operations Technologist prior to temporary installation. Forwarded for further consideration.
16	Various	use other types of temporary curbing; current is ugly	Noted. Existing curbing is feasible and easy to install.
17	Spadina Crescent north of University bridge (near Kinsmen Park)	Traffic signal south of Mendel – right turn on red light permitted; signage is unclear; suggested terminology- “after stopping on red, please proceed with caution"	Site review indicated existing signage is adequate.
18	One-way streets	drivers going wrong way	Site review indicated existing signage is adequate. Enforcement issue.
19	7th Ave	snow gets plowed but not picked up	Forwarded to Public Works Division.
20	Spadina Cres	heavy trucks	More information required. Call police to request enforcement for heavy trucks on local / collector roadways.
21	Princess St & 2nd Ave	dangerous for pedestrians to cross	Pedestrian count indicated only 8 pedestrians crossing during five peak hours. No recommendations at this time. Protected crossings 320m south at Queen St and 170m north at Duke St.