University of Saskatchewan

Sustainable Mobility Strategic Plan

Final Report

with Noxon Associates Ltd.

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Prepared By

Sarah Rocchi
Transportation Sector Leader - Canada

Geoff Noxon
Noxon Associates

Opus International Consultants (Canada) Limited
Vancouver Office
210-889 Harbourside Drive
North Vancouver BC V7P 3S1
Canada

Telephone: +1 604 990 4800
Facsimile: +1 604 990 4805

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Contents

List of Figures

List of Tables

Executive Summary

The University of Saskatchewan is a prospering campus with about 20,000 students across the South Saskatchewan River from downtown Saskatoon, and a central part of the community. The University is one of the main transfer points in the Saskatoon Transit system, and is also close to residential areas to the east and south, as well as some pedestrian and cycling paths surrounding the campus.

Transit use has increased greatly due to the implementation of the U-Pass in 2008 and the restructuring of routes to enhance ridership to and from the University. However, there is still the potential for higher ridership. The relatively high allocation of infrastructure to parking requirements, and the continuing rates of vehicle usage by staff and faculty have made the University consider its role to make efforts and reduce its carbon footprint with sustainable transportation.

The combination of increased people on the campus, capacity and parking issues, road safety concerns, potential for multi-modal transportation given its location, and its willingness to take the next step in sustainable transportation has prompted the University to explore ways to reduce its dependence on single occupancy vehicles and enhancing or improving other mode choices. As such, the University wishes to look forward and plan to manage its future parking, traffic, and safety issues.

Goals and Objectives

The principal goal of the Sustainable Mobility Strategic Plan is to increase the quality and use of sustainable mobility options (public transit, carpooling, cycling and walking) for travel to, from and within the campus.

The objective of the Sustainable Mobility Strategic Plan is growth in commuting by sustainable modes (transit, cycling, walking and auto passenger). The share of travel by sustainable modes is targeted to increase from 73.7% in 2013 to 78.1% in 2018, with a much larger relative change for staff and faculty than for students (who already use sustainable modes to a greater degree). The resulting reduction in SOV share (from 26.3% in 2013 to 21.9% in 2018) represents a relative decrease of almost 17%. In other words, success would require 17% of current SOV drivers to switch to a different mode of travel (changing to transit, walking or cycling, or either acquiring or becoming a carpool passenger) within five years. This is an ambitious target, particularly given the relatively low current rate of SOV usage. It can safely be assumed that many current SOV drivers have at least a moderately compelling reason to be driving alone to campus, and that persuading them to change will be a challenge.

Study Method

The following tasks were undertaken to complete this study:

- Task 1 Review Existing Documents and Material.
- Task 2 Conduct Stakeholder Consultation.

- Task 3 Conduct Traffic Surveys and Analysis.
- Task 4 Conduct University User Surveys and Reviews.
- Task 5 Conduct Traffic Safety Observations and Analysis.
- Task 6 Establish Existing Benchmarks and Progress Report 1.
- Task 7 Identifying Initiatives.
- Task 8 Consolidation, Evaluation and Prioritization of Initiatives
- Task 9: Documentation

General Recommendations

We strongly recommend that implementation of the Sustainable Mobility Strategic Plan be fully integrated into the University's "way of doing business" – i.e. it should not be treated as a special project, pilot test or experimental initiative. We do not recommend that the initiative be given a special identity, as programs of this type sometimes are; it is too broad and too closely oriented to the practical, everyday needs of the U of S community. By simply making sustainable mobility measures part of everyday practice, the University gives them the credibility, solidity and an air of permanence.

There may be specific measures which warrant "pilot project" status as details are worked out, or as impacts are gauged before large-scale investments are made. This is normal, and desirable. For example, any measure with a large variability in its parameters (e.g. the purchase of new bike lockers with a design chosen from a large number of alternative suppliers) is a good candidate for a testing phase, to ensure that a larger implementation is made with the best possible information (i.e. Do cyclists like the design? Are the materials durable? Are they visually pleasing?).

Roles and Responsibilities

We recommend that Parking and Transportation Services adopt a lead role in implementing this Sustainable Mobility Strategic Plan, a responsibility that staff has already indicated a willingness to take on. Parking and Transportation Services is well suited to this role for two main reasons: first, it is an operational, client-facing unit that has skills and resources in managing customers and transactions with them; second, it permits the full integration of all modes of transportation and avoids the dynamic of having one staff unit serving the needs of car users and another unit dealing with the needs of transit users, cyclists and pedestrians. This is also important because it permits an integrated approach to incentives and disincentives; for example, parking permit holders may be allowed to suspend their permits for the summer months if they prefer to cycle to work instead.

We recommend that the Office of Sustainability within the Facilities Management Division remain a key partner in internal advocacy on behalf of the Sustainable Mobility Strategic Plan (e.g. pursuing funding, communicating with partners about the importance of the plan). Sustainability staff may also be able and willing to help with research and testing of measures that require preliminary work before full implementation. Other Facilities Management staff would be involved as stakeholders in issues relating to ensuring that new campus buildings and infrastructure are supportive of sustainable mobility.

We strongly recommend that the current Parking Advisory Committee and Transportation Advisory Committee be merged into a single new Parking and Transportation Advisory Committee. The reasons for this are similar to those advanced in the previous discussion on the role of Parking and Transportation Services. Another key reason is that parking issues typically attract stakeholder interest, attention and attendance. Integrating broader transportation issues into the Parking Advisory Committee's mandate will leverage that interest to (it is hoped) attract better advice on non-parking implementation issues than might be obtained through a separate committee process.

Resources

We strongly recommend that at least 0.5 FTE be dedicated to coordinating the implementation of the Sustainable Mobility Strategic Plan. It is not reasonable to expect existing staff to implement the many new recommended actions on top of their existing responsibilities. Typically, those Canadian post-secondary institutions of the same size that have had success with similar programs have dedicated staff resources to the effort, usually a full-time staff position (1.0 FTE). In view of the programs already in place, and in view of the high degree of cooperation that is evident among staff groups, it is our expectation that 0.5 FTE would be a reasonable starting point to enable success.

The allocation of 0.5 FTE to the implementation of this plan would have a cost that may or may not represent a new budget item, depending on how that resource is established. For worst-case purposes, this cost is estimated to be $40,000.

The overall costs for the short-term actions recommended in this report are summarized in Table ES-2. It can be seen that including the cost of a TDM co-ordinator, the annual costs would be $113,000. Additionally, one-time set-up and capital improvement costs ranging from $97,000 to $147,000 will be involved. An increase in monthly parking charges of $10 for students and staff could result in over $450,000 in additional revenue, some of which could be dedicated to funding these measures.

Table ES-1 Summary of Costs for Sustainable Mobility Strategic Plan

Component	One-time Costs		Annual Costs
	Low	High	
TDM Actions	$17,000	$67,000	$58,000
TDM Position			$40,000
Safety and Accessibility	$80,000	80,000	$ 15,000
Total	$97,000	$147,000	$113,000

Recommended Actions

Recommendations of the strategic plan are summarized in TABLE ES-2 below.

Table ES-2 Summary of Recommended Actions

Current/pending actions	Recommended actions	
	Short-term (2013 and 2014)	Mid-term (2015 and beyond)
Safety & accessibility		
▪ CPTED security audits	▪ Improvements to pedestrian crossings (lines, signs, signals, buttons, on & off campus) ▪ Installation of curb ramps (on & off campus) ▪ Modification of road infrastructure for safe cycling (on & off campus) ▪ Installation of Share the Road signs ▪ Modifications to transit hub	▪ Construction of sidewalk "missing links" with new development (esp. College Quarter)
Commuting – General support		
▪ Web-based information ▪ Carsharing and bikesharing	▪ Commuting information ▪ Emergency ride home program	▪ Commuting events ▪ Checklist of new building features ▪ Examination of telework practices
Commuting by walking and cycling		
▪ Bike parking ▪ Bike repair equipment ▪ Wayfinding	▪ Secure bike parking ▪ Student-run bike maintenance and lending programs ▪ Voluntary seasonal parking permit suspension ▪ Cyclist code of conduct	
Commuting by transit		
▪ U-pass for graduate students ▪ Real-time transit information ▪ Transit hub relocation	▪ Passenger amenities ▪ Eco Pass promotion and modified terms and conditions ▪ Voluntary parking permit suspension with transit pass incentive ▪ Advocacy for enhanced transit services	▪ Feasibility study of internal campus shuttle
Commuting by carpool		
▪ UCommute ridematching service	▪ Promotion of UCommute ridematching service ▪ Expansion of UCommute ridematching service ▪ Preferential carpool parking spaces ▪ "Rainy day" passes for registered carpoolers ▪ Voluntary parking permit suspension to try carpooling	
Parking		
▪ Review of Parking Rates ▪ Sale of "occasional driver passes" ▪ Parking restrs in V. View	▪ Discouraging car ownership in residences	▪ Consideration of a revised parking permit allocation system

1 Introduction

1.1 Background

The University of Saskatchewan is a prospering campus with about 20,000 students across the South Saskatchewan River from downtown Saskatoon, and a central part of the community. The University is one of the main transfer points in the Saskatoon Transit system, and is also close to residential areas to the east and south, as well as some pedestrian and cycling paths surrounding the campus.

Transit use has increased greatly due to the implementation of the U-Pass in 2008 and the restructuring of routes to enhance ridership to and from the University. However, there is still the potential for higher ridership. Development within the University has also resulted in higher traffic volumes in the area, even with many students living within walking or bicycling distance from the University and heavy transit use due to the University's U-Pass initiative. The relatively high allocation of infrastructure to parking requirements, and the continuing rates of vehicle usage by staff and faculty have made the University consider its role to make efforts and reduce its carbon footprint with sustainable transportation.

The combination of increased people on the campus, capacity and parking issues, road safety concerns, potential for multi-modal transportation given its location, and its willingness to take the next step in sustainable transportation has prompted the University to explore ways to reduce its dependence on single occupancy vehicles and enhancing or improving other mode choices. As such, the University wishes to look forward and plan to manage its future parking, traffic, and safety issues. It is this desire that has resulted in the University conducting this study to develop a sustainable mobility strategic plan to achieve the optimal balance between efficiency, cost, impact to the surrounding community, convenience for all users, and sustainability.

1.2 Goals and Objectives

The principal goal of the Sustainable Mobility Strategic Plan is to increase the quality and use of sustainable mobility options (public transit, carpooling, cycling and walking) for travel to, from and within the campus.

This goal will make the University a more attractive place to work and learn, as well as more environmentally, socially and economically sustainable. Achieving it will also lead to other desirable outcomes:

- Reduced air emissions and traffic congestion
- Reduced use of University lands and money for parking
- Reduced travel costs for students, staff and faculty
- Reduced traffic noise on campus
- Reduced parking activity in adjacent neighbourhoods

- Better safety on roads and pathways
- Better opportunities for physical activity
- Better visitor experience
- A stronger leadership position for the University

Table 1 summarizes the objectives of the Sustainable Mobility Strategic Plan, namely the desired growth in commuting by sustainable modes (transit, cycling, walking and auto passenger). The share of travel by sustainable modes is targeted to increase from 73.7% in 2013 to 78.1% in 2018, with a much larger relative change for staff and faculty than for students (who already use sustainable modes to a greater degree). The resulting reduction in SOV share (from 26.3% in 2013 to 21.9% in 2018) represents a relative decrease of almost 17%. In other words, success would require 17% of current SOV drivers to switch to a different mode of travel (changing to transit, walking or cycling, or either acquiring or becoming a carpool passenger) within five years. This is an ambitious target, particularly given the relatively low current rate of SOV usage. It can safely be assumed that many current SOV drivers have at least a moderately compelling reason to be driving alone to campus, and that persuading them to change will be a challenge.

Table 1-1 Modal share of sustainable travel

Campus group	Modal share of sustainable travel to/from campus		
	2013 (observed)	2016 (target)	2018 (target)
Students	82.5%	85.0%	85.0%
Staff and faculty	50.5%	55.0%	60.0%
Total (weighted)	*73.7%*	*76.8%*	*78.1%*
SOV share (weighted)	*26.3%*	*23.2%*	*21.9%*

1.3 Study Method

The following tasks were undertaken to complete this study:

Task 1 Review Existing Documents and Material. During this task we will review all relevant material made available by the University, including documents such as traffic reviews, parking and parkade reviews, and other relevant transportation studies. This was used as an input to the data collection plan.

Task 2 Conduct Stakeholder Consultation. After an initial start-up meeting with the University's Facilities Management Division, stakeholder consultations were held. The objective of the consultation will be to discuss any current TDM initiatives, and the feasibility of implementing future TDM measures.

Task 3 Conduct Traffic Surveys and Analysis. To fully understand the current arrival and departure modes of everyone at the University site, a cordon traffic survey was conducted.
Task 4 Conduct University User Surveys and Reviews. As further feedback into user travel behaviours, mode choice, and openness to alternate travel modes, a qualitative informal survey was conducted.

Task 5 Conduct Traffic Safety Observations and Analysis. An on-site safety audit and conflicts risk assessment was conducted. For this task, we conducted a 1-day on-site inspection of the campus from a traffic safety perspective to identify high, medium and low areas of risk for conflicts between on-campus travel modes (vehicles, pedestrians, cyclists, buses). In addition, a general observation to pedestrian movements through and around the site was made to provide insight on walking behaviours and pedestrian desire lines.

Task 6 Establish Existing Benchmarks and Progress Report 1. A progress report was prepared that documented the existing characteristics of students and staff/faculty as a comparison baseline, as well as a safety evaluation of the campus. Potential opportunities were developed.

Task 7 Identifying Initiatives. The initiatives were identified in terms of Transit, Parking, Cycling, Pedestrian, and Supporting Policies.

Task 8 Consolidation, Evaluation and Prioritization of Initiatives. The initiatives were evaluated based on the following criteria

- Strategic Importance
- Impact on Travel Behaviour
- Affordability, and
- Feasibility

These initiatives and the Findings of Progress Report #1 were discussed with Stakeholders at a meeting held on May 3, 2013. The evaluated initiatives were summarized in Progress Report #2.

Task 9 The findings of Progress Reports #1 and #2 were summarized into this Report, along with an implementation Strategy.

1.4 Stakeholder Consultation

Meetings were held with stakeholders on September 19th and 20th, 2012. The list of stakeholders was provided by the University. A list of Stakeholders and their roles is provided below. The objective of the consultation was to discuss current TDM initiatives, and the feasibility of implementing future TDM measures. Stakeholder consultation was used to help identify issue and opportunities for sustainable Mobility.

Stakeholder	Agency	Role
Dwayne Kawchuk	Parking	Administers all University parking
Lee Thomas (Transportation Planner Marina Melchiorre (TDM Coordinator)	City of Saskatoon	Responsible with all of the areas where the City's infrastructure and policies can support travel to Uof S
Alex Werenka	U of S Students Union	Representative of student's issues regarding travel mobility
Debbie Haluik	Innovation Place	Tenant and parking services for businesses located in Innovation Park
James Cook	Corporate Administration	Responsible for all campus lands outside the core area (including residences)
Harold Shiffman	Campus Safety	Responsible for enforcement of traffic bylaws (not parking), CPTED reviews, security

All of the above stakeholders were present for the meeting held on May 3, 2013, except for Lee Thomas. Alex Werenka was replaced by Stephanie. As well the following representatives attended:

- Michael Molaro, Colin Hartl and Heather Trueman, U of S Campus Sustainability.
- Martin Gonzalez de Souza, U of S, Consumer Services.
- Darren Crilly, U of S Grounds Manager

2 Ground Surveys

2.1 Methodology

To fully understand the travel characteristics of people arriving into and out of the University, a cordon survey was conducted at key access locations. A cordon survey was chosen because if appropriate cordon points are selected, the survey can capture nearly all trips, thus giving a good snapshot of the travel characteristics of the University.

Appropriate cordon locations need to be chosen in order to best enable collection of relevant data easily, while still providing adequate data. As well, the locations need to be selected to allow the survey to separate pedestrians that have actually driven to the campus and parked in a parkade or parking lot.

Based on the site-specific reasons and suggestions , cordon points were selected, and are shown in FIGURE 1.

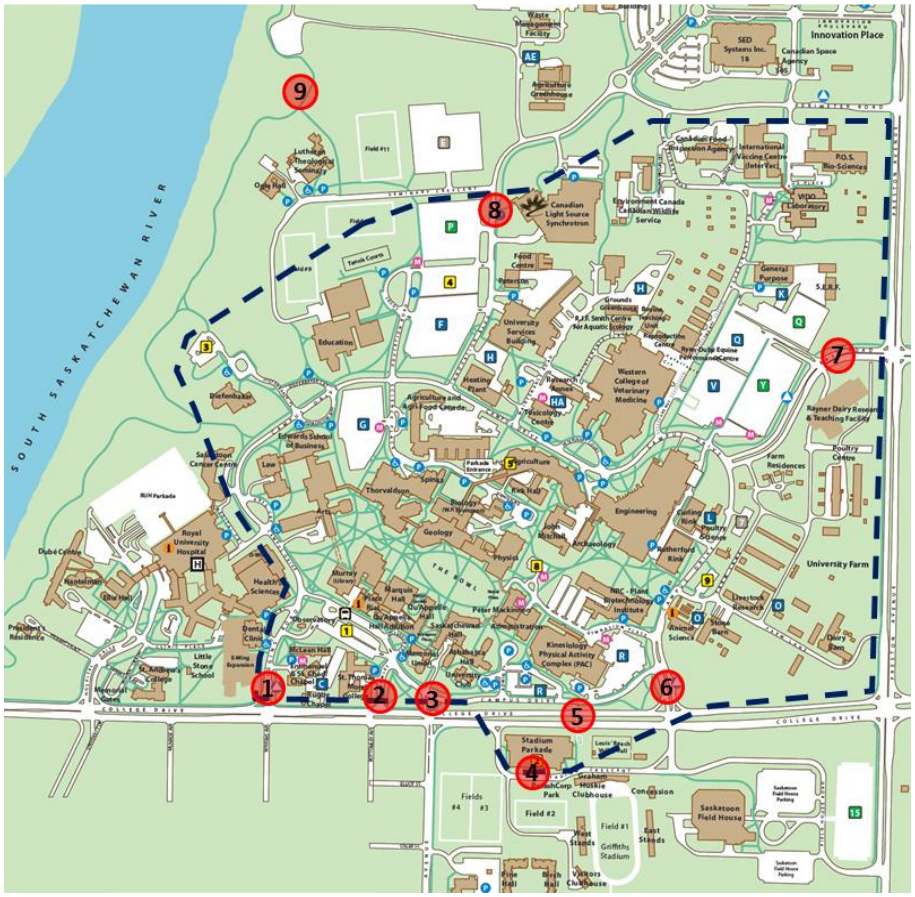

Figure 1 Ground Survey Cordon Points

The cordon surveys were completed between 7:30am to 10:00am, and counted the number of people and the number of vehicles that come in and out at each location, with particular attention to single occupancy vehicles. Details of each location survey are as follows:

Location 1 – Wiggins Road: This location counted vehicles and occupants along Wiggins Road entering or exiting the campus site, as well as pedestrians and cyclists crossing College Drive entering the campus.

Location 2 – Bottomly Road: This location counted (mainly buses) and estimated the ridership entering or exiting the campus site, as well as pedestrians and cyclists crossing College Drive entering the campus.

Location 3 – Cumberland Avenue: This location counted pedestrians and cyclists crossing College Drive, as well as buses and their occupants exiting the University. The majority of pedestrians entering the campus from the student residents to the south are expected to cross at this cordon point.

Location 4 – Stadium Parkade: A surveyor counted the number of cars and the occupants as they enter or exit.

Location 5 – Pedestrian Overpass: A surveyor was stationed near the south end of the pedestrian overpass where it could be observed whether the pedestrians were arriving from Parking Lot 15, the Stadium Parkade, or the student residences to the south.

Location 6 – Campus Drive/Fieldhouse Road: This location counted pedestrians and cyclists crossing College Drive, as well as buses and their occupants entering and exiting the University. The majority of pedestrians entering the campus here are from Lot 15 to the southeast.

Location 7 – East Road: The location counted all vehicles, pedestrians, and cyclists entering and exiting this cordon point.

Location 8 – Innovation Boulevard (North Road): The location counted all vehicles, pedestrians, and cyclists entering and exiting this cordon point.

Location 9 – Pedestrian/Bicycle Path: The location counted all pedestrians, and cyclists entering and exiting the campus through this cordon point.

Due to the locations of these cordon points, the following can be ascertained:

- There will be pedestrians that have parked in the Stadium Parkade and are walking into the campus either through the Cumberland Avenue intersection (Location 3) or across the pedestrian overpass (Location 5). Observations at the pedestrian overpass determined how many travelers from the Parkade entered the campus via the overpass; the remainder entered the campus at Cumberland Avenue. These pedestrian numbers were removed from the pedestrians counted as arriving on foot, as they actually arrived via private vehicle.

- It was observed that all pedestrians crossing at the Campus Drive/Fieldhouse Road arrived via private vehicle parked in Lot 15. These pedestrian numbers were removed from the pedestrians counted as arriving on foot, as they actually arrived via private vehicle.

It is noted that people parking in the residential area to the southwest and walking to campus, as well as people being driven into the campus and being dropped off cannot be accurately ascertained; while there can be some suppositions made based on the survey numbers, these numbers cannot be definitively quantified.

2.2 Results

The surveys took place on October 11 and October 18, 2012 over two consecutive Thursdays with similar weather and temperature. The surveys were conducted on the same day to ensure consistency in class schedules between weeks. Cordon location 1 (Wiggins Road) was surveyed during each week to determine whether there were any changes to the travel characteristics between weeks; a review determined that there were no significant changes in the results.

The surveys documented the number of people that went through each cordon point, as well as the mode used. The results of the survey are shown by the number of people, the percentage of each mode at each location, the percentage for each mode by location, and the overall percentage for the entire survey in FIGURE 2.

The overall breakdown for the entire campus is shown in TABLE 2.1.

Table 2-1 Overall Ground Survey Results (Arrival Method)

Total Arrival	Total People	% of Total
Car		
SOV	*1,586*	*24%*
Carpool (2+)	*1612*	*24%*
Total	3,198	48%
Bus	1371	20%
Pedestrian	1,665	25%
Bicycle	459	7%
Other	37	0%
TOTAL	6725	100%

The general findings are as such:

» Most people arrive via car at 48% of the total, followed by walking (26%), bus (20%) and cycling (7%).

- About 24% of all people arrive in single-occupant vehicles (SOVs) and 24% arrive in carpools of at least two occupants
- Half the people coming into the campus arrive through Locations 1, 2, and 3.
- Most people coming in by car arrive through the Wiggins intersection.
- Most bus passengers come in through locations 2 and 6 which are the main accesses to the campus.
- Overall, about 63% of passenger vehicles coming are Single Occupant Vehicles and 37% with more than one person.

The overall number of bicycles in racks was also counted on Thursday, October 18, 2012, and is shown in TABLE 2.2. This is greater than the number surveyed in peak hours, and shows that people continue to arrive by bicycle throughout the day.

Table 2-2 Number of Bicycles

Bicycle Rack Location	Number of Bicycles
Within Campus Drive Ring Road	124
Outside of Ring Road but within Campus	521
South of College Drive to Student Housing	175
TOTAL	820

Results of Ground Survey (October 2012)

By Cordon Location

Data is for 2 1/2 hour period

Location 9 (path with connection to CPR bridge)

Arrival by	Total Net People	% of Total for Location	% of Total for Mode	% of Total People
Car	0	0%	0%	0%
Bus	0	0%	0%	0%
Pedestrian	7	54%	0%	0%
Bicycle	6	46%	1%	0%
Other	0	0%	0%	0%
TOTAL	13	100%	0%	0%

Location 1 (Wiggins Ave north of College Dr)

Arrival by	Total Net People	% of Total for Location	% of Total for Mode	% of Total People
Car	1007	63%	31%	15%
Bus	-10	-1%	-1%	0%
Pedestrian	462	29%	28%	7%
Bicycle	147	9%	32%	2%
Other	0	0%	0%	0%
TOTAL	1606	100%	24%	24%

Car Breakdown	Net Cars	% of Cars
SOV	478	76%
Other	155	24%

Location 2 (Bottomly Rd north of College Dr)

Arrival by	Total Net People	% of Total for Location	% of Total for Mode	% of Total People
Car	225	17%	7%	3%
Bus	584	44%	43%	9%
Pedestrian	436	33%	26%	6%
Bicycle	79	6%	17%	1%
Other	0	0%	0%	0%
TOTAL	1324	100%	20%	20%

Car Breakdown	Net Cars	% of Cars
SOV	7	8%
Other	81	92%

Location 3 (Cumberland Rd north of College Dr)

Arrival by	Total Net People	% of Total for Location	% of Total for Mode	% of Total People
Car	0	0%	0%	0%
Bus	-154	-34%	-11%	-2%
Pedestrian	555	122%	33%	8%
Bicycle	54	12%	12%	1%
Other	0	0%	0%	0%
TOTAL	455	100%	7%	7%

Car Breakdo	Net Cars	% of Cars
SOV	0	0%
Other	0	0%

Location 4 (Stadium Parkade)

Arrival by	Total Net People	% of Total for Location
Car	433	100%
Bus	0	0%
Pedestrian	0	0%
Bicycle	0	0%
Other	0	0%
TOTAL	433	100%

Note: excludes pedestrians from

Car Breakdo	Net Cars	% of Cars
SOV	271	68%
Other	127	32%

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3 On-Line Surveys

3.1 Methodology

To augment the ground surveys, an on-line survey was also conducted to ascertain the general travel characteristics at the University. The survey was designed to capture the characteristics of how University users commute to the campus.

A set of questions asking users how they arrived at campus, what issues they have or encountered concerning their travel, and their commuting preferences. Further details about their commuting choices were also asked. The surveyed groups were divided into students and staff/faculty, as the commuting characteristics are different for each group. A copy of the questions surveyed is shown in APPENDIX A.

To achieve randomness, lists of 1,000 students and 1,000 staff and faculty were randomly generated, and a link to the survey via the University's online intranet was provided. The response rates were 31% for faculty and staff, and 21% for students.

3.2 Results

The surveys were available for completion between Friday January 25 and February 4, 2013 for a total of 11 days. The results are shown in APPENDIX B and indicate that here are differences between students and faculty/staff. For example, a greater proportion of faculty and staff drive to work compared to students. Detailed findings are as follows:

For Students

- The number of students that take the bus to school was found to be about 54%, with Single Occupant Vehicle next at 17% and walking at 12%.
- Of those that drive to school, many students cite irregular hours and the speed and convenience of driving as a factor in their driving to school.
- Many also cited that transit is slow or unreliable as not choosing to commute by bus.
- Distance was a significant factor in students not commuting by foot or bicycle.
- Inclement weather was cited as a factor in not using transit, bicycle, or walking as a commuting option.
- Health and inexpensiveness were cited as a reason to use transit, bicycle, or walking.
- About 73% said that they would consider other forms of commuting if better conditions or incentives existed.

For Staff and Faculty

- The number of staff/faculty that drive to school in a Single Occupant Vehicle was found to be about 50%, with walking, bus, and car passenger next at 14%, 13%, and 12% respectively.

- Of those that drive to school, many cited the need for the vehicle for personal use, the speed, the long commuting distance, and the irregular hours as a factor in their driving to school.
- Inflexibility of transit schedules was noted as the most common reason for not taking transit. Similar to students, many also cited that transit is slow or unreliable as not choosing to commute by bus.
- Distance was a significant factor in staff for not commuting by foot or bicycle.
- Inclement weather was cited as a factor in not using transit, bicycle, or walking as a commuting option.
- Health and inexpensiveness were cited as a reason to use transit, bicycle, or walking.
- About 57% said that they would consider other forms of commuting if better conditions or incentives existed. This is lower than the 73% for students.

It is noted that the total percentage of responders for many questions will be more than 100%, as those surveyed were allowed to answer more than one question.

3.3 Results

The results of the cordon count in the fall were compared with the results of the on-line survey. Before the comparison, the counts were adjusted to reflect that known fact that many U of S commuters park in Varsity View and walk across College Drive to the campus; the cordon survey would have inaccurately counted these commuters as pedestrians. The adjustment was made using results of a question in the on-line survey that asked drivers where they parked their car (which showed that about 4% of faculty or staff drivers parked in Varsity View, but that 20% of student drivers did so).

Table 3-1 Modal Share Comparison: Cordon Counts and On-Line Survey Results

	Actual Counts	Adjusted Counts	Winter Survey	+/- Error at 95% confidence	*Change fall-winter*
walk	24.8%	19.2%	12.7%	2.8%	*-6.5%*
bike	6.8%	6.8%	2.0%	1.2%	*-4.8%*
bus	20.3%	20.3%	42.8%	4.2%	*22.5%*
hov (2+)	23.5%	25.7%	16.3%	3.2%	*-9.4%*
sov	24.0%	27.4%	26.3%	3.8%	*-1.1%*

A comparison of the adjusted counts to the on-line survey results shows that single-occupant vehicle trips decreased only marginally (from 27.4% to 26.3%) between the two surveys. The proportion of walking trips dropped significantly (from 19.2% to 12.7%), as did the proportion of cycling trips dropped (from 6.8% to 2.0%) -- both of which are to be expected since the on-line survey was conducted in January. The main difference between the two surveys was a significant increase in the proportion of respondents taking the bus (from 20.3% to 42.8%), and a significant decrease in the proportion reporting travelling in a carpool (from 25.7% to 16.3%).

Possible reasons for the observed changes between the fall cordon counts and the winter on-line surveys include:

- Winter weather is expected to discourage walking and cycling, in general.
- Poor winter driving conditions may discourage the extra driving needed to form carpools.
- Cordon counters had to estimate the number of transit passengers on each bus.
- Cordon counts occurred in the peak period, and may reflect a higher proportion of travel by staff (who are more likely to adhere to standard office hours than students) than the on-line survey (which reflects 24-hour travel by the correctly weighted number of students and staff/faculty). Staff/faculty are less likely than students to take transit, and more likely to carpool.

The modal share results were compared with those for the entire City of Saskatoon, based on the 2006 census. It can be seen commuting to U of S is much more sustainable than overall commuting by all city residents, as summarized in TABLE 5..

Table 3-2 Comparison of U of S Mode Split with City of Saskatoon

	Student survey	Staff survey	City of Saskatoon (2006 Census)
walk	12.1%	14.1%	6.2%
bike	1.5%	3.5%	2.4%
bus	53.9%	13.4%	3.7%
hov (2+)	15.0%	19.5%	15.0%
sov	17.5%	49.5%	71.1%
other	*0*	*0*	*1.6*
	100.0%	*100.0%*	*100%*

On the whole, it is recommended that the on-line survey results be used to provide a benchmark for future changes in travel behaviour. The on-line survey will be easier to replicate in future, and the modal choice questions are direct and clear; the accuracy of the cordon counts in precisely determining modal shares is suspect, due to off-campus parking, difficulties counting transit passengers, and the effects of cars entering and exiting the campus to pick up or drop off commuters
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4 Implementation

This section presents the recommended approach to implementing this strategic plan, using the following headings:

- General approach
- Roles and responsibilities
- Resources

4.1 General Approach

We strongly recommend that implementation of the Sustainable Mobility Strategic Plan be fully integrated into the University's "way of doing business" – i.e. it should not be treated as a special project, pilot test or experimental initiative. We do not recommend that the initiative be given a special identity, as programs of this type sometimes are; it is too broad and too closely oriented to the practical, everyday needs of the U of S community. By simply making sustainable mobility measures part of everyday practice, the University gives them the credibility, solidity and an air of permanence.

There may be specific measures which warrant "pilot project" status as details are worked out, or as impacts are gauged before large-scale investments are made. This is normal, and desirable. For example, any measure with a large variability in its parameters (e.g. the purchase of new bike lockers with a design chosen from a large number of alternative suppliers) is a good candidate for a testing phase, to ensure that a larger implementation is made with the best possible information (i.e. Do cyclists like the design? Are the materials durable? Are they visually pleasing?).

4.2 Roles and Responsibilities

4.2.1 Parking and Transportation Services

We recommend that Parking and Transportation Services adopt a lead role in implementing this Sustainable Mobility Strategic Plan, a responsibility that staff have already indicated a willingness to take on. Parking and Transportation Services is well suited to this role for two main reasons: first, it is an operational, client-facing unit that has skills and resources in managing customers and transactions with them; second, it permits the full integration of all modes of transportation and avoids the dynamic of having one staff unit serving the needs of car users and another unit dealing with the needs of transit users, cyclists and pedestrians. This is also important because it permits an integrated approach to incentives and disincentives; for example, parking permit holders may be allowed to suspend their permits for the summer months if they prefer to cycle to work instead.

4.2.2 Facilities Management Division

We recommend that the Office of Sustainability within the Facilities Management Division remain a key partner in internal advocacy on behalf of the Sustainable Mobility Strategic Plan (e.g. pursuing funding, communicating with partners about the importance of the plan). Sustainability staff may also be able and willing to help with research and testing of measures that require preliminary work before

full implementation. Other Facilities Management staff would be involved as stakeholders in issues relating to ensuring that new campus buildings and infrastructure are supportive of sustainable mobility.

4.2.3 Parking and Transportation Advisory Committee

We strongly recommend that the current Parking Advisory Committee and Transportation Advisory Committee be merged into a single new Parking and Transportation Advisory Committee. The reasons for this are similar to those advanced in the previous discussion on the role of Parking and Transportation Services. Another key reason is that parking issues typically attract stakeholder interest, attention and attendance. Integrating broader transportation issues into the Parking Advisory Committee's mandate will leverage that interest to (it is hoped) attract better advice on non-parking implementation issues than might be obtained through a separate committee process.

4.3 Resources

4.3.1 Staff

We strongly recommend that at least 0.5 FTE be dedicated to coordinating the implementation of the Sustainable Mobility Strategic Plan. It is not reasonable to expect existing staff to implement the many new recommended actions on top of their existing responsibilities. Typically, those Canadian post-secondary institutions of the same size that have had success with similar programs have dedicated staff resources to the effort, usually a full-time staff position (1.0 FTE). In view of the programs already in place, and in view of the high degree of cooperation that is evident among staff groups, it is our expectation that 0.5 FTE would be a reasonable starting point to enable success.

4.3.2 Budget

The allocation of 0.5 FTE to the implementation of this plan would have a cost that may or may not represent a new budget item, depending on how that resource is established. For worst-case purposes, this cost is estimated to be $40,000.

Costs have been estimated for the short-term actions recommended in this report. See the "Cost Estimates" section below for more details. One-time costs for TDM initiatives are estimated to be $17,000 to $67,000 depending on the requirements and opportunities to cost-share $50,000 in transit passenger amenities. Ongoing (annual) costs, including for the first year of implementation, are estimated to be about $58,000. Therefore, if the one-time costs are split over two years and the ongoing costs are incurred starting in 2013, the total cost for each of the first two years would be $66,500 to $91,500 (i.e. $58,000 plus half of $17,000 to $67,000).

4.4 Recommended Actions

The following sections presents the detailed recommendations of the strategic plan under the following main headings:

- Safety and accessibility

- General commuting support
- Commuting by walking and cycling
- Commuting by public transit
- Commuting by carpool
- Parking
- Cost estimates

Each of these main headings is followed by a number of subheadings:

- **Context** – including facts, figures and observations collected during this study
- **Current or pending actions** – supportive measures that are either in place, planned, or being contemplated outside this study
- **Recommended actions: Short-term** – measures for implementation in 2013 or 2014
- **Recommended actions: Mid-term** – measures for implementation in 2015 or later

The following table summarizes the recommended actions.

Table 4-1 Recommended Actions

Current/pending actions	Recommended actions	
	Short-term (2013 and 2014)	Mid-term (2015 and beyond)
Safety & accessibility		
▪ CPTED security audits	▪ Improvements to pedestrian crossings (lines, signs, signals, buttons, on & off campus) ▪ Installation of curb ramps (on & off campus) ▪ Modification of road infrastructure for safe cycling (on & off campus) ▪ Installation of Share the Road signs ▪ Modifications to transit hub	▪ Construction of sidewalk "missing links" with new development (esp. College Quarter)
Commuting – General support		
▪ Web-based information ▪ Carsharing and bikesharing	▪ Commuting information ▪ Emergency ride home program	▪ Commuting events ▪ Checklist of new building features ▪ Examination of telework practices
Commuting by walking and cycling		
▪ Bike parking ▪ Bike repair equipment ▪ Wayfinding	▪ Secure bike parking ▪ Student-run bike maintenance and lending programs ▪ Voluntary seasonal parking permit suspension ▪ Cyclist code of conduct	
Commuting by transit		
▪ U-pass for graduate students ▪ Real-time transit information ▪ Transit hub relocation	▪ Passenger amenities ▪ Eco Pass promotion and modified terms and conditions ▪ Voluntary parking permit suspension with transit pass incentive ▪ Advocacy for enhanced transit services	▪ Feasibility study of internal campus shuttle
Commuting by carpool		
▪ UCommute ridematching service	▪ Promotion of UCommute ridematching service ▪ Expansion of UCommute ridematching service ▪ Preferential carpool parking spaces ▪ "Rainy day" passes for registered carpoolers ▪ Voluntary parking permit suspension to try carpooling	
Parking		
▪ Review of Parking Rates ▪ Sale of "occasional driver passes" ▪ Parking restrs in V. View	▪ Discouraging car ownership in residences	▪ Consideration of a revised parking permit allocation system

5 Safety Review

As part of this study, a high-level safety review was conducted to identify any potential traffic safety issues within and near the University campus. If funds allow, the University should consider implementing these recommendations throughout the campus. Regardless, whenever new infrastructure is built, it should be constructed with these comments in mind. The full safety analysis can be found in APPENDIX C and a summary of the key recommendations for the University's consideration is provided below:

5.1 Context

The following key issues were identified in the safety and accessibility review:

- General Issues on Campus:
  - Worn Pavement Markings
  - Inadequate Enforcement
  - Improper/Inconsistent Use of Curb Drops
- Lack of cycling facilities on and off campus
- Lack of a crosswalk to connect two key pathways across Campus Drive east of Cumberland
- General Issues on College Drive:
  - Lack of curb letdowns, or improperly placed curb letdowns
  - Crosswalks too narrow for demand
  - Pedestrians couldn't get all the way across during walk phases
- Potential for conflicts between pedestrians and buses at the existing Transit Hub

5.2 Current or Pending Actions

The University currently undertakes CPTED (Crime Prevention through Environmental Design) audits of all new facilities to address safety and security concerns for pedestrians.

5.3 Recommended Actions: Short-term

High-priority actions to improve safety and accessibility for all users are summarized below. More detail on these recommendations is provided in APPENDIX C.

Campus-Wide: The University should ensure that pavement markings are refreshed annually. This should be included as part of the regular maintenance program. Driver, cyclist and pedestrian issues should be addressed through education, enforcement and updates to codes of conduct.

Improvements to Pedestrian Crossings (On Campus): The safety review found that curb drops were missing, narrow, or improperly placed at many locations on campus. This reduces accessibility for those with mobility devices, and for cyclists. The University should conduct an accessibility audit to identify and prioritize locations where improvements to curb drops are required.

It is estimated that such an audit would cost approximately $20,000 if conducted by an outside consultant. It is estimated that there are at least 50 such locations where improvements are required. The University should undertake to improve at least 10 locations per year to address the existing deficiencies. At a cost of approximately $1,000 per set of curb drops, the University should allocate $10,000 per year in its capital works program to these improvements.

Improvements to pedestrian crossings (off-campus) – College Drive: College Drive is an important entry point for those travelling to the University on foot and by bicycle. The common issue found at all of the intersections is congestion during peak times. Pedestrians were lined up waiting for the light to change, but when it did; the Walk phase was too short to allow everyone to cross before the signal changed to a Flashing Don't Walk. Curb drops were absent or improperly placed. As any improvements to College Drive would be under the jurisdiction of the City of Saskatoon, it is recommended that the University work with the City to advocate for the following improvements:

- Provision of curb letdowns and/or relocation of improperly placed letdowns
- Provision of wider crosswalks when next repainted.
- Review signal timings to provide longer walk times. Providing default pedestrian phases so that pedestrians don't always have to push the button in peak periods would also be supportive, particularly in winter months.
- Provision countdown timers where they are not yet provided, so that pedestrians are aware of remaining walk times.

Transit Hub: The majority of buses observed entered the hub from the east, circled around at the turn-around area, then stopped at the hub facing east on the south side of the roadway to drop off/pick up passengers. This requires the majority of passengers to cross the road to get between Place Riel and the south transit pick-up area. Although there is a crosswalk provided (at the west end), numerous pedestrians were observed crossing at mid-block locations as it is the most direct route. It is noted that the transit hub may be relocated to College Drive in the near future. If this does not occur, safety improvements should be considered.

In order to improve pedestrian safety at the transit hub, a safer means of crossing the roadway is needed, as well as proper guidance to direct the pedestrians crossing the roadway to cross in safe locations. Three improvements are recommended:

- A marked zebra crossing should be provided across the transit hub from the Place Riel building entrance on the north side to allow for the most direct access from the building.
- Curb build-outs (also known as curb extensions) should be installed on both sides of the transit hub roadway at each side of the crossing. This will reduce the amount of time required for pedestrians to cross the roadway, as well as provide better visibility of the pedestrians starting to cross in the event that a bus or other vehicle is parked in front of the crossing.
- Fencing should also be installed along the north side of the roadway to restrict pedestrians from crossing anywhere along the road

Modification of road infrastructure for safe cycling (on & off campus)

RB-39

The following measures will help reduce conflicts between cyclists and other modes of travel on campus:

- "Cyclist Yield to Pedestrian" signs on pathways in the Bowl.
- "Form Single Line" signs on narrow portions of Campus Drive
- Providing bicycle lanes on the north leg of Wiggins Road.

A schematic of the proposed modifications to Wiggins Road is shown in Figure 3 below. This would require the relocation of the traffic sign gantry, and would cut into the existing traffic island. The estimated cost is $29,000.

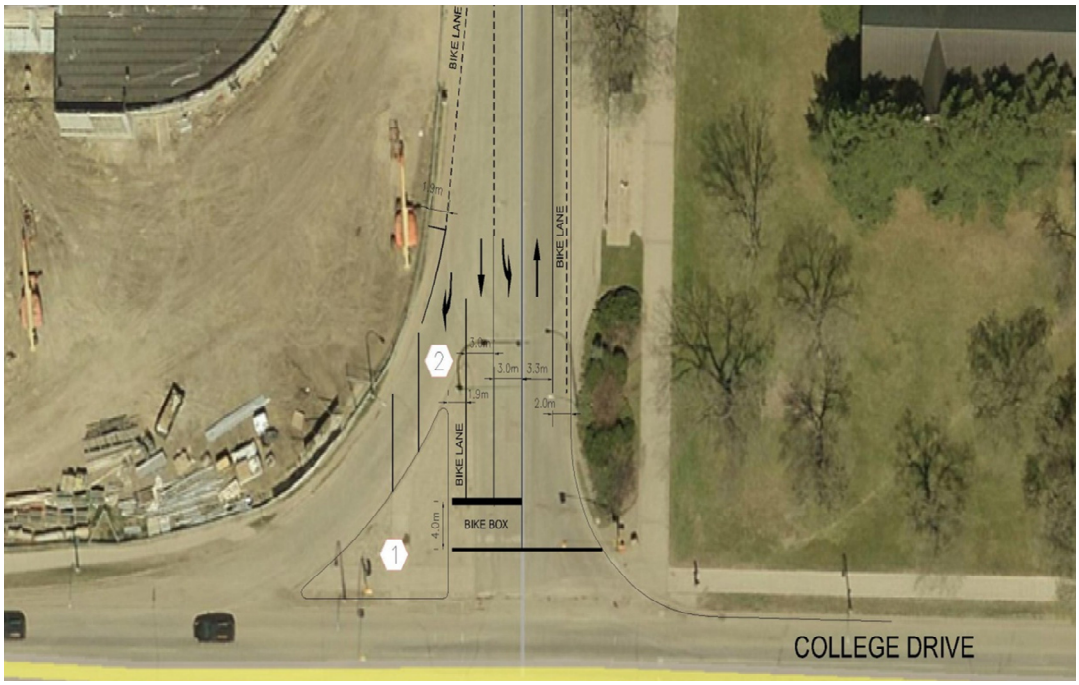


Figure 3 Bike Lane Schematic for Wiggins Road

5.4 Recommended Actions: Mid-term

The University should work to improve pedestrian and bicycle links with new developments, particularly in the college quarter. Any new development should provide facilities for pedestrians and cyclists. Recommendations for these guidelines are discussed in Section7.3. The lack of sidewalks on Stadium Road should be addressed.

6 General Commuting Support

6.1 Context

There are a number of measures that support sustainable commuting in general or multiple modes of sustainable commuting, rather than a single mode. They are perhaps best thought of as *enabling measures* that remove barriers to sustainable commuting.

One key condition for success is awareness and understanding of the available options (i.e. facilities and services) for commuting. The 2013 survey of students, staff and faculty found that fewer than 20% were aware of UCommute (i.e. the ridematching service), and just 20% of staff and faculty were aware of the Eco Pass (i.e. the discounted employee transit pass) program.

6.2 Current or Pending Actions

Web-based information: U of S currently provides information on various sustainable mobility options on its external and internal websites, primarily through Parking and Transportation Services although some additional information is available through Sustainability. Links are offered only to information on U of S services and facilities, and not to those in the broader community (e.g. Saskatoon Transit).

Carsharing and bikesharing: Staff and faculty who need to make occasional work or personal trips during the day may feel that, unless they bring their car to work, those daytime trips become less practical if not impossible. Providing options for staff and faculty to make those trips without their own car, such as through carsharing or bikesharing, can remove that barrier. Enterprise Car Sharing offers two shared cars for short-term rental by students, staff and faculty on the U of S campus. Facilities Management offers a small number of shared bicycles for use by staff and faculty, although the program is informal and the availability of these bikes is not promoted widely.

6.3 Recommended Actions: Short-term

Commuting information: We recommend that a single, comprehensive web resource on commuting (all modes—parking, transit, carpooling, cycling, walking) be developed and maintained through Parking and Transportation Services. Information available in parallel through Sustainability should be intended only summarize and highlight key impacts of specific measures; otherwise there is a risk of confusing users who are seeking practical information. The information should include links to both U of S and community services, facilities and resources including Saskatoon Transit, City of Saskatoon cycling routes, and so on. Information should be practical and focused on meeting user needs (e.g. who, what, where, when and how) rather than on promoting the benefits of individual options; while users are interested in the practicality, convenience, financial and health benefits of sustainable commuting, this information is of secondary importance and can "get in the way" of busy people who are trying to find basic information quickly. Other information that could be added to this site includes advice on techniques to avoid bike theft, cycling safety on and off campus, winter/nighttime cycling tips, transit route maps and tips to reach common destination).

We recommend that a short, descriptive URL be used to promote the commuting information website (e.g. www.usask.ca/transportation, rather than the current URL www.usask.ca/parking) and that all commuting options be presented inclusively as primary choices, rather than as "parking" and "sustainable alternatives." Reference to the URL should accompany any communications on commuting issues (including signage, flyers, emails, etc.) to help create exposure to the full range of commuting choices.

Emergency ride home program: An emergency ride home (ERH) program offers assurance that cycling and walking commuters, transit users and carpool passengers will be able to get home quickly and conveniently in case of an emergency (usually by taxi). Typically, ERH programs are not costly as they tend to receive low levels of use—their role is primarily as a form of "commuting insurance" to remove a common fear among sustainable commuters that they could be "stranded" on campus without a car in an emergency. Criteria to determine what qualifies as an "emergency" can vary—they may include personal illness, family illness, premature or delayed departure of a carpool driver, or (less commonly) unexpected overtime. An ERH program would likely be available only to staff and faculty, although at UBC students are also eligible. Because ERH is intended to benefit regular sustainable commuters, eligibility may be restricted to registered carpoolers, Eco Pass holders, or cyclists/pedestrians willing to vouch that they walk or bike at least three days a week. ERH usage is typically limited to three or four uses annually, and may limit taxi reimbursement to a portion of the fare (80% or 90%). There are many different approaches to designing and operationalizing an ERH program, and these should be reviewed with stakeholders as part of the implementation process. Controls to prevent abuse (e.g. requiring a supervisor's signature on reimbursement applications) tend to be stringent at the beginning of an ERH program, and tend to be loosened over time as the low levels of use become apparent.

6.4 Recommended Actions: Mid-term

Commuting events: Promotional, participatory events (e.g. Commuter Challenge) can normalize desirable behaviours (e.g. cycling to work) and encourage trial (e.g. convincing recreational cyclists to try biking to work). More specific events, such as one focused on cycling; tend to be more impactful than more general events because the messaging is usually clearer and more targeted. For example, a week-long or month-long cycling challenge among U of S staff and faculty during the summer months would be a good way to motivate new commuter cyclists, and to provide incentives and rewards to participants (e.g. pancake breakfasts, t-shirts or discount coupons). It is recommended that volunteer effort (e.g. an event committee) be recruited to lead and implement events of this nature, as legwork can be significant and the passion that volunteers bring can be critical. Minor financial or staff resources may be needed to assist, such as for communications, installation of temporary signage or barricades, and so on.

Checklist of new building features: To ensure that new or renovated campus buildings offer support for sustainable mobility (rather than presenting barriers to it), we recommend that a short list of desirable features be developed. Ideally, these features would be mandatory unless need or feasibility is disproven (rather than optional, with need and feasibility needing to be demonstrated). Features to be addressed would include long-term and short-term bicycle parking (including bike cages), walking routes (including sidewalks along adjacent roads), pedestrian amenities (exterior lighting, benches, shade/windbreak structures), shower and change facilities for active commuters,

and placement of doors and windows to maximize personal security. A sample checklist for new developments can be found in the ITE report Promoting sustainable Transportation through Site Design. In particular, when locating new buildings or expanding existing ones, consideration should be given so that existing pedestrian and cycling routes are not disrupted.

Examination of telework practices: It is understood that employee telework at U of S occurs at the discretion of individual supervisors, and that there is no guiding policy, promotion or resources to maximize the productivity benefits of telework. However, should the university adopt a telework policy or program, then it would be reasonable to formally consider telework as a means of sustainable commuting, and to include it in the next survey of travel to campus by students, staff and faculty. Transportation is unlikely to be a major factor in any decision to promote telework (which is usually driven by employee satisfaction and productivity goals), but transportation indicators (e.g. SOV modal share) can certainly benefit from telework.

7 Commuting by Walking and Cycling

7.1 Context

Walking and cycling are the most equitable, affordable and healthy commuting options over short distances. The 2013 survey of students, staff and faculty found that about 40% have short commutes (less than 5 km) that are easily made on foot or by bike. Capturing more of this market than the 15% to 20% observed through this project's counts and surveys, especially in fair-weather seasons, is clearly feasible. Current walking and cycling commuters identify their main motivators as health benefits, cost savings, fun, speed and environmental benefits; these are intuitively obvious to even die-hard drivers, so really need little promotion. Experience has shown that *inducing trial* is the most effective means of encouraging walking and cycling to work (once any physical barriers have been removed).

In terms of barriers to walking and cycling, the survey found that issues beyond U of S control (namely the quality and maintenance of off-campus routes, darkness, and winter weather) were among the greatest obstacles. However, several major campus entry points were observed to provide a less-than-desirable level of service for pedestrians and cyclists (NB: remedial measures are recommended under Safety and Accessibility), and 23% of regular driving commuters said that inadequate shower, change and locker facilities were a reason for not cycling to work at U of S.

7.2 Current or Pending Actions

Bike parking: Bike racks are distributed throughout the U of S campus, with sufficient capacity at all times except the most pleasant days in September and October. On the days of the mode split survey in September 2012, 820 bicycles were observed parked in racks around campus.

Sixteen bike lockers are available for rent (monthly, seasonally or annually) on campus, and a number of reserved, secure indoor bicycle racks are provided in the Agriculture Parkade. The new Health Sciences building will include a large, secure indoor bike cage.

Bike repair equipment: The USSU lends students bike tool kits and supplies for minor repairs from the Physical Activity Complex Equipment Room. It has also installed a bike repair stand (with tools) outside between the Arts and Thorvaldson buildings.

Wayfinding: Facilities Management has conducted a study of campus wayfinding and is preparing to implement its recommendations.

7.3 Recommended Actions: Short-term

NOTE: Additional short-term measures to improve conditions for walking and cycling commuters are also recommended in the Safety and Accessibility section, above.

Secure bike parking: We recommend expanding the bike locker rental program, which appears to have been successful so far, as quickly as demand warrants and resources allow. The aesthetic impact of locker installation is understood to be a concern, but suggest that alternative locker styles be considered before an investment is made in expanded capacity; lockers with a striking design, located in a visible location, are effectively self-promoting. We also recommend that the success of the bike cage in Health Sciences be monitored and the installation of similar cages in other parkades be considered as a lower-cost approach to secure bike parking (compared to individual lockers), once the opinions of users and administration have been evaluated.

Student-run bike maintenance and lending programs: We recommend that USSU be approached to explore their interest in running a "bike kitchen" (i.e. a bicycle repair hub that offers assistance, equipment and resources, making use of volunteer and/or paid labour) and a "bike library" (i.e. a bike lending program, using donated and/or rehabilitated bikes, offering bikes for a season or year at a low cost, possibly refundable on the bike's return). The University could partner with USSU to provide space or other resources such as start-up costs for these ventures.

Voluntary seasonal parking permit suspension: We recommend that Parking and Transportation Services test an offer for staff/faculty parking permit holders, enabling them to voluntarily suspend their parking pass for the four-month summer term in exchange for a commitment to walk and/or cycle to work during that time. The availability of "rainy day" or occasional driver passes (see Parking section, below) would enable them to still drive to work occasionally and park on-campus at a reasonable price. It is understood that there would be some revenue loss from this measure, but requiring staff and faculty to continue to pay for parking when they would prefer to walk or cycle rather than drive to campus sends the wrong behavioural signals, and is inconsistent with the objectives of this report. Perhaps a pilot test would provide an opportunity to gauge demand and measure the resulting impacts on travel behaviour and employee satisfaction.

7.4 Recommended actions: Mid-term

NOTE: Additional mid-term measures to improve conditions for walking and cycling commuters are also recommended in the Safety and Accessibility section, above.

8 Commuting by Public Transit

8.1 Context

Transit is the commuting mode of choice among U of S students. The 2013 online survey found that 54% of students take the bus to campus on an average day, and a major reason for this is the adoption of the U-Pass in 2006 which was accompanied by a major revision of Saskatoon Transit bus routes to increase campus service.

Transit use among staff and faculty was found to be lower, at about 13%. However, even with the recent parking permit price increase, a regular monthly transit pass costs more than a parking permit—meaning there is little out-of-pocket incentive for staff to take transit to work. The Eco Pass pilot program has substantially reduced the cost of a transit pass for participants, but is seasonally inflexible and the 2013 online survey found a low awareness level of 20% among staff and faculty.

The 2013 survey also found that the major barriers to increasing transit use among U of S commuters relate to the quality of service, the need for a flexible personal schedule, and a fear of being stranded without a car in case of emergency. Potential improvements that could motivate more people to take transit include better service, reduced cost (for employees), more shelters, and better information on transit routes and schedules.

8.2 Current or pending actions

U-Pass for graduate students: During this academic year, U of S grad students voted to join the U-Pass program. This change could be implemented for the fall of 2013.

Real-time transit information: Saskatoon Transit is planning to introduce real-time transit arrival information for customers by 2014, using means to be determined (e.g. on-site displays, mobile text messaging, smartphone app).

Transit hub relocation: Saskatoon Transit has indicated a plan to relocate the transit hub closer to College Drive within two to three years. Presumably, the relocated hub would offer passenger seating and shelters, both of which are missing from the existing hub.

8.3 Recommended actions: Short-term

NOTE: Additional short-term measures to improve conditions for public transit commuters are also recommended in the Safety and Accessibility section, above.

Passenger amenities: We recommend that discussions be held with Saskatoon Transit to improve the features (principally seating and shelters) of campus bus stops. Given that seats and shelters can be relocated, we recommend their installation at the current transit hub regardless of any plan to move the hub in two to three years; such a move may take longer to occur, and passengers could continue to wait for many more years until it does. Passenger boarding counts at other stops around campus would help to identify locations with larger numbers of waiting passengers, where shelters and seats would be most valuable. It is understood that U of S prohibits advertising on campus, and therefore

any new shelters would have a cost not borne by an advertising display agency. Regardless, it will be difficult to attract more transit riders (especially staff and faculty) to ride a system that requires them to wait, standing and exposed to the elements, for their bus to arrive.

Eco Pass promotion and modified terms and conditions: The U of S Eco Pass pilot project requires employees to commit to a minimum 12-month term. It does not permit employees to suspend their participation, for example over the summer when they might wish to walk or cycle to work. Reducing the minimum 12-month term to an 8-month term would permit employees to give up their Eco Pass for the summer term, and rejoin the program in September.

The pilot project has not seen full uptake of the 200 Eco Passes authorized by the University, and this may due partly to the 12-month minimum timeframe. It could also be due partly to low awareness of the program, as observed in the 2013 online survey. Especially if the minimum time commitment is reduced to 8 months, as recommended, a refresh of promotional information would be useful; employees cannot participate in the program if they do not know it exists or they are eligible to join.

Voluntary parking permit suspension with transit pass incentive: We recommend that Parking and Transportation Services test an offer for staff/faculty parking permit holders, enabling them to voluntarily suspend their parking pass for one month and receive a free one-month transit pass in exchange for a commitment to take transit to work during that time. The availability of "rainy day" or occasional driver passes (see Parking section, below) would enable them to still drive to work occasionally and park on-campus at a reasonable price. It is understood that there would be some revenue loss from this measure; there could also be a cash cost to pay for transit passes, but Saskatoon Transit might consider providing trial transit passes at no cost as its contribution to a promotional partnership. However, giving staff and faculty an incentive to try transit for a short period of time, with no risk of losing their seniority in the parking permit system, sends the correct behavioural signals and is consistent with the objectives of this report. A pilot test would provide an opportunity to gauge demand and measure the resulting impacts on travel behaviour and employee satisfaction. It is recommended that this offer be limited to once every three years for any given employee and that it not be valid during the summer term to avoid potential abuse by employees during vacation season.

Advocacy for enhanced transit services: The transit agency has indicated it is considering the establishment of park-and-ride facilities, which it does not currently have. This would give U of S commuters who live outside the transit service area the option of combining driving and transit to get to work. U of S transit users are also constrained by the absence of service after 12:30 a.m., and the university could work with transit planners to gauge late-night demand and perhaps offer a trial service on one or more routes.

8.4 Recommended actions: Mid-term

Feasibility study of internal campus shuttle: Relocation of the transit hub closer to College Drive could increase the rationale for some form of internal shuttle, possibly one that links main campus buildings to the residences, Royal University Hospital, peripheral parking lots, and Innovation Place. Walking distances from the existing transit hub to some main campus buildings can already be one kilometer or longer, and relocation of the hub closer to College Drive could increase walking distances by about 150 m for some users (while reducing it for others). From a sustainable commuting

perspective, the main benefit of a shuttle would be for transit users, by providing them with frequent, convenient access between campus building and the multiple Saskatoon Transit routes that serve the transit hub. Use of the shuttle for mid-day trips between campus buildings, or between Innovation Place and the U of S campus, would also be supportive to the extent (unknown) that those trips are currently made by private car. The Royal University Hospital currently runs a shuttle throughout the day. Outside of shift change times, there may be some spare capacity that could be used for University travellers. The University may wish to explore this possibility with Saskatoon Health Region

9 Commuting by Carpool

9.1 Context

As U of S looks to a future in which fewer students, staff and faculty drive alone to campus, the most likely alternative travel mode for most solo drivers is a carpool; it enables them to continue to commute by car, which may be either required (due to long commute distances and/or the unavailability of transit service at their home) or simply desirable (due to health/disability issues, comfort or simple preference). A solo driver could become a carpool driver by simply attracting an existing pedestrian, cyclist or transit user to be their passenger; this would not reduce the number of cars coming to campus. The other mechanism would be for two solo drivers (or three or more, although this is relatively unlikely) to form a single carpool; this would effectively remove one car from campus roads and parking lots, and is thus the preferred scenario that U of S should strive to achieve. It is likely easier to motivate a solo driver to become a car passenger than it is to motivate him or her to become a transit passenger, pedestrian or cyclist. For this reason, an increase in carpooling is likely the best way for U of S to achieve its SOV reduction targets, and this strategy endeavours to provide real incentives for U of S commuters to carpool.

The 2013 online survey found that about 15% of students and 20% of staff and faculty carpool to campus on any given day; some portion of these carpoolers are dropped off by drivers who then continue on to other destinations. Over the previous year, 24% of students and 14% of staff and faculty had commuted as a carpool passenger an average of once a week or more.

The survey found that the availability of a convenient carpool partner was cited by both staff and faculty (81%) and students (74%) as the main reason for commuting as a carpool passenger. It also found that the dominant reasons that drivers do not commute more often as car passengers are their need for a flexible schedule (75% for staff and faculty, 74% for students) and concern over being stranded on campus (49% for staff and faculty, 40% for students).

The most-supported incentives for carpooling were discounted parking passes for carpools (50% for staff and faculty, 68% for students), reserved carpool parking spaces (43% for staff and faculty, 62% for students) and an emergency ride home program (29% for staff and faculty, 21% for students).

9.2 Current or pending actions

UCommute ridematching service: U of S implemented the web-based UCommute carpool ridematching service in 2011. The service is accessed through PAWS, with students matched with each other separately from staff and faculty. An initial promotional program led to a high number of registered UCommute users actively seeking matches (e.g. 560 staff and faculty) in the fall of 2011, but by the fall of 2012 that number had decreased by 60%.

9.3 Recommended actions: Short-term

Promotion of UCommute ridematching service: The start of a new academic year is the best time to promote options to driving alone to campus, as individuals and families settle in to new routines and travel patterns. We therefore recommend a renewed promotional program for UCommute in September 2013.

Expansion of UCommute ridematching service: UCommute is currently accessed from within PAWS and conveniently does not require a second login by users. However, this arrangement also prevents any potential to allow UCommute registrants to search for carpool partners among commuters to Innovation Place and Royal University Hospital, or even commuters to other major employers in downtown or elsewhere in Saskatoon (which could be attractive for commuters living in distant rural communities). Saskatoon Health Region currently has its own internal ridematching system (using the same RideShark software as U of S), Road Map Saskatoon (a non-profit organization of which the City of Saskatoon is a founding partner) offers Saskatoon residents the www.carpool.ca service, and Innovation Place has no formal ridematching system in place. Following the model of other Canadian cities (where, for the most part, municipal governments have created public ridematching services), we recommend that these major partners join efforts to create a single ridematching service for Saskatoon that would allow commuters at registered employers to search for carpool partners either among their own colleagues exclusively, or among the entire pool of public registrants; this would provide security and comfort to those who want it, while also enabling a much larger pool of potential partners and increasing the likelihood of users finding a convenient match. It is possible that the resources currently allocated to ridematching by U of S, Saskatoon Health Region and Road Map Saskatoon (or the City of Saskatoon) exceed those required to provide a single state-of-the-art ridematching service for all of Saskatoon and its environs, meaning that a partnership might be financially attractive. Even in a public system (assuming the use of sophisticated web-based software such as RideShark) U of S would still be able to communicate with, monitor and provide incentives to its own registered ridematch users.

Preferential carpool parking spaces: At large employers where parking lots can be some distance from the actual buildings where people work, the provision of convenient parking spaces for registered carpools can be a meaningful incentive. We recommend that U of S implement (perhaps as a pilot test) preferential parking for registered UCommute users who form a carpool. There are different approaches to doing so, and details would need to be worked out. However, an optimal approach might be to ask carpoolers which lot they would prefer to park in, and to create a number of reserved spaces in each lot that satisfies the expected demand. To be successful, preferential parking requires a combination of an "honour system" (e.g. a commitment to use carpool spaces only on days when the driver carries passengers) and some degree of enforcement with penalties for unacceptable use of

reserved spaces. To prevent unused carpool parking spaces from remaining empty all day, it is possible to reserve them only until (say) 10:00 a.m., after which they may be used by any driver. Carpool parking passes (usually accompanied by a hangtag) may be transferable among all members of a carpool so they can rotate driving duties.

"Rainy day" passes for registered carpoolers: Even dedicated carpoolers are likely to have occasional need to drive alone to campus. We recommend that Parking and Transportation Services provide registered carpool passengers with a number of "rainy day" or occasional driver passes (see Parking section), perhaps three each year, as both an incentive to carpool and a reward for doing so.

Voluntary parking permit suspension to try carpooling: We recommend that Parking and Transportation Services test an offer for staff/faculty parking permit holders, enabling them to voluntarily suspend their parking pass for one month in exchange for a commitment to carpool to work during that time. The availability of either daypasses or flexpasses (see Parking section, below) would enable them to still drive to work occasionally and park on-campus at a reasonable price. It is understood that there would be some revenue loss from this measure; however, giving staff and faculty an incentive to try carpooling for a short period of time, with no risk of losing their seniority in the parking permit system, sends the correct behavioural signals and is consistent with the objectives of this report. A pilot test would provide an opportunity to gauge demand and measure the resulting impacts on travel behaviour and employee satisfaction. It is recommended that this offer be limited to once every three years for any given employee and that it not be valid during the summer term to avoid potential abuse by employees during vacation season.

9.4 Recommended actions: Mid-term

None

10 Parking

10.1 Context

The availability, convenience and price of parking are major determinants of commuting behaviours at most workplaces, and U of S is no exception to this rule. How the university manages its parking can either support or undermine the objectives of this sustainable mobility strategy. The recent integration of parking and transportation services and the dramatic increase in the price of campus parking are both very positive steps in the right direction.

U of S management has indicated a desire to not create additional surface parking on campus, and a desire to even reduce surface parking as new buildings are erected. At the same time, the campus population is expected to grow over time – making the efficient use of parking even more important from the perspective of the institution as well as of its students, employees and visitors. This is a scenario being acted out more and more on post-secondary campuses across Canada.

Parking revenues are an important source of general funds for the university, but they also represent a rare (and thus critical) potential source of funds to enable the implementation of sustainable mobility

measures. The validity of this idea is based in the notion that revenues from drivers can equitably be used to fund the provision of attractive options to driving that could save them money. As parking supply decreases and demand rises over time, it is natural that parking rates will increase and revenues will grow; setting aside some portion of that revenue growth to improve carpooling, transit, cycling and walking options would be a wise choice.

Current parking rates for students range from $21 per month to $41 per month. Staff pay average rates of $55 per month. This is well below the market rate in nearby downtown Saskatoon, where the median rate is $157.5(source: http://www.colliers.com/~/media/files/marketresearch/unitedstates/colliers_2012_na_parking_survey.pdf), as well as the nearby Royal University Hospital, where rates are $120 per month. It is even below the market rate for university parking. A recent survey conducted by Opus of post-secondary institutions in the Greater Vancouver area found that most charged at least $48 per month for their parking, even in suburban locations, with charges up to $125 per month at Simon Fraser University.

10.2 Current or pending actions

Sale of "occasional driver passes": Parking and Transportation staff have indicated intent to institute a discounted daily parking rate in Stadium Parkade and parking lot G, available initially to Eco Pass holders. As recommended elsewhere in this section, we recommend that registered carpoolers be given a small number of these passes as an incentive to carpool; we also recommend that a number of these passes be made available for purchase by parking permit holders who voluntarily suspend their permit to try carpooling or transit for a month, or who wish to suspend their permit for the four-month summer term in order to walk or cycle to campus.

Parking restrictions in Varsity View: The online survey in 2013 found that 20% of student drivers and 4% of staff and faculty park on-street in an off-campus area, which is assumed to be Varsity View. This situation represents lost revenue for U of S and a nuisance for Varsity View residents. There is currently public debate and the possibility of municipal action that would either eliminate non-resident on-street parking in Varsity View, or devise some system of selling permits for it. Either of these actions would provide a disincentive for U of S students and employees to commute by driving, and an incentive (if they choose to drive) to park on campus. Both of these outcomes are consistent with the objectives of this strategy, and we recommend that the university support any new restrictions on commuter parking in Varsity View.

Increase in Parking Rates: As discussed above, the current parking fees are well below market averages, and the Department of Parking and Transportation Services is considering increasing rates. The Department currently sells about 2,000 student parking passes for the 8 month school year, and about 2,500 employee passes per annum. An average increase in price of even $10 dollars per month would provide over $460,000 in additional revenue. Some of this funding could be allocated to the measures recommended in this report. Even with a $10 increase in rates, the parking charges would still be well below market value. It should be noted that any increase in parking rates would result in an increase in parking pressures in the Varsity View neighbourhood.

10.3 Recommended actions: Short-term

Discouraging car ownership in residences: U of S administrators wish to not build additional surface parking in College Quarter even as the number of residence units increases over time. This will require a change to the previous policy of providing one parking space per residence unit, and it will also require active discouragement of car ownership among tenants. We recommend that the university and residence managers institute a parking permit allocation system using either a random draw or some criteria-based point system. Tenants wishing a parking space should have to apply, and if they are not awarded a space they should be responsible for finding other parking if they choose to bring a car with them to residence. Prospective tenants should be informed of the existence of an Enterprise Car Share car in the residence area, of the U-Pass program and Saskatoon Transit services, and (in the event it is implemented) the shopping shuttle service that is currently being discussed.

10.4 Recommended actions: Mid-term

Consideration of a revised parking permit allocation system:. Campus parking demand is expected to rise over time, while parking supply may remain constant or even shrink. To preserve equity and encourage commuters with the best travel options to not drive to campus, we recommend that a criteria-based point system be examined as the basis for allocating parking permits. Currently, student parking permits are allocated by random draw, and staff parking permits are allocated (per lot) on the basis of seniority. Following the example of some other major employers (e.g. federal government departments), we recommend that personal characteristics including commute distance, availability of transit service near home, and the presence of young children at home be used as the basis for allocating at least a portion of student parking permits (so that students with the greatest identifiable need are considered first), and that they be added to seniority as the basis for allocating employee parking permits. It is understood that staff and faculty bargaining units may need to be consulted on this idea.

11 Cost Estimates

The following table presents rough cost estimates for the recommended short-term actions presented above. Estimates of both one-time initial or setup costs, and ongoing or annual costs, are provided. Note that estimates are rough, in most cases. In some instances, there may be cost sharing opportunities; in other instances, costs could be reduced by limiting the number of participants in a particular program. Also note that some costs are actually foregone parking revenues.

Table 3 – Cost Estimates

Recommended actions: Short-term	One-time costs	Ongoing (annual) costs
Safety & accessibility		
Bicycle Improvements at Wiggins Road	$18,000	
Share the road signage on	$5,000	

Recommended actions: Short-term	One-time costs	Ongoing (annual) costs
Campus Drive	(About 10 signs at $500 per sign)	
Improvements to curb letdowns	$20,000 for accessibility audit of sidewalks and pathways	$10,000 (assumes the University will undertake to improve 10 letdowns per year, at a cost of approximately $1,000 per pair of letdowns
Crosswalk Improvements at Campus Drive and Cumberland	$3,300	$1,500
Improvements on College Drive	City of Saskatoon	City of Saskatoon
Improvements at Transit Hub	$29,000	$3,200 for repainting
Commuting – General support		
Commuting information	None	None
Emergency ride home program	None	Estimated annual cost = $4,600 ▪ Eligible users = 2,300 (estimate based on 200 Eco Pass holders + 600 registered carpoolers + 1,500 regular pedestrians/cyclists) ▪ Estimated rate of use = 0.1 instance/user/year ▪ Estimated cost per use = $20 taxi fare
Commuting by walking and cycling		
Secure bike parking	None	Representative annual cost = $30,000 ▪ Assumed addition of 20 lockers/year ▪ Assumed cost = $1,500/locker
Student-run bike maintenance and lending programs	Estimated contribution toward setup costs in partnership with student union = $2000	None
Voluntary seasonal parking permit suspension	None	Estimated cost = $10,000 ▪ Assumed revenue foregone per participant = $260 (4 months @ $65) ▪ Assumed maximum participants capped at 400 per year (5% of employees)
Commuting by public transit		
Passenger amenities	Rough estimate of $50,000 but specific needs are not known. Representative costs estimated at $5,000 per bus shelter and $1,500 per bench. Costs could be borne/shared by Saskatoon Transit.	None
Eco Pass promotion and modified terms and conditions	None	No costs envisioned beyond those already approved for the current Eco Pass program. The goal is to maximize uptake within the current limit of 200 Eco Pass holders. More than 200 could be served for the same approved subsidy if some are eight-month subscribers.
Voluntary parking permit	None	Estimated annual foregone revenue = $2,600

Recommended actions: Short-term	One-time costs	Ongoing (annual) costs
suspension with transit pass incentive		▪ Cost per participant = $0 cash cost assuming Saskatoon Transit donates passes as promotional tool; $65 estimated revenue foregone for parking permit ▪ Assumed number of participants capped at 40/year (1% of employee SOV drivers)
Advocacy for enhanced transit services	None	None
Commuting by carpool		
Promotion of UCommute ridematching service	None	Estimated annual cost = $2,000 for advertisements in campus newspapers, posters, etc.
Expansion of UCommute ridematching service	None	Worst-case cost is no change from today. Best-case cost is elimination of current annual RideShark fee if City of Saskatoon takes over financial responsibility for ridematching system serving U of S and partners employers
Preferential carpool parking spaces	Estimated initial installation cost = $15,000 ▪ Estimated number of signs = 300 ▪ Estimate cost/sign = $50	▪ Estimated annual cost = $1,000 for addition/relocation of carpool parking signs ▪ Estimated annual cost of enforcement = nil (assumed covered by existing resources)
"Rainy day" passes for registered carpoolers	None	Estimate annual foregone revenue = $5,400 ▪ Revenue foregone per pass = $6 ▪ Number of passes per participant = 3 ▪ Estimated number of registered carpool passengers = 300
Voluntary parking permit suspension to try carpooling	None	Estimated annual foregone revenue = $2,600 ▪ Cost per participant = $65 estimated revenue foregone for parking permit ▪ Assumed number of participants capped at 40/year (1% of employee SOV drivers)
Parking		
Discouraging car ownership in residences	None	None
TOTAL		
All actions	***$97,000 to $147,000*** ▪ ***Depends on actual costs and division of $50,000 estimated cost for transit passenger amenities***	***$73,400 in actual costs and foregone revenues***

12 Implementation of the Sustainable Mobility Strategic Plan

For any plan to be successful, forethought must be given to how the plan will become a built reality. Plans should have:

- Responsibility for implementation assigned to specific departments or staff;
- An annual budget allocated over a determined term, such as 20 years;
- Regular monitoring of targets (approximately once per year);
- Regular updates set for the plan (approximately every 5 years).

Other strategies should include education and awareness to facilitate behavioural changes in the community, and changes to University policy to not only encourage, but demand inclusion of Active Transportation infrastructure in both new developments and upgrades of existing roadways. Funding opportunities should be identified to ensure maximum progression of the Sustainable Mobility Strategic Plan.

12.1 Funding

A review was conducted of how active transportation is funded in some other universities in Canada. The results are summarized in Table 12-1. It can be seen that several other universities use parking revenues to fund TDM – either by funding the TDM Department, or to provide funding for TDM improvements. Other sources of revenues include student unions, cost-sharing with transit, and applications for funding from the general Capital Improvement Funds.

Table 12-1 TDM Funding Sources for Other Universities

University	Funding for TDM Department	Funding for TDM Improvements
Dalhousie	Looking into generating additional revenue to allocate to TDM by changing reserved spots to reserved lots (which would allow overselling by 10%)	Parking Fines (approximately $14,000), some money for bike centre from Student Union
University of Ottawa	General Revenues	Parking revenues
University of Alberta	Not available	Parking revenues (from a recent rate increase)
McMaster University	Parking revenues (approximately $100,000)	Capital Improvements Funds (for items such as bike racks, lockers, etc.)
University of British Columbia	Part of Campus and Community Planning Group	From Capital funds Seek cost-sharing where possible, especially for transit shelters

The overall costs for the recommendations of the Sustainable Mobility Strategic Plan are summarized in Table 12-2. It can be seen that including the cost of a TDM co-ordinator, the annual costs would be $113,400. Additionally, one-time set-up and capital improvement costs ranging from $97,000 to $147,000 will be involved. As discussed above, an increase in monthly parking charges of $10 for students and staff would result in over $450,000 in additional revenue, some of which could be dedicated to funding these measures.

Table 12-2 Summary of Costs for Sustainable Mobility Strategic Plan

Component	One-time Costs		Annual Costs
	Low	High	
TDM Actions	$17,000	$67,000	$58,000
TDM Position			$40,000
Safety and Accessibility	$80,000	80,000	$ 15,000
Total	$97,000	$147,000	$113,400

12.2 Actions to Pursue with Others

Travel to and from Campus does not end at the University Gates. Many of the items that will assist in increasing sustainable mobility are not under the jurisdiction of the University of Saskatoon. Therefore, the University to continue to work with the partners listed in Table 12-3 below to promote and advocate for initiatives listed below.

Table 12-3 Actions to Pursue with Others

Agency	Initiatives to Pursue
Royal University Hospital and Innovation Place	Extended ridematching service
City of Saskatoon – Transit	Modifications to Transit hub and/or Transit hub relocation Improvements to Transit shelters elsewhere on campus Shopping Shuttle to University Residences Advocacy for enhanced transit services, including park and ride and real time transit information. Feasibility study of internal campus shuttle
City of Saskatoon – other	Stricter parking restrictions in Varsity View Improvements to crosswalks, curb letdowns, signal heads and signal timings on College Drive Improved bicycle infrastructure en route to campus.

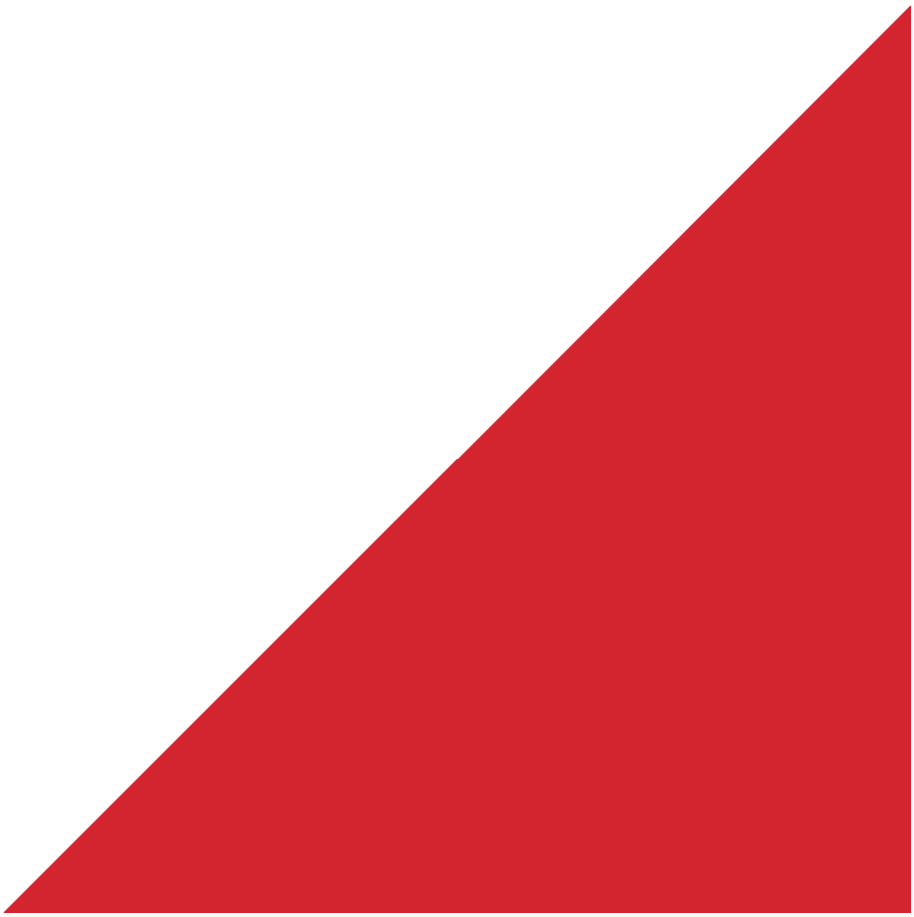
8.0 Conclusion

The principal goal of the Sustainable Mobility Strategic Plan is to increase the quality and use of sustainable mobility options (public transit, carpooling, cycling and walking) for travel to, from and within the campus.

The University should develop and annually review a list of major measures for all aspects of Sustainable Mobility based on opportunities identified in this study and on such considerations as ease of implementation, cost sharing with other funding sources, coordination with other projects, new development, known priorities, economic analysis, and local knowledge.

Implementation of recommendations of this report will make the University a more attractive place to work and learn, as well as more environmentally, socially and economically sustainable. As the measures are implemented, the staff and students should experience further shift from fuel powered transportation to become an even more sustainable, healthier, and active community.

Appendix A: On-Line Survey Questions



APPENDIX A: ONLINE SURVEY QUESTIONS

Behaviour Survey for Staff and Faculty

1. How long is the trip from your home to the U of S campus? *(select one)*

- ☐ More than 50 kilometres
- ☐ 26 to 50 kilometres
- ☐ 11 to 25 kilometres
- ☐ 6 to 10 kilometres
- ☐ Less than 5 kilometres

2A. How did you make your most recent weekday trip to the U of S campus? *(select one; if you used more than one mode in the same trip, select the mode you used for the longest distance)*

- ☐ Vehicle driver (with no passengers)
- ☐ Vehicle driver (with one or more passengers)
- ☐ Vehicle passenger
- ☐ Bus (Saskatoon Transit or Access Transit)
- ☐ Bicycle
- ☐ Walking (or jogging, etc.)

If "VEHICLE DRIVER" (either with or without passengers) then ask:

2B. Where did you park on your most recent weekday trip to campus? *(select one)*

- ☐ On campus, in a permit parking lot
- ☐ On campus, in a public parking area (parkade, parking meter or motorcycle parking)
- ☐ Off campus, on the street (for example, in the Varsity View neighbourhood)
- ☐ Off campus, in a parking lot or driveway

3A. Do you usually drive, with or without passengers, to the U of S campus (at least four days out of five, on average)?

- ☐ Yes
- ☐ No

If "YES" then ask:

3B. Why do you drive to the U of S campus? *(select up to three)*

- ☐ I need my vehicle during the day
- ☐ I need my vehicle for personal or family purposes
- ☐ I have long or irregular hours on campus
- ☐ I live too far from campus to walk or cycle
- ☐ Transit is unavailable where I live
- ☐ I have a carpool partner
- ☐ Driving is fast
- ☐ Driving is inexpensive
- ☐ Driving is safe or secure
- ☐ Driving is enjoyable or comfortable

3.C What are some reasons that you don't travel more often as a carpool passenger to the U of S campus? (select up to three)

- ☐ I need a flexible schedule
- ☐ I need a vehicle to get to meetings or run errands
- ☐ I don't want to be stranded on campus in case of a family emergency or unexpected overtime
- ☐ I don't know how to find carpool partners
- ☐ I don't want to share a vehicle with people I don't know

3.D What are some reasons that you don't take transit more often to the U of S campus? (select up to three)

- ☐ I need a flexible schedule
- ☐ I don't want to be stranded on campus in case of a family emergency or unexpected overtime
- ☐ I don't know what bus routes to take

- ☐ I don't feel safe on the bus
- ☐ I'm not comfortable on the bus
- ☐ Transit is too expensive
- ☐ Transit is too slow
- ☐ Transit is infrequent or unreliable
- ☐ Transit is unavailable where I live
- ☐ The bus stop on campus is too far away
- ☐ The bus stop on campus has no shelter, seating or lighting
- ☐ Buying tickets or passes is inconvenient

3.E What are some reasons that you don't ride a bicycle more often to the U of S campus? (select up to three)

- ☐ I don't want to be stranded on campus in case of a family emergency or unexpected overtime
- ☐ I live too far away
- ☐ I don't own a bicycle
- ☐ I don't know how to ride a bicycle
- ☐ I don't know what cycling routes to take
- ☐ I don't feel safe when cycling
- ☐ I don't like cycling in bad weather or the dark
- ☐ I am afraid my bicycle will be stolen
- ☐ Bicycle parking on campus is inconvenient, insufficient or exposed to weather
- ☐ Shower, changing and locker facilities on campus are poor, inconvenient or absent

3.F What are some reasons that you don't walk (or jog, in-line skate or skateboard) more often to the U of S campus? (select up to three)

- ☐ I don't want to be stranded on campus in case of a family emergency or unexpected overtime
- ☐ I live too far away
- ☐ I am unable to walk
- ☐ I don't feel safe when walking, jogging, in-line or ice skating
- ☐ I don't like walking, jogging, in-line or ice skating in bad weather or the dark
- ☐ Shower, changing and locker facilities on campus are poor, inconvenient or absent

3.G Are you willing to try travelling to U of S more often by carpool, public transit, bicycle or walking if better conditions or incentives existed?

- ☐ Yes
- ☐ No

4A. Over the last 12 months, have you travelled from your home to the U of S campus as a <u>carpool passenger</u> at least one day a week, on average?

- ☐ Yes
- ☐ No

If "YES" then ask:

4B. Why do you travel as a carpool passenger to the U of S campus? *(select up to three)*

- ☐ I live too far from campus to walk or cycle
- ☐ Transit is unavailable where I live
- ☐ I have a convenient carpool partner
- ☐ I can use travel time productively
- ☐ I do not drive
- ☐ I do not like to drive
- ☐ I do not have access to a vehicle
- ☐ It is enjoyable or comfortable
- ☐ It is good for the environment
- ☐ It is fast
- ☐ It is inexpensive
- ☐ It is safe or secure

4C. What changes could make carpooling significantly more attractive for travel to and from U of S? *(select all that apply)*

- ☐ Reserving the most convenient parking spaces for carpools
- ☐ Increase the number of people registered in UCommute (the carpool ridematching system)
- ☐ A guaranteed ride home in case of a family emergency
- ☐ Other: _____

5A. Over the last 12 months, have you taken transit from your home to the U of S campus (using Saskatoon Transit or Access Transit) at least one day a week, on average?

- ☐ Yes
- ☐ No

If "YES" then ask:

5B. Why do you take transit to the U of S campus? *(select up to three)*

- ☐ I live too far from the campus to walk or cycle
- ☐ I can use travel time productively
- ☐ I do not drive
- ☐ I do not like to drive
- ☐ I do not have access to a vehicle
- ☐ I do not have a convenient carpool partner
- ☐ It is enjoyable or comfortable
- ☐ It is good for the environment
- ☐ It is fast
- ☐ It is inexpensive
- ☐ It is safe or secure

5C. What changes could overcome barriers and make transit significantly more attractive for travel to and from U of S? *(select all that apply)*

- ☐ Adding shelters at the transit hub
- ☐ Adding seating at the transit hub
- ☐ Improving safety for pedestrians crossing the transit hub
- ☐ Providing better information on transit routes and schedules
- ☐ Providing more frequent transit service
- ☐ Extending transit service hours (early mornings, late evenings, weekends)
- ☐ Providing park-and-ride lots served by Saskatoon Transit routes
- ☐ Other: _____

6A. Over the last 12 months, have you cycled from your home to the U of S campus at least one day a week, on average? *(you may exclude winter when answering.)*

- ☐ Yes
- ☐ No

If "YES" then ask:

6B. During which seasons do you cycle to the U of S campus? *(select all that apply)*

- ☐ Spring
- ☐ Summer
- ☐ Fall
- ☐ Winter

6C. Why do you cycle to the U of S campus? *(select up to three)*

- ☐ I do not drive
- ☐ I do not like to drive
- ☐ I do not have access to a vehicle
- ☐ I do not have a convenient carpool partner
- ☐ It is good for my health and fitness
- ☐ It is enjoyable or comfortable
- ☐ It is good for the environment
- ☐ It is fast
- ☐ It is inexpensive
- ☐ It is safe or secure

6D. What changes could overcome barriers and make cycling significantly more attractive for travel to and from U of S? *(select all that apply)*

- ☐ Adding more bike racks
- ☐ Adding more bike lockers
- ☐ Adding shelters to bike racks
- ☐ Adding anti-theft measures at bike racks
- ☐ Adding more campus pathways
- ☐ Improving safety on campus pathways
- ☐ Improving safety on campus roads
- ☐ Using signs or pavement markings to identify the best cycling routes
- ☐ Offering courses on safe cycling, winter cycling or bike maintenance
- ☐ Improving Saskatoon's cycling routes to and from campus
- ☐ Other: _____

7A. Over the last 12 months, have you walked from your home to the U of S campus (including jogging, in-line skating or skateboarding) at least one day out of five, on average? *(you may exclude winter when answering)*

- ☐ Yes
- ☐ No

If "YES" then ask:

7B. During which seasons do you walk to the U of S campus? *(select all that apply)*

- ☐ Spring
- ☐ Summer
- ☐ Fall
- ☐ Winter

7C. Why do you walk to the U of S campus? *(select up to three)*

- ☐ I do not drive
- ☐ I do not like to drive
- ☐ I do not have access to a vehicle
- ☐ I do not have a convenient carpool partner
- ☐ It is good for my health and fitness
- ☐ It is enjoyable or comfortable
- ☐ It is good for the environment
- ☐ It is fast
- ☐ It is inexpensive
- ☐ It is safe or secure

7D. What changes could overcome barriers and make walking significantly more attractive for travel to and from U of S? *(select all that apply)*

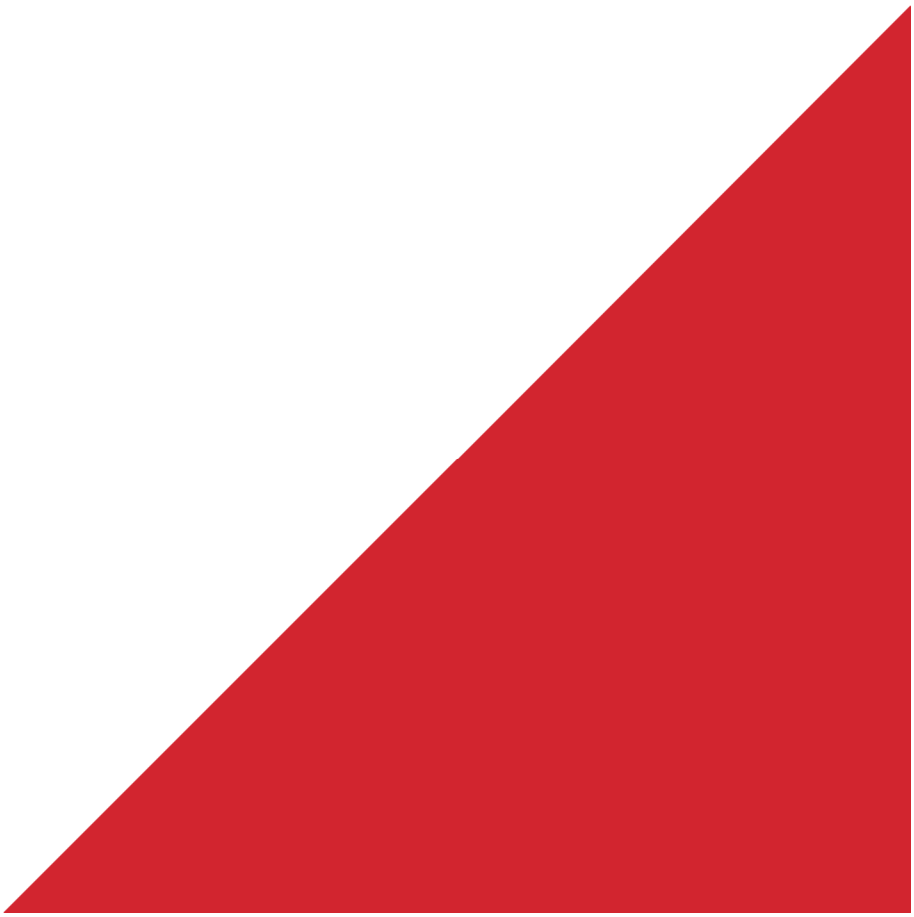
- ☐ Adding more pedestrian crossings of campus roads
- ☐ Adding more campus pathways
- ☐ Improving safety at pedestrian crossings of campus roads
- ☐ Improving safety at intersections on College Drive
- ☐ Improving safety on campus pathways
- ☐ Other: _____

8A. Which of the following programs or initiatives at U of S are you aware of? *(select all that apply)*

- ☐ UCommute
- ☐ Enterprise CarShare
- ☐ Eco Pass Program
- ☐ Bicycle lockers
- ☐ Bicycle repair stand
- ☐ Bicycle repair toolkit
- ☐ Campus Cycling Club

Note: student survey questions are similar except they include a possible answer that they live on campus.

Appendix B: Survey Responses



APPENDIX B: ONLINE SURVEY RESULTS

Results - Students

Qu. 1 How long is the trip from your home to the U of S campus?

Answer	No. of Responses	Percent of Responders
0 km - I live on campus	6	3%
11 to 25 kms	36	17%
26 to 50 kms	7	3%
6 to 10 kms	76	37%
less than 5 kms	76	37%
more than 50 kilometres (kms)	5	2%
Grand Total	206	100%

Qu. 2A How did you make your most recent weekday trip to the U of S campus?

Answer	No. of Responses	Percent of Responders
bus (Saskatoon Transit or Access Transit)	111	54%
vehicle driver (with no passengers)	36	17%
walking (or jogging, etc.)	25	12%
vehicle passenger	18	9%
vehicle driver (with 1 or more passengers)	13	6%
cycling	3	1%
Total	206	100%

Of the 49 that answered 2A vehicle driver (with and without passengers)

Qu. 2b Where did you park on your most recent weekday trip to campus?

Answer	No. of Responses	Percent of Responders
on campus, in a public parking area (parkade or lot, parking meter or motorcycle parking)	23	47%
on campus, in a permit parking lot	15	31%
off campus, on the street (e.g., in Varsity View neighbourhood)	10	20%
off campus, in a parking lot or driveway	1	2%
Grand Total	49	100%

Qu. 3A Do you usually drive, with or without passengers, to the U of S campus (at least four days out of five, on average)

Answer	No. of Responses	Percent of Responders
No	150	75%
Yes	50	25%
Grand Total	200	100%

Of the 50 that answered yes in Question 3A

Qu. 3B Why do you drive to the U of S campus?

Answer	No. of Responses	Percent of Responders
Driving is fast	26	52%
I have long or irregular hours on campus	21	42%
I live too far from campus to walk or cycle	20	40%
Driving is enjoyable or comfortable	17	34%
I need my vehicle during the day	14	28%
Transit is unavailable where I live	11	22%
I need my vehicle for personal or family purposes	8	16%
I have a carpool partner	8	16%
Driving is safe or secure	7	14%
Driving is inexpensive	0	0%
Grand Total	132	264%

Of the 50 that answered yes in Question 3A

Qu. 3C What are some reasons that you don't travel more often as a carpool passenger to the U of S campus?

Answer	No. of Responses	Percent of Responders
I need a flexible schedule	37	74%
I don't want to share a vehicle with people I don't know	20	40%
I don't want to be stranded on campus in case of a family emergency	14	28%
I don't know how to find carpool partners	5	10%
Grand Total	76	152%

Of the 50 that answered yes in Question 3A

Qu. 3D What are some reasons that you don't take transit more often to the U of S campus?

Answer	No. of Responses	Percent of Responders
Transit is too slow	27	54%
Transit is infrequent or unreliable	26	52%
I need a flexible schedule	16	32%
I don't want to be stranded on campus in case of a family emergency	11	22%
Transit is unavailable where I live	10	20%
I'm not comfortable on the bus	8	16%
The bus stop on campus has no shelter, seating or lighting	5	10%
The bus stop on campus is too far away	4	8%
I don't know what bus routes to take	3	6%
I don't feel safe on the bus	3	6%
Transit is too expensive (I'm a graduate student and don't have a UPass)	3	6%
Grand Total	116	232%

Of the 50 that answered yes in Question 3A

Qu. 3E What are some reasons that you don't ride a bicycle more often to the U of S campus?

Answer	No. of Responses	Percent of Responders
I live too far away	26	52%
I don't like cycling in bad weather or the dark	26	52%
I don't own a bicycle	14	28%
I don't feel safe when cycling	8	16%
Bicycle parking on campus is inconvenient, insufficient or exposed to weather	6	12%
Shower, changing and locker facilities on campus are poor, inconvenient or absent	6	12%
I don't know what cycling routes to take	5	10%
I am afraid my bicycle will be stolen	5	10%
I don't want to be stranded on campus in case of a family emergency	3	6%
I cannot or don't know how to ride a bicycle	1	2%
Grand Total	100	200%

Of the 50 that answered yes in Question 3A

Qu. 3F What are some reasons that you don't walk (or jog, in-line skate or skateboard) more often to the U of S campus?

Answer	No. of Responses	Percent of Responders
I live too far away	43	86%
I don't like walking, jogging, in-line or ice skating in bad weather or the dark	23	46%
I don't want to be stranded on campus in case of a family emergency	8	16%
I don't feel safe when walking, jogging, in-line or ice skating	7	14%
Shower, changing and locker facilities on campus are poor, inconvenient or absent	5	10%
I am unable to walk	0	0%
Grand Total	86	172%

Of the 50 that answered yes in Question 3A

Qu. 3G Are you willing to try travelling to U of S more often by carpool, public transit, bicycle or walking if better conditions or incentives existed?

Answer	No. of Responses	Percent of Responders
No	13	27%
Yes	36	73%
Grand Total	49	100%

Qu. 4A Over the last 12 months, have you travelled from your home to the U of S campus as a carpool passenger at least one day a week, on average?

Answer	No. of Responses	Percent of Responders
No	151	76%
Yes	47	24%
Grand Total	198	100%

Of the 47 that answered yes in Question 4A

Qu. 4B Why do you travel as a carpool passenger to the U of S campus?

Answer	No. of Responses	Percent of Responders
I have a convenient carpool partner	35	74%
It is fast	21	45%
I live too far from campus to walk or cycle	14	30%
It is enjoyable or comfortable	10	21%
I do not have access to a vehicle	7	15%
I can use travel time productively	6	13%
It is good for the environment	6	13%
It is inexpensive	6	13%
Transit is unavailable where I live	3	6%
I do not drive	3	6%
I do not like to drive	3	6%
It is safe or secure	3	6%
Grand Total	117	249%

Of the 47 that answered yes in Question 4A

Qu. 4C What changes could make carpooling significantly more attractive for travel to and from U of S?

Answer	No. of Responses	Percent of Responders
A discounted parking pass for carpoolers	32	68%
Reserving the most convenient parking spaces for carpools	29	62%
A guaranteed ride home in case of a family emergency	10	21%
Increase the number of people registered in UCommute (the carpool ride-matching system)	5	11%
Comment - More parking spots available closer to buildings I need to be, such as the engineering building	1	2%
Comment - not allowing students to use their own personal vehicle for themselves only.	1	2%
Other (no comment)	3	6%
Grand Total	81	172%

Qu. 5A Over the last 12 months, have you taken transit from your home to the U of S campus (using Saskatoon Transit or Access Transit) at least one day a week, on average?

Answer	No. of Responses	Percent of Responders
No	63	33%
Yes	130	67%
Grand Total	193	100%

Of the 130 that answered yes in Question 5A

Qu. 5B Why do you take transit to the U of S campus?

Answer	No. of Responses	Percent of Responders
It is inexpensive	88	68%
I live too far from the campus to walk or cycle	67	52%
It is good for the environment	44	34%
I do not have access to a vehicle	24	18%
It is safe or secure	22	17%
It is fast	22	17%
I can use travel time productively	21	16%
I do not have a convenient carpool partner	20	15%
I do not drive	18	14%
I do not like to drive	14	11%
It is enjoyable or comfortable	9	7%
Grand Total	349	268%

Of the 130 that answered yes in Question 5A

Qu. 5C What changes could overcome barriers and make transit significantly more attractive for travel to and from U of S?

Answer	No. of Responses	Percent of Responders
Providing more frequent transit service	89	68%
Providing more or bigger buses on busy routes at peak times	69	53%
Adding shelters at the transit hub	60	46%
Extending transit service hours (early mornings, late evenings, weekends)	51	39%
Providing better information on transit routes and schedules	43	33%
Providing a UPass for graduate students	33	25%
Providing park-and-ride lots served by Saskatoon Transit routes	32	25%
Adding seating at the transit hub	28	22%
Improving safety for pedestrians crossing the transit hub	27	21%
Comment - Knowing when bus is coming or just left (GPS, app)	5	4%
Comment - Buses on time or more reliable	4	3%
Comment - Better reliability in evenings especially in winter	2	2%
Comment - More bus stops in the stonebridge area	2	2%
Comment - Schedule more in line with class start at 8:30	2	2%
Comment - Providing express routes going directly to the univerity from various neighbourhoods	2	2%
Comment - Add shelters at other stops on campus	1	1%
Comment - Providing more frequent bus services on routes that only have one bus covering the area	1	1%
Comment - Providing U-Passes during the Spring and Summer	1	1%
Comment - Closer bus stop	1	1%
Other (no comment)	20	15%
Grand Total	473	364%

Qu. 6A Over the last 12 months, have you cycled from your home to the U of S campus at least one day a week, on average?

Answer	No. of Responses	Percent of Responders
No	152	79%
Yes	41	21%
Grand Total	193	100%

Of the 41 that answered yes in Question 6A

Qu. 6B During which seasons do you cycle to the U of S campus?

Answer	No. of Responses	Percent of Responders
spring	32	78%
summer	31	76%
fall	35	85%
winter	9	22%
Grand Total	107	261%

Of the 41 that answered yes in Question 6A

Qu. 6C Why do you cycle to the U of S campus?

Answer	No. of Responses	Percent of Responders
It is good for my health and fitness	37	90%
It is fast	27	66%
It is inexpensive	27	66%
It is good for the environment	18	44%
It is enjoyable or comfortable	17	41%
I do not have access to a vehicle	5	12%
I do not like to drive	4	10%
I do not have a convenient carpool partner	4	10%
It is safe or secure	3	7%
I do not drive	0	0%
Grand Total	142	346%

Of the 41 that answered yes in Question 6A

Qu. 6D What changes could make cycling significantly more attractive for travel to and from U of S?

Answer	No. of Responses	Percent of Responders
Improving Saskatoon's cycling routes to and from campus	30	73%
Providing dedicated cycling lanes on Campus Drive	20	49%
Separating pedestrians and cyclists on campus pathways	14	34%
Using signs or pavement markings to identify the best cycling routes	13	32%
Adding more bike racks	12	29%
Adding anti-theft measures at bike racks	10	24%
Adding shelters to bike racks	8	20%
Improving safety on campus roads	6	15%
Offering courses on safe cycling, winter cycling or bike maintenance	5	12%
Adding more bike lockers	4	10%
Improving safety on campus pathways	3	7%
Comment - Ad campaign advising Saskatoon drivers to respect cyclists on the road.	1	2%
Comment - making the UPass exemption available for year-round cyclists	1	2%
Other (no comment)	2	5%
Grand Total	129	315%

Qu. 7A Over the last 12 months, have you walked from your home to the U of S campus (including jogging, in-line skating or skateboarding) at least one day out of five, on average?

Answer	No. of Responses	Percent of Responders
No	144	75%
Yes	48	25%
Grand Total	192	100%

Of the 48 that answered yes in Question 7A

Qu. 7B During which seasons do you walk to the U of S campus?

Answer	No. of Responses	Percent of Responders
spring	38	79%
summer	40	83%
fall	41	85%
winter	30	63%
Grand Total	149	310%

Of the 48 that answered yes in Question 7A

Qu. 7C Why do you walk to the U of S campus?

Answer	No. of Responses	Percent of Responders
It is good for my health and fitness	37	77%
It is enjoyable or comfortable	24	50%
It is inexpensive	23	48%
It is good for the environment	19	40%
It is fast	18	38%
I do not have access to a vehicle	8	17%
I do not drive	6	13%
I do not like to drive	4	8%
I do not have a convenient carpool partner	3	6%
It is safe or secure	3	6%
Grand Total	145	302%

Of the 48 that answered yes in Question 7A

Qu. 7D What changes could make walking significantly more attractive for travel to and from U of S?

Answer	No. of Responses	Percent of Responders
Improving snow and ice clearing on sidewalks off campus	32	67%
Adding more pedestrian crossings of campus roads	19	40%
Improving safety at intersections on College Drive	19	40%
Separating pedestrians and cyclists on campus pathways	14	29%
Improving safety at pedestrian crossings of campus roads	8	17%
Comment - Improving safety on campus pathways	5	10%
Comment - Having sidewalks (there are zones without sidewalks)	1	2%
Comment - Improving snow and ice clearing on campus (salt and gravel on the walks)	1	2%
Comment - Heated walkways	1	2%
Comment - Sidewalks all the way down Cumberland	1	2%
Comment - Pedestrian lights for getting across College dont last very long; the green lights for traffic driving along College last way too long.	1	2%
Other (no comment)	5	10%
Grand Total	107	223%

Qu. 8 Which of the following programs or initiatives at U of S are you aware of?

Answer	No. of Responses	Percent of Responders
Bicycle repair stand	86	28%
Bicycle lockers	80	26%
UCommute ride-matching service	61	20%
Bicycle repair toolkit	49	16%
Enterprise CarShare	20	6%
Campus Cycling Club	13	4%
Grand Total	309	100%

Results – Staff and Faculty

Qu. 1 How long is the trip from your home to the U of S campus?

Answer	No. of Responses	Percent of Responders
11 to 25 kms	56	18%
26 to 50 kms	13	4%
6 to 10 kms	107	34%
less than 5 kms	129	41%
more than 50 kilometres (kms)	6	2%
Grand Total	311	100%

Qu. 2A How did you make your most recent weekday trip to the U of S campus?

Answer	No. of Responses	Percent of Responders
vehicle driver (with no passengers)	155	50%
walking (or jogging, etc.)	44	14%
bus (Saskatoon Transit or Access Transit)	42	13%
vehicle driver (with 1 or more passengers)	37	12%
vehicle passenger	24	8%
cycling	11	4%
Total	313	100%

Of the 192 that answered 2A vehicle driver (with and without passengers)

Qu. 2b Where did you park on your most recent weekday trip to campus?

Answer	No. of Responses	Percent of Responders
on campus, in a permit parking lot	156	81%
on campus, in a public parking area (parkade or lot, parking meter or motorcycle parking)	20	10%
off campus, on the street (e.g., in Varsity View neighbourhood)	7	4%
Grand Total	183	95%

Qu. 3A Do you usually drive, with or without passengers, to the U of S campus (at least four days out of five, on average)

Answer	No. of Responses	Percent of Responders
No	129	42%
Yes	175	58%
Grand Total	304	100%

Of the 175 that answered yes in Question 3A

Qu. 3B Why do you drive to the U of S campus?

Answer	No. of Responses	Percent of Responders
I need my vehicle for personal or family purposes	77	44%
Driving is fast	77	44%
I live too far from campus to walk or cycle	66	38%
I have long or irregular hours on campus	51	29%
I need my vehicle during the day	45	26%
Driving is enjoyable or comfortable	32	18%
Transit is unavailable where I live	21	12%
I have a carpool partner	16	9%
Driving is safe or secure	13	7%
Driving is inexpensive	8	5%
Grand Total	406	232%

Of the 175 that answered yes in Question 3A

Qu. 3C What are some reasons that you don't travel more often as a carpool passenger to the U of S campus?

Answer	No. of Responses	Percent of Responders
I need a flexible schedule	132	75%
I don't want to be stranded on campus in case of a family emergency or unexpected overtime	85	49%
I don't want to share a vehicle with people I don't know	43	25%
I don't know how to find carpool partners	18	10%
Grand Total	278	159%

Of the 175 that answered yes in Question 3A

Qu. 3D What are some reasons that you don't take transit more often to the U of S campus?

Answer	No. of Responses	Percent of Responders
I need a flexible schedule	87	50%
Transit is too slow	77	44%
I don't want to be stranded on campus in case of a family emergency or unexpected overtime	55	31%
Transit is infrequent or unreliable	54	31%
I'm not comfortable on the bus	25	14%
Transit is unavailable where I live	25	14%
Transit is too expensive	20	11%
Buying tickets or passes is inconvenient	14	8%
The bus stop on campus is too far away	11	6%
I don't know what bus routes to take	8	5%
The bus stop on campus has no shelter, seating or lighting	7	4%
I don't feel safe on the bus	6	3%
Grand Total	389	222%

Of the 175 that answered yes in Question 3A

Qu. 3E What are some reasons that you don't ride a bicycle more often to the U of S campus?

Answer	No. of Responses	Percent of Responders
I don't like cycling in bad weather or the dark	84	48%
I live too far away	62	35%
I don't feel safe when cycling	44	25%
Shower, changing and locker facilities on campus are poor, inconvenient or absent	41	23%
I don't want to be stranded on campus in case of a family emergency or unexpected overtime	32	18%
I don't own a bicycle	31	18%
Bicycle parking on campus is inconvenient, insufficient or exposed to weather	20	11%
I am afraid my bicycle will be stolen	19	11%
I don't know what cycling routes to take	6	3%
I cannot or don't know how to ride a bicycle	2	1%
Grand Total	341	195%

Of the 175 that answered yes in Question 3A

Qu. 3F What are some reasons that you don't walk (or jog, in-line skate or skateboard) more often to the U of S campus?

Answer	No. of Responses	Percent of Responders
I live too far away	132	75%
I don't like walking, jogging, in-line or ice skating in bad weather or the dark	52	30%
I don't want to be stranded on campus in case of a family emergency or unexpected overtime	42	24%
Shower, changing and locker facilities on campus are poor, inconvenient or absent	29	17%
I don't feel safe when walking, jogging, in-line or ice skating	11	6%
I am unable to walk	2	1%
Grand Total	268	153%

Of the 175 that answered yes in Question 3A

Qu. 3G Are you willing to try travelling to U of S more often by carpool, public transit, bicycle or walking if better conditions or incentives existed?

Answer	No. of Responses	Percent of Responders
No	76	43%
Yes	99	57%
Grand Total	175	100%

Qu. 4A Over the last 12 months, have you travelled from your home to the U of S campus as a carpool passenger at least one day a week, on average?

Answer	No. of Responses	Percent of Responders
No	263	86%
Yes	42	14%
Grand Total	305	100%

Of the 42 that answered yes in Question 4A

Qu. 4B Why do you travel as a carpool passenger to the U of S campus?

Answer	No. of Responses	Percent of Responders
I have a convenient carpool partner	34	81%
It is fast	15	36%
It is good for the environment	13	31%
I live too far from campus to walk or cycle	9	21%
It is inexpensive	8	19%
Transit is unavailable where I live	5	12%
It is enjoyable or comfortable	5	12%
It is safe or secure	3	7%
I can use travel time productively	1	2%
I do not drive	1	2%
I do not have access to a vehicle	1	2%
I do not like to drive	0	0%
Grand Total	95	226%

Of the 42 that answered yes in Question 4A

Qu. 4C What changes could make carpooling significantly more attractive for travel to and from U of S?

Answer	No. of Responses	Percent of Responders
A discounted parking pass for carpoolers	21	50%
Reserving the most convenient parking spaces for carpools	18	43%
A guaranteed ride home in case of a family emergency	12	29%
Increase the number of people registered in UCommute (the carpool ride-matching system)	5	12%
Comment - Prefer to walk	1	2%
Comment - Car pooling is not very convenient for my schedule	1	2%
Other (no comment)	2	5%
Grand Total	60	143%

Qu. 5A Over the last 12 months, have you taken transit from your home to the U of S campus (using Saskatoon Transit or Access Transit) at least one day a week, on average?

Answer	No. of Responses	Percent of Responders
No	249	82%
Yes	55	18%
Grand Total	304	100%

Of the 55 that answered yes in Question 5A

Qu. 5B Why do you take transit to the U of S campus?

Answer	No. of Responses	Percent of Responders
It is good for the environment	26	47%
It is inexpensive	20	36%
I live too far from the campus to walk or cycle	17	31%
It is fast	13	24%
I do not have access to a vehicle	12	22%
I can use travel time productively	10	18%
It is safe or secure	9	16%
It is enjoyable or comfortable	8	15%
I do not drive	5	9%
I do not like to drive	5	9%
I do not have a convenient carpool partner	3	5%
Grand Total	128	233%

Of the 55 that answered yes in Question 5A

Qu. 5C What changes could overcome barriers and make transit significantly more attractive for travel to and from U of S?

Answer	No. of Responses	Percent of Responders
Providing more frequent transit service	33	60%
Reducing the cost	29	53%
Providing more or bigger buses on busy routes at peak times	26	47%
Adding shelters at the transit hub	22	40%
Providing better information on transit routes and schedules	20	36%
Extending transit service hours (early mornings, late evenings, weekends)	19	35%
Improving safety for pedestrians crossing the transit hub	14	25%
Providing park-and-ride lots served by Saskatoon Transit routes	10	18%
Adding seating at the transit hub	6	11%
Comment - Buses on time or more reliable	3	5%
Comment - Knowing when bus is coming or just left (real time board)	2	4%
Comment - Better connection reliability (connecting buses never wait if first bus is late)	2	4%
Comment - Increase availability of ecopasses	1	2%
Comment - Plug-in for park-and-ride	1	2%
Comment - Make parking on campus less available	1	2%
Comment - Make wait downtown warmer during the winter	1	2%
Comment -Make Lawson bus to U of S less uncomfortable and noisy	1	2%
Comment - Better Sunday service	1	2%
Comment - Customer service oriented drivers	1	2%
Other (no comment)	17	31%
Grand Total	210	382%

Qu. 6A Over the last 12 months, have you cycled from your home to the U of S campus at least one day a week, on average?

Answer	No. of Responses	Percent of Responders
No	213	71%
Yes	85	29%
Grand Total	298	100%

Of the 85 that answered yes in Question 6A

Qu. 6B During which seasons do you cycle to the U of S campus?

Answer	No. of Responses	Percent of Responders
spring	67	79%
summer	85	100%
fall	65	76%
winter	12	14%
Grand Total	229	269%

Of the 85 that answered yes in Question 6A

Qu. 6C Why do you cycle to the U of S campus?

Answer	No. of Responses	Percent of Responders
It is good for my health and fitness	73	86%
It is inexpensive	56	66%
It is enjoyable or comfortable	53	62%
It is good for the environment	52	61%
It is fast	41	48%
I do not have access to a vehicle	11	13%
I do not like to drive	9	11%
It is safe or secure	6	7%
I do not drive	2	2%
I do not have a convenient carpool partner	1	1%
Grand Total	304	358%

Of the 85 that answered yes in Question 6A

Qu. 6D What changes could make cycling significantly more attractive for travel to and from U of S?

Answer	No. of Responses	Percent of Responders
Improving Saskatoon's cycling routes to and from campus	63	74%
Providing dedicated cycling lanes on Campus Drive	45	53%
Adding anti-theft measures at bike racks	35	41%
Separating pedestrians and cyclists on campus pathways	29	34%
Adding more bike racks	28	33%
Adding more bike lockers	25	29%
Adding shelters to bike racks	25	29%
Improving safety on campus roads	23	27%
Using signs or pavement markings to identify the best cycling routes	21	25%
Improving safety on campus pathways	18	21%
Offering courses on safe cycling, winter cycling or bike maintenance	6	7%
Comment - Warmer weather (snow on ground)	3	4%
Comment - Nothing, it is good as is	5	6%
Comment - Indoor storage	1	1%
Comment - Better bike paths in the winter	1	1%
Comment - Better bicycle safety at major intersections	1	1%
Comment - Educating drivers and cyclists about the rules of the road	1	1%
Comment - Dedicated bicycle comuter locker/shower facilities	1	1%
Comment - Allowing cyclists to stay mounted in a crosswalk but require pedestrian speed maximum when crossing (and when on congested pathways)	1	1%
Comment - College Dr. and Campus Dr wait time at street lights for pedestrians and cyclists is much too long	2	2%
Comment - The current pedestrian overpass is in the wrong spot for the majority of cycling and pedestrian traffic	3	4%
Comment - no sidewalks on field house entering from Preston or College	4	5%
Comment - Air station	5	6%
Comment - Restore bike route between old health science and dentistry building (closing it shuffled bike traffic to Wiggins where there is no bike lane)	6	7%
Other (no comment)	17	20%
Grand Total	369	434%

Qu. 7A Over the last 12 months, have you walked from your home to the U of S campus (including jogging, in-line skating or skateboarding) at least one day out of five, on average?

Answer	No. of Responses	Percent of Responders
No	227	75%
Yes	74	25%
Grand Total	301	100%

Of the 74 that answered yes in Question 7A

Qu. 7B During which seasons do you walk to the U of S campus?

Answer	No. of Responses	Percent of Responders
spring	58	78%
summer	63	85%
fall	60	81%
winter	60	81%
Grand Total	241	326%

Of the 74 that answered yes in Question 7A

Qu. 7C Why do you walk to the U of S campus?

Answer	No. of Responses	Percent of Responders
It is good for my health and fitness	59	80%
It is good for the environment	41	55%
It is enjoyable or comfortable	39	53%
It is inexpensive	39	53%
It is fast	12	16%
I do not have access to a vehicle	10	14%
I do not drive	5	7%
I do not like to drive	5	7%
It is safe or secure	5	7%
I do not have a convenient carpool partner	3	4%
Grand Total	218	295%

Of the 74 that answered yes in Question 7A

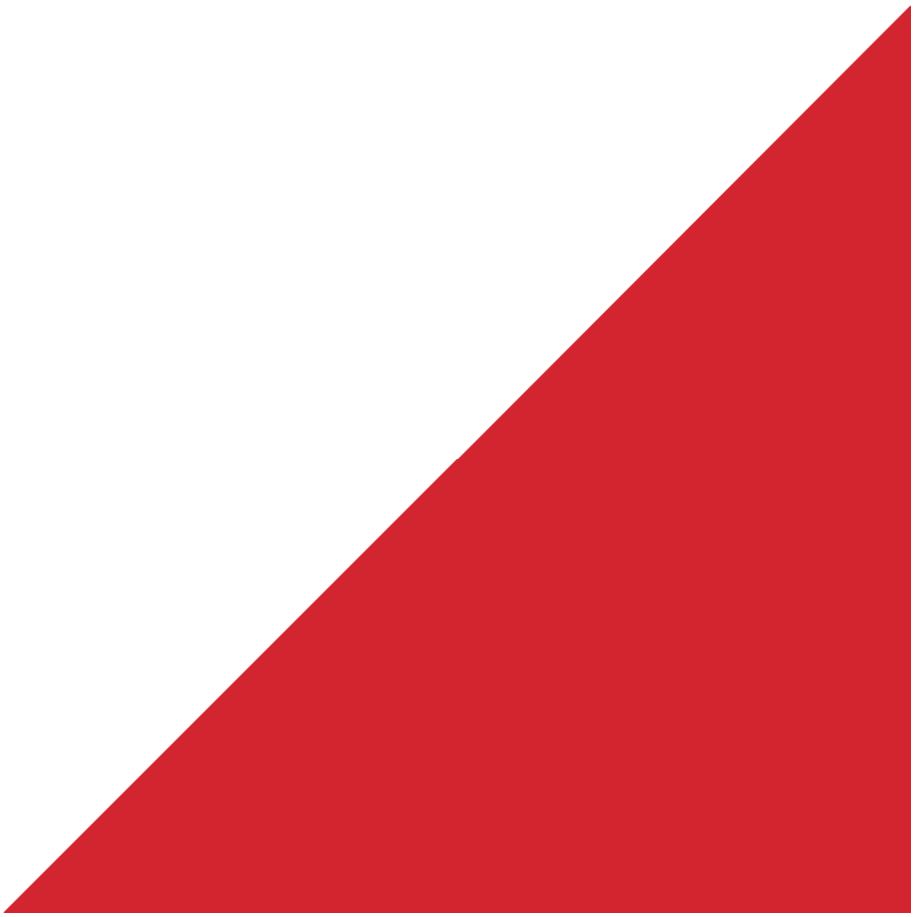
Qu. 7D What changes could make walking significantly more attractive for travel to and from U of S?

Answer	No. of Responses	Percent of Responders
Improving snow and ice clearing on sidewalks off campus	48	65%
Improving safety at intersections on College Drive	30	41%
Improving safety at pedestrian crossings of campus roads	24	32%
Separating pedestrians and cyclists on campus pathways	21	28%
Adding more pedestrian crossings of campus roads	17	23%
Improving safety on campus pathways	16	22%
Comment - Nothing, it is good as is	4	5%
Comment - Improve winter sidewalk conditions, consider heated sidewalks	2	3%
Comment - Driver education to yield to pedestrians at intersections	1	1%
Comment - Having work hours that start after sunrise and end before sunset so no ice	1	1%
Comment - Fix the crossing on campus drive between arts and the college of medicine (unsafe)	1	1%
Comment - Tunnel from College Quarter to Place Riel	1	1%
Comment - Consider pedestrian traffic in planning	1	1%
Comment - Giving greater pedestrian precedence over cars on College Drive	1	1%
Comment - Improving snow & ice clearing on the University Bridge	1	1%
Comment - Sidewalk be built for shortcut from University Bridge to entrance to President's driveway	1	1%
Comment - Increased paved shortcuts from CQ to campus	1	1%
Comment - College Dr. and Campus Dr wait time at street lights for pedestrians and cyclists is much too long	1	1%
Comment - Providing pathways in the College Quarter for residents, commuters and for student parkers (Lot 15)	1	1%
Comment - Around the field house there are no sidewalks to get from Preston over to College and the overpass	1	1%
Other (no comment)	21	28%
Grand Total	195	264%

Qu. 8 Which of the following programs or initiatives at U of S are you aware of?

Answer	No. of Responses	Percent of Responders
Bicycle lockers	110	20%
Eco Pass Program	108	20%
Bicycle repair stand	102	18%
UCommute ride-matching service	89	16%
Enterprise CarShare	72	13%
Bicycle repair toolkit	71	13%
Grand Total	552	100%

Appendix C: Safety Review



APPENDIX C: SAFETY REVIEW

This appendix presents the findings of the safety review. The findings can be used by the University to implement location-specific safety improvements as well as area-wide initiatives. The suggestions should be taken into consideration for all future works as well as for improving existing infrastructure. Several of the recommendations involve land and roads within the City of Saskatoon's jurisdiction and would likely require approval from the City, but may also have the opportunity for cost-sharing.

On-site observations were conducted throughout the day on September 20 and 21, 2012 during warm, sunny weather. Additional observations were undertaken by a second observer on May 3, 2013.

1 General Comments

Throughout the campus, there were several potential safety issues noted in numerous locations. These issues are as follows.

- Worn Pavement Markings: The pavement markings throughout the campus were worn and difficult to see. Pavement markings should be properly maintained.
- Construction: There was a significant amount of construction going on throughout the campus. The added signs and traffic has the potential to cause additional collisions, especially in autumn when many students are still learning their way around campus.
- Inadequate Enforcement: During the site visit, there were a variety of violations committed by motorists (speeding, Stop sign/red light running, distracted driving, parking/driving where prohibited) and pedestrians (jay walking). Although no incidents were observed on campus, with the minimal enforcement, road users may become more brazen and take more risks. More enforcement should be considered, as well as a reminder of driver and cyclist etiquette.

1.1 Improper/Inconsistent Use of Curb Drops

Curbs drops should be located at the end of sidewalks at every intersection in order to allow people to easily cross streets when using a device with wheels (wheelchair, bicycle, stroller, etc.). However, throughout the campus, it was noted that not every intersection had curb drops, and others had improperly installed curb drops. Curb drops are supposed to be constructed in pairs (one on each side of the street to be crossed) and face each other to aid people with limited vision. Numerous curb drops were noted to be facing into the intersection.

The above curb drop leads pedestrians into the middle of the intersection.

It is recommended that an accessibility audit be conducted to identify and prioritize where improvements should be made on walkways and sidewalks. The University should then undertake to implement up to 10 new curb drops per year to address this issue over a 5 to 10 year period.

2 Transit Hub

2.1 Issue

The posted speed limit within the transit hub is 20km/h, and traffic is restricted to buses and service vehicles only. Although this would normally be considered a low speed limit, the frequency of pedestrians walking/running across the roadway causes buses to travel at a lower speed.

The majority of buses observed entered the hub from the east, circled around at the turn-around area, then stopped at the hub facing east on the south side of the roadway to drop off/pick up passengers. This requires the majority of passengers to cross the road to get between Place Riel and the south transit pick-up area. Although there is a crosswalk provided (at the west end), numerous pedestrians were observed crossing at mid-block locations as it is the most direct route.

At the west end of the transit hub (the access onto Wiggins Road), it was observed that several service vehicles did not stop at the Stop sign at the crosswalk.

This may have been due to the construction in the area making it difficult to see the Stop sign. Additionally, the stop line was faded. Although sight lines are adequate (for both pedestrians and drivers), the inattentive road users may cause a vehicle-pedestrian collision.

2.2 Potential Solution

In order to improve pedestrian safety at the transit hub, a safer means of crossing the roadway is needed, as well as proper guidance to direct the pedestrians crossing the roadway to cross in safe locations. Three improvements are recommended.

A marked zebra crossing should be provided across the transit hub from the Place Riel building entrance on the north side to allow for the most direct access from the building. The crossing should be accompanied by four crosswalk signs (one crosswalk sign on each side of the road in both directions). Due to the anticipated high-usage, the crossing should be wider than the minimum standard. Alternatively, a raised crossing could be installed, which has the added effect of slowing traffic. A potential location of the crossing is shown below.

Care should be taken to ensure stopped buses do not block the crosswalk. This may require moving one or more bus stop signs.

Curb build-outs (also known as curb extensions) should be installed on both sides of the transit hub roadway at each end of the crossing. This will reduce the amount of time required for pedestrians to cross the roadway, as well as provide better visibility of the pedestrians starting to cross in the event that a bus or other vehicle is parked in front of the crossing. It should be ensured that drainage is accounted for in the design of the curb build-outs. Note that the crosswalk signage should be located on the curb build-outs. An example of a curb build-out is shown in the below photo.

Fencing should also be installed along the north side of the roadway to restrict pedestrians from crossing anywhere along the road. In addition to the gap for the marked crossing, gaps will be required at each of the bus stops to allow for the pickup and drop off of passengers. This would likely require consultation with Saskatoon Transit. The approximate fencing location is shown below. Note that the gap for the crosswalk is shown, but not the gaps for the bus stops.

Lastly, consideration should be given to removing the existing crosswalks at the east and west ends of the transit hub. By minimizing the crossing locations, frustration by drivers can be minimized.

Cost estimate:

- Zebra pavement markings (approximately 12m x 4m): $1,650
- Four crosswalk signs (on two posts): $1,100
- Raised pedestrian crossing: $10,000
- Two curb build-outs: $7,000
- Fencing (approximately 100m long): $3,500

Total Cost, with 25% contingency is $29,000.

3 Campus Drive

3.1 Issues on Campus Drive

The ped-way across College Drive was raised as a potential issue, with pedestrians accessing the ped-way from the north by crossing Campus Drive. After reviewing the area, no safety issues were noted by the study team, as sight-lines for motorists along Campus Drive (at the north end of the ped-way) were adequate.

There is, however a potential issue located further west along College Drive. Many pedestrians and cyclists were observed crossing College Drive at Cumberland Avenue then proceeding north to cross Campus Drive despite there not being a signed or marked crosswalk here. Additionally, trees in the area limit sight lines for motorists.

The below photo shows pedestrians walking across Campus Drive from the roadway intended for buses.

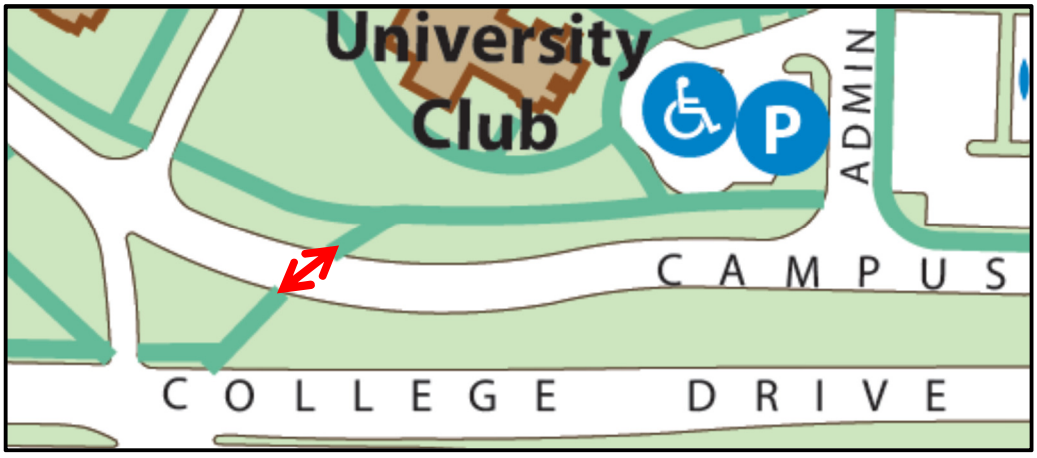
Another potential issue is the signage used to prevent motorists from driving south along the bus only roadway. As can be seen below, a No Entry sign is used.

This sign makes it illegal for all vehicles to enter, but the intent is to prevent personal vehicles from driving along it while still allowing buses to access it. A tab should accompany the sign indicating "Except Buses" or similar. Alternatively, a sign similar to the one used at Bottomley Road indicating buses are permitted may be used.

Additionally, Campus Drive is only 8 metres wide in some places. This does not allow adequate room for cyclists to ride side by side with vehicles. Signage should be provided to indicated that drivers may have to drop back to provide adequate room for cyclists.

3.2 Potential Solutions on Campus Drive

A marked crossing should be provided between the pathways north and south of Campus Drive (east of Cumberland Avenue).



Signs should be provided for motorists alerting them of the crossing (one crosswalk sign on each side of the road in both directions), as well as for cyclists on the pathway alerting them of the intersection.

Cost estimate:

- Zebra pavement markings (approximately 10m x 3m): $1,500
- Four Crosswalk signs (on two posts): $1,100
- Two Stop signs (on two posts): $700

Total Cost (with 25% contingency) is $3,000.

WC-20

The signage to the right should be considered for the portions of Campus Drive where the total pavement width is less than 8 metres. It is assumed that approximately 10 signs would be required.

WC-20S

4 The Bowl

Along one of the pathways leading to the Bowl (located between the Geology and Thorvaldson buildings) there is a sharp turn that may be difficult for cyclists to navigate, especially when travelling in the downhill direction.

This curve also presents dangers to pedestrians who may get hit by a cyclist who can't see them around the curve.

Additionally, it was noted that some side pathways were narrow, and conflicts between pedestrians and cyclists were occurring. The University may wish to include educational information to remind cyclists that they need to yield to pedestrians. Signage may be considered to reinforce this message.

RB-39

5 College Drive

During peak times, College Drive is heavily congested with vehicles and pedestrians. College Drive, which is a major east-west road that accesses downtown Saskatoon, also provides access to the University via four intersections. Pedestrians who live/park in the Varsity View neighbourhood must cross College Drive to access the campus. The majority of them cross at the signalized intersections as well as across the ped-way west of Campus Drive, but some were observed jay walking.

A detailed summary of issues at individual intersections was provided in Progress Report 1. The follow sections summarize common issues as well as potential solutions. It also identifies a specific issue at Wiggins Road.

5.1 Common Issues on College Drive

The common issue found at all of the intersections is congestion during peak times. Pedestrians were lined up waiting for the light to change, but when it did; the Walk phase was too short to allow everyone to cross before the signal changed to a Flashing Don't Walk. Many pedestrians started to

cross during this phase. Some pedestrians were also observed crossing at mid-block locations (as shown above). Additionally, stakeholders noted that the need to press a button and wait for the phase was a disincentive to walking, particularly in winter months.

The following issues were noted at many of the intersections along College Drive:

- Lack of curb letdowns, or improperly placed curb letdowns
- Crosswalks too narrow for demand
- Walk phases too short for all the pedestrians to get across.
- Some pedestrian push-buttons small.
- Walk phases across College Drive were not provided as a default.

It is recommended that the University work with the City to pursue the following improvements:

- Provision of curb letdowns where absent or misplaced.
- Provision of wider crosswalks when next repainted.
- Review signal timings to provide longer walk times and default walk phases during peak periods.
- Provide larger push-buttons.
- Provide countdown timers where they are not yet provided, so that pedestrians are aware of remaining walk times.

5.2 Wiggins Road

Wiggins Road forms a four leg intersection with College Drive at the west end of the University. All movements are permitted at this signalized intersection, and eastbound College Drive has a protected left turn phase into the campus.

While on site, vehicles were observed blocking the intersection in both directions due to red lights at Bottomley Road and Munroe Avenue. Additionally, huge back-ups of pedestrians and cyclists trying to cross College Drive were observed, with a short north/south green phase and even shorter Walk phase. As can be seen below, at peak times there are significant back-ups of pedestrians, cyclists, and vehicles which can block the Wiggins Road intersection with Elliott Street.

Numerous pedestrians were observed crossing after the Walk phase, and several were seen crossing mid-block east of the intersection. The pedestrians who waited once the Walk phase ended and were forced to wait several minutes for the next Walk phase.

It was also noted that the island in the northwest corner of the intersection did not have any curb drops, making it very difficult and unsafe for some pedestrians to use the crosswalks. Additionally, the positioning of the crosswalk to the island from the northwest sidewalk is not in an ideal location. It's orientated further west than the natural route taken by pedestrians heading towards the campus.

Another noted issue was the lane widths of the north leg. There are two southbound lanes (a through and a left turn lanes) where there would normally be just one.

Trucks were observed in the left turn lane wider than the lane. Cyclists were also observed riding in these lanes. These lanes should be widened, possibly by trimming the east side of the northwest island.

Although not observed, the aftermath of a collision was noted just west of the intersection. Based on the positions of the vehicles, it is assumed the collision was a rear-end collision in the westbound direction.

A solution was developed for Wiggins Road, to provide more room for cyclists. A concept is provided in the adjacent figure. It will require the reduction in size of the traffic island, as well as the relocation of the signage gantry. Approximate cost is estimated at $29,000.


GENERAL CONSTRUCTION NOTES:
TRAFFIC ISLAND TO BE REDUCED TO ACCOMODATE PROPOSED BIKE LANE.
GANTRY ROAD SIGN TO BE MOVED SOUTH ON TRAFFIC ISLAND.
WIGGINS ROAD
BIKE LANE
BIKE BOX
COLLEGE DRIVE
CONCEPT - ADDITION OF 1.5m BIKE LANES TO WIGGINS ROAD - OPUS INTERNATIONAL - DRAWN BY MICHAEL BAILEY

Opus International Consultants (Canada) Limited
210-889 Harbourside Drive
North Vancouver BC V7P 3S1
Canada

t: +1 604 990 4800
f: +1 604 990 4805
w: www.opusinternational.ca