

Sustainable Transportation: UBC Athletic Events as an agent of change

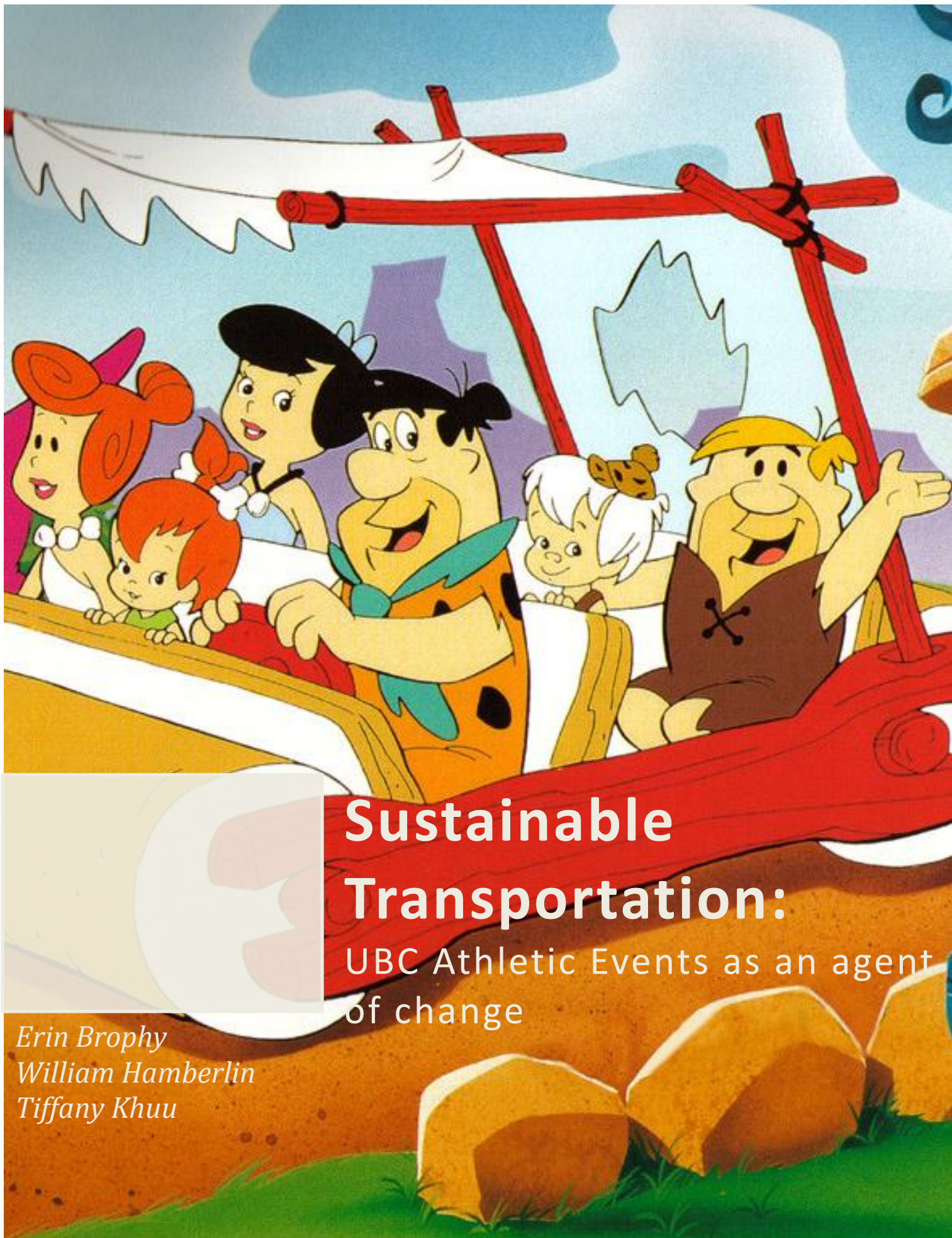
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APSC 364

April 27, 2012

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Sustainable Transportation:

UBC Athletic Events as an agent
of change

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Introduction

The University of British Columbia (UBC) is the second largest travelled destination in Metro Vancouver (Carbon Footprint Reduction n.d.). As a growing hub of education, service and community, different forms of transportation are required to meet the needs of the people it services.

Transit is by far the leading transportation choice for commuters to UBC, with 49% of the mode share (Transportation Planning 2012). This large percentage, that has increased substantially from 1997 (Transportation Status Report 2010), is primarily due to the U-Pass program that allows UBC students (and students of other public post-secondary institutions in Metro Vancouver) to pay \$30 per month for unlimited access to buses, Skytrains, and Seabuses in all 3 zones of Metro Vancouver. At 48%, personal automobiles are the second largest mode of transport to UBC (34% as Single Occupancy Vehicles (SOVs), 14% as carpools) (Transportation Planning 2012). Cycling and other non-motorized vehicles comprise the remaining 13% of transport to UBC.

UBC's Athletics & Recreation (A&R) department plays a large part in the community on campus. Hundreds of athletic games and events take place each year throughout the different athletic venues on north and south campus. According to a recent study by Dolf (2012), approximately 73% of the total carbon footprint from UBC Thunderbirds events is due to transportation. This is largely attributable to the 5% that travel by plane and the 68% of spectators who travel by car. The high percentage of car use is likely due to spectators travelling relatively long distances from the Lower Mainland. The inconvenient access to a number of A&R venues also deters other modes of travel. The venues located on South Campus, for example, are not as convenient by bus as those in the North Campus. It is a particular problem when the spectators are family members and they bring young children to these games.

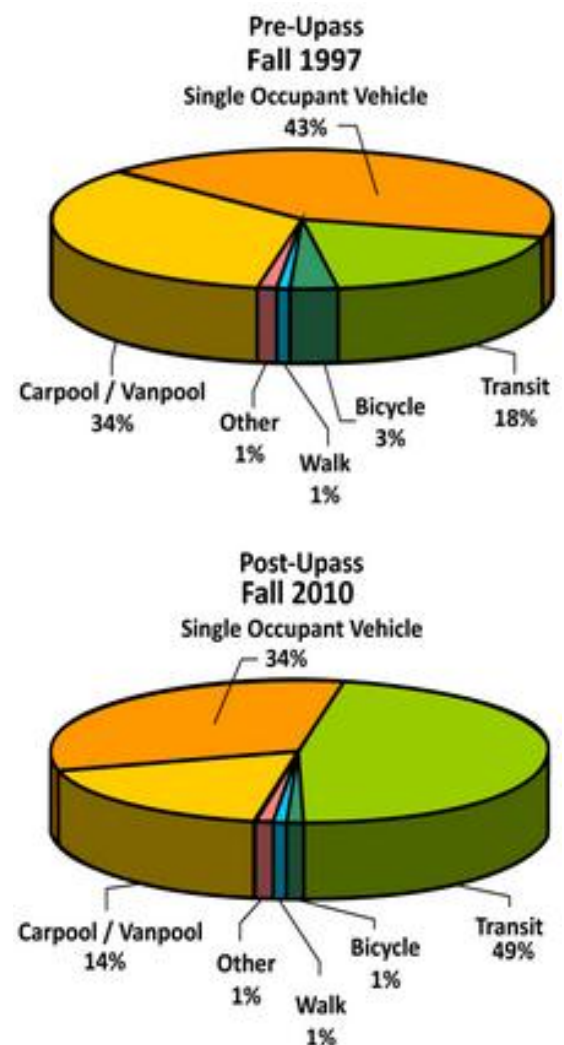


Figure 1 : Modes of transportation used to get to and from UBC before and after implementing the U-Pass program (Transportation Planning 2012).

Cycling and walking to and from these events are options for people who live closer to campus, but make up only 13% of the mode share combined.

This project aims to increase spectator attendance at A&R events, while ensuring sustainable transportation. Various transportation solutions will be investigated and a set of sustainability criteria to evaluate them will be developed. Recommendations for implementation will also be provided. This is mainly targeted through behavioural changes, instead of infrastructural changes.

Goals and Objectives

- 🌱 Reduce GHG emissions from transportation to and from UBC in conjunction with UBC A&R events, while raising attendance at these events
- 🌱 Present new sustainable transportation options for UBC, in particular to and from UBC A&R events, while increasing attendance at the A&R events
- 🌱 Develop and explain a sustainability evaluation matrix that is used to assess and rank the options
- 🌱 Discuss the option rankings and the limitations of this study
- 🌱 Provide recommendations for options within and beyond this report

Sustainable Options

In efforts to achieve current and future sustainability goals of UBC, while specifically targeting the sustainable transportation obstacles being faced by UBC A&R, this report proposes three sustainable transportation strategies which are described in detail subsequently:

Option 1: *UBC Rideshare Online and Mobile App – Carpooling to Athletic Events*

Option 2: *Improve Community Shuttles – Optimizing Routes and Game Day Service*

Option 3: *Inter-Faculty Cup – Athletics and Sustainable Campus Living Expo*

UBC Rideshare Online and Mobile App – Carpooling to Athletic Events

The Plan

Develop an online and mobile rideshare app that is based on the currently existing UBC App, while emphasizing UBC Athletic games and rideshare options to get to UBC. The two rideshare companies looked into here are Carsurfing and Skwez. Both companies are new and rapidly developing, and will be examined for potential suitability.

Carsurfing is a company that created an app for real time ridesharing – the ability for a driver or rider to connect to the other via the app for a one-time ride share (Carsurfing 2012). Carsurfing is partnered with Avego, another real time ridesharing company, and thus the apps for both companies work in the same way. Drivers and riders both submit profiles onto the app, and the driver also submits vehicle details and the number of seats available. Riders will enter their origin and the destination they wish to travel to, and the app will match them up with a driver that is travelling along a similar route and provide a one-time pin number, so that the driver can verify who the rider is, and track a cashless payment. Riders must buy credits on the site before they can book a ride, so that drivers will be paid. The rider can book a ride ahead of time if they choose to. Drivers are rated on a 5 star rating system, and in the future riders will be able to choose whether or not to ride with that person based on the stars rating. Both the driver and rider can filter their matches based on gender and star rating to choose who they want to ride with. Currently, it only works if the driver has an iPhone, because the app accesses the phone's GPS system to track the distance the ride was shared, and to enter a pin that identifies the rider, while crediting them via their online account. This app also provides summaries of all the rides the user has given and taken, and the total financial savings and CO2 savings resulted from ride sharing.

Skwez is another rideshare company based out of Squamish, BC (Skwez 2012). They do not have a mobile app at the moment, so all users plan their trips online. Users can state whether they are driving or in need of a ride, and enter their start address and destination address. Nicknames can be given to these addresses for easier usage. It is free to use the Skwez webpage, and riders are given suggested costs of each trip they take with a driver, which is calculated using the distance of the trip and approximate cost of gasoline. Using this method, riders must pay for their trip in cash. Skwez can be imported as a widget onto external webpages. For example, if the UBC A&R webpage was connected to Skwez's widget, people can access trips to and from UBC as a rider or driver, while still being on the UBC A&R webpage. Skwez collects aggregate data from its users to calculate which areas have a greater demand for trips, as well as to calculate the total amount of CO2 saved from ridesharing.

Future possibilities for this app can include connecting a person's profile through their Facebook, Twitter or LinkedIn account, greater driver/rider filter choices, tagging drivers with keywords of what type of driver they are, and cashless payments through the social media sites. As of yet, neither company has a set solution on how to accommodate for large amasses of people that may require ridesharing at the same time, for example, at the end of an Athletics event or game. However, it is a work in progress and both companies have suggested that they could work with UBC to accommodate for such needs.

Why?

When the U-Pass was first introduced in 1997, about 34% of students carpooled to campus and roughly 43% of students drove Single Occupant Vehicles (SOV). Today, in a span of 15 years only 14% of students choose to carpool to campus, while 34% still drive SOV's (UBC TREK). One of the main goals of the UBC TREK program is to reduce the amount of SOV's coming to campus, particularly in regards to spectators and athletes coming to and from UBC to watch the varsity sports games and REC events. The purpose of the app is to facilitate awareness of what UBC Athletics games will be playing, when they're playing, buy their tickets online if that is available in the future, and get to and from UBC via walking, biking, transiting, or carsurfing, and not via SOVs. This will provide a medium for students, faculty, staff, family, friends, and other spectators who wish to reduce their emissions while simultaneously saving gas, money, and time, with the additional benefits of reducing overcrowding at parking lots during large UBC events.

How would the website and mobile phone application function?

Currently, the UBC app and Carsurfing app are only available for the iPhone, and Skwez does not have a mobile app. Ideally, they would be developed to be accessible online and on any type of smartphone. The UBC app already presents information on current and future events, places on UBC, and news. It is easy to navigate, but when looking for transportation options, only the locations of the north and trolley bus loops and all the parkades are available.

As the purpose is to create greater attendance to UBC Athletic games and events while reducing CO2 emissions in transportation to these events, a method to achieve that through the app would be to create a subpage within the "Events" page that highlights the UBC Athletic and REC events. Upon selecting the event of interest, it would lead the user to another page that has the details of the game, such as the date, time, location, price of game, an option to buy the ticket online, and a transportation option tab. Selecting the transportation option will provide a Google map if the user decides to walk or bike to the event, selecting transit will lead the user to the Translink mobile web page, and selecting Rideshare will lead to the rideshare company mobile page.

Cost and Savings

The cost of this would be the development of the UBC and ridesharing application to be accessible to all smartphones. The Carsurfing app is free to download from iTunes, but there may be an initial development cost to link the UBC app to the Carsurfing app. Once done, only the maintenance cost will be left (largely staff time). Over time the potential savings will come in the form of carbon emissions. According to PG&E's "Carbon Footprint Calculator Assumptions", it can be assumed that approximately 2.325 kg per of CO₂ per 1 litre of gasoline will be saved for every person that leaves their car at home and carpools with a fellow UBC student or faculty member (PG&E). Drivers would receive compensation for their gas, and riders would save time and money, if compared to a taxi ride.

Potential problems

First time ride share drivers will have no ratings to being with, thus we won't be sure of what type of driver they are. This may present itself as a safety and reliability issue, but one that will be resolved with greater usage. Currently, there are no other ways to filter matches of driver and rider besides from gender, but it is an issue that may be solved very soon.

Improve Community Shuttles – Optimizing Routes and Game Day Service

The Plan

In a recent research study performed at UBC, 83.7% of the people surveyed reported that they do not use the community shuttle services offered on campus (2009 Vancouver Transportation Survey). The goal is to create a more interconnected and transit-oriented community by improving campus community shuttle options, schedules, and services to UBC A&R events. To avoid implementing equally unfit routes and schedules, this option proposes to invest time in researching current deterrents and rider preferences through surveys, and use them in tandem with UBC sustainability goals and UBC A&R needs.

Why?

Improving transit options on campus will reduce the number of Single Occupancy Vehicle trips to UBC A&R events. In order to reduce the amount of SOV trips to campus, UBC and Translink must find ways to make public transit a more attractive alternative than automobiles. In May 2005, Qualitative Research Associates Inc. discovered that UBC students did not use transit due to the longer travel times, service reliability, service hours, and service frequencies (Cato 2006). To increase transit use on and off campus there must be sufficient transit supply to meet demand. With UBC's on campus population estimated to exceed 30,000 by 2050 it can be assumed that an increased demand for public transit will occur (Robinson 2012). The University of British Columbia must start researching the potential solutions to its growing demand for a faster, more reliable public transportation system within campus boundaries.

Allowing all members of the UBC community to be involved in the research process will improve citizen engagement in the transportation planning process.

How?

With surveys posing questions regarding:

- 🍃 Service frequency
- 🍃 Stop location
- 🍃 Reliability
- 🍃 Game day scheduling
- 🍃 Service hours
- 🍃 Routes

To target audiences of:

- 🍃 Campus residents
- 🍃 Faculty and staff
- 🍃 Businesses
- 🍃 Students

The results of the surveys will be used in tandem with campus population growth plans that identify future campus 'hot spots', areas of increasing shuttle demand, as well as

research and ongoing communication with UBC A&R to identify times of increased ridership (game days).

New routes and schedules can then be implemented periodically until shuttle service is optimised. This process of researching, surveying, and optimizing should be repeated as needed (ex. every 10 years) to accommodate for population changes. An example survey is presented in appendix B.

Cost and Savings

By involving students in the research and survey processes, UBC can avoid costs related to employing consultants and surveyors. Infrastructure changes and other future costs associated with implementing new routes and schedules are dependent on the results of the research and surveys.

Potential Problems

The problem with this idea is the difficulty in implementation. Making changes to public transportation routes takes a lot of time, planning, and research. This is less of an issue when dealing with UBC operated shuttles that minimally involve Translink, though it should still be considered. There is also no guarantee that the implemented changes will be completely effective right away, however the minor improvements from each periodical update to the system are cumulative.

Inter-Faculty Cup – Athletics and Sustainable Campus Living Expo

The Plan

On Imagine Day, after the first years finish their pep rally, hold an undergraduate inter-faculty sports competition on Thunderbird fields with booths surrounding the events showcasing: sustainable transportation options, UBC sustainability initiatives, as well as varsity, recreational (REC), and club athletic teams that students may join or tryout for. A full list of example groups and sponsors to have at this event is listed in appendix C. Food and non-alcoholic beverages could be distributed for free to new and returning students by UBC Food Services (and/or Agora, UBC Farm, etc.) on the condition that students either bring with them a reusable food/beverage container(s) or purchase one on site.

An additional source of revenue and means of attracting returning students to campus festivities on Imagine Day can be attained by running a beer garden throughout the event (sponsorship and licensing suggestions presented in appendix C). A possible way of encouraging both sustainable behavior and prolonged increase of athletic event attendance is by insisting students either bring their own beverage containers or buy a reusable souvenir stein/mug on site that rewards them with discounted beverages at subsequent athletic events. This method of offering a discount when re-using souvenir cups is successfully implemented at sporting events throughout Europe to promote sustainability (Reusable cup system n.d).

To increase a sense of spectator community at UBC further there could be a ‘walking bus’ group march, at the end of the interfaculty cup, from the beer garden to Mahony & Sons (Mahony’s). Should Mahony’s team up with UBC A&R implementing game day pre-game Mahony’s gatherings followed by walking busses to the game venue, this would be an excellent way of advertising and promoting a stronger spectator community.



With permission from Stephanie Chu (above) and Michael Donovan (photographer)

Why?

- Reduce vehicle emissions by encouraging spectators and participants to:
 - Sign-up for bike share or rideshare programs
 - Invest in bikes and/or long boards
 - Become familiar with the transit options available from south campus
 - Walk to Mahony's
- Educate students on UBC sustainability programs and initiatives.
- Engrain sustainable habits into new and returning UBC students on day one in a fun way.
- Encourage students to participate in UBC athletic teams and clubs, even as spectators.
- Attract 2nd, 3rd, and 4th+ year students to campus on Imagine Day AND Provide non-first year residents with something to do on Imagine Day.

Cost and Savings

There are some minor costs such as fencing, licensing, security, man power, and audio equipment with an approximate cost of \$1,200 (appendix B), which can easily be recovered through liquor sales, sponsorship, and reusable container sales.

Not only can vendors make money, but the event itself will generate revenue through beer garden and reusable container sales. Additional attendance at subsequent UBC A&R events can also generate revenue through ticket, food, and drink sales, not to mention spectator-related swag.

Potential Problems

Even if all of the necessary precautions are taken, there are always liability issues surrounding licensed events. Other obstacles could be scheduling conflicts with other imagine day events after the pep rally (ie. 'The Main Event'), however, these can be avoided easily by initiating communication and collaboration early on.

Assessment Tools

This report developed a unique set of indicators specific to UBC A&R needs that reflect UBC's overall sustainability goals set out in the 2011 Final Report titled *Inspirations and Aspirations: UBC Sustainability Strategy 2006-2010*, as seen in Figure 2.

SOCIAL	<ul style="list-style-type: none"> – Improve human health and safety – Make UBC a model sustainable community – Increase understanding of sustainability inside and outside the university
ECONOMIC	<ul style="list-style-type: none"> – Maintain and maximize the utilization of physical infrastructure – Maintain and enhance the asset base – Ensure ongoing economic viability
ECOLOGICAL	<ul style="list-style-type: none"> – Reduce pollution – Conserve resources – Protect biodiversity

Figure 2: Framework developed by UBC stakeholders identifying major sustainability goals (*Inspirations and Aspirations 2011*).

Our three options are assessed based on the 7 criteria and 10 indicators in table 1. The criteria were chosen to reflect UBC's sustainability strategy framework as it pertains to transportation to, from, and within UBC.

Table 1: Assessment tool: Criteria, indicators, and scoring details.

Criteria	Weight	Indicators
Emissions	2.5	1. Environmentally harmful emissions and non-renewable energy usage per capita 3 – Decrease compared to current levels. 2 – Same as current levels. 1 – Increase compared to current levels.
Affordability of Transport (Consumer)	2.0	2. Costs to consumer 3 – \$0 per trip. 2 – Between \$0 - \$5.00 per trip. (equal to transit) 1 – Greater than \$5 per trip.
Total cost to stakeholders	3.0	3. Capital and maintenance costs to stakeholder(s) 3 – Savings/increased revenue to stakeholders over time. 2 – No change in cost to stakeholders compared to current system. 1 – Increased cost to stakeholders compared to current system.
Accessibility and Adaptability of Options	2.5	4. SOV trips per person 3 – Major decrease. 2 – Decrease. 1 – Neutral.
	2.0	5. Distance to available transport options 3 – Within 300m. 2 – Within 1 km. 1 – Over 1km.
	2.0	6. Frequency of available transport options 3 – Less than 5 minute wait. 2 – Less than 15 minute wait. 1 – Less than 30 minute wait.
Consumer Satisfaction	2.0	7. Door-to-door passenger travel time 3 – Decreases travel time substantially. 2 – Decreases travel time on average. 1 – Travel time unaffected.
	1.5	8. Social Cohesion 3 – Greatly increases sense of cohesive community. 2 – Provides some sense of community and social interaction. 1 – Minimally affects social interaction.
Safety and Liability of Transport Options	1.5	9. Anticipated level of safety 3 - High – Completely comfortable traveling alone and at night. 2 - Medium – Moderately safe, may not travel at night or alone. 1 - Low – Uncomfortable risk, would not travel alone.
Educational Value	1.0	10. Research potential 3 – Substantial and long-lasting academic benefit. 2 – Substantial research potential OR long term academic benefit. 1 – Research connections exist. Potential for minor/short term educational benefit.

$$\text{Total} = \frac{[\sum_{n=1}^{10}(\text{weight of indicator}_n * \text{measured indicator}_n \text{ value}) - (\text{minimum score})]}{\text{maximum score} - \text{minimum score}} \times 100\%$$

Scoring

Both the qualitative and quantitative indicators are measured and then assigned values on a 1-3 scale (table 1). To tally all indicators measured within an option, the assigned indicator value is then multiplied by the importance of the indicator - a weight of 1 (unit multiplier) to 3 (highest importance). The weights of the indicators are selected as follows:

- 3.0** Of extremely important concern to both stakeholders and consumers, ultimately determines if a sustainable transportation strategy will or will not be implemented.
- 2.5** Key target of UBC sustainability goals.
- 2.0** Highly important factor to commuters/consumers and therefore a major indicator as to whether or not the option will be utilised if implemented.
- 1.5** Important factor to many commuters/consumers and stakeholders.
- 1.0** Co-benefit, of importance to UBC goals and image.

Results

After running our options through the different indicators and their weighted values, the Inter-Faculty Cup event on Imagine Day (option 3) presents the most beneficial behavioural change out of all our options. These are the following results for our options:

Table 2 : Results of assessment matrix (details in Appendix A).

	Rideshare App	Community Shuttles	Inter-Faculty Cup
Total	79.4%	51.3%	88.8%

Although inter-faculty cup and rideshare options have been assessed as the most feasible options, it is important to note that all three options exceeded a passing score of 50%. Meaning, all three options' benefits outweigh their associated potential problems and all options could be beneficial to UBC Transportation Planning and UBC A&R if implemented.

UBC Rideshare Online and Mobile App Discussion

This option received a decent score, with the only downfall being the potential higher costs of usage (also dependent on the distance travelled). The other area where it could have scored higher was in the social cohesion and community interaction area. This option lacked the large immediate sustainable behavioural change that the Inter-Faculty Cup could generate.

Community Shuttles Discussion

This option is the least beneficial of the three. However, our indicators strongly favour short term goals. It is least beneficial because it does not provide a sustainable solution to the transportation problems on campus, but instead focuses on the research potential and provides a specific research agenda for future implementation of optimal community shuttle services.

Inter-Faculty Cup Discussion

Due to the positive net cost, high potential for sustainable behavioural change, and widespread community engagement, this option presented itself as the most beneficial strategy for targeting sustainable transportation issues at UBC and increasing UBC A&R participation.



Photo credit: University of British Columbia, Department of Philosophy homepage

Limitations

The main limitation we faced throughout the project was limited access to up to date and precise data that we could directly apply to our options. The data we did find was not representative of all athletic events over a long enough timeframe, nor was the specific rider data applicable to our three options, or too old to apply to our project. To work around this, many of our indicators were measured qualitatively (increase, neutral, decrease, or high to low safety etc.).

Certain options we had originally set out to research were no longer feasible after discovering that any solutions to sustainable transport on campus involving Translink would not be possible, at least not in the near future. This is due to Translink's tight budget and time consuming logistics associated with implementing new transportation options. Our chosen options in this report decidedly have as little to do with Translink changes as possible. Translink does own the UBC shuttles; however we believe that the need for change in the routes and schedule warrants long term research and communication with Translink.

A cost analysis for all of our options was difficult to perform, because the cost of each option is highly dependent upon the amount of people who participate. Costs can also be continuously changing. These changes in cost, along with changes associated with UBC's growth, are major reasons behind proposing a survey and research approach to option two (community shuttles), instead of preemptively proposing optimal locations and schedule changes.

The process of developing a sustainable assessment tool led to the modification and rejection of several indicators, which would have been included in our project if more data were available. For a few of our indicators there was simply not enough data to perform quantitative measurements, so we were forced to use qualitative measurements, which ultimately reduced the scientific value of our project/options/proposals.

Recommendations






For comprehensive sustainable transportation behavioural change, all three of our options should be implemented, as they offer different benefits, target different demographics, and offer positive changes in different fields.

Our first option deals with direct sustainable transportation in UBC and its surrounding communities. Through working with UBC and the selected rideshare company, this option targets key sustainability criteria such as reducing emissions from SOV uses, and encourages sustainable community interactions with minimal cost to stakeholders.

The second option encourages long term collaborations between its major stakeholders – UBC and Translink. It looks to build upon a network of sustainable transportation options on campus that adapts to community needs over time.

Our final option targets sustainable behavioural change by exposing students to existing sustainable programs and initiatives at UBC, and encourages student involvement with UBC A&R. Through the help of sponsorships, the event can be carried out at minimal cost. This event is the option that creates the greatest opportunity for behavioural change and a sustainable community on campus.

We recommend that:

-  UBC continue working towards developing a UBC rideshare app.
-  Implement a program to carry out shuttle service surveys, conduct community focus groups, and plan for future campus growth.
-  Increase awareness of sustainable transportation options through online media, UBC A&R events, and first week orientations and events.
-  Assemble a planning committee to work in conjunction with UBC A&R to host Inter-Faculty Cup on the first day of classes, and communicate with all necessary groups, programs, vendors, and sponsors, as well as the RCMP and UBC itself regarding the licensed portion of the event.
-  Continue to increase the level of communication between all sustainable programs and initiatives on campus.

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Appendices

Appendix A: Matrix for Criteria and Indicators

Criteria	Weight	Indicators	Results: Rideshare App		Results: Community Shuttles		Results: Inter- Faculty Cup	
Emissions	2.5	1. Environmentally harmful emissions and non-renewable energy usage per capita 3 – Decrease compared to current. 2 – Same as current. 1 – Increase compared to current.	3	Creating an online and mobile app: neutral Behavioral change from using the app: decrease emissions	2	Neutral. As ridership increases, emissions per rider decrease.	3	Promotes future reductions and emissions (bikes, long board, container sales). Encourages sustainable transport from/to campus (bike share, rideshare)
Affordability of Transport (Consumer)	2.0	2. Costs to consumer 3 – \$0 per trip. 2 – \$2.50 per trip. (equal to transit) 1 – Less than \$5 per trip.	1.5	Depends on length of trip (appendix B).	2	\$2.50 per community shuttle trip, Free for students with U-pass	3	Optional cost. Free food and drink. Option to invest in sustainable vehicles
Total cost to stakeholders	3.0	3. Capital and maintenance costs to stakeholder(s) 3 – Savings/increased revenue to stakeholders over time. 2 – No change in cost to stakeholders compared to current system. 1 – Increased cost to stakeholders compared to current system.	3	Drivers gain money by participating in ride sharing.	2	Neutral to use free student work.	3	Overall increased revenue to sustainable transportation programs, athletics through increased spectators, and UBC through beer garden and reusable container sales. Sponsorship to cover cost of event each year. (appendix B)

Accessibility and Adaptability of Options	2.5	4. SOV trips per person 3 – Greatly Decrease 2 – Decrease 1 – Neutral	3	Will vary, usage increases with awareness, thus reducing SOV trips	2	Decreases as service improves.	2	Encourages sustainable transportation behaviour change. Bikes and longboards available on site.
	2.0	5. Distance to available transport options 3 – Within 300m. 2 – Within 1 km. 1 – Over 1km.	3	Pick-up or closest intersection common. Distance varies.	3	Currently below 300m or better to bus stops. Distance will decrease further. (Campus Transit Plan 2003)	3	On site, for most. Bus, bike, rideshare.
	2.0	6. Frequency of available transport options 3 – Less than 5 minute wait. 2 – Less than 15 minute wait. 1 – Less than 30 minute wait.	2.5	Wait time decreases with increased popularity, and/or planning trips ahead online	2	Increased frequency during peak hours and games by optimizing schedule.	3	Transit every 5 minutes or less (Translink 2012). Bikes available on site. Walking bus to Mahoney's at end of event.
Quality of Transport and Consumer Satisfaction	2.0	7. Door-to-door passenger travel time 3 – Decreases travel time substantially compared to other available modes. 2 – Decreases travel time on average. 1 – Travel time unaffected.	2.5	Decreases substantially in all modes except SOV.	1	Travel time unaffected until rerouting and rescheduling takes place.	2	Decreases travel time for all students investing in non-motorized vehicles and/or signing up for rideshare or bike share
	1.5	8. Social Cohesion 3 – Increases sense of cohesive community greatly 2 – Provides some sense of community and social interaction. 1 – Minimally affects social interaction.	2	Ride with friends, sleep, study, meet new people, and carpool to varsity events to cheer on our T-Birds!	1	Incorporates student and community participation in planning transportation services.	3	Develops sustainability community and encourages communication between campus initiatives and programs. Pumps up sports community, gets students involved in UBC athletics.

Safety and Liability of Transport Options	1.5	9. Anticipated level of safety 3 - High – Completely comfortable traveling alone and at night. 2 - Medium – Moderately safe, may not travel at night and/or alone. 1 - Low – Uncomfortable risk, would not travel alone.	2.5	Varies, depending on the safety measures taken when developing the program. Medium-High assuming necessary precautions are taken.	3	No change to safety levels. Still relatively safe to use transit on campus.	3	Assuming all necessary precautions are taken in running a beer garden and low risk sports event. (First aid on site, security at beer garden, and discourages driving)
Educational Value	1.0	10. Research potential 3 – Substantial research potential and long-lasting academic benefit. 2 – Substantial research potential OR long term academic benefit. 1 – Research connections exist. Potential for minor/short term educational benefit. 0 – No foreseeable educational value.	2	Could be a research study in IT, business study or social interactions study.	2.5	Research in transportation options. Ongoing improvements to bus stop location and shuttle frequency made through research to optimize route as population grows.	3	Potential behavioral change research behind introducing all students to sustainability initiatives on the first day of each year. Business opportunities for Sauder faculty (marketing and event related).
Total (highest possible score = 60) (lowest possible score = 20)		51.75		40.5		55.50		

Appendix B: Calculations and Other Supporting Details of Options Assessment

Rideshare Calculation:

Avego: \$1 start off transaction, \$0.20 per km. Initial cost, plus per km ride cost. Includes cost of gas for driver

Example Shuttles Survey Questions:

Have you ever used the campus community shuttle services offered on-campus?

On a scale of 1-10 how satisfied were you with the community shuttle services offered on-campus?

Would you be more inclined to attend UBC A&R events if a community shuttle had a stop in front of your residence on game days?

How often do you use transit to travel to or from UBC?

Would you use the community shuttle service if it came more frequently?

What is the maximum time you are willing to wait for a community shuttle?

What form of transportation do you use the most to commute to/from campus?

a) SOV b) HOV/carpool c) Public Transit/Translink d) Bicycle e) Walk f) Skateboard/Longboard

Which community shuttle route (shown below) would you like to see implemented at UBC in the future?

a) Diagram A b) Diagram B c) Diagram C

Inter-Faculty Cup Calculations:

Event costs:

	Cost	
Fencing	\$ 500.00	
Security	\$ 375.00	
Audio Equip	\$ 200.00	(Rental from Long & McQuade speakers with basic DJ set-up)
Volunteers	\$ -	
Licensing	\$ 100.00	
Booths	\$ -	(Sponsors)
Food	\$ -	(Sponsors)
Total	\$ 1,175.00	

Through sponsorship liquor costs could be reduced resulting in greater revenue.