



University of Saskatchewan Place Riel Bus Terminal Revitalization

MRJ Consulting
PLAN 490
April 21, 2015

Table of Contents



Photo Courtesy of Scott Prokop Photography

Acknowledgements	1
Introduction	2
Background	3
Vision	4
Methodology	5
Literature Review	7
Community Engagement	9
Research Analysis	12
Conclusion	19
Reference List	20
Appendix A	21
Appendix B	22
Appendix C	23
Appendix D	24

Acknowledgements

We would like to thank our professor, Lenore Swystun, and our classmates in PLAN 490 for all the work and help they have provided for this project. Their guidance has been a strong part in bringing this project to fruition.

We would like to thank Margret Asmuss and Erin Akins from the Office of Sustainability for providing this project and working with this team. We would also like to thank Lee Thomas from the City of Saskatoon for providing guidance and technical expertise with this project.

Most importantly, we would like to thank all the students who participated in the community engagement sessions. This project is for students and by students so it is critical that the students play an active role in the design.

Introduction

The planning matter explored is the revitalization of the University of Saskatchewan Place Riel Bus Terminal. This project encompasses many stakeholders including university students, the University of Saskatchewan, City of Saskatoon, Saskatoon Transit, Saskatoon Amalgamated Transit Union, University of Saskatchewan Student's Union, Office of Sustainability with the U of S, and the International Student's Association. These are just a few of the many stakeholder groups relevant to this project.

Working with these user groups, the student team of MRJ Consulting went through several steps to determine the needs of these groups and put it together to create the revitalization of the Terminal. The project went through research, community engagement sessions, and a final report stage. The outcome of this process is a phased design option for the U of S Place Riel Terminal. All these steps as well as the final outcome will be addressed throughout this report.

Background

The Place Riel Bus Terminal is the central hub for transit at the University of Saskatchewan. Next to the downtown terminal, it is the busiest transit station in Saskatoon. The Office of Sustainability approached the PLAN 490 class to redesign the terminal. The study area can be found in Figure 1.

After consulting with engineer Lee Thompson from the City of Saskatoon, MRJ Consulting discovered that the current Terminal is 25% over capacity. The City of Saskatoon, in their Growing Forward project, has identified the need for a Bus Rapid Transit (BRT) system to improve transit in Saskatoon. The planned route will be a west-east route with stations on College Drive. As such, the BRT network will dramatically alter how students commute to campus as the BRT stop will be located on College Drive and not at the Place Riel Bus Terminal. However, the City still intends to keep the Terminal and wants to improve it.

The City expressed concerns about transit access to the Terminal and wanted to improve the efficiency. MRJ Consulting took all this information and began to look at best practices to find an optimal solution.

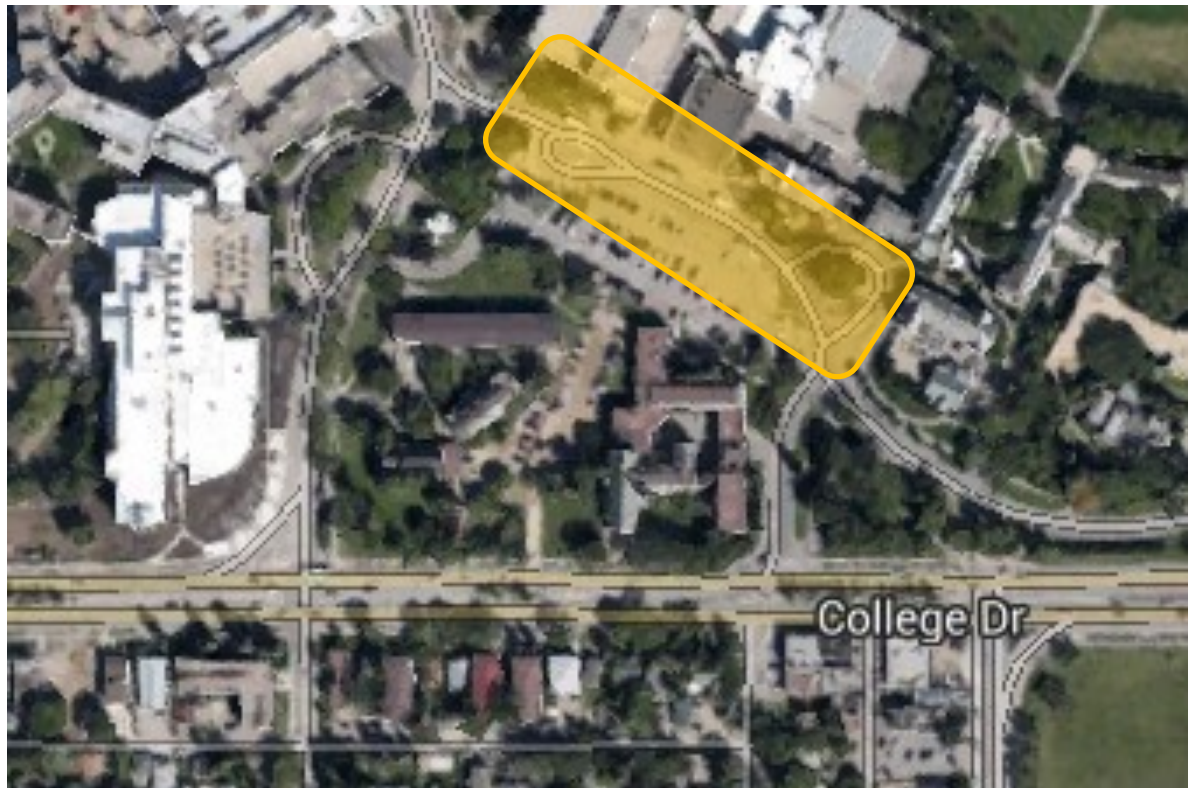


Figure 1: University of Saskatchewan Place Riel Terminal, Google Earth photo

“Create an *implementable design* that represents the community’s needs and wishes as well as respecting the concerns of all stakeholders by balancing the *ideals* of the public with the *realities* of the current situation.”

Methodology

This project hopes to utilize a multi-stage engagement process that incorporates the many faces of revitalization projects.

Gathering information from stakeholders and discerning their opinions on the current transit terminal and their vision for change was the first stage of this process. After the information has been gathered from the community, MRJ Consulting looked at other communities for inspiration to best represent the wishes and concerns of community members. As well, the legislation governing these changes was looked into in order to adequately represent the visions of the City and University as well as the students. MRJ Consulting then outlined several proposed designs which were brought back to the public for a further, more in-depth engagement process. Further cycling through this process occurred as needed. The

final output has been chosen through the community feedback, practicality, financial and other constraints as the most appropriate option to represent the vision for transit in Saskatoon. This process and final design have been formatted for presentation in a community showcase.

The community engagement session used two different methods in order to create a comprehensive design. The methods used for this project were an intercept survey and a focus group. The data for the survey was gathered during a two-hour session by stopping all student who walked by the booth set up in Upper Place Riel. Those who agree are asked to sign the intercept survey participant consent form, followed by answering 6 questions regarding the Place Riel Bus Terminal (See Appendix B). Furthermore, an online survey was launched and posted on



social media which gave us a greater response to the survey. The focus group took place two weeks later in another two hour session that discussed the popular choices from the survey and decided on the elements of the final design.

The data was organized so that the relevant information could be extracted from the raw data, which is in the form of survey responses. The data was organized and analyzed through the use of charts, graphs and maps. This refined and condensed the data so that readers can pick up the information easily and effectively.

Literature Review

When dealing with planning matters such as the revitalization of a bus terminal, it is good idea to look to academia and best practices globally to provide evidence for the choices being made. These sources can include inspiration from other cities, academic research, and the legislature which governs the project.

A median is a reserved space that separates lanes of traffic, such as bus traffic in a busy terminal. These installations can be used as a safety measure in the Place Riel Terminal that will act as a secure space for crossing pedestrians. According to the U.S. Department of Transportation Federal Highway Administration, raised medians are effective in the following: reducing pedestrian crashes by 46%, decreasing motorist delay, enhance visibility of pedestrian crossings, reduce speed of approaching vehicles, and

provide access management for vehicles.

Roundabouts are proven to be efficient for reducing delays at intersections by 20%, according to studies by Kansas State University. However, they are not efficient at a bus terminal with no intersection. The job of a roundabout is to slow down traffic as they move slowly around it. Within this project it was evident that the buses that go around the loop are less efficient in getting in and out of the terminal. According to *The Economist*, Canada tries out traffic roundabouts in an effort to reduce traffic in some of the country's busiest areas. The Canadian Traffic Engineers did a study regarding roundabouts main uses where "[t]hey concluded that roundabouts produced less congestion, fewer serious accidents and lower emissions. Best of all, unlike lights, they work even when the power grid fails". Thus, roundabouts are meant

for highly congested busy areas and not a bus terminal.

According to the Project for Public Spaces, a bus shelter is an essential part of any successful urban mass-transit system. Furthermore, good locations for outdoor bus shelters are at busy terminals which have high ridership. The City of Stirling states that bus shelters provide valuable protection from the elements whilst waiting for buses and may encourage the use of public transport. The City of Regina has recently introduced heated bus shelters. Steve Silva of Global News reported that Mayor Michael Fougere stated “[t]his is to ensure people stay in the shelter, not inside of businesses entrance ways, no question about that, but this is probably better service. When it’s 35 below and you’re waiting for your bus, it’s warm here. I think people are going to be very, very happy about that”. Regina and Saskatoon are very alike, with Saskatoon growing as well heated bus shelters will be a great addition to the bus terminals.

In order to implement any potential design, there are steps outlined by legislation which must be followed. The Place Riel Bus Terminal Revitalization project falls under the scope of several pieces of legislation. The three documents which will govern the process are identified here as The Planning and Development Act 2007, The Cities Act, and the Saskatoon Official Community Plan (OCP). Since this project is focused on University of Saskatchewan grounds it is also valuable to follow their Vision 2057: University Land Use Planning document. These four pieces of legislation will govern the project’s process and help shape the possibilities of the results

Community Engagement

Community engagement is the backbone of this project. Largely owing to the inspiration of Lenore Swystun and Kelley Moore, MRJ Consulting decided to focus their project heavily on community engagement to design this project.

Students are the majority users of the Place Riel Bus Terminal and any changes made to the terminal would certainly affect the student experience. It is therefore imperative that the student body occupy an active role in redesigning the Terminal. They use the Terminal more than any other stakeholder placing them in the best position to know what the strengths and weaknesses of the system are as well as what improvements they desired.

Due to time constraints, it was only possible to schedule two community engagement sessions. The first session was a simple survey done in Upper Place Riel and online. This was done to reach as many people as possible providing a solid foundation for the following stages of the process. The second session was structured as a focus group. This was done to get discussion going between students on what they envisioned for the future of the Place Riel Terminal.

Engagement Session

1

MRJ Consulting hosted the first engagement session on March 5, 2015 in Upper Place Riel. A similar survey was posted online. This was done to ensure that as many students as possible could participate. Timbits were used to incentive students to participate. The survey questions are included in Appendix C.

The session was a great success having attracted 136 responses. The respondents were not limited to students, but included university staff and bus drivers as well. The results of this survey are also included in Appendix C. The majority of students were transit users and the students were split on their opinions of the current Terminal and their awareness of the BRT project. There was great diversity in their suggestions for improvement which are detailed below.

The three most requested changes to the Place Riel Bus Terminal were:

1. Improve **pedestrian safety** while crossing the Terminal
2. Provide more or larger **shelters** in locations throughout the Terminal
3. Bring in more rider information/bus arrival **information**

MRJ Consulting took these requests, as well as others, to formulate design ideas to be presented in the second engagement session.

Engagement Session 2

The summation of the comments are as follows:

MRJ Consulting hosted the second engagement session on March 19th in Kirk Hall. This session was designed to discuss possible design alternatives to solve the issues presented by students in Session One. The intention was to present the designs, gather feedback from students, and have a conversation on potential solutions for the terminal. Coffee, and snacks were provided as the session took place during the supper hour.

The session had seven students participate in addition to Erin Atkins from the Office of Sustainability and professional planner, Kelley Moore.

- Students expressed support for the median, removing the loop, and increased shelter space
- Students were not supportive of installing raised crosswalks due to the prevalence of jaywalking
- Students supported an increase in rider information/bus arrival information, but there was no consensus on what form this display of information should take
- Students expressed frustration with the transit system outside Place Riel
- Losing parking at STM was not advised due to the revenue it provides the University

With these results in mind, MRJ Consulting began the final design process.

Research Analysis

Recommendations

After consulting with best practices and engaging the students, MRJ Consulting has arrived at a final design. The items included in the final design are:

- Removal of the loop and re-routing traffic onto Wiggins Road. All east-bound traffic will turn left on Wiggins and proceed through the Place Riel Terminal. All west-bound traffic will arrive at the Place Riel Terminal, turn left onto Wiggins before turning right onto College Drive. This will greatly improve the efficiency of Saskatoon Transit
- Installation of a median in the terminal. This will separate opposing lanes of traffic and provide students with a safe haven to cross over. The median could be filled with greenery or artwork to make it more pleasant for the pedestrian.
- Installation of a heated shelter on the south-side of the Place Riel Terminal.
- Installation of a heated shelter in front of the Murray Library.
- Installation of electronic arrival signs inside Place Riel
- Installation of bus maps inside Place Riel



Figure 2: Possible map of transit routes, Columbus Ohio
<http://www.humantransit.org/loops/>

The first phase focuses on implementing the informational aspects of the design. This includes placing transit maps such as the one displayed above in Figure 2. This form of mapping clearly displays the routes allowing the users to easily recognize the route directions. This format creates a more streamlined

transit system.

Phase 1 also incorporates the implementation of an electronic sign. This sign would display estimated arrival times of coming buses. This information would work together with the GPS tracking already in place on Saskatoon transit to present the coming arrival times. This would allow the students to continue congregating in the waiting spaces in Upper Place Riel rather than crowding in the small entrance as most often seen during the winter months.

The GPS tracking is currently being used for the online and mobile app. These GPS, map, electronic, and mobile information systems would work together to enhance the bus rider experience by clearly providing information to the users.

Phase

1

Phase

2

Phase 2 moves forward from implementing informational tools with the addition of shelters. The students presented their opinions on the possible locations of these shelters: the south side of Campus Drive in front of Place Riel and the corner by the library.

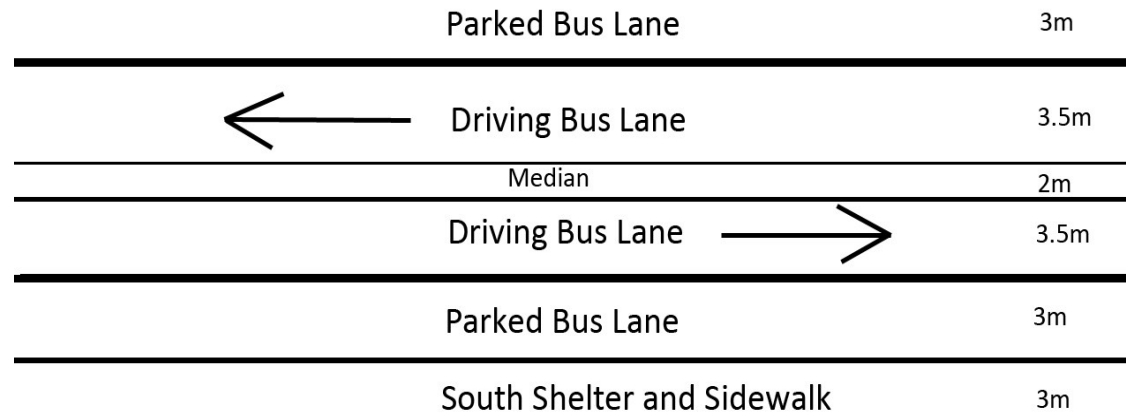
These shelters could be heated or unheated depending on the financial restraints. However, both options are more favourable to students than the current lack of options. In Canada and in Saskatchewan, winter encompasses a large part of the academic year and the cold temperatures are one struggle to consider when designing an outdoor space such as the Place Riel Terminal.

A shelter on the south side of the Terminal would eliminate the need for students to crowd in the entrance to the Place Riel building and make a the dangerous dash across the road to



Figure 3: Potential heated shelter design, Montreal QC
<http://www.stm.info/fr/presse/ressources-medias-0/images-et-logos>

reach the bus stop in time. Currently this is a an accident waiting to happen and is a serious concern for pedestrian safety. A shelter on the north side of the Terminal by the library would provide an additional waiting space for the students to relieve congestions in the Place Riel building.



Phase
3

The final phase of this proposed design is the implementation of a median along the Terminal on Campus Drive and re-routing traffic to achieve a more efficient transit system.

Phase 3 is the most intensive part of the design as it involved serious construction. Incorporating a median involves removing a small partial section of the northern sidewalk and removing the loop. This would allow, as the above diagram demonstrates, three meters for

each of the parked bus lanes, three-and-a-half meters for the driving bus lanes, and two meters for the median.

A median would work to clarify the bus stop locations by allowing buses park along their intended direction. By implementing a median, pedestrian safety would also increase as it provides a neutral space for pedestrians to stop on their way crossing the street.

Cost
Potentials

Phase 1:	Phase 2:	Phase 3:
\$5000 - \$20 000	\$30 000 - \$225 000	\$15 000 - \$250 000

These are potential costs for the design, separated into the phases. Construction costs are extremely variable owing to the Saskatoon economy and construction pricing. It is recommended that a precise cost be gathered by issuing a Request for Proposal (RFP) for this project. It is also recommended that the University of Saskatchewan should partner with the City of Saskatoon to ensure that any

construction on the Place Riel revitalization is done in conjunction with Growing Forward.

It is recommended that Phase 1 begin as soon as possible as it has a low capital cost. Phases 2 and 3 will be expensive and should proceed as funding becomes available.

Limitations

Although the research has reached its aims, the following limitations and gaps may have affected the number of responses we have received.

The sessions took place in a time during the semester during which students are most time constrained. This aspect may have influenced the attendance rate of our focus group. The time limits of the project also led to a small window of time in which to advertise for the focus group which may have also led to the smaller than expected attendance.

Due to the time constraint of being a student-led project, the research was conducted only on a small section of the student population. This time constraint also affected the scope of the project, leading to a smaller scale than what would have been proposed in a full-scale project.

As stated in the previous section on cost estimates, construction in the province is constantly fluctuating. This has led to imprecise potential costs.

Cooperation with the City of Saskatoon has also limited the project. Access to documents and materials such as Auto-CAD files and final plans regarding the Bus Rapid Transit was limited.

There are also gaps in the research as there is limited academia on the topic of bus terminal revitalization.

Future Research Opportunities

There are several recommended studies that would help better identify the specific problems at the Place Riel Terminal and how they can be properly addressed.

It is recommended that a precise pedestrian count be conducted during both peak and quiet hours to see how many students use the Terminal, how long the average student has to wait for a bus, and how many students jaywalk across the Terminal. This detailed information can allow for better judgement into the effectiveness of the median as well as guiding route changes.

While it is known that the average bus spends 2 minutes and 30 seconds inside the University of Saskatchewan, these numbers can vary greatly. Research should be done on why there is such great variation for bus duration of

campus and what can be done to bring this number down. In addition, it is advisable to study the shortest possible time a bus could stay on campus so as to improve overall efficiency as much as possible.

A better cost estimate is also required. This would require consultation with construction companies to get a quotes. The current estimate varies greatly and a more precise cost would allow the University to fund this project.

A study onto the effects of removing the bus loop is advised. This removal will not only greatly affect the efficiency of the system, but new land will become available for development.

Conclusion

The revitalization of the University of Saskatchewan Place Riel Bus Terminal project has incorporated all stakeholders mentioned previously within the scope of project.

The popular topics presented through community engagement have been explored and incorporated throughout the project. The major areas incorporated and focused on for recommendations being safety, efficiency, information, and shelters. These options have been selectively cost effective in hopes of being implemented within the time period set aside by the City in their Growing Forward Plan.

The improvement of the safety in the Terminal for students and users will allow the students to feel safe in the environment. The addition of shelter space that is currently limited at the Terminal has the potential to increase

activity and ridership of the transit system as well as safety within the Terminal. Moreover, clearly defined bus information being available at all times, may increase the ridership as well as ease the confusion of users. Additionally, the efficiency of the Terminal will be greatly improved through the safety features and removal of the loop.

It has been a pleasure for the student team of MRJ Consulting to work with the stakeholders in order to come up with the best solutions possible for all the major concerns expressed by the users. We look forward to seeing our designs implemented in the future for the improvement of the student experience and the Place Riel Bus Terminal.

References

- Brasuell, James (2014 July 14). "College Town Proposes Median Barriers as Solution to Pedestrian Deaths". *Planetizen*. Retrieved from <http://www.planetizen.com/node/70269>
- "Canada Replaces Traffic Lights With Roundabouts" (2006 December 3). *Planetizen*. <http://www.planetizen.com/node/22076>
- City of Stirling. "Bus shelters and stops". <http://www.stirling.wa.gov.au/Services/Roads-streets-and-verges/Pages/Bus-shelters.aspx>:
- Project for Public Spaces. "Bus Shelters". <http://www.pps.org/reference/busshelters/>
- "Roundabouts 20% More Effective At Moving Traffic" (2009 July 8). *Planetizen*. <http://www.planetizen.com/node/39592>
- Silva, Steve (2015 January 23). "Regina Transit introduces heated bus shelters, Google Maps integration". *Global News Regina*. Retrieve from <http://globalnews.ca/news/1789564/regina-transit-introduces-heated-bus-shelters-google-maps-integration/>
- "Transit Roundabout Trend Is a Nightmare" (2002 January 19). *Planetizen*. <http://www.planetizen.com/node/6047>
- U.S. Department of Transportation, Federal Highway Administration. *Safety Benefits of Raised Medians and Pedestrian Refuge Areas*. http://safety.fhwa.dot.gov/ped_bike/tools_solve/medians_brochure/

Appendix A

Foundations for Success

Time management	Communication
Respect	Creativity
Trust	Fun
Attentiveness	Food and drink
Honesty	Integrity

Appendix B

Survey Questions

How do you commute to campus?

Do you like the current Place Riel Bus Terminal?

What is the most important change, if any, that you would make to the bus terminal?

Are you aware that Saskatoon is looking at implementing a Bus Rapid Transit system
in the immediate future?

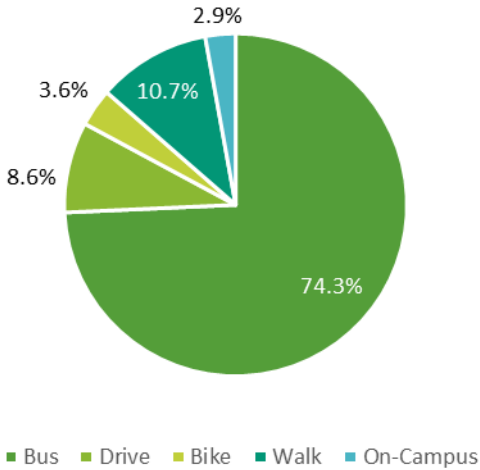
Do you agree with Saskatoon's plan to move the Place Riel terminal to College Drive?

Is there anything else you would like to add?

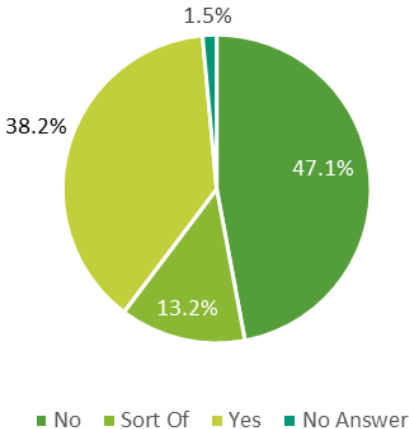
Appendix C

Survey Results

Method of Commute By Respondent



Do you like the current Place Riel bus mall?



Most popular changes	Count
Greatly improved pedestrian crossing	39
Shelter on south-side of Place Riel (by ST	21
Increase seating and size of current waiti	19
Difficult seeing buses from current waitir	13
Lack of maps and rider information	13

Appendix D

Engagement Session 2 Facilitation Agenda

Date of Session: March 19th, 2015

Project Objective: To create an implementable vision that represents the community's needs and wishes as well as respecting the concerns of all stakeholders

Session Objective: Work together to create a physical design that best addresses concerns raised from the first engagement session

Key Questions:

- How can we improve the efficiency of the buses through Place Riel?
- What should the expanded north Place Riel shelter look like? Where should it go?
- What should the south Place Riel shelter be?
- What is the most efficient way of getting information to the students?
- How would you address safety in the Bus Terminal?

Timeline:

- 5:20-6: Set-up
- 6-6:20: Introduction
- 6:20-6:40: Campus Today
- 6:40-7: Exercise 1 Shelter
- 7-7:20: Exercise 2 Information
- 7:20-7:40: Exercise 3 Safety
- 7:40-8: Summary
- 8-9: Debriefing and Clean up

