

# MEMORANDUM

**To:** Nadia Ariff, Waste Reduction Manager

**From:** Alexander McRae, Oliver Tonnesen

**Subject:** The elimination of paper cups

**Date:** Tuesday, Oct 6, 2018

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## Objective

This memo provides a proposal for a study to investigate the feasibility and effectiveness of eliminating single-use coffee cups and implementing the use of shared mugs at all UVic food services locations.

## Background

Disposable coffee cup waste is a huge problem at UVic. Despite current programs to increase landfill diversion rate, 32 tonnes of disposable cups sold on campus still end up in a landfill.[?] In addition to these non-diverted paper cups ending up in landfills and not being properly recycled, the production and transportation of paper cups and their raw materials has been shown to emit a large amount of CO<sub>2</sub>.[?]

## Problem Definition

### Need Statement

Currently, the vast majority of hot beverage purchases at UVic involve a disposable paper cup. Of UVic's total non-diverted recyclable waste, 6.1% consists of paper cups.

### Goals Statement

Our goal is to transition to near 100% sustainable/reusable liquid container use at UVic.

### Objectives

By implementing a rent-a-mug program similar to those already in place at other academic institutions, we can immensely reduce the number of paper cups sold on campus, and in turn reduce the number of paper cups sent to landfills. The proposed way this would work is at the beginning of the year a flat charge is added to everyone's account that purchases a mug ( \$5), this mug

is not owned however but gives them a credit for a mug to use. This credit can be used when getting coffee at any location at UVic and then when the mug is returned to a designated location the credit is given back and the person can then go to another location on UVic to get coffee again.

For example, in the morning I get a cup of coffee at mystic market and bring it to class. After class I stop by the Biblio Cafe and drop off the cup to get my credit back and then go study in the library. Later that day I get another different cup of coffee using my tab at the engineering building then drop it off at mystic before heading off campus. The cup then stays on campus and gets washed ready for someone the next day.

The key thing to note is this is not the same cup each time but a random cup.

## **Constraints**

Our proposal has a fairly large up-front cost; however, we suspect the initial price to purchase the reusable mugs will be heavily outweighed by the savings brought by reducing the amount of paper cups that UVic Food Services has to purchase continuously. Mugs will undoubtedly become lost or broken, and will so need to be periodically replaced. We expect this cost to also be significantly lower than purchasing paper cups in the long run. Industrial dish washers may need to be purchased to accommodate the large number of mugs being returned throughout the day. Customers of UVic Food Services may be upset that they will have to change their routines due to doing away with paper cups.

## **Plan of Action**

The plan of action is as follows. First analyse the costs of the mugs and the opportunity cost associated with staying with paper cups. Next look at the environment hazards associated with mugs and the possible negative outcomes that could occur due to using the mugs. Next look at the incentives from all stakeholders perspectives. Then do a trial in residences gathering data as well as opinions both before and after the trial has taken place. Based on the trial and residences it is then decided if it is suitable for the entire campus.

The research plan provided below gives a brief overview of some of the questions we aim to investigate in regards to the implementation of reusable mugs across campus.

- Who uses the most paper cups?
- What areas of campus are responsible for the largest amount of non-diverted waste?
  
- When do people most often drink coffee?
- How many mugs will be required during peak hours?
  - For how long do people use mugs? Do they bring them off campus?

- Are they willing to cooperate with UVic's program, or will they get their coffee elsewhere?
- Is it worth implementing this program all over campus, or would it make more sense to initially only target residences?
- Is this program any better than those already implemented at UVic?
- Investigate other institutions that have implemented similar programs.
- Economic considerations:
  - Cost/benefit analysis
  - Opportunity cost
  - Short term/long term effects
- Environmental considerations:
  - How much waste can be eliminated by this program?
  - How does the manufacturing/transport of the mugs affect the environment? Is it better or worse than that of paper cups?

## Timeline

Table 1 below shows an overview of the two month timeline we propose to complete the study and deliver a feasibility report.

Table 1: Timeline for project completion

Description		Dates
Phase One	Gather Data	November 3 — November 12, 2018
Phase Two	Analyze Data	November 12 — November 25, 2018
Phase Three	Investigate Logistics of Mugs	November 25 — December 18, 2018

## Budget

Table 2 below shows an overview of the costs of putting together this report. The final cost is projected to be \$2000.

Table 2: Budget projection for project completion

Description		Hours
Phase One	Gather Data	15
Phase Two	Analyze Data	10
Phase Three	Investigate Logistics	25
Cost	\$40/hour	\$2000

## Qualifications

The list below outlines how and why we are qualified to undertake this study:

- We are entering our third year studying Computer Science at UVic.
- We have proven research skills from our various technical writing and research courses here at UVic.
- We are able to identify with the UVic student populace and understand their sentiments towards various different topics.

## Conclusion

Disposable coffee cup waste is one of the largest areas of potential improvement with respect to waste diversion. Implementing a rent-a-mug program has the potential to help UVic to reach its goal of 75% waste diversion by 2021.

Our proposed study would determine the feasibility of implementing such a program. It would investigate the benefits, drawbacks, and the overall cost, both in the short- and in the long-term. Undertaking this study would not cost much to UVic, but could potentially lead to greatly reduced waste production all over its campus.

## References

- [1] Nadia Ariff *Waste Reduction Problem*. available at: <https://coursespaces.uvic.ca/> [Accessed 26 Oct. 2018]. Waste Management.
- [2] *Waste to Resource Assessment - Summary*. available at: <https://www.uvic.ca/sustainability/assets/docs/reports/waste-audit-2014.pdf> [Accessed 27 Oct, 2018].
- [3] EPS Distribution. (2018) *The Environmental Effect Of Paper Coffee Cups - EPS Distribution*. available at: <http://www.epsdistribution.com.au/the-environmental-effect-of-paper-coffee-cups/> [Accessed 26 Oct. 2018].