UBC Social Ecological Economic Development Studies (SEEDS) Sustainability Program

Student Research Report

Implementation of a Food Recovery Program at UBC

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EXECUTIVE SUMMARY

In a world facing increasing population, environmental degradation, and diminishing resources, avoidance of food waste stands out as an achievable measure towards balancing immediate human needs with long-term sustainability. Globally, one third of food grown is wasted (FAO 2017); at the same time, 39% of Canadian post-secondary students are food insecure (Silverthorn 2016), compared to 8.3% of Canadians (Statistics Canada 2012). Thus, the development of campus food recovery programs has the potential to increase the sustainability of our global food system by reducing waste, while alleviating the food insecurity of a disproportionately affected demographic.

While food recovery programs exist at numerous Canadian and American universities, the University of British Columbia (UBC) Vancouver campus did not, at the initiation of this project, have any protocol in place to recover food on campus. However, the Executive Chef of UBC Food Services (UBC FS), David Speight, expressed a willingness to coordinate the collection of recoverable food from UBC FS outlets on a regular basis. So, this project's primary aim was to identify the types of recoverable food and quantify the amount available at various UBC FS outlets. The AMS Food Bank was identified as an ideal point of distribution for this recovered food, and we worked to enable a partnership between the two organizations that would result in regular donations of recovered food.

We collected and analyzed weekly waste logs from 18 UBC FS outlets that provide data on the composition of recoverable food that is composted due to quality and aesthetic standards, and proximity to sell-by or expiration dates. These logs do not

document unrecoverable food waste such as bones and vegetable peels. During the single week analyzed, approximately 2100 servings of recoverable food had been composted. Approximately half of these servings were freezable (hot-served prepared foods, baked goods), while another half were not and so could be included in a donation program only if they were collected and distributed before spoiling. By interviewing the managers of these same outlets, we determined that Fridays and Mondays were the preferred pickup days, and identified Totem Dining Hall as the preferred storage and pickup hub.

In consultation with David Speight, we identified key elements of a waiver form necessary to qualify the AMS Food Bank as a recipient of donated food from UBC FS. We communicated these to a SEEDS project associated with the AMS Food Bank, who partnered with David Speight to complete the procedures and initiate ongoing collection of recovered food.

Finally, we established contact with other campus groups interested in food recovery, including the developers of smartphone apps which connect food outlets directly with individuals who are seeking inexpensive food. We recommend that UBC FS make use of one of these apps to facilitate the donation of any food that does not find its way into the regular donation program and that future SEEDS projects work to expand campus food recovery efforts to other UBC FS and non-UBC FS outlets.

INTRODUCTION

In developed countries such as Canada, an estimated 40% of food waste occurs at the retail and consumption level (FAO 2017). While huge amounts of food go to waste in Canada, a significant number of people remain food insecure. That is to say, they lack the “physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life,” (FAO 1996). According to Statistics Canada (2012), 8.3% of Canadians experience household food insecurity. This number is disproportionately high among postsecondary students with 39% of students in Canadian universities claiming to be food insecure and 8% of them identifying as severely food insecure (Silverthorn 2016).

UBC has a number of goals and strategic plans related to campus sustainability (UBC 2012; UBC Campus and Community Planning 2014). This includes a focus on UBC’s economic, environmental and social sustainability, while engaging students, faculty, staff and the larger community (UBC 2012). Food waste is a pertinent and critical issue to address, as the wastage of safe, edible food is not sustainable, nor logical. UBC’s Zero Waste Action Plan outlines UBC’s composting facilities and processes, and suggests a number of waste diversion strategies, including those specific to surplus recoverable foods (UBC Campus and Community Planning 2014). While composting edible food may appear to have environmental benefits, recovering and redistributing this food is more effective in addressing waste reduction. In addition, diverting edible food waste from the landfills and compost can address food insecurity. UBC Food Services (UBC FS) partners with Zero Waste at UBC (UBC Food Services, n.d.) and is guided by vision and values that strive for sustainability; this includes

providing food options that are socially and ecologically sound (UBC Food Services, n.d.).

A food recovery program is an opportunity to address sustainability at the UBC Vancouver campus environmentally, socially, and economically. From an environmental perspective, diverting food from the landfills or compost through recovery and redistributing food is an efficient use of food and human resources. A potential economic benefit is increased student access to discounted or donated food (Schilt 2014), while allowing UBC to reduce costs associated with wasted food. Socially, a food recovery program could contribute to reducing campus food insecurity by redistributing food to those who need it. It would also be an opportunity to create awareness around food waste and offer a practical way for individuals and campus organizations to make the food system more sustainable (Schilt 2014). From a community perspective, the implementation and operation of such a program would foster connections and collaboration between various campus groups, including students like ourselves working on SEEDS projects, campus organizations, and campus food service providers.

Our community partner, UBC FS Executive Chef, David Speight, is committed to implementing a sustainable food recovery program at UBC, and has emphasized food recovery as a priority area for him and the UBC FS team (D. Speight, personal communication, March 2017). He brings valuable experience initiating and implementing food recovery strategies at another large institution. His enthusiasm, network, and vision have been instrumental in guiding this project. This project and other food recovery initiatives on campus will contribute to creating a culture of food recovery and food system sustainability.

The goal of this project was to identify the types of recoverable food and quantify the amount available at various UBC FS outlets. The specific objectives of this project were to: 1) analyze varieties and quantities of recoverable food produced by UBC FS outlets; 2) identify UBC FS outlets' ideal pickup times and storage availability for recovered foods; 3) build a relationship between UBC FS and AMS Food Bank to qualify AMS Food Bank as a recipient of recovered food from UBC Food Services; and 4) connect with other campus groups involved in food recovery.

METHODOLOGY

Our research was divided into six components: 1) literature review; 2) waste log collection; 3) interviews; 4) recovered food pilot pick up; 5) development of a recipient eligibility procedure for the AMS Food Bank; and 6) stakeholder meeting.

Literature Review

We conducted an online literature review to gain an understanding of existing food recovery initiatives to inform the development of a food recovery system for the UBC Vancouver campus. We searched for “food recovery” and “leftover food donation” initiatives within the context of post-secondary campuses in Canada and the United States. We used the UBC Library Catalogue (i.e., Summons) and Google Scholar to find the different academic articles that are referenced in this report.

Waste Log Collection

All UBC FS outlets maintain waste logs detailing food sent to compost. We collected waste logs from 18 UBC FS outlets for either one week, two weeks, three weeks and one month during the months of January, February, and March 2017. The data from logs collected over a time period greater than one week were divided by week number to obtain weekly data. These 18 outlets represent four categories of outlets within UBC FS: 1) residence dining hall; 2) full service restaurant; 3) food truck; and 4) speciality and retail. David Speight provided the names and contacts of the food outlet managers, and permission to collect the waste logs. Waste logs were then analyzed and graphed using MS Excel (Appendix 1).

Interviews

We conducted face-to-face interviews with UBC FS personnel to identify their preferred days and times, for pickup of recovered food each week, as well as availability of on-site storage (ie: coolers and freezers) for that food. We conducted a total of nine interviews, eight of which were conducted with food outlet managers (Table 1). David Speight provided the managers' names and contacts for six of these interviews. We used a detailed question set for these six interviews, of which four also included tours of the onsite facilities (Appendix 2). We used a simplified question set for the other two food outlet manager interviews, and those questions were asked when we picked up the waste logs from the retail outlets (Appendix 3). Our final interview was with a chef from the full service restaurant, The Point Grill (Appendix 4). We met this chef at a stakeholder meeting hosted by David Speight (see "Stakeholder Meeting" below), and chose to interview her because we wanted to hear more about her experience in the kitchen seeing and dealing with food waste. By interviewing this chef, we also got to see how the perspectives on food waste of those working in the kitchen differ from the perspectives of those in management. Interviews were then transcribed, coded for common themes, and analyzed.

Table 1 – Interviews with UBC FS personnel

Name	**Position**	**Associated Food Outlet(s)**	**Interview Set Used**	**Tour of Facilities**
Lynn Santiago	Manager	Residence: Open Kitchen	Appendix 1	Yes
Rene Atkinson	Manager	Residence: Totem Dining Room	Appendix 1	No
Chaz Barker	Manager	Residence: Vanier's	Appendix 1	No
Steven Yzerman	Manager	Food trucks: It's About Thai	Appendix 1	Roaming Bowl

		Roaming Bowl Thunderbird Concession Site		
James Minhinnick	Manager	Full Service Restaurant: The Point Grill Sage Bistro	Appendix 1	The Point Grill Sage Bistro
Sherman Kong	Manager	Specialty & Retail: Perugia Italian Caffé The Loop Café Ike's Café	Appendix 1	No
Heather	Manager	Specialty & Retail: Magma Café Neville's Café	Appendix 2	No
Laura	Manager	Specialty & Retail: IRC Snackbar Reboot Café	Appendix 2	No
Chelsea Ashcroft	Chef	The Point Grill	Appendix 3	No

Recovered Food Pilot Pickup

We had the opportunity to execute a pilot pickup of recovered food with UBC FS Executive Sous Chef, Daniel Chiang, on Tuesday April 4, 2017 from 4:00 - 5:00 pm. We picked up recovered food from Open Kitchen, Vanier's, The Point Grill, and Totem Dining Room. Daniel Chiang picked up recovered food from six retail outlets (IRC Snackbar, Daily Dose, Neville's Café, Reboot Café, Law Café and The Loop) earlier in the day as those outlets have closing times prior to 4:00 pm. We stored this food at Totem Dining Room, along with leftover salmon from a catered event a few days earlier (Appendix 5).

Development of a Recipient Eligibility Procedure

We spoke with David Speight to identify the liability, management, and distribution concerns around donation of recovered food to the AMS Food Bank. We

shared this information with the LFS 450 team working on the SEEDS project on the AMS Food Bank and facilitated a new donation stream for the AMS Food Bank.

Stakeholder Meeting

David Speight hosted a meeting on Monday, February 20, 2017, bringing together all parties involved with food recovery on campus. We attended this meeting and made notes on everyone present and the organizations they represented.

RESULTS AND DISCUSSION

Objective 1 - Varieties and quantities of recoverable food

The waste logs indicated four broad categories of food: 1) baked goods (including pastries, muffins, cake, cookies, and loaves of bread); 2) cold food (including sandwiches, salads, wraps, paninis, sushi, and parfaits); 3) hot food (including burgers, pizza, pasta, soup, and other entrees); and 4) fruits and vegetables. We found that food in all four categories was wasted in significant amounts, ranging from approximately 400 servings/week of fruits and vegetables, to approximately 700 servings/week of cold-served prepared foods (such as sandwiches, salads, wraps, and parfaits) based on our log collection from various weeks in the months of January, February, and March 2017. There is less recoverable food in restaurants and food trucks at 152 servings/week, while the amounts from retail outlets and residences averaged 987 and 948 servings/week, respectively (Fig. 1). Fruits and vegetables were available primarily from residence dining halls, and often in large, one-off amounts of a single kind of produce. The other three groups of food were available in smaller portions.

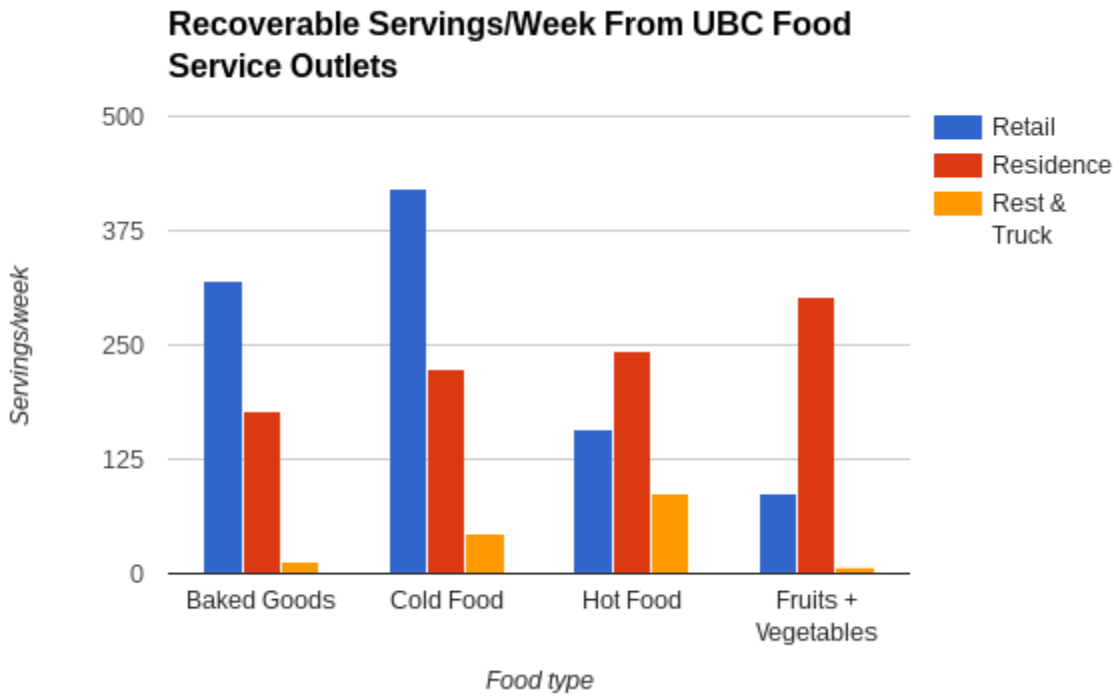

Fig. 1 - Recoverable Servings/Week from UBC Food Service Outlets (Based on Data from Various Weeks in the Months of January, February, and March 2017)

Baked goods, as well as cold food (sandwiches, wraps, and paninis), stood out as targets for a reliable recovery program. Both of these categories of food are simple to package, store, transport and consume. They are also both regularly available for donation from retail outlets and, to a lesser extent, residences (Fig. 2).

Approximately half the servings of recoverable food was comprised of baked goods and hot-served foods (Fig.3). These two categories of food can be frozen if necessary for preservation until pickup is possible. The other half, comprised of cold-served food and fruits and vegetables, can be refrigerated but not frozen, and thus are at risk of spoiling if timely pickup is not possible. From these results, we conclude that the AMS Food Bank is an appropriate avenue for distribution of the majority of

recoverable food from UBC FS, as they have fridge and freezer space, provided pickup is at least weekly.

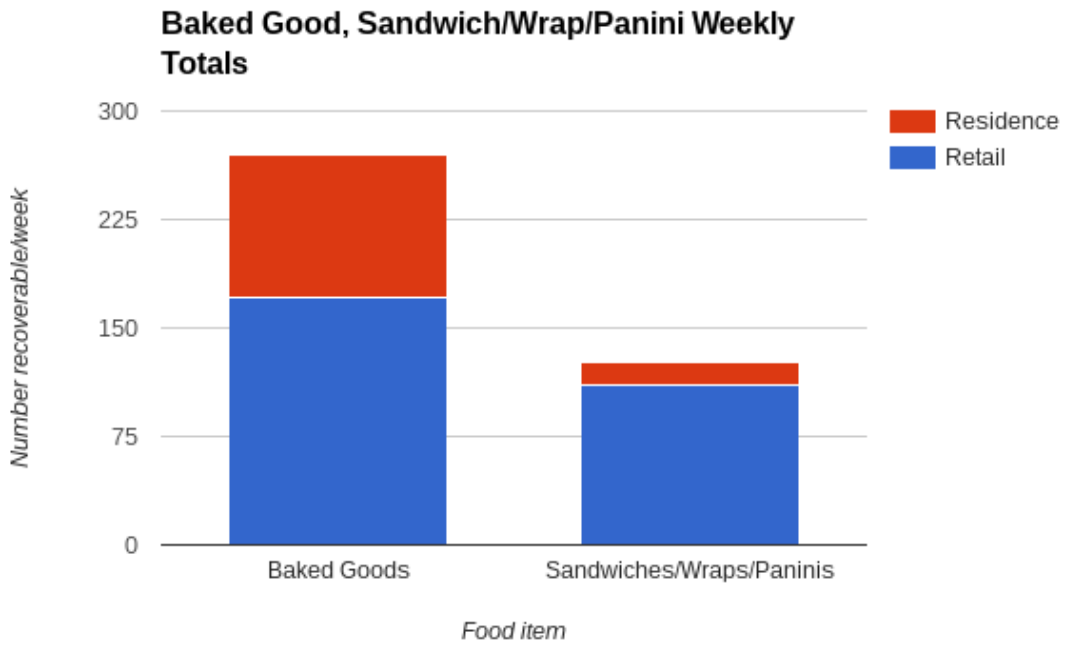

Fig. 2 - Baked Goods, Sandwich/Wrap/Panini Weekly Totals

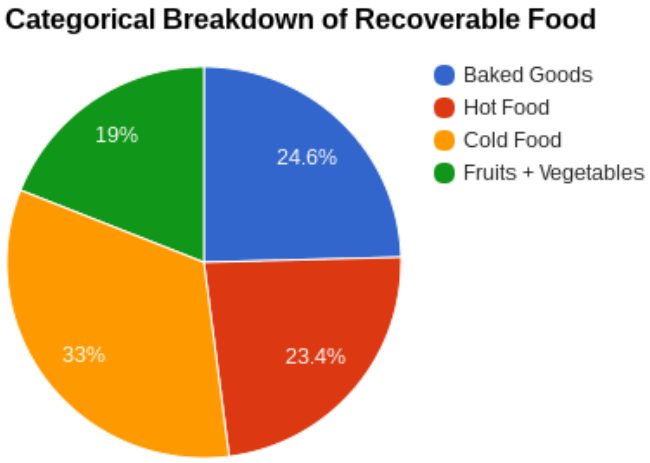

Fig. 3 - Categorical Breakdown of Recoverable Food

The variety of food recovered during our pilot pickup with Daniel Chiang was similar to the data above. Far more baked goods and prepared foods (hot, including a salmon entree and vegetable patties; and cold, including sandwiches, wraps, and sushi) were collected than fruits and vegetables (Appendix 5). This food was then repurposed into a buffet by Daniel Chiang on Wednesday April 5, 2017 for a group of approximately 30 people to enjoy after the final LFS 450 class. This was the first time leftover food has been recovered from UBC FS outlets, repurposed, and served to a group of students, staff, and faculty. Its success is evidence of the amount and potential of recoverable food available on campus.

These results are not representative of weekly amounts of recoverable food on an annual basis since waste log data were obtained over varying time periods of one week, two weeks, three weeks, or an entire month during the months of January, February, and March 2017 (Table 2). Logs which provided data collected over a time period greater than one week were divided accordingly to standardize all data to a week-long scale. Residence managers stressed that food waste varies seasonally due to closing of residence dining halls, and increase in catering operations during summer months.

Table 2 - UBC FS Outlets from Which Waste Logs of various durations Were Collected

Outlet Name	**Outlet Type**	**Duration of Waste Log**
Open Kitchen	Residence Dining	1 Week
Totem Dining Room	Residence Dining	1 Month
Vanier's	Residence Dining	1 Week
The Point Grill	Full Service Restaurant	1 Week
Roaming Bowl	Food Truck	2 Weeks

Daily Dose	Specialty & Retail	1 Week
Harvest Market	Specialty & Retail	1 Week
IRC Snack Bar	Specialty & Retail	1 Month
Ike's Café	Specialty & Retail	1 Month
Law Café	Specialty & Retail	1 Month
Magma Café	Specialty & Retail	1 Week
Mercanté	Specialty & Retail	1 Week
Neville's Café	Specialty & Retail	1 Week
Perugia Italian Caffé	Specialty & Retail	1 Month
Reboot Café	Specialty & Retail	1 Month
Sauder Exchange Café	Specialty & Retail	3 Weeks
Stir It Up Café	Specialty & Retail	2 Weeks
The Loop Café	Specialty & Retail	1 Month

Objective 2 - Ideal pickup times and storage availability for recovered foods

Preferred Pickup Days

We identified Mondays and Fridays as the ideal days for pickup by food outlet managers (Fig. 4). The older residence halls, Totem Dining Room and Vanier's, as well as the food trucks and Thunderbird concession production site, prefer a pickup every day or every other day because the quantities of food handled at these sites are significantly larger than those at retail outlets. There is also limited storage space at the kitchen providing for the food trucks. The manager at the newer residence dining hall, Open Kitchen, has no preference as there is minimal food waste since the food that can be repurposed is repurposed (L. Santiago, personal communication, February 2017).

Preferred Pickup Times

Preferred pickup times are between 3:00 - 4:00 pm for Monday, 2:00 - 3:00 pm for Friday, and 8:00 - 10:00 am for a daily or every other day pickup (Fig. 4) (Table 3).

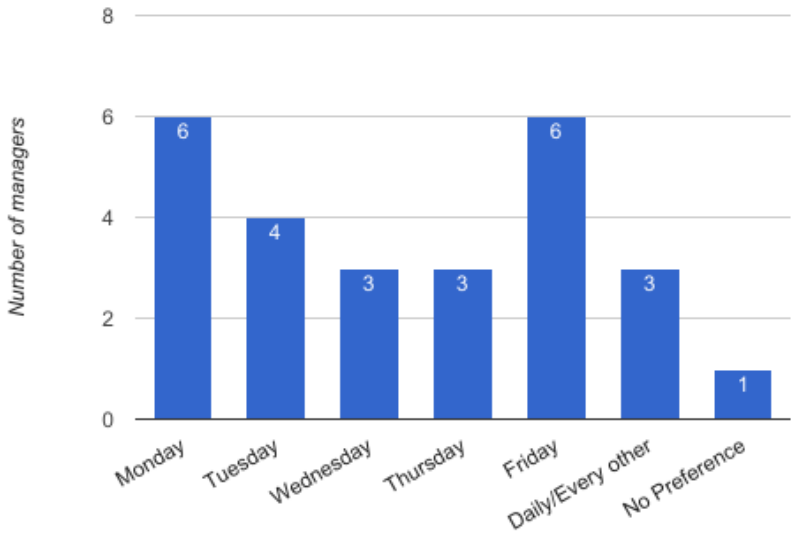

Fig. 4 - Preferred Food Pickup Days According to Food Outlet Managers

Table 3 - Preferred Pickup Days and Times

	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Daily/ Every other day**
7am-8am	Open Kitchen (any day)	Open Kitchen (any day)	Open Kitchen (any day)	Open Kitchen (any day)	Open Kitchen (any day)	Totem Dining Room Thunderbird [1]
8am-9am	Sage Bistro Open Kitchen (any day)	Open Kitchen (any day)	Open Kitchen (any day)	Open Kitchen (any day)	Open Kitchen (any day)	Totem Dining Room Vanier's Thunderbird Open Kitchen (any day)
9am-10am	Sage Bistro Open Kitchen (any day)	Open Kitchen (any day)	Open Kitchen (any day)	Open Kitchen (any day)	Open Kitchen (any day)	Totem Dining Room Vanier's Thunderbird Open Kitchen (any day)

10am-11am	Sage Bistro Open Kitchen (any day)	Open Kitchen (any day)	Open Kitchen (any day)	Open Kitchen (any day)	Open Kitchen (any day)	Totem Dining Room Vanier's Thunderbird Open Kitchen (any day)
11am-12pm						Vanier's
12pm-1pm						Vanier's
1pm-2pm						Vanier's
2pm-3pm	The Point Grill Harvest Market Open Kitchen (any day)	The Point Grill Open Kitchen (any day)l	Open Kitchen (any day)	Open Kitchen (any day)	Magma Café Neville's Café (closes 2:30) The Loop Café Open Kitchen (any day)	Totem Dining Room Open Kitchen (any day)
3pm-4pm	The Point Grill Harvest Market Reboot Café The Loop Café	The Point Grill Reboot Café The Loop Café	Reboot Café The Loop Café	Reboot Café The Loop Café	Reboot Café Perugia	Totem Dining Room
4pm-5pm	The Point Grill Harvest Market	The Point Grill				Totem Dining Room
5pm-6pm						Totem Dining Room
6pm-7pm						Totem Dining Room
7pm-8pm						Totem Dining Room Thunderbird
8pm-9pm						Thunderbird
9pm-10pm	IRC Snack Bar Harvest Market	IRC Snack Bar	IRC Snack Bar	IRC Snack Bar	IRC Snack Bar	Thunderbird

[1:] *Thunderbird = Food trucks and concession production site*

Sample Pickup Routes

We created three sample pickup routes based on the preferred pickup days and times identified by the food outlet managers (Fig. 5-7). These pickup routes are based on information provided by 13 of the 18 food outlets. All pickups will start and end at Totem Dining Room, which David Speight has identified as the storage location for the recovered food.

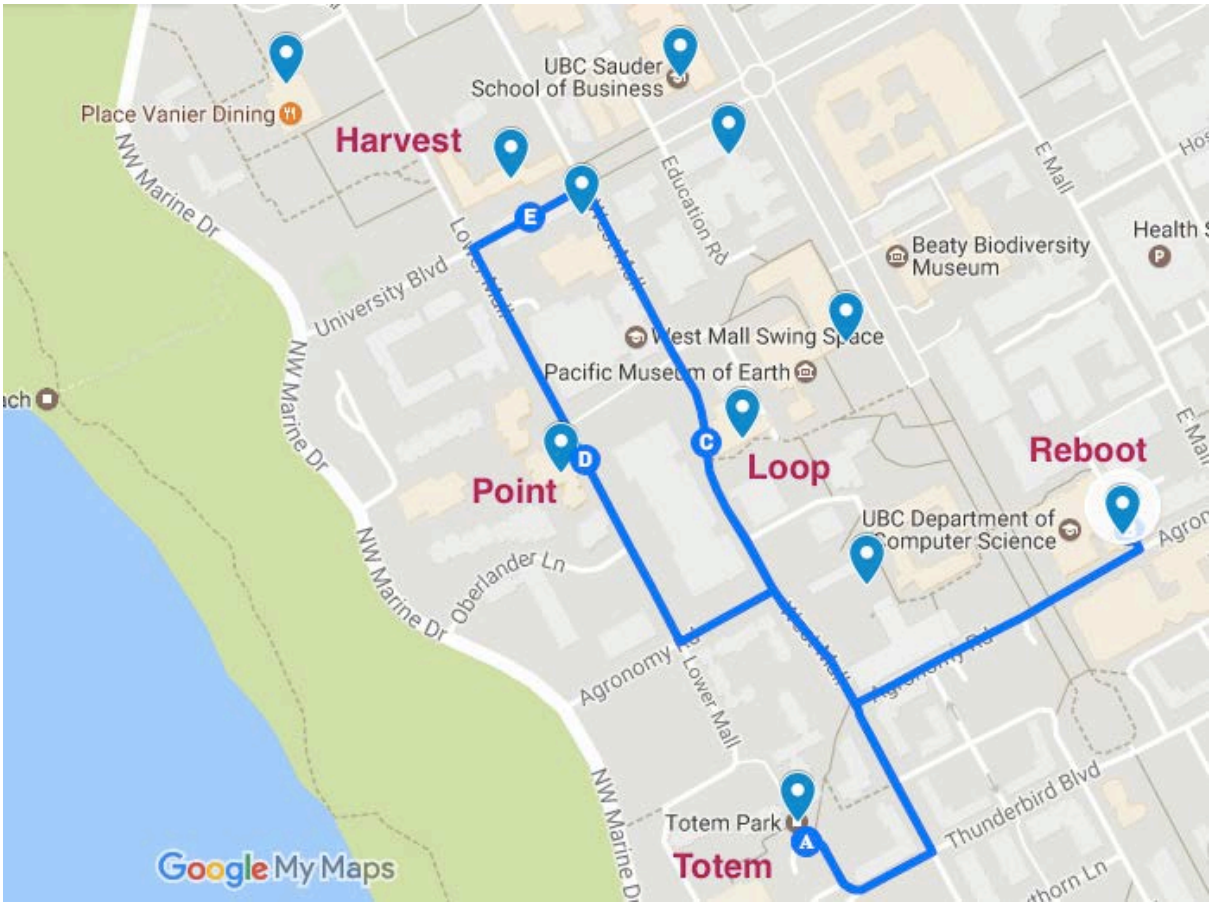

Fig. 5 - Sample Pickup Route (Monday, 3:00 - 5:00 pm)

The proposed pickup route for Monday is between 3:00 - 5:00 pm:

- Start, 3:00 pm: leave Totem Dining room
- 3:00 - 4:00 pm: Reboot Café and The Loop Café (both close at 4:00 pm)
- 4:00 - 5:00 pm: The Point Grill and Harvest Market (both close at 10:00 pm, but identified this time as a preferred pickup time)
- End, 5:00 pm: return to Totem Dining Room, drop off food for storage

If the full two hours are not needed, both The Point Grill and Harvest Market can accommodate pickups between 3:00 - 4:00 pm as well.

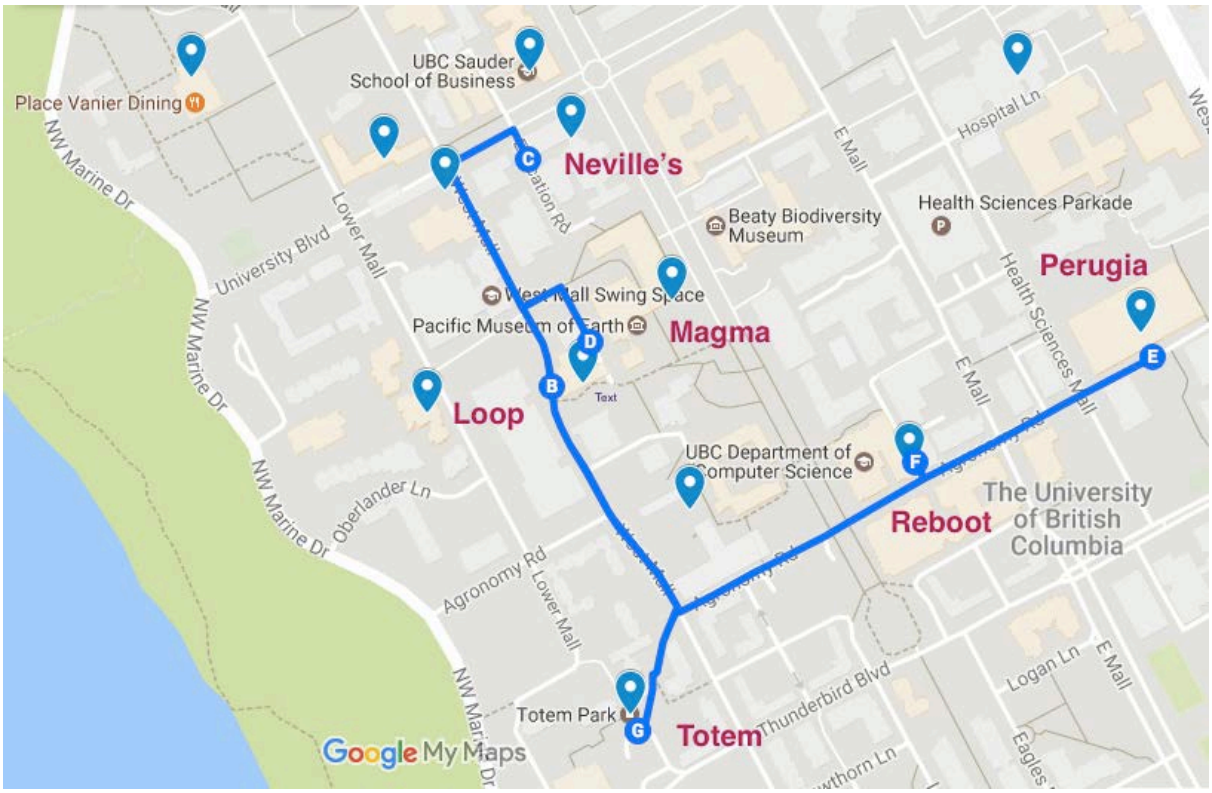

Fig. 6 - Sample Pickup Route (Friday, 2:00 - 4:00 pm)

The proposed pickup route for Friday is between 2:00 - 4:00 pm:

- Start, 2:00 pm: leave Totem Dining Room
- 2:00 - 3:00 pm: The Loop Café → Neville's Café (closes at 2:30 pm) → Magma Café
- 3:00 - 4:00 pm: Perugia Italian Caffe → Reboot Café
- End, 4:00 pm: return to Totem Dining room, drop off food for storage

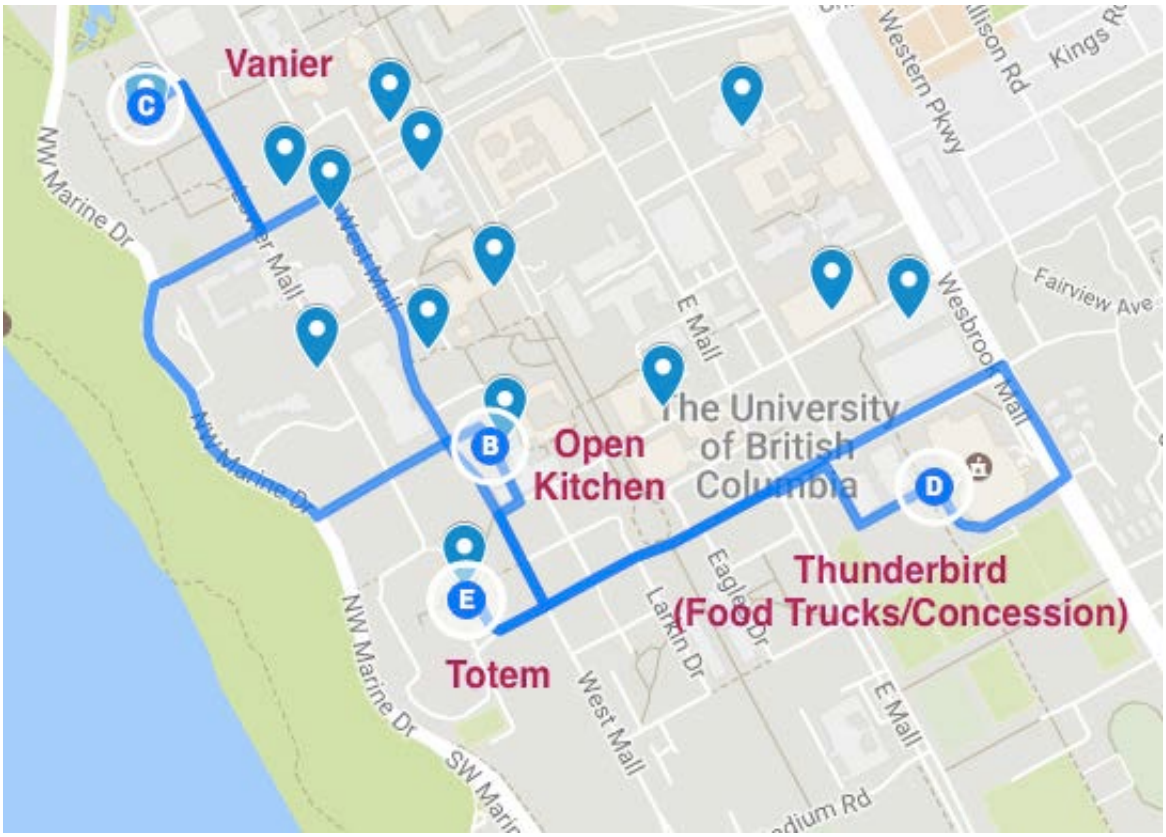

Fig. 7 - Sample pickup Route (Daily / Every other day / No Preference, 8:00 - 10:00 am)

The proposed pickup route for a daily or every other day pickup is between 8:00 - 10:00 am:

- Start, 8:00 am: leave Totem Dining Room
- 8:00 - 10:00 am: Open Kitchen (if needed) → Vanier → Thunderbird
- End, 10:00 am: return to Totem Dining, pickup any recovered food from Totem, store food

A successful food recovery program requires minimal extra labour, time, and cost to existing operations. It must be “streamlined and [as] efficient as possible” (Schilt 2014, 49). David Speight gave suggestions for integrating the logistics of picking up recovered food with existing UBC FS systems and structures, including matching pickup routes with existing UBC FS delivery routes, and using UBC FS vehicles. This is a key strength of implementing a food recovery program with UBC FS. Another option is to use a smartphone app that directly connects outlets with recipients, eliminating the logistics of

transporting and storing recovered food, and thus streamlining the food recovery process (see Recommendations, below).

Storage Facilities

We identified suitable storage facilities at Open Kitchen, Sage Bistro, Vanier's and Totem Dining Hall, while retail outlets generally do not have sufficient space to store large amounts of recovered food. Of these sites, Totem Dining Hall would be the ideal storage location since it has ample storage space, is the start and end location of existing delivery routes, and is the central catering site for UBC FS (D. Speight, personal communication, March 2017). Storing food here would streamline the recovery of catering surpluses in the future if and when this can be integrated into UBC's food recovery program.

Objective 3: Build a relationship between UBC Food Services and AMS Food Bank

We identified, through our consultation with David Speight, that a waiver absolving UBC FS of any liabilities needed to be signed in order for the AMS Food Bank to receive donations of recovered food. Our colleagues working with the AMS Food Bank prepared a waiver based on the one used by the Greater Vancouver Food Bank (GVFB) Food Runners program, which David Speight kindly provided to us. This waiver was then signed by David Speight, on behalf of UBC FS, and by the AMS Food Bank. Regular food donations commenced.

At the time of writing, weekly donations of recovered food from UBC FS outlets to the AMS Food Bank have begun, and speak loudest to the immediate potential for food recovery at UBC. This partnership contributes to food security in the UBC community by

keeping recovered food on campus. We are confident that the commitment of David Speight and his team to minimizing waste and increasing food security will enable the recently established donation program to continue well into the future, and most excitingly, may serve as an example to encourage and provide groundwork for further food recovery at UBC and beyond.

Objective 4: Connect with other campus groups involved in food recovery

Several food recovery project collaborations came out of the meeting hosted by David Speight on Monday, February 20, 2017. We created a stakeholder map to illustrate the connections made at this meeting (Fig. 8). Most pertinent to this project was the connection established between Engineers Without Borders (EWB), a student group that is developing a food recovery app by the name of Scrapless, Marie-Claude Fortin (LFS 450 instructor), and David Speight. Marie-Claude Fortin expressed interest in piloting the app with one of her classes and David Speight expressed interest in utilizing the app with UBC FS outlets. These stakeholders are highlighted in yellow in the stakeholder map.

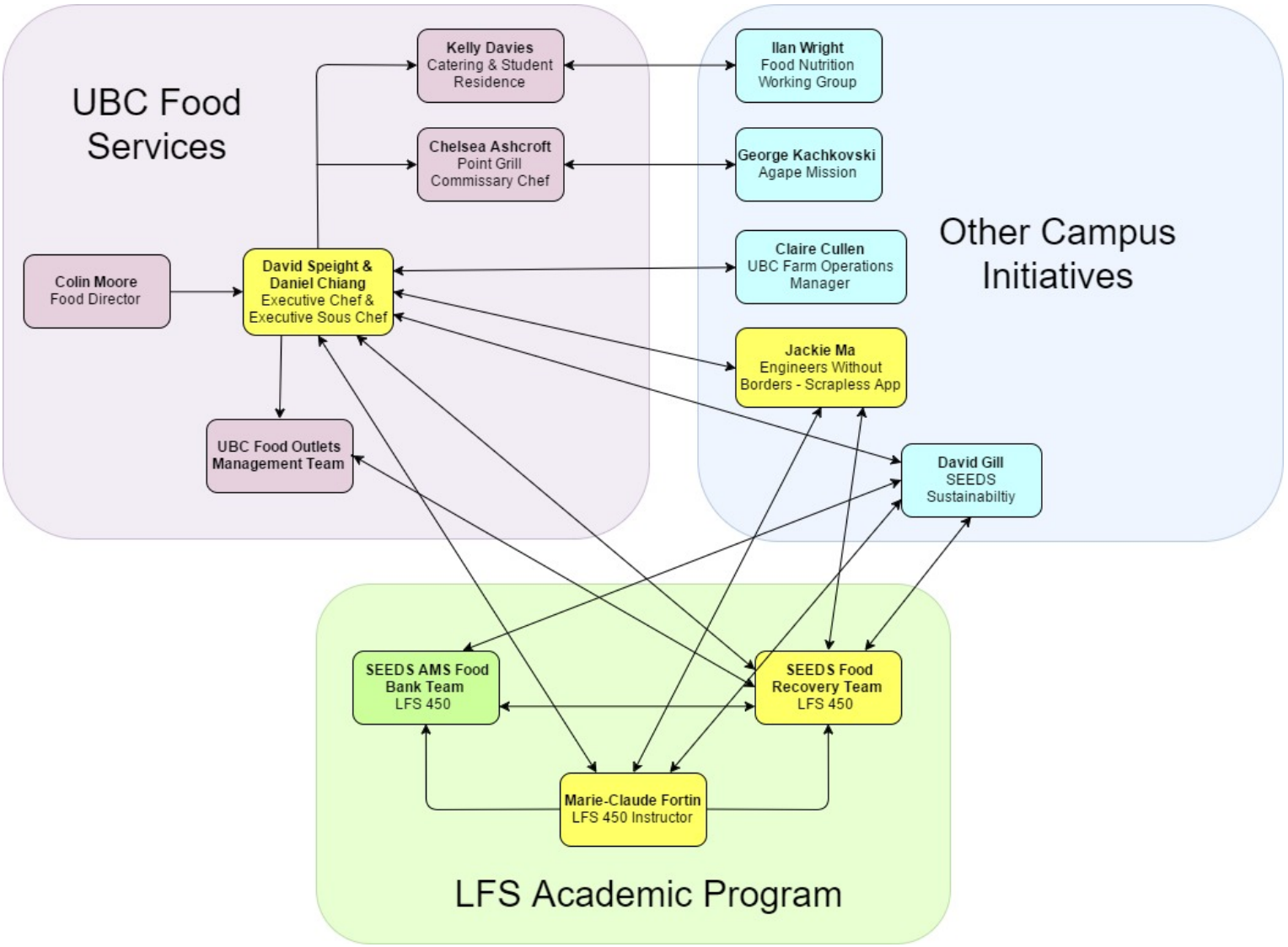

Figure 8 - Stakeholder Map of UBC Food Recovery Initiatives

RECOMMENDATIONS

Our recommendations consist of further research and action to advance food recovery at UBC.

Research

For future research, we recommend investigating the potential for food recovery associated with the catering operations of UBC FS. Catering may be a large contributor to food waste (D. Speight, personal communication, March 2017; Requillart, et al. 2016). This research would add important data to the availability of recoverable food from UBC FS, and inform the logistics of recovering food from events catered by UBC FS. Once food recovery is fully established within UBC FS, the program could serve as a model for non-UBC FS food providers on campus.

Action

We recommend that UBC FS continues donating recoverable food to the AMS Food Bank on a regular basis. The vital connections that have been established this semester will increase sustainability at the UBC-Vancouver campus and help students who are food insecure.

We also recommend that EWB incorporate the results of this project in the development of their food recovery app. This will enable EWB to understand the nature and availability of recoverable food available from UBC FS. Once the development of the food recovery app by EWB is complete, we recommend pilot testing this app with an LFS 450 class or another SEEDS class.

Furthermore, we recommend an eventual collaboration between the AMS Food Bank and a food recovery app. Integrating an app into the food recovery program

should be helpful since there is variation in the preferred days and times by managers for regular pickup of recoverable food. The incorporation of an app would help to fill the gaps between the AMS Food Bank pickups and/or address the problems associated with the lack of capacity of the AMS Food Bank to store all or some of the recovered food available. Furthermore, the incorporation of an app will help to reduce the costs and logistics of moving food around the UBC campus – instead, users of the app will come directly to the sites with recovered food. An interface/filter that notifies food bank users ahead of general app users would also help improve the food security status of those who are most vulnerable.

We have identified two possible apps for this collaboration: 1) EWB's Scrapless which is still under development; and 2) Share Meals, a fully-functioning food recovery app developed by students at New York University (Share Meals, n.d.). Issues regarding the app's ownership, cost, and maintenance will need to be considered. Third party ownership and operation may result in higher costs to use the app but less maintenance for UBC FS.

These recommendations should strengthen the food recovery initiative and contribute to food security at UBC.

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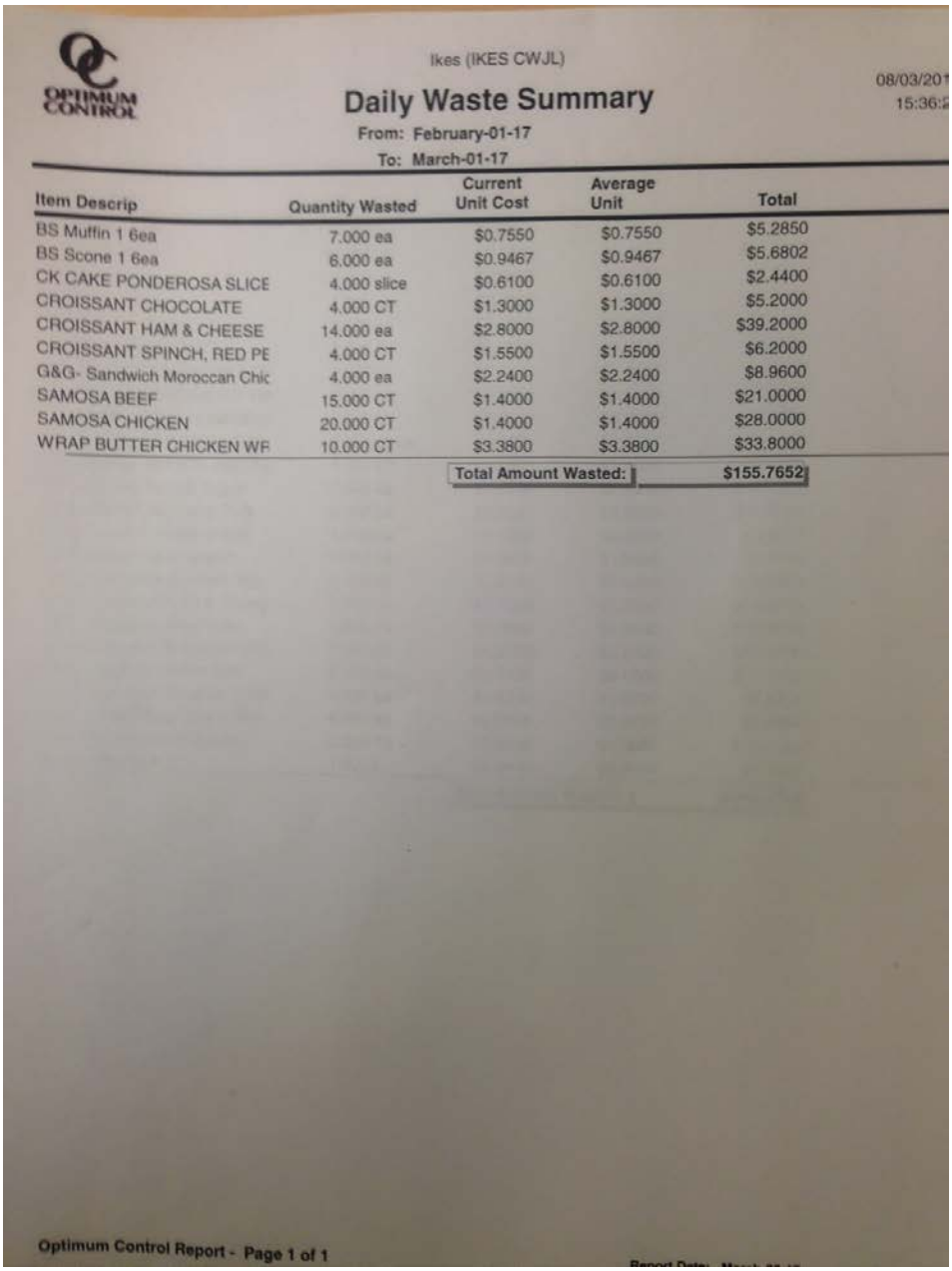
APPENDICES

Appendix 1 - Sample Food Waste Logs



Ikes (IKES CWJL)

Daily Waste Summary

08/03/201
15:36:2

From: February-01-17
To: March-01-17

Item Descrip	Quantity Wasted	Current Unit Cost	Average Unit	Total
BS Muffin 1 6ea	7.000 ea	$0.7550	$0.7550	$5.2850
BS Scone 1 6ea	6.000 ea	$0.9467	$0.9467	$5.6802
CK CAKE PONDEROSA SLICE	4.000 slice	$0.6100	$0.6100	$2.4400
CROISSANT CHOCOLATE	4.000 CT	$1.3000	$1.3000	$5.2000
CROISSANT HAM & CHEESE	14.000 ea	$2.8000	$2.8000	$39.2000
CROISSANT SPINCH, RED PE	4.000 CT	$1.5500	$1.5500	$6.2000
G&G- Sandwich Moroccan Chic	4.000 ea	$2.2400	$2.2400	$8.9600
SAMOSA BEEF	15.000 CT	$1.4000	$1.4000	$21.0000
SAMOSA CHICKEN	20.000 CT	$1.4000	$1.4000	$28.0000
WRAP BUTTER CHICKEN WF	10.000 CT	$3.3800	$3.3800	$33.8000
		Total Amount Wasted:		$155.7652

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Fig. A1 - One month waste log from Ike's Café (Photo by Evonne Tran)

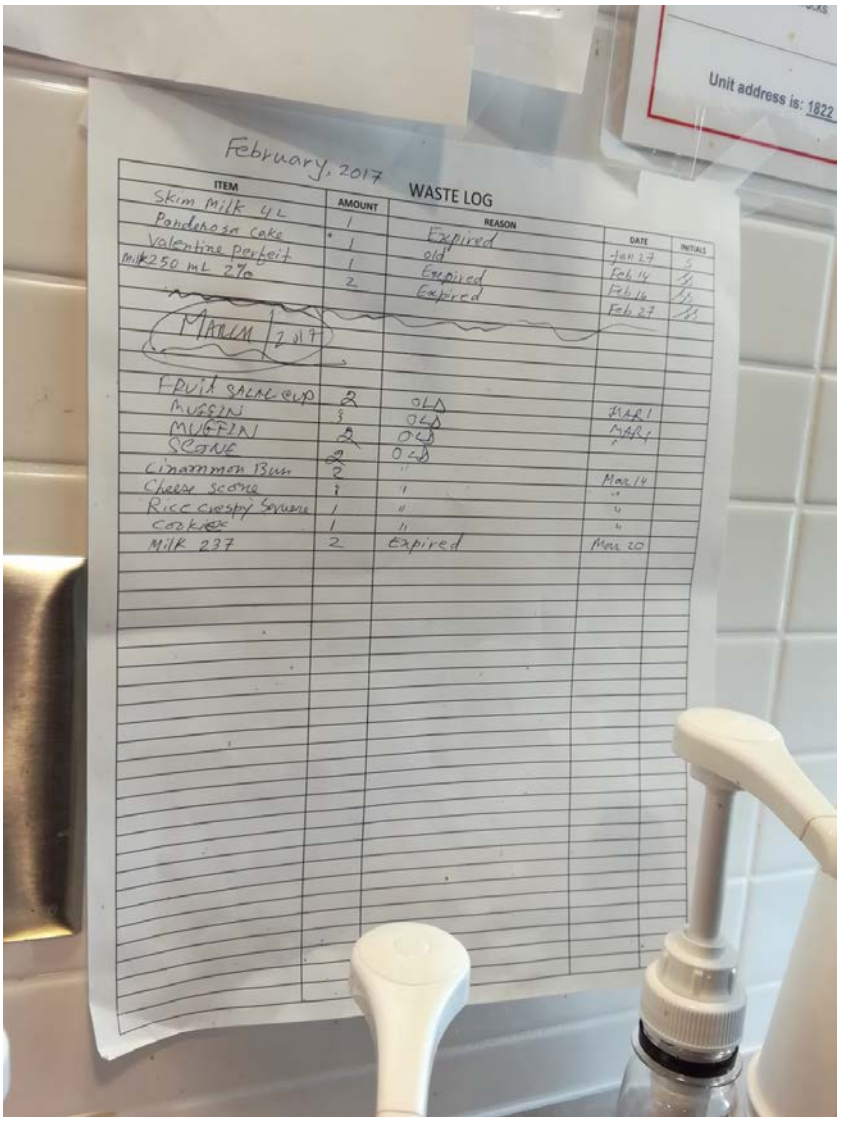

Fig. A2- Waste log at Law Café (Photo by Winnie Kwan)

Appendix 2 - Interview Questions for Food Outlet Managers

1. How frequently is edible food sent to composting at this location? (i.e., every 2nd day or once a week etc.)
    a. What types of food do you send most often to composting? (e.g., soup, muffins, cookies, entrees, rice, salads)
    b. How much do you usually compost, approximately? When do you compost it (end)? How much ____ on average do you compost?
    c. How much of it can be frozen?
    d. How much of it cannot be frozen? (e.g. specific types of foods: sandwiches…)

2. Do you have capacity to store leftover, recoverable food? If so, what is the capacity to store food (e.g., duration [two days, three, four…], tray/equipment availability)?

3. Are leftover foods saved and served or repurposed the next day? (What types of foods are these; what are challenges associated with repurposing other types of food)

4. When (time of day and day of the week) would it be most convenient to pick up the recoverable <u>frozen</u> food and how frequently?

5. When (time of day and day of the week) would it be most convenient to pick up the recoverable food that <u>cannot be frozen</u> and how frequently?

6. Which day of the week tends to generate the most food waste, and why do you think that is?

7. What barriers/concerns do you anticipate having in regards to redistributing surplus foods made at your site?

8. Would you be interested in donating your surplus food items (recovered foods) to student organizations such as Sprouts and/or the AMS Food Bank? If not, why?

9. Do you have a waste log and would we be able to obtain a copy?

Appendix 3 - Simplified Interview Questions for Specialty & Retail Food Outlet Managers

1. Do you have capacity to store leftover, recoverable food? If so, what is the capacity to store food (e.g., duration [two days, three, four…], tray/equipment availability)?

2. When (time of day and day of the week) would it be most convenient to pick up the recoverable food and how frequently?

Appendix 4 - Interview Questions for Chelsea Ashcroft (Chef at The Point Grill)

1. How frequently is edible food sent to composting at this location? (i.e., every 2nd day or once a week etc.)
    a. What types of food do you send most often to composting? (e.g., soup, muffins, cookies, entrees, rice, salads)
    b. How much do you usually compost approximately? (e.g. how long does it take to fill 1 bin?)

2. Is most food waste pre-consumer from the kitchen, or post-consumer food waste left on plates?

3. How does this compare with other places you may have worked at?

4. How do you use waste logs?
    a. Do the waste logs help your kitchen staff reduce waste/find key points of waste generation?
    b. Do you ever go over them as a team?
    c. Have they been effective in reducing waste/leftovers?

5. Ask about the sandwiches going to Agape - are they packaged? Or are they packaged before donation?

6. (We understand that storage space is quite limited at the Point..) Is this a significant limiting factor for storing potentially recoverable food?

7. Are leftover foods saved and served or repurposed the next day? (What types of foods are these; what are challenges associated with repurposing other types of food)

8. When (time of day and day of the week) would it be most convenient to pick up the recoverable <u>frozen</u> food and how frequently?

9. When (time of day and day of the week) would it be most convenient to pick up the recoverable food that <u>cannot be frozen</u> and how frequently?

10. Which day of the week tends to generate the most food waste, and why do you think that is?

11. Do you have any thoughts/input on how a food recovery program could best fit in at the Point?

Appendix 5 - Recovered Foods Pilot Pickup

Fig. A3 - Recovered food collected from various UBC FS Outlets (Photo by Evonne Tran)

Fig. A4 - Recovered foods from Harvest and residence dining halls (Photo by Evonne Tran)

Fig. A5 - Team Food Recovery picking up recovered foods from residence dining (Photo by Marie-Claude Fortin)