Assessing the scale of food deliveries to UBC residences

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SEEDS Sustainability Program

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EXECUTIVE SUMMARY

This report presents data collected to assess the scale of food deliveries to the University of British Columbia Vancouver Campus (UBC-V) Residences. Over the week of November 22 to 26, 2021, twenty-six student teams collected data on food deliveries taking place from 3:30pm to 9:30 pm from four student residences. Residences were chosen based on their size and ease of data collection. Data collected included the date, residence location, delivery time, vehicle type, food outlet name and location, and weather conditions. A total 229 deliveries were recorded and the average distance travelled for deliveries was estimated to be 4 km. Further analysis of this data will be undertaken to estimate the impact associated with the greenhouse gas emissions from these deliveries as well as to provide policy recommendations.

CONTENTS

LIST OF ABBREVIATIONS

CAP	Climate Action Plan
CBAR	Community-Based Action Research
CEL	Community Engaged Learning
CCEL	Centre for Community Engaged Learning
CFFS	Climate-Friendly Food Systems
CHBE	Chemical and Biological Engineering
ESW	Engineers for a Sustainable World
GHG	Greenhouse gas
SEEDS	Social Ecological Economic Development Studies
UBC	University of British Columbia
UBC-V	University of British Columbia Vancouver Campus
UNSDGs	United Nations Sustainable Development Goals
UBCFSP	UBC Food Systems Project
Y1	first-year
Y2-Y4	upper-year

1. INTRODUCTION

The recognition of the integral role our food systems have on climate change is critical, especially given cities and post-secondary institutions around the world are making bold commitments to climate action, and there is increasing recognition of the pivotal impact our food system has on the climate crisis and vice versa. On December 5, 2019, UBC joined other organizations and governments around the world to declare a climate emergency. UBC renewed its commitment to sustainability, to accelerate UBC's climate actions, including a commitment to a Climate Action Plan 2030 (update from a 2020 plan), an UBC Climate Emergency Declaration, and commitment for the university to align its work with priority United Nations Sustainable Development Goals (UNSDGs).

Leading up to these commitments, a workshop was held where attendees across UBC's departments and faculties identified "Climate-Friendly Food Systems (CFFS)" as a priority area for the UBC Food System Project (UBCFSP) to advance. The UBCFSP engages students, faculty and key food system staff across campus in applied research and collaborations aimed at increasing the sustainability of our food system. A "CFFS Action Team" was created to support the UBCFSP broader objectives to advance food system sustainability, and is responsible for the ideation, coordination and development of student-led research, initiatives and interdisciplinary collaborations that can accelerate transitions towards a CFFS as part of UBC's emerging Climate Action Plan (CAP) 2030 planning process [1]. The CFFS Action Team developed a target to reduce food emissions and a series of supporting 10 Bold Actions to help achieve these targets. One of these Bold Actions includes developing Climate-Friendly Food System GHG emission baseline, and other targets including processes and practices that can help reduce emissions.

This project builds on and informs the UBC's emerging CAP 2030 and relates to both increasing our understanding of emissions associated with our food system, specifically around transportation. Food systems have been impacted by the COVID-19 pandemic, and one key area is that food purchasing behaviours have shifted towards increasing in people ordering take-out/ready-to-eat meals. In addition, the variety of businesses and services that provide take out options has rapidly increased.

At UBC, according to UBC Food Services, there are over 1000 ready-to-eat meals delivered to the UBC Vancouver Campus daily, including hundreds of grocery deliveries and other meal subscription and food kits programs. This is estimated to result in 10,000 kg of CO_2 emissions per day [2]. This project aims to assess these types of food deliveries made to campus, including quantity, mode of delivery, and distance travelled.

2. METHODOLOGY AND METHODS

Principles of community-based action research (CBAR) informed the development of the project. This included the engagement of a variety of stakeholders in developing the project scope. This consultation involved students, staff and faculty members from the SEEDS Sustainability Program, UBC Food Services, the Centre for Community Engaged Learning (CCEL), UBC Student Housing at UBC and the Department of Chemical and Biological Engineering (CHBE). Notably two students, Siba Saleh (3rd year) and Tasnia Anika (4th year) were instrumental in developing the project in their roles as Community Engaged Learning (CEL) Fellows. In consulting with this wide

range of groups the project scope developed focused on assessing food delivery to first-year (Y1) and upper-year (Y2-4) undergraduate residences. Further information on the reasons leading to this choice is provided below.

There are a variety of areas food delivery occurs on campus including residences and academic buildings. In order to help quantify these deliveries it was decided to focus on areas where a high volume of deliveries would take place. A promising choice for such an area are student residences. Student residences can have a large number of residents and a central entrance for deliveries, simplifying data collection. Furthermore the students collecting data in this study may live in some of these residences and thus there was a personal engagement and interest in data collection. A subset of student residences were selected based on the ability to easily gather large amounts of data. Another consideration was the difference between residences where students have a mandatory meal plan (which we have termed Y1), and Y2-Y4 residences where students have optional meal plans and greater access to cooking facilities. Data collection sites for Y1 residences included Bartlett house for Orchard Commons and q̓ələχən and həm̓ləsəm houses for Totem Park. These sites were chosen as they contained a relatively large number of students and a central location for deliveries to make recording data easier.

The project decided to collect data from 3:30-9:30 pm with 2-hour sampling increments (3:30-5:30, 5:30-7:30 and 7:30-9:30). These times were selected as it was anticipated more students would be coming back to residences at these times from classes and thus it is more likely deliveries would be occurring. Data was collected throughout the week, Monday to Friday to gather data from a variety of days and try to elucidate any trends. Weather conditions were also collected in order to see any impact this may have on food delivery ordering, for example, more delivery orders when the weather was poor. A sample data collection sheet provided for data collection can be found in Appendix A-1. Data was collected at the entrance to residences in an attempt to ensure all deliveries were captured.

The project involved 124 students in 26 teams from the Founding Principles in Chemical and Biological Engineering I course (CHBE 220). These teams had worked on a variety of design reports throughout the first two months of the term and were introduced to this project on Thursday, November 18. Teams then selected a time and residence to collect data, with data collection taking place on the week of November 22 to 26. The times and residences where each group collected data is shown in Appendix A-2.

3. RESULTS

A summary of data collected by all student teams is shown in appendix A-3. Data was collected either by interacting with those people delivering or picking up food, or by looking at delivery order details if the delivery was left in a central location to be picked up. This includes the team number for the team collecting the data, as well as the day and timeframe that the data was collected. The residence where data was collected is also listed. Specific delivery times for each delivery as well as vehicle type are noted. The food delivery outlet was noted. Distance estimated was typically calculated following data collection and details on the methodology for this is included in the Discussion & Recommendations section of the report. Weather was also noted by teams as well as any additional notes on the delivery if relevant. In total

4. DISCUSSION & RECOMMENDATIONS

Over the course of data collection, 229 deliveries were collectively recorded. Some teams noted having missed recording deliveries as the delivery was done quickly and they could not speak to the deliverer, the recipient or have enough time to record data. However, this was generally rare. Given this, the data collected in this report is likely a low estimate in terms of number of deliveries.

Of the 229 deliveries noted, teams were able to estimate delivery distance for 175 of these deliveries, representing 76% of all deliveries recorded. Distances for deliveries were estimated using delivery addresses and Google Maps [3] through plotting the driving distance. Where the specific address for the food outlet was not known, the closest food outlet was assumed. Using this, the average distance of deliveries recorded with known food outlets was 4 km.

Similarly to delivery addresses, vehicle type may have been challenging to record for a variety of reasons including the delivery vehicle not being able to be seen or confirmed. Data was for vehicle type was recorded for 195 of the 229 deliveries recorded representing 85% of all deliveries recorded.

Each student team provided a project report including similar sections to those found in this overall project report. These reports have been passed on to SEEDS for further analysis by SEEDS or other student groups such as Engineers for a Sustainable World (ESW). A preliminary data analysis is included in this report speaking to the data collected, with the expectation that further data analysis will be undertaken.

5. CONCLUSION

Food delivery data has been collected from a variety of student residences at various times over one week from November 22 to 26, 2021. The number of deliveries, delivery mode and food outlet were recorded where possible. In total 229 deliveries were recorded. A preliminary estimate of delivery distances is provided and average delivery distance was estimated to be 4 km. Further analysis will be undertaken to asses the GHG impact of these deliveries and provide recommendations for action.

REFERENCES

[1] UBC Campus and Community Planning. "Climate Action Plan 2030". December 2021. Accessed: January 12, 2022. [Online]. Available: https://planning.ubc.ca/cap2030

[2] Colin Moore, 2021, personal communication

[3] Google. "Google Maps" Accessed: November 30, 2022. [Online]. Available: https://www.google.com/maps

Table A-1: Sample data collection sheet

CHBE 220 - CEL Project - Data collection sheet								
DESCRIPTION - Use this sheet for collecting your data. Note that columns for team number, timeframe and residence should be the same all the way down the sheet for your team. Once finished copy your data into the class data collection sheet on the course's Microsoft Teams site.								
Team #	Timeframe	Residence	Delivery time (in pm)	Vehicle type (if known)	Food outlet/address (if known)	Distance (estimated) (km)	Weather	Additional Notes
45	3:30-5:30	Totem Park	3:45	gas vehicle	Wendy's (480 8th Ave)		rainy	

APPENDIX A-2: DATA COLLECTION ASSIGNMENTS

Table A-2: Group data collection assignments

Group #	Day	Time	Residence
1	Wednesday	3:30-5:30	Marine
2	Friday	7:30-9:30	Gage
3	Thursday	3:30-5:30	Gage
4	Wednesday	5:30-7:30	Marine
5	Tuesday	3:30-5:30	Orchard
6	Wednesday	3:30-5:30	Gage
7	Monday	5:30-7:30	Gage
8	Tuesday	7:30-9:30	Gage
9	Thursday	5:30-7:30	Marine
10	Friday	3:30-5:30	Marine
11	Friday	5:30-7:30	Marine
12	Friday	3:30-5:30	Orchard
13	Tuesday	3:30-5:30	Marine 5
14	Thursday	3:30-5:30	Marine
15	Thursday	7:30-9:30	Gage
16	Tuesday	7:30-9:30	Orchard
17	Tuesday	3:30-5:30pm	Gage
21	Tuesday	5:30-7:30	Gage
22	Tuesday	5:30-7:30	Orchard
24	Friday	3:30-5:30	Gage
25	Wednesday	3:30-5:30	Orchard
26	Thursday	5:30-7:30	Gage
27	Thursday	3:30-5:30	Totem
28	Tuesday	3:30-5:30	Marine
29	Monday	3:30-5:30	Gage
30	Thursday	3:30-5:30	Orchard

APPENDIX A-3: SUMMARY OF DATA COLLECTED

Table A-3: Summary of data collected

Team #	Day	Timeframe	Residence	Delivery time (pm)	Vehicle type (if known)	Food outlet/address (if known)	Distance (estimated) (km)	Weather	Additional Notes
1	24-Nov	3:30-5:30	Marine Drive 4	4:07	Bicycle	Steve's Poke bar/5990 University Blvd	0.9	Rainy	
1	24-Nov	3:30-5:30	Marine Drive 4	4:07	Bicycle	Tacomia/6205 University Blvd	0.95	Rainy	
1	24-Nov	3:30-5:30	Marine Drive 4	4:24	Gas vehicle	Rice burger/2630 Sasamat street	4.9	Rainy	
1	24-Nov	3:30-5:30	Marine Drive 4	4:46	Electric Car/Tesla	My home cuisine/5728 University Blvd	2.1	Cloudy	
1	24-Nov	3:30-5:30	Marine Drive 4	5:13	Gas vehicle	Uncle Lu/3779 Sexsmith Road	15.7	Cloudy	
2	26-Nov	7:30-9:30	Walter Gage	7:33	Gas Vehicle	Kinton Ramen - 102 6111 Univeristy Blvd	1.2	Clear	
2	26-Nov	7:30-9:30	Walter Gage	7:34	Gas Vehicle	International Food Court - 5726 University Blvd	1.6	Clear	
2	26-Nov	7:30-9:30	Walter Gage	7:39	Gas Vehicle	International Food Court (1) - 5726 University Blvd + Nori (4) 6055 University Blvd	2.15	Clear	This delivery contained five different orders from two food outlets.
2	26-Nov	7:30-9:30	Walter Gage	7:41	Gas Vehicle	Freshii - 3351 Wesbrook Mall	2.5	Clear	
2	26-Nov	7:30-9:30	Walter Gage	7:45	Gas Vehicle	Pita Pit - 5717 Dalhousie Rd	1.2	Clear	

2	26-Nov	7:30-9:30	Walter Gage	7:49	Gas Vehicle	Pearl Fever Tea House - 2182 Western Pkwy	1	Clear	
2	26-Nov	7:30-9:30	Walter Gage	7:52	Gas Vehicle	Pizza Garden - 5780 Univeristy Blvd	1.6	Clear	
2	26-Nov	7:30-9:30	Walter Gage	8:07	On Foot	Macdonald's - 101 5728 Univeristy Blvd	0.85	Clear	
2	26-Nov	7:30-9:30	Walter Gage	8:10	On Foot	Subway - 2178 Western Pkwy	1	Clear	
2	26-Nov	7:30-9:30	Walter Gage	8:32	Gas Vehicle	Macdonald's - 101 5728 Univeristy Blvd	1.5	Clear	
2	26-Nov	7:30-9:30	Walter Gage	8:36	Gas Vehicle	Macdonald's - 101 5728 Univeristy Blvd	1.5	Clear	
2	26-Nov	7:30-9:30	Walter Gage	8:51	Gas Vehicle	Ryuu Japanese Kitchen - 5980 University Blvd	0.95	Clear	
2	26-Nov	7:30-9:30	Walter Gage	8:54	Gas Vehicle	Dominos - 4426 W 10th Ave	3.8	Clear	
2	26-Nov	7:30-9:30	Walter Gage	9:00	Gas Vehicle	Macdonald's - 101 5728 Univeristy Blvd	1.5	Clear	
2	26-Nov	7:30-9:30	Walter Gage	9:09	Gas Vehicle	Macdonald's - 101 5728 Univeristy Blvd	1.5	Clear	

3	25-Nov	3:30-5:30	Gage	3:38	-	Kinton Ramen	0.5	Rain, 6°C	assumed to be a gas vehicle
3	25-Nov	3:30-5:30	Gage	4:16	gas-vehicle	subway (western parkway)	1	Rain, 6°C	
3	25-Nov	3:30-5:30	Gage	4:22	electric bike	home cuisine		Rain, 6°C	
3	25-Nov	3:30-5:30	Gage	4:39	hybrid vehicle	koi sushi	3.5	Rain, 6°C	

3	25-Nov	3:30-5:30	Gage	4:46	gas-vehicle (honda civic)	sun sushi		3.6	Rain, 6°C	
3	25-Nov	3:30-5:30	Gage	5:11	motorbike	domino pizza		3.8	Rain, 6°C	
3	25-Nov	3:30-5:30	Gage	5:19	gas-vehicle	Mcdonanlds		1.5	Rain, 6°C	
3	25-Nov	3:30-5:30	Gage	5:22	gas-vehicle	Ryuu Japanese kitchen		0.95	Rain, 6°C	
3	25-Nov	3:30-5:30	Gage	5:22	gas-vehicle	Tacomio		1.3	Rain, 6°C	
3	25-Nov	3:30-5:30	Gage	5:29	gas-vehicle	Indian Buffet		10.1	Rain, 6°C	
4	24-Nov	5:30 - 7:30 pm	Marine Drive, Building 6	6:09	Unknown	Ryuu Japanese Kitchen, UBC (5980 University Blvd)		0.9	Rainfall (7 °C)	Unknown assumed to be gas vehicles.
4	24-Nov	5:30 - 7:30 pm	Marine Drive, Building 6	6:18	Gas Vehicle	Want Want Hot & Spicy House (5728 University Blvd)		1.2	Rainfall (7 °C)	App - Door Dash
4	24-Nov	5:30 - 7:30 pm	Marine Drive, Building 6	6:22	Gas Vehicle	MeeT on Main (4288 Main St)		11	Rainfall (7 °C)	
4	24-Nov	5:30 - 7:30 pm	Marine Drive, Building 6	6:36	Unknown	Jolly Indian Bistro (2928 W 4th Ave)		6.3	Rainfall (7 °C)	
4	24-Nov	5:30 - 7:30 pm	Marine Drive, Building 6	6:53	Gas Vehicle	Agra Tandoori Express (2138 Western Pkwy)		1.1	Rainfall (7 °C)	
4	24-Nov	5:30 - 7:30 pm	Marine Drive, Building 6	7:09	Unknown	Donair Dude (3209 W Broadway)		5.9	Rainfall (7 °C)	App - Uber Eats

4	24-Nov	5:30 - 7:30 pm	Marine Drive, Building 6	7:18	Unknown	Ryuu Japanese Kitchen, UBC (5980 University Blvd)	0.9	Rainfall (7 °C)	App - Uber Eats
5	23-Nov	3:30 - 5:30	Orchard Commons	4:17	Gas car	Domino's Pizza (4426 W 10th Ave W, Vancouver, BC V6R 2H9)	4.5	Windy	
5	23-Nov	3:30 - 5:30	Orchard Commons	4:42	Gas car	Chinese food	minimum 2 km (based on looking at chinese food places near orchard commons)	Windy	We were unable to find out restaurant name. Delivery service: Fantuan
6	24-Nov	3:30-5:30	Walter gage	3:34		A&W	0.85	cloudy	Unknown was assumed to be gas vehicles.
6	24-Nov	3:30-5:30	Walter gage	3:37	gas vehicle	Mc Donalds 5728 University blvd	0.85	cloudy	
6	24-Nov	3:30-5:30	Walter gage	3:50	gas vehicle	Wendys 480 W 8th Ave	9.8	cloudy	
6	24-Nov	3:30-5:30	Walter gage	5:16		Mc Donalds 5728 University blvd	0.85	cloudy	
7	22-Nov	5:30-7:30	Walter Gage	5:33	gas vehicle	Hime Sushi (315 E Broadway)	13	windy	

									Coco, My Home, and row 15 are all in the same plaza in the university village
7	22-Nov	5:30-7:30	Walter Gage	5:35	gas vehicle	CocoFresh Tean & Juice (5728 University Blvd)	0.9	windy	
7	22-Nov	5:30-7:30	Walter Gage	6:27	gas vehicle	Kokoro Mazesoba (5928 University Blvd)	0.9	rainy	
7	22-Nov	5:30-7:30	Walter Gage	6:28	gas vehicle	Homemade Catering	44.6	rainy	
7	22-Nov	5:30-7:30	Walter Gage	6:31	gas vehicle	Sushi In (3772 W 10th Ave)	5.1	rainy	
7	22-Nov	5:30-7:30	Walter Gage	6:31	gas vehicle	Pokerrito (995 Hornby St)	11	rainy	
7	22-Nov	5:30-7:30	Walter Gage	6:43	hybrid vehicle	Gold Train (4530 W 10th Ave)	3.4	rainy	
7	22-Nov	5:30-7:30	Walter Gage	6:48	gas vehicle	Corner Kitchen (115-5743 Dalhousie Rd)	1	rainy	
7	22-Nov	5:30-7:30	Walter Gage	6:52	gas vehicle	My Home Cuisine (5728 University Blvd)	0.9	rainy	
7	22-Nov	5:30-7:30	Walter Gage	7:00	hybrid vehicle	Chef Hung Taiwanese Beef Noodle (3313 Shrum Lane #102)	2.2	rainy	
7	22-Nov	5:30-7:30	Walter Gage	7:03	gas vehicle	5728 University Blvd	0.9	rainy	
8	23-Nov	19:35	Walter gage	19:35	Gas Car	Rice Burger	4.5	8°C, Cloudy	
8	23-Nov	19:42	Walter gage	19:42	Gas Car	A&W	0.85	8°C, Cloudy	

8	23-Nov	19:56	Walter gage	19:56	Gas Car	Pizza Garden	0.85	8°C, Cloudy	
8	23-Nov	20:06	Walter gage	20:06	Gas Car	Orignal beanery coffee house: The University of British Columbia, 2706 Fairview Cres, Vancouver, BC V6T 2B9	1.4	8°C, Cloudy	
8	23-Nov	20:08	Walter gage	20:08	Hybrid Car	Mc Donalds	0.9	8°C, Cloudy	Person Who took the delivery was not the person who ordered the food. There was a person that came after with the order verification and was mad not to see it.
8	23-Nov	20:13	Walter gage	20:13	Hybrid Car	Sun Sushi	3.4	8°C, Cloudy	
8	23-Nov	20:32	Walter gage	20:32	Gas Car	Bombay Massala	3.5	8°C, Cloudy	
8	23-Nov	20:43	Walter gage	20:43	Hybrid Car	Mc Donalds	0.9	8°C, Cloudy	Was the guy who lost his order
8	23-Nov	20:47	Walter gage	20:47	Gas Car	3337 shumlane	2.3	8°C, Cloudy	
8	23-Nov	21:03	Walter gage	21:03	Gas Car	Uncle Fati's	1.1	8°C, Cloudy	

8	23-Nov	21:12	Walter gage	21:12	Gas Car	City Market - Arbutus	8	8°C, Cloudy	
8	23-Nov	21:15	Walter gage	21:15	Gas Car	Cha time	1.4	8°C, Cloudy	
8	23-Nov	21:18	Walter gage	21:21	Electric Car	Shoppers	2.3	8°C, Cloudy	
9	25-Nov	5:30-7:30	Marine Drive	5:54	gas vehicle	Mc Donald's - 101 5728 University Blvd.	1.1	heavy rain, cold weather	
9	25-Nov	5:30-7:30	Marine Drive	6:27	gas vehicle	Want Want Hot & Spicy House - B1-5728 University Blvd	1.1	heavy rain, cold weather	
9	25-Nov	5:30-7:30	Marine Drive	6:37	gas vehicle	Agra Tandoori - 2138 Western Pkwy	1	heavy rain, cold weather	
9	25-Nov	5:30-7:30	Marine Drive	6:44	gas vehicle	Bombay Masala - 4473 W 10 Ave	3.5	light rain	
9	25-Nov	5:30-7:30	Marine Drive	7:11	gas vehicle	Uncle Fatih's Pizza - 6045 University Blvd.	0.81	light rain	
9	25-Nov	5:30-7:30	Marine Drive	7:22	gas vehicle	TACOMIO - 6025 University Blvd.	0.82	light rain	
10	26-Nov	3:30-5:30	Marine Drive	3:47	Gas	Unknown	Unknown	Cloudy	
10	26-Nov	3:30-5:30	Marine Drive	4:05	Bicycle	Doordash	Unknown	Cloudy	
10	26-Nov	3:30-5:30	Marine Drive	4:17	Walking	Pizza	Unknown	Cloudy	
11	26-Nov	5:30-7:30	Marine Drive Tower 1	5:34	biker	A&W (5728 University Blvd)	2.9	Dry, Cloudy	Uber Eats

11	26-Nov	5:30-7:30	Marine Drive Tower 1	5:45	gas			Dry, Cloudy	
11	26-Nov	5:30-7:30	Marine Drive Tower 1	6:00	Hybrid	Grand Noodle Emporium	2.3	Dry, Cloudy	
11	26-Nov	5:30-7:30	Marine Drive Tower 1	6:02	Gas	?		Dry, Cloudy	
11	26-Nov	5:30-7:30	Marine Drive Tower 1	6:05	hybrid	?		Dry, Cloudy	
11	26-Nov	5:30-7:30	Marine Drive Tower 1	6:21	gas	?		Dry, Cloudy	
11	26-Nov	5:30-7:30	Marine Drive Tower 1	6:29	gas	?		Dry, Cloudy	
11	26-Nov	5:30-7:30	Marine Drive Tower 1	6:34	hybrid	Mcdonalds (5728 University Blvd)	3	Dry, Cloudy	Uber Eats
11	26-Nov	5:30-7:30	Marine Drive Tower 1	6:40	hybrid	?		Dry, Cloudy	
11	26-Nov	5:30-7:30	Marine Drive Tower 1	6:44	gas	Pizza Hut (4540 W 10th Ave)	4.9	Dry, Cloudy	Skip TheDishes
11	26-Nov	5:30-7:30	Marine Drive Tower 1	6:45	hybrid	Ryuu Japanese Chicken(5980 University Blvd)	2.5	Dry, Cloudy	
11	26-Nov	5:30-7:30	Marine Drive Tower 1	6:59	gas	Togo Sushi (3380 Shrum Lane)	2.6	Dry, Cloudy	

11	26-Nov	5:30-7:30	Marine Drive Tower 1	7:04	gas	?		Dry, Cloudy	
11	26-Nov	5:30-7:30	Marine Drive Tower 1	7:10	gas	?		Dry, Cloudy	
11	26-Nov	5:30-7:30	Marine Drive Tower 1	7:11	gas	?		Dry, Cloudy	
11	26-Nov	5:30-7:30	Marine Drive Tower 1	7:15	gas	?		Dry, Cloudy	
11	26-Nov	5:30-7:30	Marine Drive Tower 1	7:22	hybrid	?		Dry, Cloudy	
11	26-Nov	5:30-7:30	Marine Drive Tower 1	7:28	hybrid	?		Dry, Cloudy	
11	26-Nov	5:30-7:30	Marine Drive Tower 1	7:30	hybrid	Mcdonalds (5728 University Blvd #101, Vancouver, BC V6T 1K6)	3	Dry, Cloudy	
12	26-Nov	3:30-5:30	Orchard	4:26	Mazda 3 (gas)	McDonalds/101-5728 University Blvd	1	Cloudy, 8 degrees	
12	26-Nov	3:30-5:30	Orchard	4:39	Toyota Corolla (gas)	Domino's Pizza/4298 Dunbar St	5	Cloudy, 8 degrees	
12	26-Nov	3:30-5:30	Orchard	4:59	Tesla Model 3 (electric)	Koi Sushi/4532 W 10th Ave	3	Cloudy, 8 degrees	
12	26-Nov	3:30-5:30	Orchard	5:04	Bicycle	Uncle Fatih's Pizza/6045 University Blvd	0.75	Cloudy, 8 degrees	

12	26-Nov	3:30-5:30	Orchard	5:15	Toyota RAV 4 (hybrid)	Chatime/5998 University Blvd	0.7	Cloudy, 7 degrees	
13	23-Nov	3:30-5:30	Marine 5	5:09	gas	Fresh Fresh	29	Clear night	
13	23-Nov	3:30-5:31	Marine 5	5:13	gas	McDonald's	2.1	Clear night	
14	25-Nov	3:30-5:30	Marine Drive Building 4	3:38	Gas	subway	1	Rainy	Driver delayed 5 mins
14	25-Nov	3:30-5:30	Marine Drive Building 4	3:42	Gas	pho	3	Rainy	
14	25-Nov	3:30-5:30	Marine Drive Building 4	4:09	Gas	uber eats - sushi	6	Rainy	
14	25-Nov	3:30-5:30	Marine Drive Building 4	4:38	Gas	skip- breka	3.7	Rainy	
14	25-Nov	3:30-5:30	Marine Drive Building 4	4:38	Gas	skip-Starbucks	0.5	Rainy	
14	25-Nov	3:30-5:30	Marine Drive Building 4	4:56	Gas	uber eats- Bubble Tea	1	Rainy	
14	25-Nov	3:30-5:30	Marine Drive Building 4	4:59	Gas	skip- Mcdonalds	1	Rainy	
15	25-Nov	7:30-9:30	Walter Gage	7:33	gas car	McDonalds	0.9	Rain	

15	25-Nov	7:30-9:30	Walter Gage	7:34	gas car	McDonalds	0.9	Rain	
15	25-Nov	7:30-9:30	Walter Gage	7:35	unknown	Unknown		Rain	Dooedash
15	25-Nov	7:30-9:30	Walter Gage	7:53	unknown	Munchicken Korean Bistro	8	Rain	
15	25-Nov	7:30-9:30	Walter Gage	7:59	unknown	Unknown		Rain	
15	25-Nov	7:30-9:30	Walter Gage	8:01	unknown	McDonalds	0.9	Rain	
15	25-Nov	7:30-9:30	Walter Gage	8:01	unknown	Body Energy Club	1.2	Rain	
15	25-Nov	7:30-9:30	Walter Gage	8:01	unknown	Unknown		Rain	
15	25-Nov	7:30-9:30	Walter Gage	8:05	unknown	Unknown		Rain	Doordash
15	25-Nov	7:30-9:30	Walter Gage	8:08	unknown	Unknown		Rain	Doordash
15	25-Nov	7:30-9:30	Walter Gage	8:23	unknown	Unknown		Rain	
15	25-Nov	7:30-9:30	Walter Gage	8:25	unknown	Unknown		Rain	alcohol?
15	25-Nov	7:30-9:30	Walter Gage	8:41	unknown	McDonalds	0.9	Rain	
15	25-Nov	7:30-9:30	Walter Gage	8:46	unknown	McDonalds	0.9	Rain	
15	25-Nov	7:30-9:30	Walter Gage	8:47	unknown	Chipotle	11.8	Rain	
15	25-Nov	7:30-9:30	Walter Gage	8:47	unknown	Unknown		Rain	
15	25-Nov	7:30-9:30	Walter Gage	8:48	unknown	Kokoro	0.9	Rain	

15	25-Nov	7:30-9:30	Walter Gage	8:56	unknown	Unknown		Rain	Doordash
15	25-Nov	7:30-9:30	Walter Gage	9:04	unknown	Unknown		Rain	
15	25-Nov	7:30-9:30	Walter Gage	9:09	unknown	Unknown		Rain	
15	25-Nov	7:30-9:30	Walter Gage	9:09	unknown	Unknown		Rain	
16	23-Nov	7:30-9:30	Orchard	7:58	gas vehicle	Koi Sushi (4532 W 10th Ave)	4.2	Partly Cloudy 7C	
16	23-Nov	7:30-9:30	Orchard	8:06	gas vehicle	Dynasty Seafood Restaurant (108-777 W Broadway)	11	Partly Cloudy 6C	
16	23-Nov	7:30-9:30	Orchard	8:10	gas vehicle	Casereccio Foods (2480 Vine St.)	8.2	Partly Cloudy 7C	
16	23-Nov	7:30-9:30	Orchard	8:10	gas vehicle	Koi Sushi (4532 W 10th Ave)	4.2	Partly Cloudy 7C	
16	23-Nov	7:30-9:30	Orchard	8:48	gas vehicle	Vera's Burger Shack (2188 Western Pkwy)	1.4	Partly Cloudy 7C	
16	23-Nov	7:30-9:30	Orchard	8:57	gas vehicle	Sun Sushi (4512 W 10th Ave)	4.3	Partly Cloudy 7C	
16	23-Nov	7:30-9:30	Orchard	9:17	electric vehicle	Ben Gong's Tea (3318 Cambie St)	10.7	Partly Cloudy 7C	
17	23-Nov	3:30-5:30	Walter Gage	3:37	Car (gas)			Sunny	
17	23-Nov	3:30-5:30	Walter Gage	3:52	Car (gas)	Subway	1	Sunny	UberEats
17	23-Nov	3:30-5:30	Walter Gage	4:52	Car (gas)	Starbucks	0.5	Clear	

17	23-Nov	3:30-5:30	Walter Gage	4:59	Car (gas)	Subway		1	Clear	
17	23-Nov	3:30-5:30	Walter Gage	5:05	Car (gas)	ShareTea		2	Clear	
17	23-Nov	3:30-5:30	Walter Gage	5:10	Car (gas)				Clear	
17	23-Nov	3:30-5:30	Walter Gage	5:17	Car (gas)	Donair Dude		7	Clear	
17	23-Nov	3:30-5:30	Walter Gage	5:21	Car (gas)	Subway		1	Clear	
21	23-Nov	5:30-7:31	Gage	5:49	gas vehicle (Toyota SUV)	Coco		1	Night/Cold	
21	23-Nov	5:30-7:32	Gage	6:06	gas vehicle	Ghost Thai?			Night/Cold	
21	23-Nov	5:30-7:33	Gage	6:09	gas vehicle	Koi Sushi		3	Night/Cold	
21	23-Nov	5:30-7:34	Gage	6:11	gas vehicle				Night/Cold	
21	23-Nov	5:30-7:35	Gage	6:11	gas vehicle				Night/Cold	
21	23-Nov	5:30-7:36	Gage	6:11	gas vehicle				Night/Cold	
21	23-Nov	5:30-7:37	Gage	6:16	gas vehicle	Save On Foods		3	Night/Cold	
21	23-Nov	5:30-7:38	Gage	6:17	gas vehicle				Night/Cold	
21	23-Nov	5:30-7:39	Gage	6:23	gas vehicle	Kung Fu Noodles		1	Night/Cold	
21	23-Nov	5:30-7:40	Gage	6:27	gas vehicle	McDonald's		1	Night/Cold	

21	23-Nov	5:30-7:41	Gage	6:29	gas vehicle	Ryuu	0.6	Night/Cold	
21	23-Nov	5:30-7:42	Gage	6:45	gas vehicle	McDonald's	1	Night/Cold	
21	23-Nov	5:30-7:43	Gage	6:50	gas vehicle			Night/Cold	
21	23-Nov	5:30-7:44	Gage	6:54	gas vehicle	Domino's	5	Night/Cold	
21	23-Nov	5:30-7:45	Gage	7:06	gas vehicle			Night/Cold	
21	23-Nov	5:30-7:46	Gage	7:22	gas vehicle	Pita Pit	1	Night/Cold	
22	23-Nov	5:30-7:30	Orchard Commons	5:37	-			Clear	
22	23-Nov	5:30-7:30	Orchard Commons	5:40	No car	Triple O's	0.85	Clear	
22	23-Nov	5:30-7:30	Orchard Commons	5:49	minivan	Costco Delivery	16.5	Clear	
22	23-Nov	5:30-7:30	Orchard Commons	5:58	SUV	Uber Eats		Clear	
22	23-Nov	5:30-7:30	Orchard Commons	6:07	-	Fantuan		Clear	
22	23-Nov	5:30-7:30	Orchard Commons	6:23	-	Fantuan		Clear	
22	23-Nov	5:30-7:30	Orchard Commons	6:27	-	-		Clear	
22	23-Nov	5:30-7:30	Orchard Commons	6:36	Toyota	Fantuan		Clear	
22	23-Nov	5:30-7:30	Orchard Commons	6:49	Kia	Uber Eats		Clear	

22	23-Nov	5:30-7:30	Orchard Commons	7:09	Toyota Corolla	Uber Eats		Clear	
22	23-Nov	5:30-7:30	Orchard Commons	7:10	-	President's Choice		Clear	
22	23-Nov	5:30-7:30	Orchard Commons	7:20	Toyota Prius	Uber Eats		Clear	
22	23-Nov	5:30-7:30	Orchard Commons	7:26	Honda Civic	Fantuan		Clear	
22	23-Nov	5:30-7:30	Orchard Commons	7:28	Toyota Corolla	Fantuan		Clear	
24	26-Nov	3:30-5:30	Walter Gage	3:53	gas vehicle	Unknown (plastic food containers)	unknown	cloudy	No branding, or receipt on the outside of food bag.
24	26-Nov	3:30-5:30	Walter Gage	4:06	gas vehicle	My Home Cuisine (5728 University Blvd)	0.8	cloudy	No branding, white bag
24	26-Nov	3:30-5:30	Walter Gage	4:06	unknown	Chicko Chicken (8550 Granville St)	12.6	cloudy	a cup and a combo
24	26-Nov	3:30-5:30	Walter Gage	4:07	electric	Mr Mustache bubble tea (8079 Granville St)	12.6	cloudy	Branded bubble tea
24	26-Nov	3:30-5:30	Walter Gage	4:19	gas vehicle	Minami sushi (1118 Mainland St)	10.8	cloudy	white unbranded plastic bag, 2 plastic boxes
24	26-Nov	3:30-5:30	Walter Gage	4:43	gas vehicle	McDonalds (5728 University Blvd)	0.8	cloudy	brown paper bag
24	26-Nov	3:30-5:30	Walter Gage	5:18	gas vehicle	YuShang Rice Noodle House(Ackroyd Rd, Richmond)	20	cloudy	white plastic bag with a lot of food

25	24-Nov	3:30-5:30	Orchard Commons	3:55	gas (van)	Koi Sushi (4523 W 10th Ave)	4.2	Overcast/windy	
25	24-Nov	3:30-5:30	Orchard Commons	4:04	gas (van)	Nam Dae Moon (3779 Sexsmith Road)	16.2	Overcast/windy	
25	24-Nov	3:30-5:30	Orchard Commons	4:22	gas (van)	Freshii (3351 Wesbrook Mall)	2.2	Overcast/windy/light rain	
25	24-Nov	3:30-5:30	Orchard Commons	4:27	gas	International Food Court (5762 University Blvd)	2.1	Overcast/windy/light rain	
25	24-Nov	3:30-5:30	Orchard Commons	4:37	gas	Unknown, they ordered from WeChat and we were unable to talk to the driver	N/A	Overcast/windy/light rain	Multiple meals delivered by driver to this location
25	24-Nov	3:30-5:30	Orchard Commons	4:54	hybrid	SoloPasta (8620 Granville St)	11.7	Overcast/windy/light rain	
25	24-Nov	3:30-5:30	Orchard Commons	4:58	gas (van)	Steve's Poke Bar (5990 University Blvd)	1.1	Overcast/windy/light rain	
25	24-Nov	3:30-5:30	Orchard Commons	5:08	gas	Thai Basil (3257 West Broadway)	6.7	Overcast/windy/light rain	
25	24-Nov	3:30-5:30	Orchard Commons	5:11	gas	Tandoori Express (2138 Western Parkway)	1.3	Overcast/windy/light rain	
26	25-Nov	5:30 - 7:30	Walter Gage	5:51	gas	Yun shang rice noodles	1.6	Rainy	
26	25-Nov	5:30 - 7:30	Walter Gage	5:53	gas	unknown		Rainy	
26	25-Nov	5:30 - 7:30	Walter Gage	6:00	gas	dominos	7.6	Rainy	
26	25-Nov	5:30 - 7:30	Walter Gage	6:15	gas	breka bakery	5.2	Rainy	

26	25-Nov	5:30 - 7:30	Walter Gage	6:25	gas	save on foods	2.7	Rainy	groceries
26	25-Nov	5:30 - 7:30	Walter Gage	6:36	gas	save on foods	2.7	Rainy	groceries
26	25-Nov	5:30 - 7:30	Walter Gage	6:45	gas	unknown		Rainy	
26	25-Nov	5:30 - 7:30	Walter Gage	6:52	gas	kokoro	1.6	Rainy	
26	25-Nov	5:30 - 7:30	Walter Gage	6:56	gas	door dash		Rainy	
26	25-Nov	5:30 - 7:30	Walter Gage	6:57	gas	pizza hut	4.1	Rainy	
26	25-Nov	5:30 - 7:30	Walter Gage	6:59	gas	miyamae sushi	1.6	Rainy	
26	25-Nov	5:30 - 7:30	Walter Gage	7:12	gas	unknown		Rainy	
26	25-Nov	5:30 - 7:30	Walter Gage	7:16	gas	door dash		Rainy	
26	25-Nov	5:30 - 7:30	Walter Gage	7:26	gas	uber eats		Rainy	
26	25-Nov	5:30 - 7:30	Walter Gage			fantuan deliveries		Rainy	
27	25-Nov	3:30-5:30	Totem	3:54	hybrid	Sen Pad Thai	7.7	Rainy night	
27	25-Nov	3:30-5:30	Totem	4:05	gas	Chatime 5998 Uni. Blvd.	1.3	Rainy night	
27	25-Nov	3:30-5:30	Totem	4:08	gas	3144 W. Broadway	7.2	Rainy night	
27	25-Nov	3:30-5:30	Totem	4:33	gas	2182 Western Parkway	1.7	Rainy night	
27	25-Nov	3:30-5:30	Totem	5:26	hybrid	6333 Larkin Drive	0.8	Rainy night	

28	23-Nov	3:30-5:30	Marine Drive building 6	3:59	Gas vehicle	Donair Town (5728 University Boulevard)	1.1	Clear	Uber Eats
28	23-Nov	3:30-5:30	Marine Drive building 6	4:23	Gas vehicle	Only U Cafe (5737 Dalhousie Road)	1.1	Clear	Uber Eats
28	23-Nov	3:30-5:30	Marine Drive building 6	4:30	Electric vehicle	Subway (2178 Western Parkway)	1.1	Clear	Uber Eats
28	23-Nov	3:30-5:30	Marine Drive building 6	4:41	Gas vehicle	World Malatang (6290 East Blvd)	9.1	Clear	Uber Eats
29	22-Nov	3:30-5:30 pm	Walter Gage	3:52	Gas vehicle	Chicken Chicken	20.1	Cloudy	Interacted with driver
29	22-Nov	3:30-5:30 pm	Walter Gage	3:54	Gas vehicle	Napolitano Pizzeria	8.3	Cloudy	Interacted with driver
29	22-Nov	3:30-5:30 pm	Walter Gage	4:00	Gas vehicle	Unknown Chinese restaurant	Unknown	Cloudy	Interacted with driver
29	22-Nov	3:30-5:30 pm	Walter Gage	4:00	Gas vehicle	7-Eleven	10.5	Cloudy	Interacted with driver
29	22-Nov	3:30-5:30 pm	Walter Gage	4:10	Unknown	Coco Bubble Tea	0.9	Cloudy	
29	22-Nov	3:30-5:30 pm	Walter Gage	4:34	Gas vehicle	A&W	1.6	Cloudy	Interacted with driver
29	22-Nov	3:30-5:30 pm	Walter Gage	4:42	Gas vehicle	Loblaws City Market	8	Cloudy	Interacted with driver
29	22-Nov	3:30-5:30 pm	Walter Gage	5:27	Gas vehicle	Raisu Mama's Kitchen	7.5	Cloudy	Interacted with driver

30	25-Nov	3:30-5:30 pm	Orchard	3:39	Honda Civic(small)	Casereccio		6.8	Heavy rain	
30	25-Nov	3:30-5:30 pm	Orchard	4:15	Mercedes(medium)	Sesame		0.7	Medium rain	2 consumers
30	25-Nov	3:30-5:30 pm	Orchard	4:27	Toyota(small)	Koerner Kitchen		0.75	Medium rain	
30	25-Nov	3:30-5:30 pm	Orchard	4:30	Hyundai(small)	Neptune(Chinese)		1.3	Medium rain	
30	25-Nov	3:30-5:30 pm	Orchard	4:52	Honda(small)	Doordash Gongcha		9.8	Medium rain	
30	25-Nov	3:30-5:30 pm	Orchard	5:02	Tesla (small)	N/A	N/A		Medium rain	Pick up for his/her friend