Waste Characterization Study: Olympic College

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Presented to:

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COMPOST MANUFACTURING ALLIANCE
COMPOSTER APPROVED

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Scope of Work

This study was designed to provide NatureWorks field information to compare differences in the profile mix of landfill and organics materials collected within a closed loop college campus system. In an initial study conducted for NatureWorks at the University of Washington, CMA analyzed food service organics and landfill waste streams at a campus where a full suite of compostable serviceware was utilized in dine-in food service areas. In this follow up study, CMA audited a college campus that also had organics collection available back of house (BOH) but was not collecting organics in the front of house (FOH) and was not deploying full use of compostable serviceware. The question to answer in comparing the percentage of materials to the initial audit is this: Does employing compostable serviceware yield higher food scrap collection?

"Does employing compostable serviceware yield higher food scrap collection?"

Measurement Targets

The study was designed to provide data and observations in the following areas:

- ✓ Measurement of disposable, recyclable, and compostable foodservice ware currently being collected in landfill and BOH organic waste streams
- ✓ Volume/weight of food scraps that could potentially be collected in BOH and FOH landfill streams if compostables were employed for their capture
- ✓ Amount and type of foodservice ware and weight of avoidable material through the potential deployment of compostable serviceware

Methodology

Study Components

The study site for this project was Olympic College, located in Bremerton, Washington, roughly 25 miles by ferry from the previous audit site, the University of Washington in north Seattle. Olympic College is a public two-year community college founded in 1946, with three campuses in Bremerton, Poulsbo, and Shelton that serves a population of 280,000 residents living in Kitsap and Mason Counties. The college is located on the Kitsap peninsula and is located near the U.S. Navy's Puget Sound Naval Shipyard and Naval Base Kitsap.

Waste collected from this study was generated by the single dining area on the Olympic College Bremerton campus. The dining program serves over 250 meals per day for the student population of 12,800. At the time of the audit, although some compostables were purchased for use, there was no FOH organics collection. The BOH kitchen does not employ compostable serviceware, as only food prep organics were being collected in the BOH organics stream.

This study was conducted through three week-long collection periods. The collection weeks were the last week of the 2019 Fall Quarter and the first few weeks of the 2020 Winter Quarter. The final week of collection was originally scheduled for the first and second week of the Winter Quarter but was delayed due to snow that resulted in school closure. Material was ultimately collected the first and fourth week of the Winter Quarter.

Audits of the collected materials were carried out each weekend following the collection period. A temporary work crew was hired to help sort material while weighing, worker training, and sorting categories were organized by a Compost Manufacturing Alliance's Project Lead. All audits were carried out off-campus at the Olympic Organics' Bremerton soils and green waste collection yard. Olympic Organics was an important stakeholder in providing the audit site, while their affiliated hauling company, New Day Recycling, supplied the collection bins and transportation services from Olympic College to the audit site.

Project Stakeholders

The total list of stakeholders and their responsibilities for this project included:

- Olympic College Kitchen Managers and Staff (in-house collection of waste streams)
- Olympic Organics, Bremerton Location Staff (audit and sorting site)
- New Day Recycling (collection of bins and transportation to audit site)
- Olympic Peninsula Personnel Inc. (providing staff for sorting of waste streams)

Study Design

The study encompassed the primary food service dine-in area on the Olympic College campus where compost collection is in place for BOH kitchen, with no FOH compost collection. Although single use foodservice items are used (both compostable and recyclable), there is no food scrap collection in the FOH dining area due to concerns of contamination (cross contamination of three streams, sorting confusion issues, concern with materials and packaging brought in from outside the school that is not compostable, etc.).

Logistics and Set Up

Initial contact with Olympic College was made through Compost Manufacturing Alliance's (CMA) partner, Olympic Organics and their affiliated hauling service, New Day Recycling. Through this working relationship, CMA was able to meet with Chef Chris Plemmons, who took on all aspects of communicating the program specifics to kitchen and facilities staff, as well as interfacing with the logistics team conducting the bin drops and hauling.

A loading dock behind the kitchen served as the central collection and pick up area for the kitchen and dining waste streams. Through this and kitchen staff cooperation, landfill material from both the FOH and BOH was segregated from the other academic and facility landfill waste. Organic residuals were easily obtained and diverted to auditing as no changes were required by staff for the collection, loading dock set up, hauling systems, or scheduling of loads.

Hauler Set Ups

New Day recycling provided the transport and the appropriate collection equipment in order to audit the material off campus grounds. Totes for both organics and landfill were picked up by a one-ton truck with a lift and shipped to the audit site. CMA secured the support to design and execute the appropriate collection program for the collection area using relationships with the existing hauler, mentioned above.

Collection Area Setup

Twelve 64-gallon roll-able tote carts were deployed on site to collect the three waste streams. Four to six carts were used to collect the BOH trash, the FOH trash, and the BOH organic waste streams. The bins within the kitchen and cafeteria were emptied at the end of each day by cafeteria and kitchen staff. These bins were labeled and kept behind the kitchen near the building loading dock. The organic stream was being collected in this fashion prior to this study so the adjustment to all streams being collected this way was prompt and met with little resistance.

Sample Site Container Count				
# of sub samples	**Food service sample sites**	**KITCHEN Organics (BOH)**	**KITCHEN Landfill (BOH)**	**DINING Landfill (FOH)**
3	Olympic College Kitchen and Main Dining Area	4 to 6 x 64 gal totes	4 to 6 x 64 gal totes	4 to 6 x 64 gal totes

Tote Signage for Separation

The tote carts used to collect the refuse streams on site were labelled with their respective sort categories.

KITCHEN COMPOST	KITCHEN TRASH	DINING AREA TRASH

Audit Site Setup

The audits were conducted the following weekend of every collection week, and were carried out at the Olympics Organics Bremerton site, just three miles from Olympic College. A Compost Manufacturing Alliance Project Lead organized the audit, creating the sorting lists, training the sorting staff, and conducting the final measurements. Sorting staff was provided through Olympic Peninsula Personnel Inc.

All material was audited at Olympic Organics, 6068 State Hwy 303 NE Bremerton, Washington 3 miles from the Olympic College Campus.

Sorting Lists per Stream

Front of house (FOH) organics are not collected as there is no compostable food ware used to ensure the collection is free of non-compostable packaging, so the following lists the sorting categories for organics and landfill for this study.

Area of collection	Category	Sorted in this Study	Comments
Kitchen- BOH	Organics	✓	Kitchen scraps from kitchen, all food scraps, only compost stream collected on-site
Kitchen- BOH	Landfill	✓	Kitchen trash
Dining Area- FOH	Organics	No	No collection FOH for organics due
Dining Area- FOH	Landfill	✓	Landfill waste consisting of organics, recyclables and trash

Based on the above targeted sorting lists, the following sort lists were developed for the organics and landfill streams.

KITCHEN FOOD SCRAPS- FOH Organics Stream Primary Sorting Categories	
Food scraps	Back of house food scraps
All other	Compostable and non-compostable “all other”

KITCHEN TRASH-BOH Landfill Stream Primary Sorting Categories, Excluding Food	
Categories	**Constituents**
Waste	
Paper	Bakery Bags - Coffee Cups - Deli Tray Liners - Service Boats - Parchment - Receipts -Soda Cups - To-Go Containers
Plastic	Kitchen Gloves - Plastic Bags - Cling Film - Lids - Poultry Bag - Utensils - Soup Cup - Portion Cups - Straws
Metal	Serving Foil - Stove Cleaning Bricks
Garbage	Chip Bags - Condiment Containers – Misc. Trash - Sanitary Wash Cloths - Styrofoam - Wrappers
Recyclables	
Paper	Aseptic Containers - Cardboard Milk Cartons - Cardboard -Paper
Plastic	Service Plastic - Bottles - Cups - Yogurt Containers
Metal	Aluminum Cans - Steel Cans
Glass	Glass Bottles
Compostables	
Paper	Coffee Sleeves - Service Boats - Soup Cups - Napkins and Paper Towels - Plates
Plastic	Soup Lids
Other	Wooden Stir Sticks

Sorting Lists per Stream (Continued)

DINING AREA TRASH-FOH Landfill Stream Primary Sorting Categories, Excluding Food	
Categories	**Constituents**
Waste	
Paper	Coffee Cups - Deli Tray Liners - Service Boats - Parchment Paper - Receipts -Soda Cups - To-go Containers
Plastic	Kitchen Gloves - Plastic Bags - Cling Film - Lids - Poultry Bag - Utensils - Soup Cup - Portion Cups - Straws
Metal	Serving Foil - Stove Cleaning Bricks
Garbage	Chip Bags - Composite Cans - Condiment Containers - Misc. Trash - Sanitary Wash Cloths - Styrofoam - Wrappers
Recyclables	
Paper	Aseptic Containers - Cardboard Milk Cartons - Cardboard -Paper
Plastic	Service Plastic - Bottles - Cups - Yogurt Containers
Metal	Aluminum Cans - Steel Cans
Glass	Glass Bottles
Compostables	
Paper	Coffee Sleeves - Service Boats - Soup Cups - To-Go Containers - Napkins and Paper Towels - Plates
Plastic	Soup Lids
Other	Wooden Stir Sticks

Scheduling and Audit Coordination

Once the on- site collection protocols were established at Olympic College, the Project Lead coordinated with site staff, the hauler, and the audit facility to schedule the work. On each audit day, material was picked up from the site on or close to their normal pick up day and delivered to the respective sorting location.

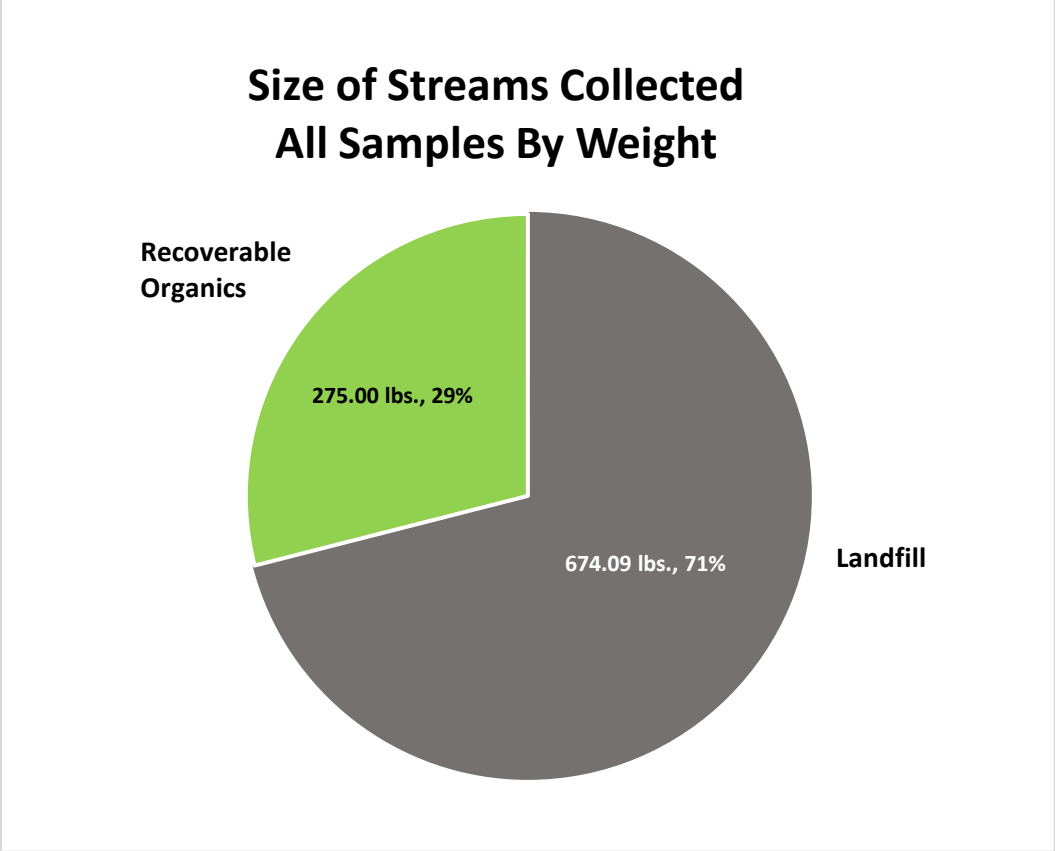
Material was then meticulously sorted into categories by material type from the sources and on the dates listed in the table below. All relevant data was collected and recorded for later analysis, and periodic photos were taken to document the process.

Sample Retrieved	Audit Date	Material Sorted (Pounds)
Dec. 6, 2019	Dec. 7, 2019	203.90
Jan. 10, 2020	Jan. 11, 2020	407.79
Jan. 31, 2020	Feb. 1, 2020	337.43

Data

Collection Volumes: Landfill and Organics

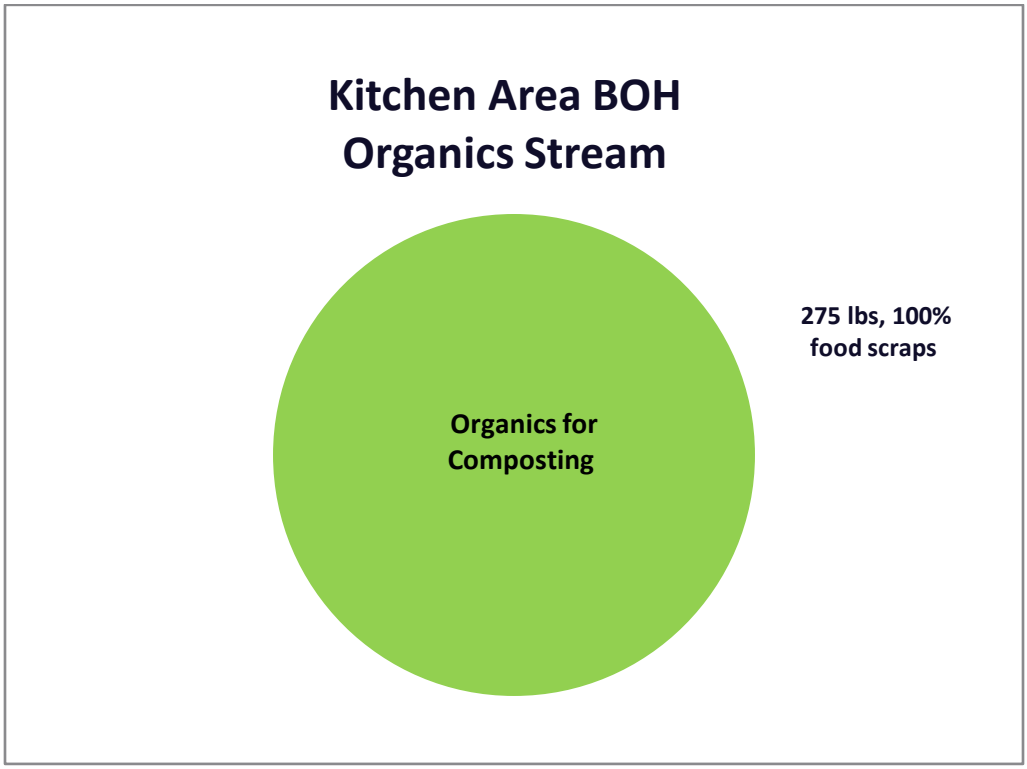
For all combined audit samples, 71% of materials were sorted as landfill waste, while 29% was sorted for the organics stream. The weights of each stream are shown below.



Size of Streams Collected	Weights (Pounds)	% Total
Landfill	674.09	71.02%
Organics	275.00	28.98%
Total	**949.094**	**100.00%**

ORGANICS STREAM:
Kitchen Area, BOH

The organics stream for this study was collected solely from the BOH operations. This study found zero non-organic contamination for each of the three audits in the BOH organics stream from the kitchen, with the material collected consisting of clean kitchen scrap.

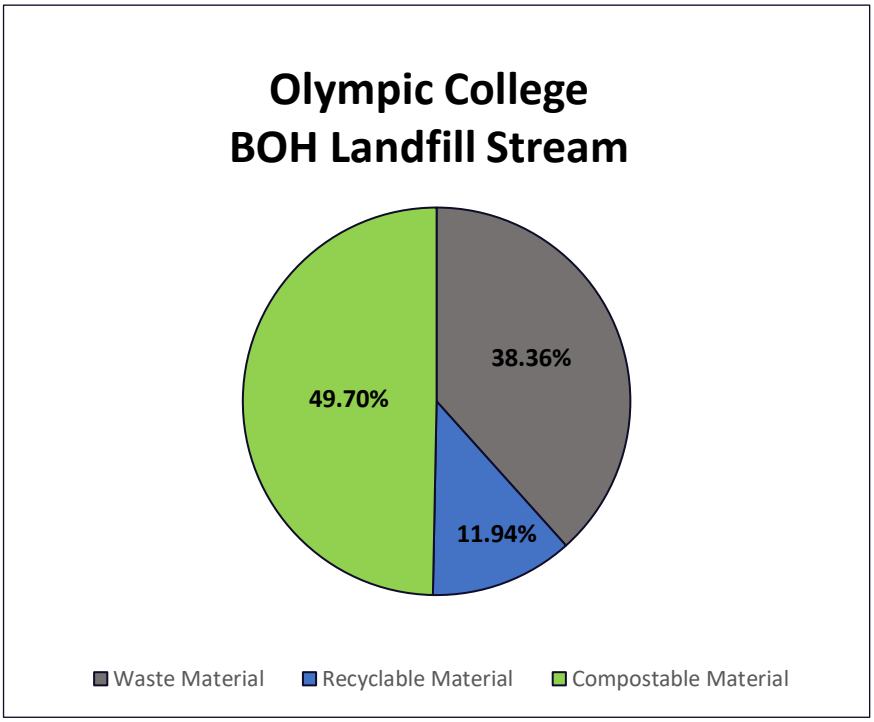


BOH Organics	Weight	% Total
Food scraps	275 lbs.	100%

Kitchen Landfill BOH Waste	Est. Count
Bakery Bags (flour)	5
Chips Bags	50
Coffee Cups	175
Condiments	80
Deli Tray Liners	65
Disposable Boats	43
Kitchen Gloves	550
Misc. Trash	20
Parchment Paper	55
Plastic Bags	200
Plastic Cling Film	70
Plastic Lids	85
Plastic Poultry Bag	8
Plastic Utensils	300
Poly-lined Soup Cup	34
Portion Cups	90
Receipts	325
Sanitary Wash Cloths	75
Serving Foil (Burger Wrappers)	50
Soda Cups	38
Stove Cleaning Bricks	4
Straws	55
Styrofoam Cups	7
Disposable To-go Container	18
Wrappers	180
Aluminum Cans	90
Aseptic Containers	11
Cardboard Milk Cartons	12
Food Service Plastic Ware	75
Glass	12
Plastic Bottles	52
Plastic Cups	60
Recyclable Cardboard	22
Recyclable Paper	0
Serving Yogurt Containers	3
Steel Cans	6
Coffee Sleeves	16
Compostable Boats	40
Compostable Soup Cup	5
Food scrap	0
Napkins and Paper Towels	590
Paper Plates	105
Wooden Stir Sticks	52

LANDFILL STREAM: Kitchen Area, BOH

The BOH kitchen landfill stream consisted of landfill material collected from the kitchen area of Olympic College. The breakdowns below and to the left show the complete list of items measured, their estimated piece count, the percentage by weight of the stream by category, and the total weights of each category (waste, recyclable, and compostable).

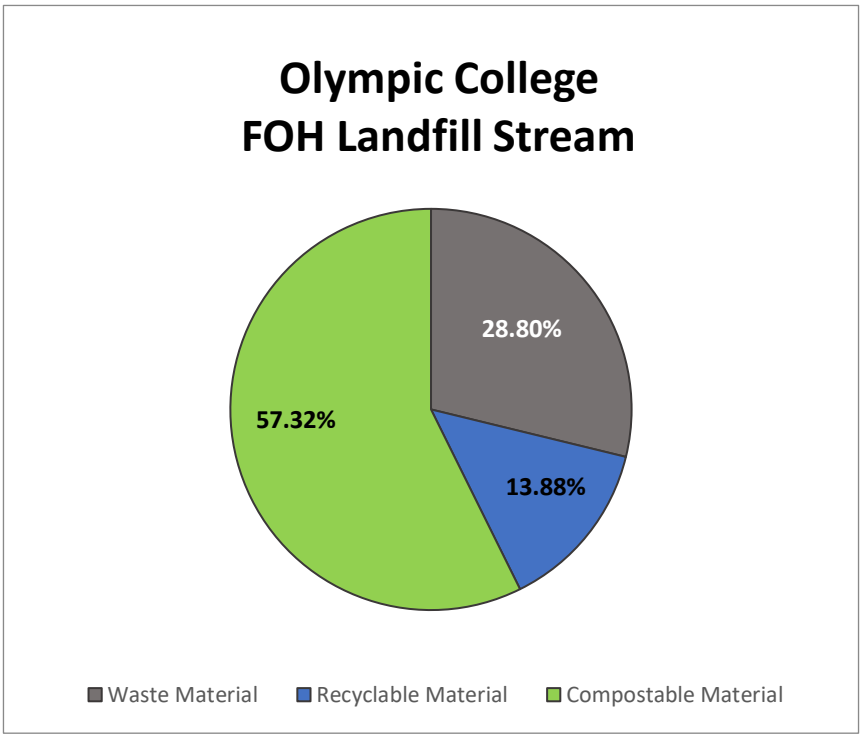


Landfill BOH Waste	Weight (pounds)
Total BOH Waste	313.56
Total BOH Waste Material	120.28
Total BOH Recyclable Material	37.45
Total BOH Compostable Material	155.83

Dining Area Landfill FOH Waste	Est. Count
Chip Bags	175
Coffee Cups	220
Composite Cans (pringles)	4
Condiments	195
Disposable Cup Lids	9
Deli Tray Liners	70
Disposable Serving Boats	49
Disposable Soup Cups	110
Disposable To-go Boxes	43
Kitchen Gloves	240
Misc. Garbage	75
Outside Fast Food	12
Parchment Paper	25
Plastic Bags	210
Plastic Cling Film	80
Plastic Lids	49
Plastic Utensils	365
Poly-lined Bowls	12
Portion Cups	165
Receipts	440
Sanitary Wash Cloths	75
Serving Foil (Burger Wrappers)	105
Soda Cups	65
Straws	140
Styrofoam Cups	7
Styrofoam Soup Cups	22
Wrappers	263
Aluminum Cans	140
Aseptic Containers	14
Cardboard Milk Cartons	6
Food Service Plastic Ware	92
Glass	16
Plastic Bottles	91
Plastic Cups	135
Recyclable Cardboard	6
Recyclable Paper	0
Steel Cans	2
Coffee Sleeves	37
Compostable Boats	24
Compostable Soup Cup	14
Compostable Soup Lids	22.00
Compostable To-Go Containers	29
Food scrap	0
Napkins and Paper Towels	600
Paper Plates	195
Wooden Stir Sticks	150

LANDFILL STREAM:
Dining Area, FOH

The FOH stream consisted of trash material collected from the cafeteria area of Olympic College. The breakdowns below and to the left show the complete list of items measured, their estimated piece count, the percentage by weight of the stream by category, and the total weights of each category (waste, recyclable, and compostable).



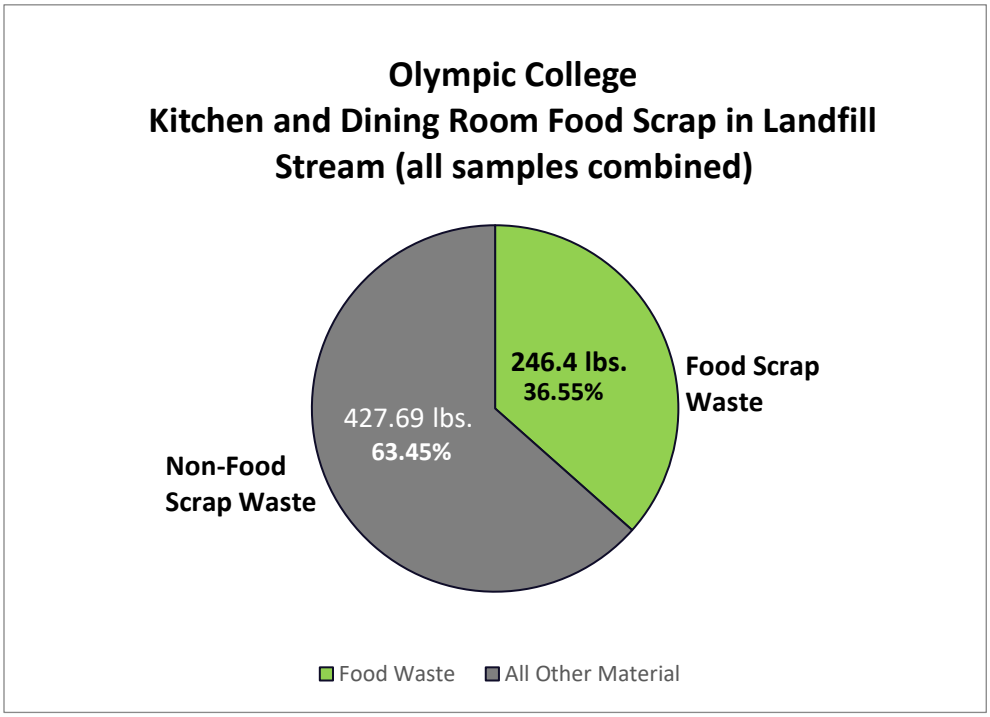
Dining Area Front of House Trash	Weight (pounds)
Total FOH Waste	360.56
Total FOH Waste Material	103.85
Total FOH Recyclable Material	50.03
Total FOH Compostable Material	206.68

Analysis and Comparison

Loss of Organics Potential

Observations in this study are focused on the current system and what is recovered for composting, as well as where the opportunities are for additional system changes to maximize tonnage diversion from landfilling.

The results summarized below show that within the BOH and FOH landfill streams, 37% of the material by weight is food scrap. This lost potential for food scrap collection could be aided by the implementation of compostable products. This measure of food scrap does not include the food scrap already collected and recovered in Olympic College's kitchen area organics stream.



Landfill Stream Category	Weight (pounds)	% Total
Landfill Food Scrap	246.4	36.55%
Non-Food Scrap Waste	427.69	63.45%

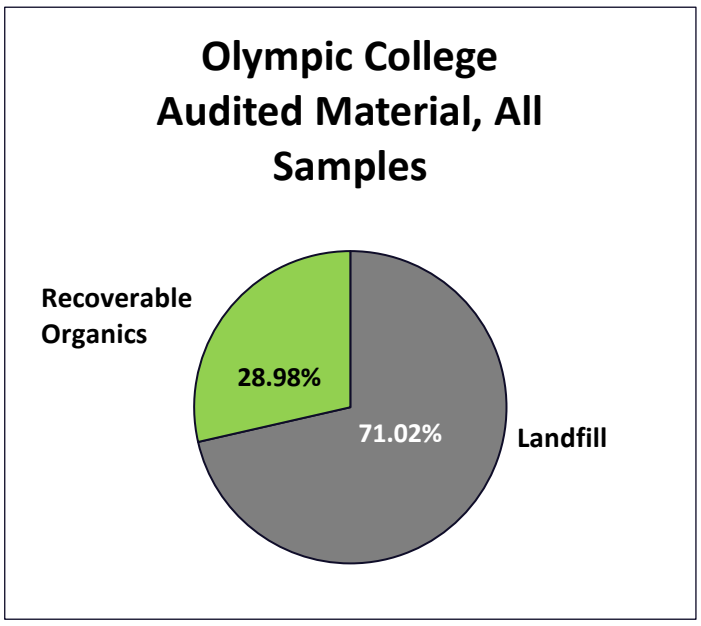
Comparison to University of Washington Study

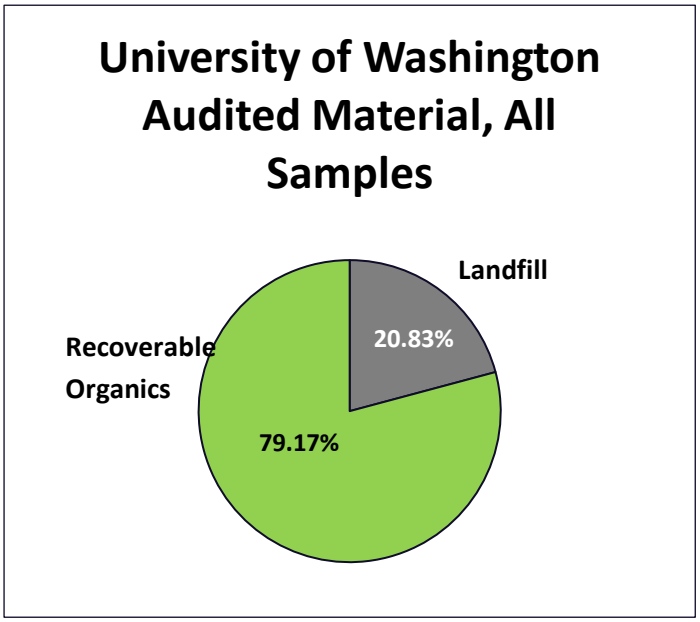
Total Material Comparison

The following is a comparison of results to the University of Washington (UW) Study conducted in 2018. Both studies collected and sorted landfill waste from FOH and BOH operations. Both studies collected organics streams, with the UW study having collected organics from both FOH and BOH operations. The Olympic College study collected from the BOH and did not sort it as it was a clean stream.

Total Material Collected		
Stream	**Olympic**	**UW**
Landfill	674.09	487.31
Organics	275.00	1851.83
Total Material	**949.09**	**2339.14**

Percent of Total Material		
Stream	**Olympic**	**UW**
Landfill	71.02%	20.83%
Organics	28.98%	79.17%
Total Material	**100.00%**	**100.00%**

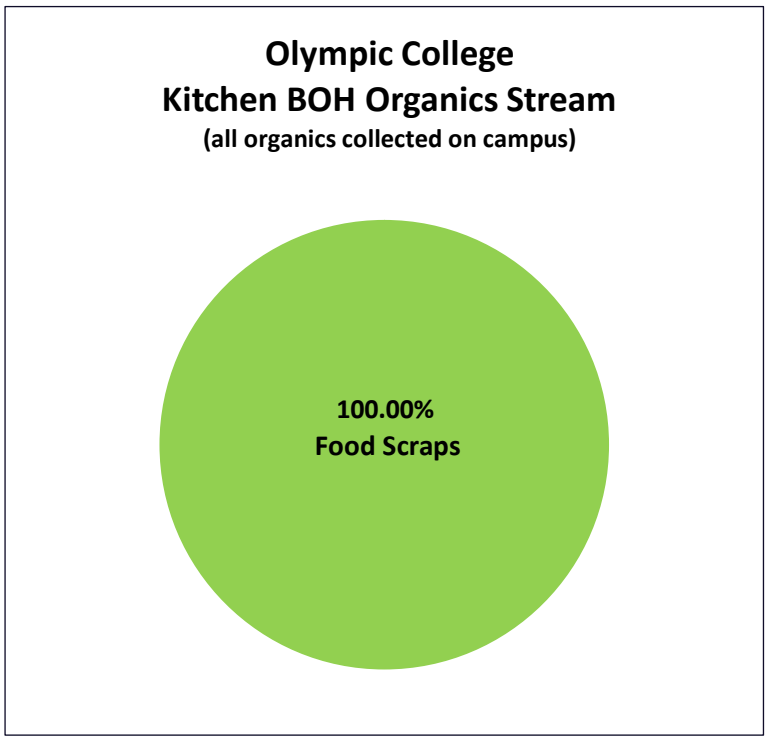


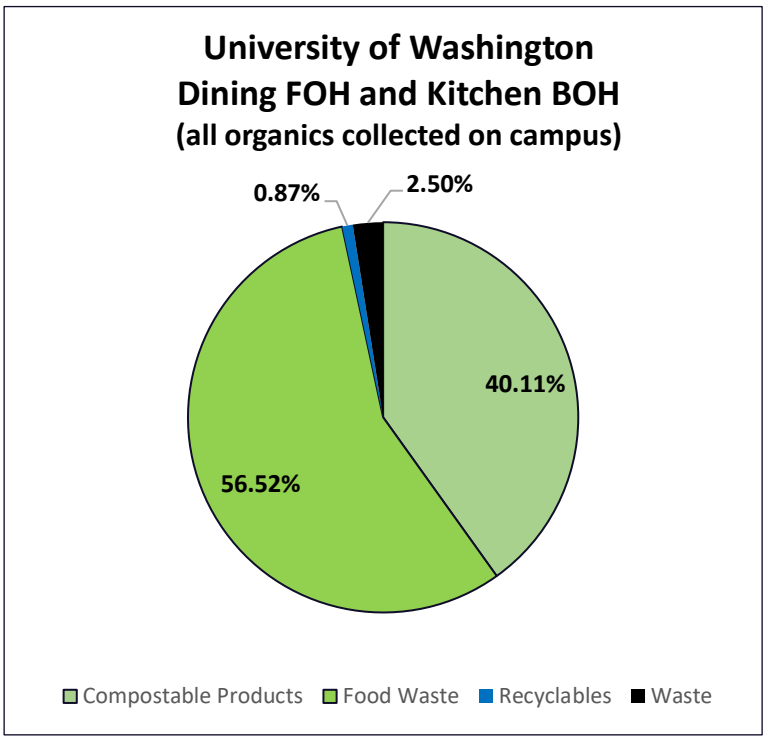


Despite having a larger overall sample size, the UW campus collected not only a lower percentage of landfill waste by volume (21% landfill for UW, 71% landfill for Olympic), but a lower weight of landfill waste as well (487 pounds from UW, 674 pounds from Olympic). This difference in ratios is likely caused by a combination of the lack of FOH of organics collection at Olympic College and the lack of use of compostable serviceware in the public dining food service area.

Organics Contamination Rates

UW collected a higher percentage of organics than the system at Olympic College, but what was the contamination rate of the organics stream? The data shows that although UW had more contamination in their organics stream, it was minimal, at 3.37% of the total organics stream.



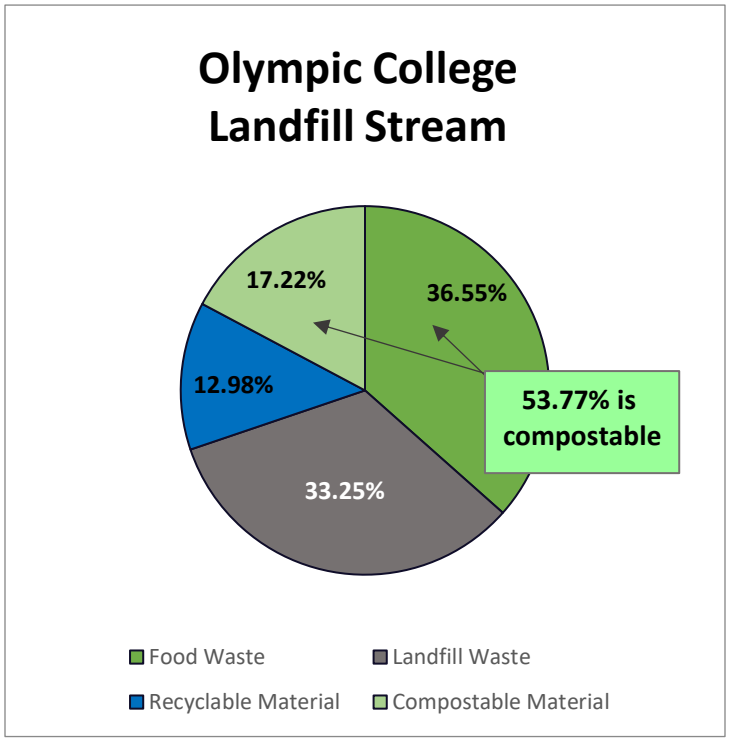


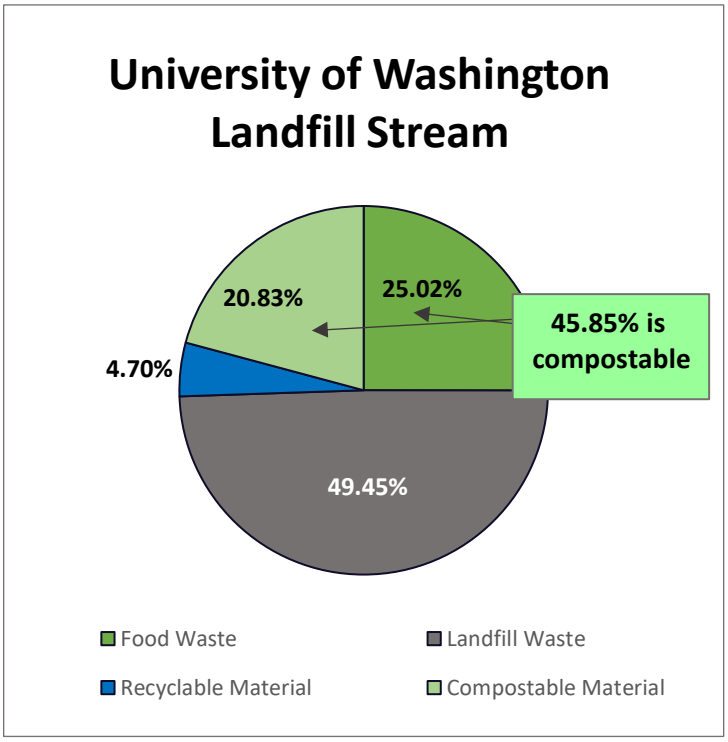
Weights of Organic Contamination		
Material Type	**Olympic**	**UW**
Compostable Products	N/A	742.79
Food scrap	275.00	1046.62
Recyclables	N/A	46.22
Waste	N/A	16.20

Percent of Organics Contamination		
Material Type	**Olympic**	**UW**
Compostable Products	N/A	40.11%
Food scrap	100.00%	56.52%
Recyclables	N/A	0.87%
Waste	N/A	2.50%

Landfill Profile: Percentages and Weights of Recyclable and Compostable Material
When analyzing materials within the collective landfill streams, CMA looked at what percentage of the landfill material could have been collected as recovered organics on both the UW and Olympic College campuses.

The audit results show that Olympic College's landfill stream had 362.49 pounds of organic material, representing 53.77% of their total landfill stream. In comparison, UW had 223.37 pounds of organic material in their landfill stream representing 45.85% of their total landfill stream.





Weights of Landfill Profile Mix		
Material Type (Pounds)	**Olympic**	**UW**
Food scraps	246.40	121.90
Landfill Waste	224.13	241.05
Recyclable Material	87.48	22.89
Compostable Material	116.09	101.47
Total Material	**674.09**	**487.31**

Landfill Stream Contamination		
Material Type (Pounds)	**Olympic**	**UW**
Food scraps	36.55%	25.02%
Landfill Waste	33.25%	49.45%
Recyclable Material	12.98%	4.70%
Compostable Material	17.22%	20.83%
Total Material	**100.00%**	**100.00%**

Landfill Stream: Comparison of Divertible Material

For the landfill stream, there was significantly more food scrap lost in the Olympic College stream than in the UW stream. For both landfill streams, paper products were the largest non-food scrap contributor of compostable material (14.3% for Olympic and 16.6% for UW). Overall, recyclable and compostable material within the total landfill stream broke down to 66.75% of the Olympic College stream. Compare that to the 50.55% potentially recyclable and compostable material of the UW landfill stream.

Ratio of Organics Landfilled to Organics Collected (Pounds: Pounds)

Given the information gathered in these studies, it can be determined how much organics are being thrown away compared to being collected. For Olympic College, where there is little compostable serviceware and no FOH organics collection, for every four pounds of organics thrown away, three pounds are properly collected. At UW, where both compostable serviceware and FOH organics collection are in place, for every four pounds of organics landfilled, fifty-nine pounds of organics are properly collected.

Ratio of Food Scraps Landfilled to Food Scraps Collected (Pounds: Pounds)

The above ratio can also be applied to food scraps specifically. At Olympic College, for every eight pounds of food scraps landfilled, there are nine pounds collected properly. At UW the ratio is much more drastic. For every two pounds of organics thrown away, seventeen pounds are properly placed in the organics stream. That is an increase in collection ratios of over 770%. In summary, the rate at which UW collects food scraps compared to landfills them is 7.7 times higher than that at Olympic College.

Summary of Olympic College to UW Comparisons

Landfill Stream Profile Mix on Campus	Olympic College	University of Washington
Organics Collected (Pounds)	275.00	1851.83
Landfill Material Collected (Pounds)	674.09	487.31
Total Material Collected (Pounds)	949.09	2339.14
Contamination in Organics Stream (Pounds)	0.00	62.42
Percent of Contamination in Organics Stream	0.00%	3.37%
Food scrap in Landfill Stream (Pounds)	246.40	121.90
Percent of Food scrap in Landfill Stream	36.55%	25.01%
Compostable Material and Food scrap in Landfill Stream (Pounds)	362.49	223.37
Percent of Compostable Material and Food scrap in Landfill Stream	53.77%	45.83%
Ratio of Organics Landfilled to Organics Collected (Lbs. to Lbs.)	4:3	4:59
Ratio of Food Scraps Landfilled to Food Scraps Collected (Lbs. to Lbs.)	8:9	2:17

Note on Comparing Campuses

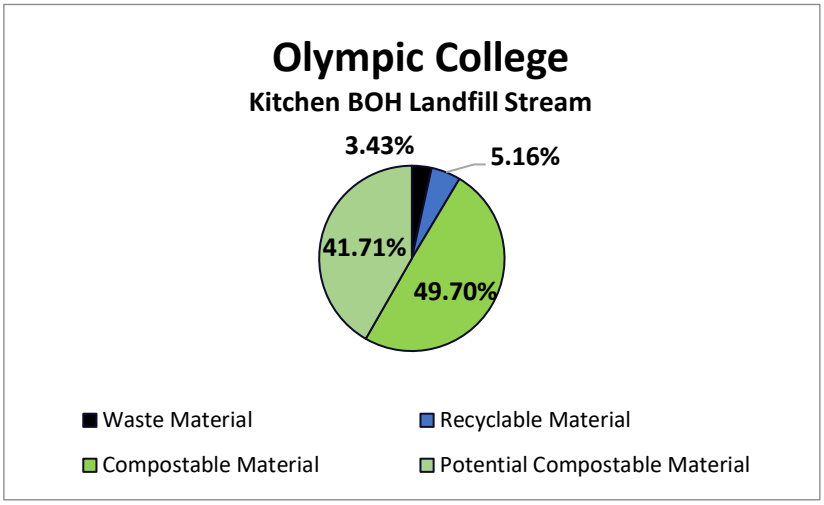
This is a significant difference to note when designing campus programs where limiting organics collection to just back of the house (BOH) kitchen scraps prevents a significant portion of organics from being recovered in composting. By setting up systems that employ compostable food serviceware, FOH collection, and proper education and signage, it is reasonable to assume that the ratio of landfill to organics would rise appreciably. (Note: In both cases, this comparison is for organics properly collected and therefore does not include weight of material improperly placed in the organics stream.)

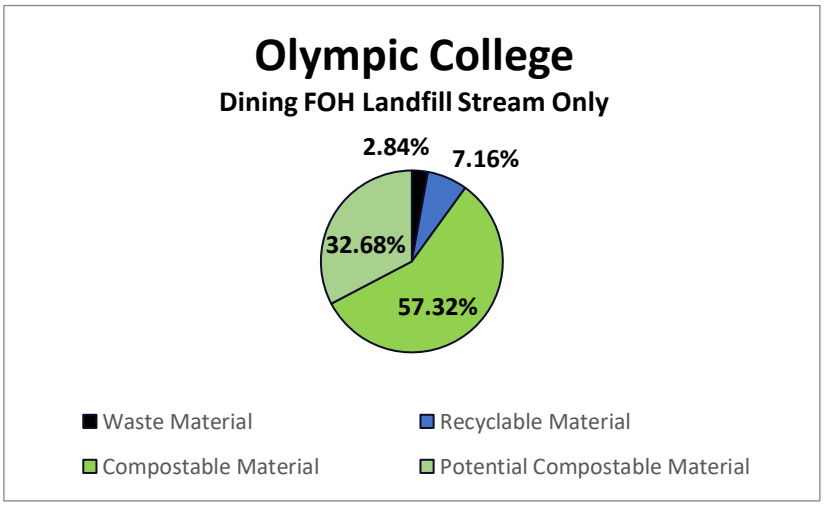
Landfill Stream: Olympic College Potentially Compostable Materials

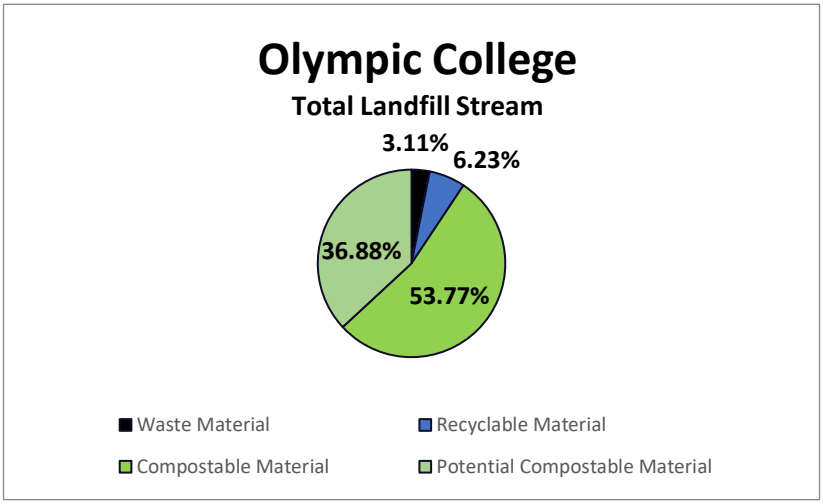
In the initial UW Study, there were several items that were found in the landfill stream that could be transitioned to compostable alternatives. They are summarized and listed below. These are items that have contemporary compostable equivalents or alternatives that could be used instead to aid a much higher level of organics collection. In addition, with the rise of plastics contamination in compost streams, the use of available compostable options for items containing traditional plastics and PE liners would help lower contamination rates in compost streams.

Potentially Compostable Material	Percent Total Landfill Stream
Coffee Cups	2.31%
Condiments	0.63%
Disposable Lids	0.78%
Deli Tray Liners	0.33%
Disposable Serving Boats	1.00%
Disposable Soup Cups	0.48%
Disposable To-go Boxes	0.53%
Kitchen Gloves	2.73%
Parchment Paper	1.80%
Plastic Bags	9.21%
Plastic Cling Film	1.65%
Plastic Utensils	1.39%
Portion Cups	1.70%
Sanitary Wash Cloths	2.72%
Serving Foil (Burger Wrappers)	1.26%
Soda Cups	0.77%
Straws	0.05%
Styrofoam Cups	0.03%
Styrofoam Soup Cups	0.03%
Receipts	0.73%
Plastic Bottles	0.62%
Plastic Cups	1.70%
Recyclable Cardboard	1.16%
Recyclable Paper	1.40%
Food Service Plastic Ware	1.87%
Total	36.88%

Olympic College Total Landfill Stream	
Waste Material	3.11%
Recyclable Material	6.23%
Compostable Material	53.77%
Potential Compostable Material	36.88%







Challenges and Lessons Learned

A Missing Sample

Due to a series of miscommunications and misunderstandings, the first audit at Olympic College did not include a kitchen area BOH landfill stream. However, the dining area FOH landfill stream and the BOH organics stream were successfully collected. Averaging the second and third BOH landfill stream audits, it is estimated that this lost sample represents approximately 157 pounds of material. Due to the missing sample being from the BOH landfill stream, it is estimated to be approximately 15% of the total 949 pounds of material collected, which does not affect the report conclusions. If the sample had been collected and included, the weight of the organics stream would be less by percentage overall. By conducting multiple audits of multiple waste streams, the impact of the missing sample from the cycle still allows conclusions to be drawn from the overall audit.

Kitchen Area BOH Landfill Stream	Weight (pounds)
Audit #2	195.18
Audit #3	118.36
Estimated Audit #1 (lost sample)	156.77
Estimated total weight from lost sample	**470.31**

School Closure Due to Snow, Audits Delayed

The final audits were scheduled for completion in early Winter Quarter. School was cancelled that week due to snowstorms, causing the audits to be rescheduled two weeks later. This delayed the completion of the project accordingly.

Conclusion

This audit shows that the current collection system at Olympic College excludes a sizeable volume of organics that could be recovered with system changes. The observation of Olympic College's landfill stream shows the constituency consisting of 37% food scraps with 54% overall recoverable organic material (page 16). This is further supported when comparing the overall waste profile of Olympic College to the University of Washington's from the prior study. Olympic College's organic stream made up only 29% of their overall waste profile, while University of Washington's made up over 79% of their total waste profile (page 17). This significant difference can be partially attributed to Olympic College's lack of FOH organics collection, but there are other noteworthy factors to consider. Even in the kitchen area of Olympic College, where BOH organics collection is in place, the program could still see an increase in organics collection of up to 49% if compostable alternatives were implemented (page 14).

Of the 674 pounds of landfill material audited from Olympic Organics for this study, 54% percent of the stream consisted of viable compostable material, with 37% of it specifically food scrap. Another 37% of the landfill material could be transitioned to compostable serviceware (page 22). That means that potentially 91% of what Olympic College is currently landfilling, or 589 pounds, could be composted if all products were shifted to compostable serviceware and a 100% collection rate was achieved.

Consistent with the earlier UW study, this study demonstrates that the use of compostable serviceware yields better organics collections in a closed-loop system.

This is evident when analyzing the weight of organics being landfilled to the pounds organics of being collected at each college. Where compostable serviceware is in place, the ratio is four pounds of organics wasted to every fifty-nine pounds collected. Where serviceware and FOH collection is not in place, the ratio drops to four pounds of organics wasted to every three pounds collected (page 21).

Summary Points

This study clearly supports that employing compostables supports an increase in food scrap collection, as well as increased landfill waste diversion. This is supported by the comparison of waste stream profiles between the two studies:

- At the University of Washington campus where a full suite of compostables is employed, 79% of the collective landfill and organics streams went to composting, compared with only 29% of the Olympic College streams, a difference of 50%. The comparison shows a direct inverse of landfill to composting percentages when comparing the two.

- Compostable products that can go into the organics stream at the University of Washington amount to 40% of the organics waste volume, while only BOH food scraps are diverted to compost at Olympic College, and 0% of the food serviceware volume is composted in comparison.

- When calculating the ratio of pounds of organics landfilled to organics collected, for every 4 pounds of material at UW landfilled, 59 pounds of organics are composted. At Olympic College, for every 4 pounds of organics landfilled, only 3 pounds are composted.

- When calculating the same ratio for food scrap only, the ratio is 17 pounds composted for every 2 pounds landfilled at UW. At Olympic College, where no compostable packaging or FOH food scrap collection is done, the result is the nearly 8 times lower- for every 9 pounds composted, 8 pounds of food scraps end up in the landfill stream.

Acknowledgments

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NatureWorks is a world-leading biopolymers supplier and innovator with its Ingeo portfolio of naturally advanced materials made from renewable, abundant feedstocks with performance and economics that compete with oil-based intermediates, plastics, and fibers

Olympic College is a public two-year community college that educates more than 13,000 students a year. Founded in 1946, the college has three campuses in Bremerton, Poulsbo, and Shelton and serves a population of 280,000 residents living in Kitsap and Mason Counties.

New Day Recycling is a local, family owned recycling company working to provide the Best Service at the Best Price. With decades of experience, we work to be a resource for our customers in handling their recyclable waste materials.

Olympic Organics - Bringing Organics Full Circle! Our mission: To provide high quality organics and soils back to the community.

Compost Manufacturing Alliance's mission is to make compost manufacturing more sustainable by working proactively to field test and identify compostable products in real world processing technologies, while also engaging the supply chain in collaboratively working to minimize other inbound contaminants.