

**Waste and Recyclable Materials Report  
Q1 & Q2 2019  
Thompson Rivers University  
Kamloops, British Columbia**

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## Executive Summary

Thompson Rivers University engaged the services of Waste Naught BC to compile and report quarterly updates on waste streams diverted and landfilled as well as associated costs of collection, handling and disposal. This report includes a full capture of Q1-2019 data, as well as most data for Q2-2019.

The table below is a summary of the weights and costs associated with each waste stream based on actual and estimated weights and costs. Total weight of waste for Q1 was 129,937 kg, and cost of \$41,487.99. Q2 waste diversion totalled 119,812 with a cost of \$18,526.70. Complete weight and cost data for Q2 landfill was not available at the time of this report.

| Waste stream                         | Q1-19 weight (kg) | Q1 Cost (\$)       | Q2-19 Cost (\$) | Q2-19 Cost (\$)    |
|--------------------------------------|-------------------|--------------------|-----------------|--------------------|
| <b>Landfill</b>                      | 86866             | \$21,045.03        | Awaiting        | \$2,459.82         |
| <b>Metal Recycling</b>               | 11271             | \$940.00           | 26420           | \$1,420.00         |
| <b>Cardboard Recycling</b>           | 7872              | \$932.85           | 7872            | \$-                |
| <b>-CAC Food Waste pick-up</b>       | 4023              | \$100.00           | 4800            | \$300.00           |
| <b>Wood Recycling</b>                | 3775              | \$1,504.00         | 27791           | \$6,037.50         |
| <b>Coffee Grounds collection</b>     | 3528              | \$4,128.00         | 1059            | \$1,344.00         |
| <b>Meat scraps Collection</b>        | 3273              | \$-0               | 2182            | \$-0               |
| <b>Food Waste Pick-Up (Cul Arts)</b> | 2100              | \$262.50           | 700             | \$87.50            |
| <b>Refundables</b>                   | 1644              | \$-0               | 1644            | \$-                |
| <b>Mixed Recycling</b>               | 1596              | \$12,686.01        | 1031            | \$7,224.00         |
| <b>Textbooks Reuse</b>               | 1365              | \$0.00             | 1365            | \$0.00             |
| <b>Cook. Oil Pick-Up</b>             | 704               | \$-0               | 539             | \$-0               |
| <b>Food Waste Composting - Joras</b> | 690               | \$-                | 0               | \$-                |
| <b>Electronics Recycling</b>         | 601               | \$-0               | 405             | \$-0               |
| <b>Textiles Reuse</b>                | 340               | \$0.00             | 719             | \$0.00             |
| <b>Hazardous Waste</b>               | 187               | \$-0               | 480             | \$-                |
| <b>Styrofoam Recycling</b>           | 48                | \$-0               | 48              | \$-                |
| <b>Resold (BC Auction)</b>           | 45                | -\$382.40          | 152             | -\$522.12          |
| <b>Plastic Bags Recycling</b>        | 9                 | \$272.00           | 9               | \$176.00           |
| <b>Batteries Recycling</b>           | 0                 | \$- 0              | 32              | \$-                |
| <b>Yard Waste Compost</b>            | 0                 | \$-0               | 42564           | \$-                |
| <b>Total</b>                         | <b>129937</b>     | <b>\$41,487.99</b> | <b>119812</b>   | <b>\$18,526.70</b> |
| <b>Total Garbage</b>                 | <b>86866</b>      | <b>\$21,045.03</b> | <b>Awaiting</b> | <b>\$2,459.82</b>  |
| <b>Total Diversion</b>               | <b>43071</b>      | <b>\$20,442.96</b> | <b>119812</b>   | <b>\$16,066.88</b> |

# Table of Contents

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|   |                                     |
|---|-------------------------------------|
| Executive Summary.....                          | 2                                   |
| <b>1 Introduction .....</b>                     | <b>4</b>                            |
| Background.....                                 | 4                                   |
| Deliverables.....                               | 4                                   |
| Methodology and Assumptions.....                | 4                                   |
| <b>2 Types of Waste .....</b>                   | <b>4</b>                            |
| Reuse.....                                      | 4                                   |
| Food Waste Diversion .....                      | 6                                   |
| Recycling.....                                  | 8                                   |
| Converted to Energy.....                        | 14                                  |
| Landfill.....                                   | 15                                  |
| Table 1 - Textbooks .....                       | 5                                   |
| Table 2 - Textiles.....                         | 5                                   |
| Table 3 - Resold and Donated.....               | 6                                   |
| Table 4 - Food waste .....                      | 7                                   |
| Table 5 - Yard waste .....                      | 8                                   |
| Table 6 - Metal.....                            | 9                                   |
| Table 7 - Wood .....                            | 9                                   |
| Table 8 - Mixed recycling .....                 | 10                                  |
| Table 9 - Cardboard .....                       | 11                                  |
| Table 10 - Refundable beverage containers ..... | 11                                  |
| Table 11 - Plastic bags .....                   | 12                                  |
| Table 12 - Styrofoam.....                       | 12                                  |
| Table 13 - Batteries .....                      | 13                                  |
| Table 14 - Electronics.....                     | 13                                  |
| Table 15 - Cooking oil.....                     | <b>Error! Bookmark not defined.</b> |
| Table 16 - Hazardous waste.....                 | 15                                  |
| Table 17 - Landfill.....                        | 15                                  |

## 1 Introduction

### Background

Thompson Rivers University (TRU) has recognized the importance of leadership in environmental sustainability since making it a pillar of its Strategic Plan in 2007. Since adopting the strategic goal of becoming the 'University of Choice for Environmental Sustainability, TRU went on to create a department dedicated to improving campus sustainability. Through the TRU Sustainability Office, actions are continuously taken to increase campus sustainability.

In 2014, TRU adopted a goal of becoming a zero waste campus. To accomplish this goal, the Sustainability Office has implemented several waste reduction and diversion initiatives, such as diverting waste to composting, recycling and energy conversion. TRU collects and diverts a growing number of materials, and counts almost 20 separate waste streams. Since the previous audit, TRU has further expanded composting through the purchase and installation of a third in-vessel composter (The Rocket) at the Campus Activity Centre.

A waste audit performed in March 2018 showed that TRU diverted roughly 60% of waste generated on campus through recycling and composting programs, a slight reduction over the 2017 audit diversion rate of 64%. In 2018 approximately 643 tonnes of waste was generated, an increase from 519 tonnes in 2017.

### Deliverables

The objectives of the audit are to provide TRU with the following information:

- Types and quantities of waste generated on campus
- Financial costs associated with waste handling, collection, and disposal

### Methodology and Assumptions

The data included in this report is based on actual records provided by TRU and its contractors as well as estimates based on limited actual records and/or historic estimations. Further details on data collection methodology are provided in the sections below for each waste stream.

## 2 Types of Waste

TRU diverts many types of waste generated on campus through reuse, recycling, composting and conversion to energy. The following section reports the quarterly diversion weights for 2019, and discusses the methods of diverting the many waste streams generated on campus.

### Reuse

TRU has three reuse streams: textbooks, textiles and reusable office and campus items sold through [BC Auction](#).

#### Textbooks

Textbooks are collected from the on-campus community, and the general public. A textbook collection bin is located outside the campus bookstore. Ancillary Services collects the books from the bins on an as-needed basis and donates them to a program called Textbooks For

Change. Approximately five pallets of books are donated through the program on an annual basis. For more information about the program, visit Textbooks For Change website [here](#).

Below are the monthly and quarterly weights for textbook diversion. There is no cost to divert this waste stream. Weights are estimated based on an assumed weight per pallet of 1092 kg. Total annual weight for the pallets was divided by 12 months, resulting in a monthly weight of 455 kg.

Table 1 - Textbooks

| Period | Item      | Month/Year | Weight (kg)        | Cost (\$) |
|--------|-----------|------------|--------------------|-----------|
| Q1-19  | Textbooks | Jan-19     | 455                | \$-       |
| Q1-19  | Textbooks | Feb-19     | 455                | \$-       |
| Q1-19  | Textbooks | Mar-19     | 455                | \$-       |
| Q2-19  | Textbooks | Apr-19     | 455                | \$-       |
| Q2-19  | Textbooks | May-19     | 455                | \$-       |
| Q2-19  | Textbooks | Jun-19     | 455                | \$-       |
|        |           |            | <b>Q1-19 Total</b> | 1356      |
|        |           |            | <b>Q2-19 Total</b> | 1365      |

#### Textiles and Reusable Items

In 2018, TRU partnered with Diabetes Canada to place two textile reuse and recycling bins on campus to help divert the usable items that make their way into the campus waste stream, such as clothing, shoes, books, office supplies, and other durable goods. The bins are placed outside the Daycare and the Old Main building.

Below are the monthly and quarterly weights for textile diversion. There is no cost to divert this waste stream. Weights are provided by Diabetes Canada on a monthly basis.

Table 2 - Textiles

| Period | Item     | Month/Year | Weight (kg)        | Cost (\$) |
|--------|----------|------------|--------------------|-----------|
| Q1-19  | Textiles | Jan-19     | 60                 | \$-       |
| Q1-19  | Textiles | Feb-19     | 60                 | \$-       |
| Q1-19  | Textiles | Mar-19     | 220                | \$-       |
| Q2-19  | Textiles | Apr-19     | 210                | \$-       |
| Q2-19  | Textiles | May-19     | 509                | \$-       |
| Q2-19  | Textiles | Jun-19     | Awaiting           | \$-       |
|        |          |            | <b>Q1-19 Total</b> | 340       |
|        |          |            | <b>Q2-19 Total</b> | 719       |

#### Resold and Donated

TRU donates and sells unwanted but usable items through the Procurement Services department. When TRU replaces office furniture, the old items that are in good condition are

sold through BC Auction. Records for the sale of items were provided which included the type of item, a description, and the settlement value (shown in the table below as a credit). Obsolete computers and electronics weights were estimated by searching average weights for each item ranging from 0.5 kg for a phone to 17 kg for a server.

Table 3 - Resold and Donated

| Period | Item            | Month/Year | Weight (kg)        | Cost (\$)  |
|--------|-----------------|------------|--------------------|------------|
| Q1-19  | Resold          | Feb-19     | 45                 | (\$382.40) |
| Q2-19  | Resold/ donated | May-19     | 107                | (\$268.22) |
| Q2-19  | Resold/ donated | Jun-19     | 45                 | (\$253.90) |
|        |                 |            | <b>Q1-19 Total</b> | 45         |
|        |                 |            | <b>Q2-19 Total</b> | 152        |
|        |                 |            |                    | (\$382.40) |
|        |                 |            |                    | (\$522.12) |

### Food Waste Diversion

TRU diverts organic waste into several channels for composting or animal feed. The Culinary Arts and Meat Processing Departments send their scraps to local farmers. Yard waste from TRU Grounds is sent to the Cinnamon Ridge Composting Facility. Food scraps and coffee grounds collected through zero waste stations and kitchens by TRU janitors are processed into compost in one of the three in-vessel onsite composters.

#### Feed Animals - Culinary Arts

The Culinary Arts (CA) program has historically sent their pre-consumer food scraps to local farmers for animal feed. In January 2019, the farmer collecting CA food scraps started using it to feed black soldier fly larvae, which are used as feedstock for ducks that are sold back to the CA program and local restaurants. The farmer did not initially weigh the material, but provided estimates based on the number of pickups and bins per pickup, which was in line with historic data; he has since started keeping more accurate weights of all pick-ups. The CA program runs from September until April. Data is presented in the table below with the other food waste diversion methods.

#### Feed Animals - Meat Trimmings and Bones

The Retail Meat Processing Program (RMP) began sending their meat trimmings and bones to a local dog breeder in 2016. The trimmings are stored in their fridge and collected on a weekly basis on Friday. The RMP program does not currently track data but they estimated approximately 273 kg per week. Discussions are pending to determine a method to track more accurate weight data. Data for meat trimmings is presented in the table below.

#### Compost – From Onsite Zero Waste Stations and Kitchens

TRU implemented onsite composting in 2014 with the purchase of a Jora 5100 in-vessel compost machine. In 2016, TRU expanded onsite-composting capacity with the purchase of a second Jora 5100, which began operating in 2017. Onsite composting further expanded in 2017 with the acquisition of another in-vessel composter, The Rocket, which was installed

outside the Campus Activity Centre. In February 2019, the two Joras were moved to a new location and have not been operating since. In April 2019, the farmer collecting food scraps from the CA also began collecting food scraps from the CAC.

TRU measures and records weights for material sent to the composters. The farmer provided estimates for material taken offsite from the CAC. Data for onsite composting is presented in the table below.

*Compost - Coffee Grounds*

Historically, a TRU faculty member collected coffee grounds on a volunteer basis from the campus cafes to amend the soil on his farm. In January 2019, janitorial staff took over the operation of coffee ground collection from the campus cafes. Contractors provided weights for this waste stream for April, May and June, however January - March weights were estimated using historic data. Data for this waste stream is presented in the table below.

Table 4 - Food waste

| Period           | Month<br>Item    | Weight (kg) | Cost (\$)        |
|------------------|------------------|-------------|------------------|
| <b>Q1 - 2019</b> | <b>Jan</b>       | <b>4879</b> | <b>\$1592.50</b> |
|                  | Coffee Grounds   | 1176        | \$1504.00        |
|                  | Meat scraps      | 1091        | \$ -             |
|                  | Food scraps (CA) | 700         | \$87.50          |
|                  | Onsite - JORA    | 690         | \$ -             |
|                  | Onsite - CAC     | 1223        | \$ -             |
|                  | <b>Feb</b>       | <b>3767</b> | <b>\$1368.50</b> |
|                  | Coffee Grounds   | 1176        | \$1280.00        |
|                  | Meat scraps      | 1091        | \$ -             |
|                  | Food scraps (CA) | 700         | \$87.50          |
|                  | Onsite - CAC     | 800         | \$ -             |
|                  | <b>Mar</b>       | <b>4967</b> | <b>\$1532.50</b> |
|                  | Coffee Grounds   | 1176        | \$1344.00        |
|                  | Meat scraps      | 1091        | \$ -             |
|                  | Food scraps (CA) | 700         | \$87.50          |
|                  | Onsite - CAC     | 2000        | \$100            |
| <b>Q2 - 2019</b> | <b>Apr</b>       | <b>3944</b> | <b>\$1507.50</b> |
|                  | Coffee Grounds   | 353         | \$1344.00        |
|                  | Meat scraps      | 1091        | \$ -             |
|                  | Food scraps (CA) | 700         | \$87.50          |
|                  | Onsite - CAC     | 1800        | \$75.00          |
|                  | <b>May</b>       | <b>4444</b> | <b>\$225.00</b>  |
|                  | Coffee Grounds   | 176         | \$ -             |
|                  | Meat scraps      | 1091        | \$ -             |
|                  | Onsite - CAC     | 3000        | \$225.00         |

|                        |              |                  |
|------------------------|--------------|------------------|
| <b>Jun</b>             | <b>353</b>   |                  |
| Coffee Grounds         | 176          | \$ -             |
| Meat scraps            | 0            | \$ -             |
| Food scraps (CA)       | 0            | \$ -             |
| Onsite - CAC           | Awaiting     | Awaiting         |
|                        |              |                  |
| Q1-19 Coffee Grounds   | <b>3528</b>  | <b>\$4128.00</b> |
| Q1-19 Meat scraps      | <b>3273</b>  | \$ -             |
| Q1-19 Food scraps (CA) | <b>2100</b>  | <b>\$262.50</b>  |
| Q1-19 Onsite - JORA    | <b>690</b>   | \$ -             |
| Q1-19 Onsite - CAC     | <b>4023</b>  | <b>\$100.00</b>  |
| <b>Q1-19 Total</b>     | <b>13613</b> | <b>\$4490.50</b> |
|                        |              |                  |
| Q2-19 Coffee Grounds   | <b>882</b>   | <b>\$1344.00</b> |
| Q2-19 Meat scraps      | <b>2182</b>  | \$ -             |
| Q2-19 Food scraps (CA) | <b>700</b>   | <b>\$87.50</b>   |
| Q2-19 Onsite - CAC     | <b>4800</b>  | <b>\$300.00</b>  |
| <b>Q2-19 Total</b>     | <b>8564</b>  | <b>\$1731.50</b> |

#### Compost - Yard Waste

The largest source of organic waste and third largest source of waste comes from maintaining the campus grounds. The head of the TRU Grounds crew estimated 500 loads of yard waste brought to the Bunker Road Yard Waste site over a year. Each load is estimated at 227 kilograms, based on an average estimated by the head of the grounds based on a series of loads weighed on a nearby scale.

Monthly data was estimated by dividing the total annual weight for yard waste based on 500 loads by eight months (April - November).

Table 5 - Yard waste

| Period | Item       | Month/Year | Weight (kg)        | Cost (\$)    |
|--------|------------|------------|--------------------|--------------|
| Q1-19  | Yard waste | Jan-19     | 0                  | \$-          |
| Q1-19  | Yard waste | Feb-19     | 0                  | \$-          |
| Q1-19  | Yard waste | Mar-19     | 0                  | \$-          |
| Q2-19  | Yard waste | Apr-19     | 14188              | \$-          |
| Q2-19  | Yard waste | May-19     | 14188              | \$-          |
| Q2-19  | Yard waste | Jun-19     | 14188              | \$-          |
|        |            |            | <b>Q1-19 Total</b> | <b>0</b>     |
|        |            |            | <b>Q2-19 Total</b> | <b>42564</b> |

#### Recycling

TRU diverts a number of waste materials through recycling. Scrap Metal is the largest source of recycled waste on campus, largely as a result of the Trades and Technology Department, but also Facilities Services. Scrap wood is also heavily recycled, with collection bins at the

Warehouse and the Trades and Technology department. Mixed recycling and refundable beverage containers are collected across campus in zero waste stations. Cardboard is mostly generated by staff and recycled in bins outside, and also collected in carts. There are also bins to collect batteries, Styrofoam, and plastic bags in all buildings, as well as electronics recycling bins in two buildings (Old Main and CAC).

#### Recycling - Scrap Metal Trades & Facilities Services

Scrap metal is the second largest source of waste, and the largest source of recycled waste on campus. The Trades and Technology Department has had a scrap metal recycling program through Richmond Steel for many years and uses several bins to sort different types of metals, for which they are compensated. In 2017, the Sustainability Office sourced a scrap metal bin for Facilities Services from Norewest Concrete, which charges bin rental and hauling fees. The bin is hauled to Mission Flats Landfill and put in the scrap metal pile. The two haulers provided cost and weight data presented in the table below.

Table 6 - Metal

| Period | Item  | Month/Year | Weight (kg)        | Cost (\$)        |
|--------|-------|------------|--------------------|------------------|
| Q1-19  | Metal | Jan-19     | 0                  | \$-              |
| Q1-19  | Metal | Feb-19     | 780                | \$175.00         |
| Q1-19  | Metal | Mar-19     | 10491              | \$765.00         |
| Q2-19  | Metal | Apr-19     | 17840              | \$655.00         |
| Q2-19  | Metal | May-19     | 6640               | \$415.00         |
| Q2-19  | Metal | Jun-19     | 1940               | \$350.00         |
|        |       |            | <b>Q1-19 Total</b> | <b>11271</b>     |
|        |       |            |                    | <b>\$940.00</b>  |
|        |       |            | <b>Q2-19 Total</b> | <b>26420</b>     |
|        |       |            |                    | <b>\$1420.00</b> |

#### Recycling - Wood

The wood-recycling program began in the Trades department in early 2016, where the Sustainability Office set up a burnable wood bin for students to fill and use for home and campfires. An estimated 79 kilograms per week was diverted through this system in 2016, and continues to be in place and used by students and staff regularly

Table 7 - Wood

| Period | Item | Month/Year | Weight (kg)        | Cost (\$)        |
|--------|------|------------|--------------------|------------------|
| Q1-19  | Wood | Jan-19     | 0                  | \$-              |
| Q1-19  | Wood | Feb-19     | 995                | \$300.00         |
| Q1-19  | Wood | Mar-19     | 2780               | \$1204.00        |
| Q2-19  | Wood | Apr-19     | 6598               | \$2542.50        |
| Q2-19  | Wood | May-19     | 6005               | \$2530.00        |
| Q2-19  | Wood | Jun-19     | 15188              | \$965.00         |
|        |      |            | <b>Q1-19 Total</b> | <b>3775</b>      |
|        |      |            |                    | <b>\$1504.00</b> |
|        |      |            | <b>Q2-19 Total</b> | <b>26420</b>     |
|        |      |            |                    | <b>\$6037.50</b> |

### Recycling - Mixed Recycling

Mixed (co-mingled) recycling includes paper and packaging materials (plastic, paper, metal). Mixed recycling is collected across campus from zero waste stations and directly placed into recycling carts from offices, cafes, kitchens, and occasionally from events. Janitors are responsible for placing mixed recycling from the zero waste stations into 245-litre recycling carts distributed across campus. Carts are placed at the curb on a weekly basis by staff and contractors. Mixed recycling is also collected in a 6-yard bin outside the Campus Activity Centre (previously only collecting cardboard).

In January 2018, the world recycling markets were highly impacted by what is known as China’s National Sword, a policy by the Chinese government which limited and then later stopped imports of foreign waste. This disruption has caused a great shift towards prioritizing reduced contamination in mixed recycling around the world. TRU’s mixed recycling waste stream, specifically material collected from zero waste stations has shown high contamination rates, upwards of 50%. As a result, in December 2018 TRU employed a contractor to sort zero waste station material prior to collection.

Data presented in the table below was provided by TRU and based on measurements taken by contract staff for sorted recycling carts. Weights were adjusted to account for the number of carts tipped not accounted for by the sorting contractor based on records provided by the hauler. Cost data presented includes both sorting and collection costs. Cost data for Q2 does not include collection costs. \*\*\*\* Add in weights and costs for mixed recycling bin behind CAC\*\*\*\* (emailed them to you)

Table 8 - Mixed recycling

| Period             | Item            | Month/ year | Sorted weight (kg) | Collection and sorting cost (\$) |
|--------------------|-----------------|-------------|--------------------|----------------------------------|
| Q1-19              | Mixed recycling | Jan-19      | 305                | \$4228.67                        |
| Q1-19              | Mixed recycling | Feb-19      | 466                | \$4228.67                        |
| Q1-19              | Mixed recycling | Mar-19      | 825                | \$4228.67                        |
| Q2-19              | Mixed recycling | Apr-19      | 736                | \$3612.00                        |
| Q2-19              | Mixed recycling | May-19      | 295                | \$3612.00                        |
| Q2-19              | Mixed recycling | Jun-19      | Awaiting data      | Awaiting data                    |
| <b>Q1-19 Total</b> |                 |             | <b>1597</b>        | <b>\$12686.00</b>                |
| <b>Q2-19 Total</b> |                 |             | <b>1032</b>        | <b>\$7224.00</b>                 |

### Recycling - Cardboard

Cardboard is collected in four and six yard bins outside five buildings on campus. Cardboard is placed in bins by staff and contractors. Cardboard was measured over a one-week period by

the hauler. Monthly estimates are estimated by multiplying weekly measured data by four weeks.

Cost data for cardboard collection was in utility statement transactions provided by City of Kamloops staff.

The table below shows a summary of cost and estimated weights for cardboard diversion.

Table 9 - Cardboard

| Period | Item      | Month/ year | Weight (kg)        | Cost (\$)          |
|--------|-----------|-------------|--------------------|--------------------|
| Q1-19  | Cardboard | Jan-19      | 2624               | \$310.95           |
| Q1-19  | Cardboard | Feb-19      | 2624               | \$310.95           |
| Q1-19  | Cardboard | Mar-19      | 2624               | \$310.95           |
| Q2-19  | Cardboard | Apr-19      | 2624               |                    |
| Q2-19  | Cardboard | May-19      | 2624               | Awaiting data      |
| Q2-19  | Cardboard | Jun-19      | 2624               |                    |
|        |           |             | <b>Q1-19 Total</b> | 7872 \$932.86      |
|        |           |             | <b>Q2-19 Total</b> | 7872 Awaiting data |

Recycling - Refund Beverage Containers

A special autism program class from Kamloops School of the Arts is responsible for collecting and recycling refundable beverage containers as part of their class curriculum. The students and staff collect beverage containers from zero waste stations, twice per week. In 2017 the group began collecting from Ancillary Services for event waste as well. Data is not collected for this waste stream since it was determined that there is no value to TRU for having it. The only cost to TRU is buying garbage bags for the program, and in 2018 that was roughly \$700 for 21 boxes of bags. It is anticipated that this will remain similar in years to come.

Table 10 - Refundable beverage containers

| Period | Item        | Month/ year | Cost (\$)          |
|--------|-------------|-------------|--------------------|
| Q1-19  | Refundables | Jan-19      | \$-                |
|        |             |             | \$-                |
|        |             |             | \$-                |
|        |             |             | \$-                |
|        |             |             | \$-                |
|        |             |             | \$-                |
|        |             |             | <b>Q1-19 Total</b> |
|        |             |             | <b>Q2-19 Total</b> |

### Recycling - Plastic Bags & Overwrap

In September 2017, TRU removed the bins for plastic bags from the other bins of the zero waste stations. This was done due to heavy contamination of the plastic bag bins. Once done, the contamination of these bins has improved to almost zero percent, according to TRU staff. TRU janitors collect the plastic bags monthly or as needed and brought to the Warehouse where it is stored until sufficient volume is amassed, at which time a truck from the Lorne Street Bottle Depot collects it for transport to the Lower Mainland for final recycling.. Data for the plastic bags waste stream is based on an average weight per bag of 3 kg, with one bag of bags recycled each month. Costs for plastic bag collection are for the monthly costs of collection by the janitors.

Table 11 - Plastic bags

| Period             | Item         | Month/ year | Weight (kg) | Cost (\$)       |
|--------------------|--------------|-------------|-------------|-----------------|
| Q1-19              | Plastic bags | Jan-19      | 3           | \$80.00         |
| Q1-19              | Plastic bags | Feb-19      | 3           | \$96.00         |
| Q1-19              | Plastic bags | Mar-19      | 3           | \$96.00         |
| Q2-19              | Plastic bags | Apr-19      | 3           | \$80.00         |
| Q2-19              | Plastic bags | May-19      | 3           | \$96.00         |
| Q2-19              | Plastic bags | Jun-19      | 3           | Awaiting data   |
| <b>Q1-19 Total</b> |              |             | <b>9</b>    | <b>\$272.00</b> |
| <b>Q2-19 Total</b> |              |             | <b>9</b>    | <b>\$173.00</b> |

### Recycling - Styrofoam

TRU began recycling Styrofoam in 2016. It's collected in bright yellow totes in key buildings around campus and then the janitorial or Facilities staff brings it to the Warehouse where its final life mirrors that of Styrofoam (mentioned above). Data for Styrofoam recycling is based on an average weight per bag of 1 kg, with an estimated 16 bags recycled per month. There is no cost for collection.

Table 12 - Styrofoam

| Period             | Item      | Month/ year | Weight (kg) | Cost (\$)  |
|--------------------|-----------|-------------|-------------|------------|
| Q1-19              | Styrofoam | Jan-19      | 16          | \$-        |
| Q1-19              | Styrofoam | Feb-19      | 16          | \$-        |
| Q1-19              | Styrofoam | Mar-19      | 16          | \$-        |
| Q2-19              | Styrofoam | Apr-19      | 16          | \$-        |
| Q2-19              | Styrofoam | May-19      | 16          | \$-        |
| Q2-19              | Styrofoam | Jun-19      | 16          | \$-        |
| <b>Q1-19 Total</b> |           |             | <b>48</b>   | <b>\$-</b> |
| <b>Q2-19 Total</b> |           |             | <b>48</b>   | <b>\$-</b> |

### Recycling - Batteries

Batteries are collected in 13 bins across all major buildings on campus. Batteries are emptied on a monthly (or so) basis by Facilities Services. Call2Recycle collects the batteries and sends reports with details of the types of batteries and total weights. The following table details the weights for collection of batteries, there is no cost for collection.

Table 13 - Batteries

| Period             | Item      | Month/ year | Weight (kg) | Cost (\$)  |
|--------------------|-----------|-------------|-------------|------------|
| Q1-19              | Batteries | Jan-19      | 0           | \$-        |
| Q1-19              | Batteries | Feb-19      | 0           | \$-        |
| Q1-19              | Batteries | Mar-19      | 0           | \$-        |
| Q2-19              | Batteries | Apr-19      | 32          | \$-        |
| Q2-19              | Batteries | May-19      | 0           | \$-        |
| Q2-19              | Batteries | Jun-19      | 0           | \$-        |
| <b>Q1-19 Total</b> |           |             | <b>0</b>    | <b>\$-</b> |
| <b>Q2-19 Total</b> |           |             | <b>32</b>   | <b>\$-</b> |

### Recycling - Electronics

In 2017, TRU partnered with the Electronics Recycling Association (ERA) to recycle the e-waste from campus. ERA set up two collection bins, one in the Campus Activity Centre and the other in the Old Main building. ERA also picks up TRU's e-waste that is collected by Facilities Services and brought to the Warehouse for storage until sufficient volume requires a ERA truck to collect it. ERA provides certificates with descriptions and weights for material recycled through the program.

Data presented in the table below represents weights provided by the ERA. There is no cost for this waste stream.

Table 14 - Electronics

| Period             | Item        | Month/ year | Weight (kg)   | Cost (\$)  |
|--------------------|-------------|-------------|---------------|------------|
| Q1-19              | Electronics | Jan-19      | 601           | \$-        |
| Q1-19              | Electronics | Feb-19      | 0             | \$-        |
| Q1-19              | Electronics | Mar-19      | 0             | \$-        |
| Q2-19              | Electronics | Apr-19      | 0             | \$-        |
| Q2-19              | Electronics | May-19      | 405           | \$-        |
| Q2-19              | Electronics | Jun-19      | Awaiting data | \$-        |
| <b>Q1-19 Total</b> |             |             | <b>601</b>    | <b>\$-</b> |
| <b>Q2-19 Total</b> |             |             | <b>405</b>    | <b>\$-</b> |

### Recycling - Cooking Oil

The Culinary Arts building and the Campus Activity Centre kitchens collect used cooking oil. The oil is collected by McLeod's Byproducts in Armstrong and is used to make animal feed. The hauler provided weights for each collection. There are no costs for this waste stream.

Table 15 - Cooking oil

| Period             | Item        | Month/ year | Weight (kg) | Cost (\$)  |
|--------------------|-------------|-------------|-------------|------------|
| Q1-19              | Cooking oil | Jan-19      | 0           | \$-        |
| Q1-19              | Cooking oil | Feb-19      | 0           | \$-        |
| Q1-19              | Cooking oil | Mar-19      | 704         | \$-        |
| Q2-19              | Cooking oil | Apr-19      | 0           | \$-        |
| Q2-19              | Cooking oil | May-19      | 0           | \$-        |
| Q2-19              | Cooking oil | Jun-19      | 539         | \$-        |
| <b>Q1-19 Total</b> |             |             | <b>704</b>  | <b>\$-</b> |
| <b>Q2-19 Total</b> |             |             | <b>539</b>  | <b>\$-</b> |

### Converted to Energy

Several waste streams are converted to energy or incinerated, which includes wood waste and hazardous waste.

### Waste Wood

In September 2016, the Sustainability Office placed a wood-recycling bin outside Facilities Services building, increasing the weekly recycling rate for diversion in 2017. In 2018, TRU further expanded the wood-collection program, sourcing woodbins for the Theatre and Fines Arts programs to fill at three or four times throughout the year (after each production performance). Most recently, another wood waste bin was brought to the Trades department so all no-burnable wood waste can be recycled. The hauler, Norewest Concrete, takes the wood to Mission Flats Landfill where it is chipped and sent to an electricity co-generation plant in Williams Lake, B.C. The hauler provides cost and weight data for wood waste, as presented in the table below.

### Hazardous Waste

The TRU Safety Office manages the hazardous waste generated through various departments (trades, campus medical centre, and labs). Data provided in this report was provided on hazardous waste manifests. The liquids from the manifests recorded in volumes were converted to weights on a one to one ratio of litres to kilograms. Two of the records submitted did not include dates, (follow up with consignor).

Table 16 - Hazardous waste

| Period             | Item            | Month/ year | Weight (kg) | Cost (\$)  |
|--------------------|-----------------|-------------|-------------|------------|
| Q1-19              | Hazardous waste | Jan-19      | 0           | \$-        |
| Q1-19              | Hazardous waste | Feb-19      | 0           | \$-        |
| Q1-19              | Hazardous waste | Mar-19      | 0           | \$-        |
| Q2-19              | Hazardous waste | Apr-19      | 0           | \$-        |
| Q2-19              | Hazardous waste | May-19      | 0           | \$-        |
| Q2-19              | Hazardous waste | Jun-19      | 0           | \$-        |
| <b>Q1-19 Total</b> |                 |             | <b>187</b>  | <b>\$-</b> |
| <b>Q2-19 Total</b> |                 |             | <b>480</b>  | <b>\$-</b> |

### Landfill

Landfill waste consists of material not diverted from the waste stream. The City of Kamloops and Waste Connections collects landfill waste from bins across campus on a daily basis. Data for the weights of city collection was measured over a one-week period. Costs were provided with utility statement reports.

Waste Connections collects landfill waste in one bin located at the CAC. Food waste diversion was introduced after the 2018 waste audit. Weight data was estimated based on 2018 measurements less the weight of compost diverted from the CAC over the period. Cost data includes garbage, recycling and consultant fees for the serves with Waste Connections.

Table 17 - Landfill

| Period             | Hauler     | Item     | Month/ year | Weight (kg)     | Cost (\$)         |
|--------------------|------------|----------|-------------|-----------------|-------------------|
| Q1-19              | City       | Landfill | Jan-Mar 19  | 80418           | \$12,285.21       |
| Q1-19              | WasteLogic | Landfill | Feb-19      | 3224            | \$1,229.91        |
| Q1-19              | WasteLogic | Landfill | Mar-19      | 3224            | \$7,529.91        |
| Q2-19              | WasteLogic | Landfill | Apr-19      | Awaiting        | \$1,229.91        |
| Q2-19              | WasteLogic | Landfill | May-19      | Awaiting        | \$1,229.91        |
| Q2-19              | WasteLogic | Landfill | Jun-19      | Awaiting        | Awaiting          |
| <b>Q1-19 Total</b> |            |          |             | <b>80418</b>    | <b>\$21045.03</b> |
| <b>Q2-19 Total</b> |            |          |             | <b>Awaiting</b> | <b>\$2459.82</b>  |