

**An Investigation into the AMS Sustainability Food Truck**

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**APSC 262**

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# An Investigation into the AMS Sustainability Food Truck

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**ASPC 262 - Impact of Technology on Society**  
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## **ABSTRACT**

Over the past few years, food trucks have started to become more and more popular; the evidence of this can be seen in the number of food trucks at UBC as well as in the surrounding community. The problem, however, is that current food trucks are very unsustainable, using up a lot of fossil fuel and energy for their daily operations. The AMS at UBC wishes to design, build, and operate a fully sustainable food truck both on campus at UBC as well as in the surrounding community. It will send the food truck to festivals. This report uses a triple bottom line assessment to analyze the social, environmental, and financial impacts that operating a sustainable food truck could have on the surrounding community, and make recommendations for the operation of the food truck and determine if building and operating a sustainable food truck is financially feasible.

In the triple bottom line analysis, the social aspect was the first part completed in this report. It was determined that socially, the AMS Sustainable Food Truck will create a strong community that will be more environmentally sustainable, as people will be eating more sustainable food that has been brought in from sustainable local businesses. Based on survey results, people currently do care about sustainability in some regards, and seem ready to embrace a sustainable food truck. Environmentally, a previous SEEDS project determined that hydrogen fuel cell was the best power option for the food truck. In addition to this, to fully create a zero carbon footprint for the food truck, electric appliances will try and be used instead of using propane and other fossil fuels. Food will be bought locally, which creates more of a local economy. This leads into the financial analysis of the triple bottom line assessment. Three models were composed to determine the payback period for the food truck after an initial investment of \$200,000 from the AMS. It was determined that the most sustainable and realistic option is the “sustainable method”, in which the food truck operates on average 13 days per month in addition to 14 “Hype” days per year. Using this method, it was determined that the payback period would be 1.48 years, after which the food truck would start to earn money. Through this triple bottom line assessment, it was determined that yes, it is possible to operate a sustainable food truck which will have financial success. The next steps that the project should take would include having an appropriate marketing campaign, which will be essential to informing people in the community about the food truck, as well as drawing in the initial crowd of customers.

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## GLOSSARY

Word	Definition
Carbon Footprint	The total amount of greenhouse gases produced to support human activities
Food Truck	A mobile, fast-food restaurant.
Net Profit	The value after total cost is subtracted from total revenue.
Primary Source	Document written or created during the time under study.
Secondary Source	Sources such as scholarly books and articles.
Total revenue	The total amount of money receiving from customers
Total cost	The total amount of money to operate and sustain the service

## LIST OF ABBREVIATIONS

AMS	Alma Mater Society
HNFT	Hungry Nomad Food Truck
PBP	Pay Back Period
TBL	Triple Bottom Line

## **1.0 INTRODUCTION**

The Alma Mater Society (AMS) at UBC wishes to build and operate a fully sustainable food truck on campus, as well as within the Vancouver community and at festivals. The AMS is willing to make an initial investment of \$200,000, which will be used to buy the food truck as well as any other initial costs, such as equipment for the truck. Food trucks have become more and more popular in recent years, but yet most of them are very bad for the environment and use up a lot of fossil fuels, that is to say, they are not very sustainable. The AMS hopes that a sustainable food truck would be able to compete with these food trucks but be a sustainable alternative that provides quality food at a reasonable price.

### **1.1 OBJECTIVE**

The objective of this report is to determine if an initial investment of \$200,000 by the AMS in a sustainable food truck will eventually return a profit and if the food truck could be financially successful as a business at UBC and in the surrounding community. These goals must be met while keeping in mind that the food truck must be sustainable, with a goal of a zero carbon footprint. In addition, this report will conclude by making a recommendation for the food truck that will minimize the economic, environmental, as well as social impacts on the surrounding community and UBC.

### **1.2 PROJECT SCOPE AND REPORT DETAILS**

In order to accomplish these objectives, a TBL analysis was conducted for the prospective food truck. This analysis included looking into the environmental, social, as well as financial aspects and impacts that a sustainable food truck could have in the community. Environmentally, the energy usage of the equipment required for the food truck was looked into, as well as the energy sources for powering the food truck, such as the hydrogen fuel cell, as a means of energy for transporting the food truck as opposed to fossil fuels. Socially, a survey was conducted to see the responses that people have towards sustainability, and to see if they are interested in a new sustainable food truck. Financially, the initial costs of the food truck were delved into, as well as the upkeep costs, and these were compared to the estimated revenue the food truck would make to see if indeed a sustainable food truck would be financially viable as a business. Combining all of these aspects, a recommendation will be made determining if it is possible to operate a fully sustainable food truck at UBC and in the surrounding community, and if it is possible a return time will also be determined on the initial \$200,000 investment.

## **2.0 RESEARCH & INVESTIGATION**

In order to make any accurate recommendations, research first had to be conducted on various levels. This not only included online research through databases such as UBC Summon and researching previous SEEDs projects, but also through more direct sources such as interviewing the AMS Executive Chef Ryan Bissell and our own survey. Because there had already been a couple of SEEDs projects completed on this food truck in previous years such as for which energy source to use to power the truck, this let the focus of the investigation be more on the financial side while still taking into account environmental and social impacts.

### **2.1 PRIMARY SOURCES**

In conducting the research, several primary sources were required, getting information directly from the AMS, as well as the people who may be interested in purchasing from the food truck. To do this, a group interview was arranged with AMS Executive Chef Ryan Bissell, in which questions were answered about the AMS's view of how the food truck should be built and how they would like to operate it. A short survey was also created for people to fill out to get their opinion about a sustainable food truck and sustainability in general. One other primary source was a financial model of the predicted expenses and revenues which was organized in an Excel spreadsheet, which will be seen in the Financial Analysis of this report.

### **2.2 SECONDARY SOURCES**

Secondary sources that were used in this report include both scholarly articles and previous SEEDs reports. Two previous SEEDs projects were completed, both focussing around the energy used in the food truck. They developed a strategy to manage the energy usage of the food truck, and to determine an appropriate energy source for the food truck (See Appendix C). Another SEEDs project focussed on the Hungry Nomad Food Truck (HNFT), which is useful as a comparison in goals between what that report found for the HNFT and the goals for the AMS Sustainable Food Truck.

### **2.3 FOOD TRUCK INDUSTRY RESEARCH**

In order to know just how sustainable the AMS food truck would be, it first had to be compared with a regular everyday food truck. Because the HNFT already has a SEEDs report completed on it, it will be looked into as a window into the food truck industry into which the AMS Sustainable Food Truck will be brought. In the article "Hungry Nomad Food Truck" (Berney et al, 2014), it was determined through a survey of their customers that locally sourced food was important for the customer, which matches BC's purchasing behaviour. Therefore, it will be essential for the AMS food truck to purchase locally grown ingredients.

In addition to this, the average food truck uses fossil fuels such as propane and gasoline as a source of energy to fuel both the appliances of the food truck, as well as to drive the food truck. It is estimated that the average food truck will use around 1,200 gallons (about 4500 litres) of fuel per year (Paster, 2011). The AMS sustainable food truck will still require energy, however it will use more

sustainable, renewable energy such as a hydrogen fuel cell for driving and solar energy to operate the equipment. This would overall make the food truck more environmentally sustainable.

On average it costs about \$50,000 - \$150,000 to purchase a truck and the equipment necessary to run and operate a food truck. In comparison, it costs about \$200,000 - \$500,000 to purchase a restaurant and all of the necessary equipment. This shows that it is more cost efficient to try and enter the food industry through a food truck. In addition, by purchasing a food truck one is not locked down to a specific location, as would happen if one owned a restaurant. The AMS's budget for a new sustainable food truck is \$200,000. This number, when compared to the average food truck, should be enough for the AMS to purchase the necessary equipment. However, the AMS food truck will require more specialized equipment, which will increase the overall base cost.



## **3.0 TRIPLE BOTTOM LINE ASSESSMENT**

### **3.1 SOCIAL IMPACT**

Food has the ability to stimulate senses, connect communities, and share cultures. For many, meals are more than necessary rituals of bodily consumption – they are events. Food thus takes on a social life of its own, affecting the people that grow it, deliver it, cook it, and eat it. A few particular social impacts that the AMS Sustainable Food Truck is anticipated to instigate are activating public spaces, fostering communities, connecting farmers with end consumers, and possibly even increasing UBC student sustainability.

#### **3.1.1 Activating Public Spaces**

City planner William Whyte once observed that a well-designed food place can add life to a space (Whyte, 1980). With the rising boom of food trucks over the last decade, Whyte’s suggestion has been proven to work effectively. Old parking lots and drab city sidewalks have been revitalized by freshly branded, hip, delicious food trucks that attract all manner of folk (Wessel, 2012). Even UBC’s very own Hungry Nomad food truck has brought life to the pedestrian way and benches on Main Mall outside of the Forestry Sciences building. Benches that were seldom used before are now common sit-down lunch spots with friends and colleagues. What was once a mere walkway – a means of transit – is now a sort of plaza where people gather to buy, eat, and socialize.

If conventional food trucks have successfully reenergized public spaces, a food truck that is all about sustainability can do just as much or more. With adequate branding and effective telecommunications, the AMS Sustainable Food Truck has the potential to not only activate any public space it parks at, but also bring sustainable social and environmental values and practices to it. A practical example could be the truck bringing its own recycling / composting / disposal bins (like UBC’s “Sort-it-Out” system) to places that normally only have one common garbage can. This raises awareness of properly sorting waste.

Socially, this planned food truck has the potential to influence people’s values and behaviours towards more sustainable options as they visit the truck. At the very least, it will bring life to wherever it sets up shop.

#### **3.1.2 Fostering Communities**

As UC Berkeley Architecture Ph.D. candidate Ginette Wessel noticed in her case study on contemporary food trucks, there are two types of communities involved in the business: virtual and physical (Wessel, 2012). Social media connects food truck operators and consumers like never before, keeping tabs on where the trucks are going to be that day, what food they will be serving, and other related news to their services. Over the years, Twitter has become the dominant medium truck operators use for this daily communication. Whether realizing it or not, all the customers who follow a certain truck online form a virtual community which shares the basic truck information, but also customer experiences, culinary critiques, and suggestions. What is even more interesting is that these virtual activities translate directly into the physical world where the Twitter followers attend their favourite trucks, oftentimes going out of their way to purchase from “their” trucks (Wessel, 2012).

Once physically at the food truck though, the difference between social media users and non-users is minimal. Both value a pleasant, comfortable, calm environment to eat and socialize in (Wessel, 2012). Vendors and customers alike form a community, strengthened by the patronage of the virtual followers. And just as with any socially successful business, eventually this community results in a sense of ownership where the regular customer can say, “That’s my food truck.”

What the AMS Sustainable Food Truck adds to this is it will attract a larger clientele of those who value sustainability, as well as influence those who may not initially value sustainability but come to the truck for another reason, whether it be the food quality, hype, etcetera. The food truck will actively be feeding into the community’s awareness and perception of sustainable living.

### **3.1.3 Connecting Farmers with End Consumers**

By consciously shifting to local suppliers, the AMS has the opportunity to reconnect the general public with their local farmers. They can accomplish this through a variety of means: for example, one of the simplest ways is to display pictures on the truck’s side of the farmers that the food supplies originally came from. Going a step further they can create short bio videos of the farmers that play on a T.V. on the truck or on YouTube. Taking it yet further, the food truck can have its own mobile app that shows customers on a map where the food came from, how long it is in transit, the farmers’ bios, and any amount of extra information the truck operators feel is important.

The point is that the AMS Sustainable Food Truck will bring the customers and farmers back into community with each other. With this comes accountability, trust, and appreciation – all characteristics of a healthy relationship. Farmers are upheld by their end customers to produce high quality, healthy, and fair products, while end customers learn more about the work behind the food and make more informed monetary and culinary decisions.

### **3.1.4 Predicted Student Reaction**

As part of an effort to gauge how UBC students would react to the envisioned AMS Sustainable Food Truck, a survey was conducted to try understand how receptive students currently are towards sustainability initiatives. For the full survey results, please see Appendix D.

In a group of 60 individuals from various disciplines (82% of age 19-23), most said they eat out at least once a week, but hardly at food trucks. To see how active the surveyed student was in everyday sustainable living choices, the survey asked how the student used the “Sort-it-Out” bins located around UBC campus (Figure 1). A large majority of 86% of students actually use these bins. Perhaps more interesting is the fact that a significant portion of those students go out of their way to use these bins as intended. This is an important indicator for how willing students are to sacrifice their comfort in order to be more sustainable.

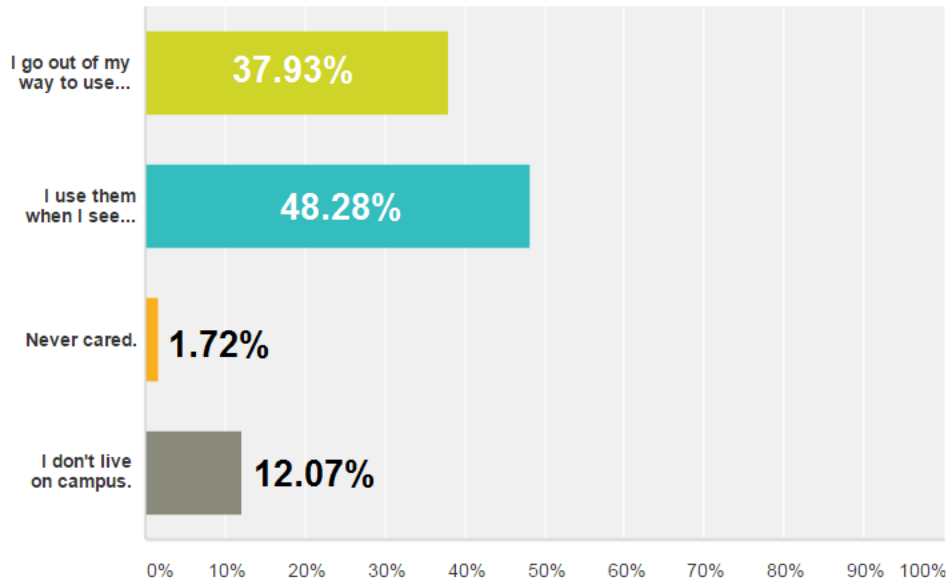


Figure 1 – Student Use of “Sort-it-Out” Bins

With this indicator predicting that some students might be willing to sacrifice even a small amount of their money to live more sustainably, the survey compared how much students were willing to spend at a conventional food truck versus a sustainable food truck. The results, as seen in Figures 2a and 2b, show that yes, in general students might be willing to pay a dollar or two more than usual to eat sustainably.

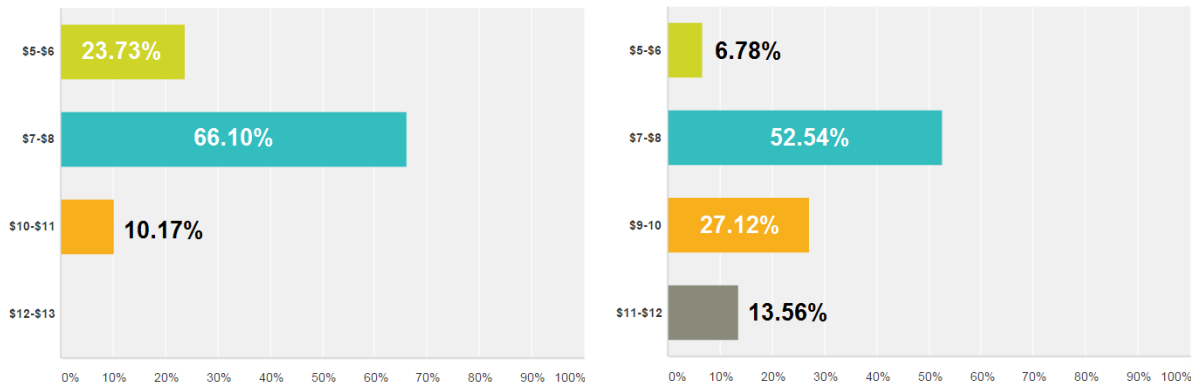


Figure 2 – Conventional versus Sustainable Food Truck Prices

These results indicate that the average UBC student is at least aware of common sustainability initiatives such as the “Sort-it-Out” bins. In an optional field at the end of the survey, a number of participants expressed an interest in seeing this food truck come to life, with over 70% of the students saying they would buy from the truck at least once. In summary, with the correct marketing campaign and branding, UBC students would most likely welcome the AMS Sustainable Food Truck.

## **3.2 ECOLOGICAL IMPACT**

Food trucks are widely considered inefficient. In a benchmark test comparing an average restaurant to a food truck, it was shown that the food truck released 6 times more CO<sub>2</sub> per customer than the restaurant (Johnson, 2015). In order to design a *sustainable* food truck, something must be done to reduce the emissions to an acceptable level.

This section will outline the design decisions that lead to a more sustainable food truck and will compare the ecological footprint of this design versus the average food truck. It will also touch on possible improvements of the current design for the Sustainable AMS Food Truck.

### **3.2.1 Hydrogen Fuel Cell**

Much of the Food Trucks' reputation for being inefficient originates from the fact that generators operate throughout the day to power the required cooking appliances. This was the issue that the AMS attempted to tackle with their previous SEEDs project. Following the previous SEEDs team recommendation, it was decided that the most attractive alternative is a hydrogen fuel cell. Because of this design choice, the AMS Food Truck will be powered completely by electricity.

Since over 86% of BC's electricity is generated by hydroelectric dams (Whiticar, 2012), it is considered renewable and much less harmful to the environment than the standard diesel fuel generator of a Food Truck.

This design decision is our most costly design decision, however elimination of emissions is a huge factor in meeting the goals of the AMS Food Truck Project.

### **3.2.2 Electric Appliances**

Almost all appliances used by a food truck are electric, however, most stoves used in the industry are propane. It is easier to transport than natural gases and more efficient to convert into heat than electricity (Petro, 2015). It is also eco-friendly (Lee, 2008). Although it seems the ideal solution, it is not renewable and therefore the AMS is attempting to replace this energy source with electricity by using electric stoves. Although directly this does not greatly reduce the ecological footprint of the Food Truck, it does mean that the AMS no longer needs to transport tanks for refueling.

### **3.2.3 Local Foods**

As mentioned above, the AMS will utilize local food suppliers when possible. Not only is this beneficial to the community, it massively reduces the footprint of the Food Truck operations by avoiding the long distance transportation of food supplies.

There is also an added benefit from buying locally. The supplier no longer needs to constrain themselves to a product that can withstand transportation to distant buyers. For examples, many tomatoes today have been selectively bred with thicker skin, keeping them from being damaged during transportation. Locally grown food does not have to conform to this constraint. Farmers can breed for the best taste and not for other functional, but less appetizing needs. This results in better tasting produce and a wider plant biodiversity (Grubinger, 2010).

Since this truck is still a proof of concept, the menu is flexible and can be tailored to further encourage local suppliers and hopefully bolster the benefits outlined above. Supporting local farms is

not only a step away from harming the environment, it is actually a step towards positive ecological impact.

### **3.2.4 Possible Improvements**

Other notable ways to reduce the emissions and ecological footprint include using compostable cutlery and adding a composting bin to the Food Truck to encourage a sustainable and eco-friendly approach to not only the consumption, but also the disposal of food. All compost could be handled by the UBC Centre for Sustainable Food Systems, which runs a student driven farm on campus. Even the compostable cutlery could be made on campus, possibly through a workshop or lab as part of an existing class.

These little steps improve the perception of the positive impacts of a food truck, benefit the community and reduce the emissions caused by transportation of goods and processing waste.

## **3.3 ECONOMIC IMPACT & FINANCIAL ANALYSIS**

In this section, the economic impact will be explored using a payback period analysis and investigating the power of the local dollar. Next, the initial costs will be established, and a potential operation models will be analyzed. For each model, a 2 year projection will be examined, and the net profit will be calculated. The financial analysis will suggest a realistic operation model that would optimize the financial component of the AMS Sustainability Food Truck. The economic impact will be focusing on the lifetime of the money and estimate how long the money stays in the local economy.

### **3.3.1 Establishing the Initial and Variable Costs**

The first step in a financial analysis is to establish the initial costs and operational costs. The lists below summarizes how the initial \$200,000 will be distributed as well as the general operational costs. It is assumed that at all times of operation there will be one supervisor and two cooks working 10 hour days. The lists below includes the different initial costs and operational variable costs.

Table 1: Initial and Variable Costs

(adapted from Master Financial Analysis Spreadsheet)					
Initial Costs			Variable Costs		
Item	#	Total Cost (\$)	Item	Type	Total Cost (\$)
Stand up fridge	1	3500	Social Media	Monthly	1200
2-door sw cooler	1	4000	Supervisor Wage	Daily	180
Deep Fryer	1	3500	Cook Wage	Daily	140
36 inch flat top	1	6000	Unit of meal	Per item	3
4-drawer low-boy fridge	1	4500	Insurance	Monthly	300
Panini Press	2	2400	Maintenance	Yearly	6000
Hood Vent System	1	10000	Misc	Monthly	300
Water Management	1	5000			
Point of Sales	1	5000			
Branding / Marketing	1	25 000			
Building Truck	1	100 000			
4 man induction burner	1	4000			
Smallwares	1	4000			
Initial Inventory	1	5000			
<b>Total Cost</b>		<b>181, 900</b>			

### 3.3.2 Payback Period Analysis

Using the specifications from the last sheet, a spreadsheet was developed to calculate the payback period (See Appendix A.) It was taken into account that not all months will be consistent. Depending on the time of year, a scaling value was included. For values greater than 1, there is a more than average sales, and for values less than 1, there is a less than average sales. Next, three types of operations were modeled and analyzed over a 2 year timeline. The main equations used to calculate the PBP were the following:

$$\text{Net Profit (per unit)} = \text{Sales Price} - \text{Cost Price}$$

$$\text{Net Revenue (daily)} = \text{Sales Price} * \text{Units per day}$$

$$\text{Net Cost (daily)} = \text{Cost Price} * \text{Units per day}$$

$$\text{Net Profit (daily)} = \text{Net Revenue (daily)} - \text{Net Cost (daily)}$$

$$\text{Total Net Profit Per Year} = \text{NPRG} * \#\text{RDays}/\text{Month} * \#\text{Months}/\text{Year} + \text{NPHD} * \#\text{HDays}/\text{Year}$$

NPRG = Net Profit per Regular Day

#RDays/Month = Number of Regular Operation Days per Month

#Months/Year = Number of Months in Operation per Year

NPHD = Net Profit per Hype Day

#HDays/Year = Number of Hype Days per Year

$$\text{Total Annual Costs (not included in Total Net Profit)} = \text{Annual Maint. Fees} + 12 * \text{Monthly Costs}$$

$$\text{Return Time (years)} = \text{Net Initial Cost} / \text{Net Annual Profit}$$

Furthermore, it will was calculated from other food truck models that that on a regular day, the sales will average 300 total units, 50 drinks and 25 units of snacks. “Hype days” refer to the days where the truck will be at locations where there is extreme demand - food truck festivals, music festivals, local community events. These days, the food truck will sell closer to 600 units per day with half of the units being purchased with drinks.

The Table below summarizes the types of operation and it’s payback period and net profit over two years. Also, Figure 3 compares the three models as a function of time. The Sustainable Model that operates 13 regular days a month and a total of 14 “Hype Days” per month demonstrates that it is possible to make profit without overworking the truck or the workers in just under 18 months. See Appendix B for more details on the plot in Figure 3.

Table 2: 3 Models and Corresponding Projected Payback Period & 2 Year Net Profit

(adapted from Master Financial Analysis Spreadsheet)				
Model Name	Days of Regular Operation (Monthly)	Number of “Hype” Days (Annual)	Payback Period (Years)	2 year Net Profit (CAD \$)
Break-even	10	8	2	0
Hyper Profit	20	16	0.95	160,000
Sustainable	13	14	1.48	91,000

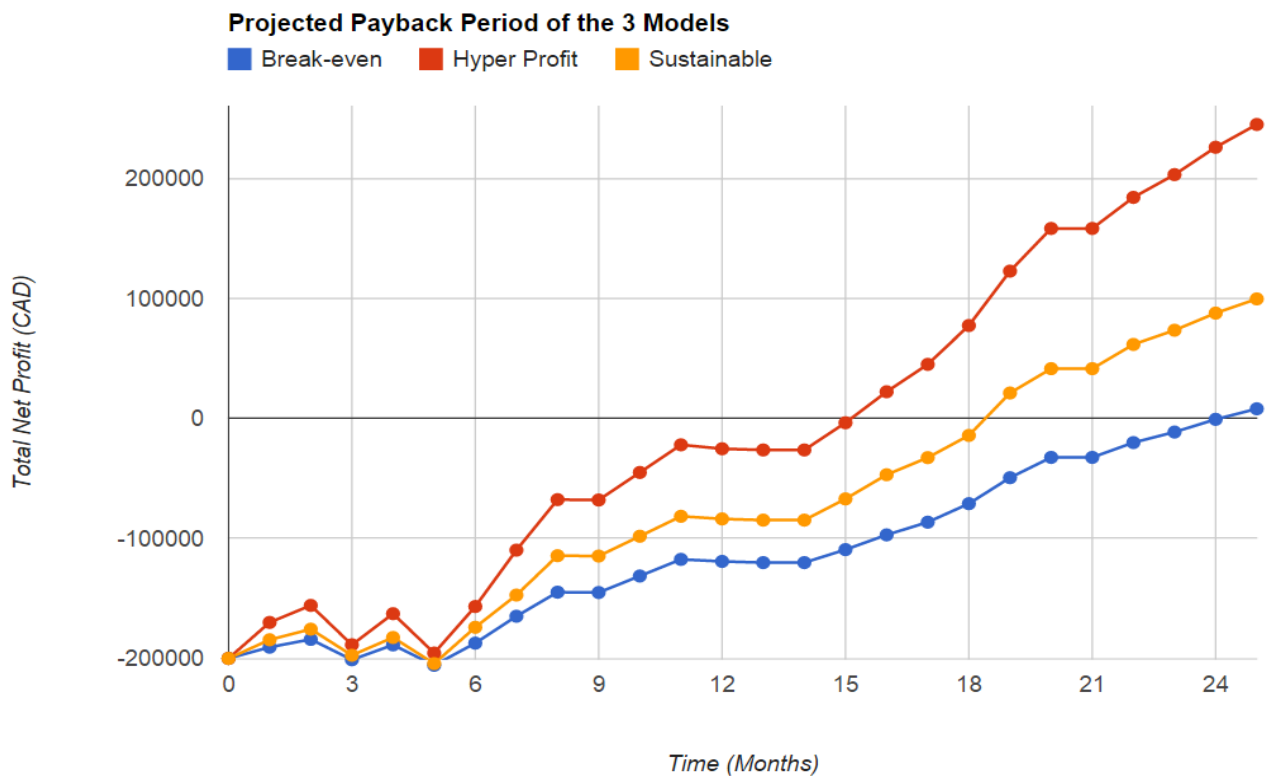


Figure 3 – Projected Payback Period of the 3 Models

### 3.3.3 Power of the Local Dollar

When a sustainable economic model is assessed, it is critical to investigate how long the dollar stays in the local economy. If one purchases a meal or an item from a larger corporation, then the money goes directly to the larger industries, stripping away the money from the local economy. This leads to outsiders collecting the money and not allowing the local workers and stores to be empowered. Nonetheless, the AMS Sustainability Food Truck plans to purchase ingredients directly from local farmers and markets.



The benefits of buying local improves the circulation speed of the money in the community. This means that the money passes through more hands, meaning more people have the benefit of the money (Schwartz). The Vice-President of the Institute for local Self-Reliance explains that, “If you’re buying local, and not at a chain or branch store, chances are that store is not making a huge profit, [that means], more goes into input costs, supplies... - which puts that money right back into the community.” For communities, in a recession, it is not about how much money you’ve got, but how much you can keep circulating the money without letting it leak out (Boyle). The AMS Sustainability Food Truck supports the local economy, and in turn as the money circulates through many hands within, Vancouver’s economy will continue to prosper.

## 4.0 RECOMMENDATIONS & NEXT STEPS

This section will cover the recommended financial model of operation, as well as explore the next steps the project should take.

### 4.1 RECOMMENDATIONS

Operating only 13 regular days a month and 14 “Hype” days a year, the PBP will be 1.48 years. Furthermore, after two years, the Project will be at a Net Profit of CAD 91,000. Figure 4 below indicates the inactive months (no green bars), along with the projected revenue, costs, and net profit.

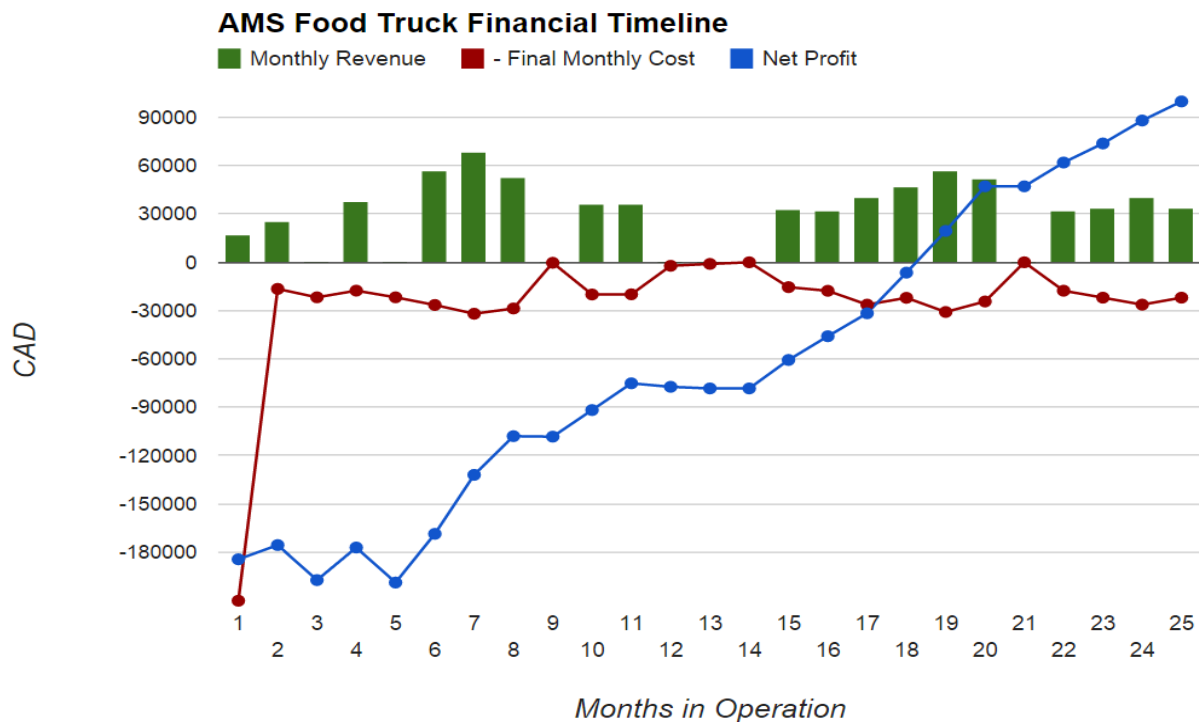


Figure 4 – AMS Food Truck Financial Timeline

### 4.2 THE NEXT STEPS

Through the TBL Assessment, it is clear that the project is both ecologically and economically viable. The impact it will have on society is nothing but positive and empowering. The next phase of the project is to devise a marketing campaign. With the increase in popularity and accessibility to social media, many restaurants and services are taking advantage of this new way of advertising and communicating. With customized apps, mobile websites, and live-feeds, businesses can connect with their customers and clients. It will be critical for the AMS Sustainability Food Truck to have an excellent public social media page as they can update their menu, connect with their future customers, and be more transparent.

The three key initial social media platforms the project should explore are Facebook, Instagram and Twitter. These three platforms all have their own purposes. Facebook allows the company to connect with as many people as they can, but also provide future customers with information (future events, menu's etc.) It also allows customers to directly comment on their public page and provide the

project with more feedback. Instagram acts as a photography blog where the Food Truck can post beautiful photos of their meal, set-up, and truck itself. It will attract a different range of users and potential customers and also build an archive for photos and videos. Finally, Twitter will be essential for the Food Truck to operate successfully. It is important for customers to know the where, when and what's of the Food Truck. Furthermore, Twitter also acts as a platform where businesses can reach out for celebrity power. For example, they can make a shout-out to a Canuck via Twitter whenever they come and purchase a meal. This way the Food Truck can gain more attention while supporting the local celebrities, athletes, and politicians.

As social media becomes a business strategy game, it will be important to investigate websites such as HootSuite that helps teams manage their multiple platforms. For investigations, it would be beneficial to see how to distribute the initial marketing funds, as well as how to spend the \$1200 monthly advertising fees.

In addition, it will be important for the Food Truck to engage with future customers, in person. There will innately be a human connection within Food Trucks as long as people operate the truck. Therefore, building a relationship early on with the community will be critical in creating a group of loyal customers. Possible events can be sampling events, official seasonal kick-off events, and demonstrations in collaboration with the local farmers.

Now the project is at the phase where it has to be marketed and advertised well enough to convince people that they are helping contribute to a better more sustainable society by purchasing from a fully sustainable food truck, rather than a corporate owned, carbon-emitting truck.

## **5.0 CONCLUSION & FUTURE RECOMMENDATIONS**

### **5.1 SUMMARY**

This SEEDs report on the AMS Sustainability Food Truck successfully examined and analyzed its social, ecological and economic impact using a TBL assessment. This report used this TBL assessment to determine if investing in a sustainable food truck was a financially viable option. This was done while keeping in mind that the goal of the food truck is to be completely sustainable with a zero carbon footprint.

Research was conducted through both primary and secondary sources. Primary sources included an interview AMS Executive Chef Ryan Bissell, as well as a survey to see the response that people would have to both sustainability and a sustainable food truck. Secondary sources included various published articles online, as well as previous SEEDs projects. In order to understand more about the food truck industry, research was conducted on it which showed that current food trucks are not very sustainable and do not always get their food from local sources. This is where the AMS Sustainable Food Truck can lead the field in.

Based on the studied social success of conventional food trucks in operation today, the AMS Sustainable Food Truck will likewise create a strong community composed of its suppliers, operators, and customers, bringing life to any public space. This community will increase in sustainable living awareness, hopefully translating into action. End customers and farmers will reconnect socially as never before with increased transparency and mobile telecommunications, leading to stronger accountability and trust between both parties. Finally, based on survey results, UBC students will most likely embrace this latest sustainability initiative as embodied in the AMS's envisioned food truck.

The financial analysis explored three models of operation, all of which demonstrated a net profit within two years. If it operates based on the "Sustainable" model, the PBP will be around 1.48 years since operation. The AMS Sustainable Food Truck is not only a financially viable business model, but also a way to economically empower the local workers. Since the sources of food for the truck will be coming from local farmers and markets instead of corporations, the "velocity" of the dollar will increase in the community. This allows more people from within to benefit from the dollar; consequently, stimulating the local economy.

### **5.2 FOR FUTURE STUDENTS**

The project is now at the phase of initiation. Through extensive research, an economic and financial analysis, it was validated that the AMS Sustainable Food Truck is a sustainable project and a viable business model. Next time, it will be important to have a strong communication platform for the SEEDs project members and the AMS Sustainability Team. This way, the team will be able to finalize the initial costs and operational model. Also, a strong sustainable marketing campaign must be modeled for the this project to move forwards.

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## APPENDICES A-D

### APPENDIX A - Master Financial Analysis

Please access electronically at the URL Below: <http://tinyurl.com/lj8mma8>

### APPENDIX B - Data for PBP Comparison Figure

Net Profit Model			
Months	Break-even	Hyper Profit	Sustainable
0	-200000	-200000	-200000
1	-190659.375	-170018.75	-184467.1875
2	-184118.75	-155837.5	-175634.375
3	-201131.25	-188662.5	-197390.625
4	-188741.25	-162722.5	-182555.625
5	-205753.75	-195547.5	-204311.875
6	-187268.75	-156737.5	-174059.375
7	-164849.375	-109758.75	-147208.4375
8	-144790.625	-67681.25	-114401.5625
9	-145090.625	-67981.25	-114701.5625
10	-131326.875	-45048.75	-98187.1875
11	-117463.125	-22016.25	-81572.8125
12	-119164.375	-25298.75	-83748.4375
13	-120164.375	-26298.75	-84748.4375
14	-120164.375	-26298.75	-84748.4375
15	-109348.125	-3626.25	-67067.8125
16	-97058.125	22213.75	-46932.8125
17	-86473.125	45023.75	-32680.3125
18	-71035.625	77398.75	-14186.5625
19	-49403.125	122743.75	21174.6875
20	-32491.875	158286.25	41447.8125
21	-32491.875	158286.25	41447.8125
22	-20151.875	184176.25	61632.8125
23	-11364.375	203151.25	73476.5625
24	-779.375	225961.25	87729.0625
25	8008.125	244936.25	99572.8125

## APPENDIX C - Other Seeds Projects

Hou, S. (2014). *'Peak Shave' Energy Managing tool for Energy Subsystems Design of AMS Sustainable Food Truck* (Final report). Retrieved from SEEDS Library database, University of British Columbia.

Sens, G. O. (2014). *AMS Sustainable Food Truck: Technology Assessment & Energy Management* (Final report). Retrieved from SEEDS Library database, University of British Columbia.

## APPENDIX D - Survey Results

Q1. How old are you?

Answer Choices	Responses	
12-15	0.00%	0
16-18	3.57%	2
19-23	82.14%	46
24-35	8.93%	5
36-Onwards	5.36%	3
Total		56

Q2. Do you actively use the "Sort-it-Out" bins located around UBC?

Answer Choices	Responses	
I go out of my way to use them.	37.93%	22
I use them when I see them.	48.28%	28
Never cared.	1.72%	1
I don't live on campus.	12.07%	7
Total		58

Q3. How often do you buy fast food or eat out?

Answer Choices	Responses	
Everyday	15.25%	9
Every couple days	44.07%	26
Once a week	27.12%	16
Once bi-weekly	6.78%	4
Once a month	6.78%	4
Never	0.00%	0
Total		59

Q4. How often do you buy from Food Trucks?

Answer Choices	Responses	
Everyday	0.00%	0
Every couple days	0.00%	0
Once a week	3.39%	2
Once bi-weekly	8.47%	5
Once a month	30.51%	18
Never	57.63%	34
Total		59

Q5. Do make an effort to eat sustainably (local foods, etc...)?

Answer Choices	Responses	
I don't really care.	25.42%	15
If it's the same price as other food around me.	22.03%	13
I'd pay a tiny bit more for sustainable food.	50.85%	30
I only eat sustainably.	1.69%	1
Total		59

Q6. Would you be interested in a Sustainable Food Truck?

Answer Choices	Responses	
I don't care.	18.64%	11
I would avoid it.	3.39%	2
I'd get food from it if I saw it.	69.49%	41
I'd go there every day.	8.47%	5
Total		59

Q7. How much would you pay for a meal from a Food Truck?

Answer Choices	Responses	
\$5-\$6	23.73%	14
\$7-\$8	66.10%	39
\$10-\$11	10.17%	6
\$12-\$13	0.00%	0
Total		59

Q8. How much would you pay for a meal from a Sustainable Food Truck?



Answer Choices	Responses	
▼ \$5-\$6	6.78%	4
▼ \$7-\$8	52.54%	31
▼ \$9-10	27.12%	16
▼ \$11-\$12	13.56%	8
Total		59

Q9. Is there anything you would like to say about the idea of a Sustainable Food Truck?

Make the menu items unique and provide a variety.

cash money doe

The best way to get people to care about a sustainable food truck is if it is also an inexpensive sustainable food truck. Students are cheap ;)

Really great idea! It would be really cool for the truck itself to also be sustainable in some way (ie electric, powered on cooking grease, etc), and also add social sustainability (ie have nice music, pop up chairs/tables, etc)

So long as the Food Truck is run on solar power or something like that then I would buy from it. Otherwise the 'sustainable claim' would be kind of ironic. Also, wouldn't the food be cheaper because it's sustainable? IDK.

if the SFT is more expensive than a normal FT, then i doubt people would go out of their way and pay extra for it.

I like! But the prices need to be student friendly!

Love it

It would be cool to see the farmers promoted through the truck.

Definitely a yes! But maybe need to emphasize what aspect(s) are sustainable about the food truck--as there are many aspects to sustainability--?(The truck runs on electricity, the food is grown locally, the food is grown organically, the food truck has a zero waste business policy, etc.)

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I never see a food truck by my department so I dont get food from them. I would if they were actually around

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As long as it's yummy! Some of the current food services ones are overpriced or just not even good.

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Having a truck is already not sustainable since it's using up a lot of fuel and polluting the environment unless it's electricity-powered.

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As long as it's able to stay competitive with a fairly similar price to other food trucks it sounds like a great idea!

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unless it's really good... I wouldn't go out of my way for it... and I forget about the existence of food trucks often

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If it didn't hamper the price or food quality, then sure I'd go. 8.50\$ the target

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More options for food, including sustainably sourced food, is always good. Especially if it is close to engineering side of the campus. Agora cafe is a good example of a successful sustainable food joint. Agora cafe on wheels would be great

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I think it is an awesome idea, provided most things within reason are sourced locally

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Is the truck sustainable? Is this what I'm paying for higher education? ;)

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You make the assumption that locally grown food is more sustainable. This is outright false in most cases.

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Entirely depends on quality, type/variety of foods offered, etc.

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Do it!!!!!!

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The sustainable food truck would have to make sure that everything it produces outside of the actual food is divertable from the landfill (ie. compostable plates, cutlery).

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I would appreciate a sustainable and "healthy" food truck more. Sustainability alone would not have an influence on people, if the food doesn't taste good. I believe it all depends on what the "sustainable" food is then.

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Love the idea. I hope it gets implemented at UBC

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