

Food Rescue

Christopher Castello
Scarlett Jimenez
Matthew Schultheiss

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Chapter 1: Introduction

Contributing Members to this report are graduating Engineering Studies students, Christopher Castello, Scarlett Jimenez and Matthew Schultheiss. As a part of this degree program we explore sustainable solutions to pertinent problems that modern society faces. The following report is written by these three members, and encourages the implementation of a Food Rescue program at Lafayette College

What are some of the problems that kids might think are hard to solve? Finding a cure for cancer, world peace, and solving world hunger?

Solutions to these problems are seemingly unattainable. However, many people have continued to develop solutions to these problems. One such contributor to solving both hunger and global warming is growing a comprehensive food recovery network. Universities around the country and world have been the first to make strides to eliminate food waste. The combination of available student volunteers and high volume of food waste make Lafayette College and other peer institutions excellent candidates for meaningful food rescue programs. A food rescue program is the practice of safely retrieving edible food that would otherwise go to waste, and distributing it to those in need. As a result of salvaging this food, the College also avoids the adverse affects that increased volume at a landfill has on greenhouse gases. Check out this [video](#) to better understand what a food rescue program is and what it is trying to accomplish.

An established Food Rescue and Recovery system at Lafayette College is an important evolution in the development of a sustainable community. In the United States more than a quarter of edible food is wasted and the energy required to produce this wasted food is calculated as approximately 2% of annual national energy consumption ([Cuéllar and Webber](#)). Aside from environmental considerations, food rescue systems, especially from college dining facilities, can provide immeasurable impact to food shelters that are starved for resources. Specifically...



source: <http://www.feedingamerica.org/hunger-in-america/hunger-in-your-community/states/pennsylvania/>

While this is certainly an obtuse figure that is not immediately solved by participation of one small institution, the need for providing for those going without food is prevalent. The inception of food rescue programs at universities across the country will prove to be important tools to garner momentum for responsible use of food resources nationwide and eventually globally. It is impossible to solve the problem of national and global food waste and hunger with one quick fix. The scale of the problem is too large to tackle with one single action. It will take the combined actions and movements of many people, groups, organizations, colleges, universities, restaurants, and more to help solve this problem. It is our hope that joining the food recovery movement at Lafayette will not only help those in need in the Easton community, but will also raise awareness on the issue of food waste and hunger regionally. Ultimately, relatively small actions are the foundations to taking big steps towards solving these challenges.

Problem Statement:

1. Food is wasted at Lafayette College which contributes to landfills Food waste in landfills is a high source of methane (a potent greenhouse gas)
2. People in Easton have nutritional needs

Our Proposed Solution: Develop a food rescue program at Lafayette College that helps solve two problems through a developed system that connects the surplus food from Lafayette College to those in need in Easton.

Our Goal: Develop a full understanding of the issue by answering the question of: *What it would take to implement a food rescue program at Lafayette College?* By answering this question we hope that a future student or group of students can use our information to help develop a sustainable food rescue system.

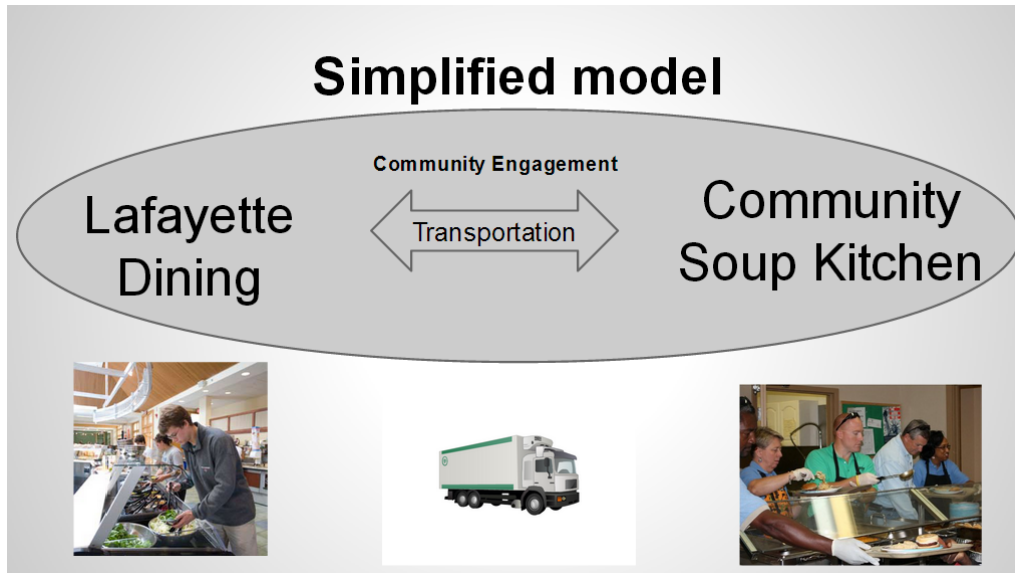
Developing sustainable solutions to this problem must take into account the [Social Context](#), [Policy Analysis](#), [Technical Analysis](#) and [Economic Analysis](#) of the challenge.

In order to mechanically understand how these aspects fit into the broader picture it is important to note the key characteristics of Food Rescue at Lafayette. Lafayette is a small, private, liberal-arts college. Our study will look into whether Lafayette has the ability to even implement a food rescue program that is worth-while and helpful.

To serve Easton, which has roughly 30% of the community living below the poverty line, is not a simple task ([source](#)). Many of the challenges as discussed in further sections of our analysis include that of liability, storage and transportation among others.

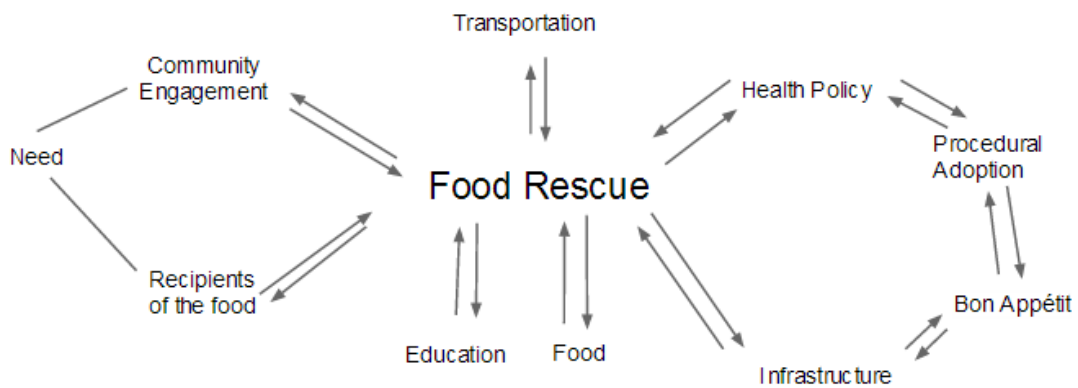
In order to overcome these challenges it is imperative to rely on local partners to enable the creation of a food rescue plan. Joel Blice, general manager for the Lafayette College Bon Appetit account, NORWESCAP (The Northwest New Jersey Community Action Partnership), Second Harvest Food Bank will be important stakeholders in tackling this challenge. The system which this site wishes to explore is complex and simple. In one sense, the system is simply taking

Lafayette College Dining Services food and transporting it to those in need. It is our mission to discover if it is feasible for Lafayette to achieve this and to understand what it would take.



In another way, a food rescue system represents a complex sociotechnical system.

The Sociotechnical System



All of these variables come back to the initial goal, which is simply stated as limiting food waste by means of getting viable food to people in need. The first step in achieving this is understanding what it will take to implement a food rescue program at Lafayette. This website is an accumulation of research on the answer to just that from a social, political, technical, and economic view.

Chapter 2: Social Context



Hunger is a problem faced by many within the United States and more specifically within the City of Easton, Pennsylvania. Calculated by the USDA Economic Research Service in 2011, over 15% of households in the United States are considered food insecure and over 23 million American live in areas that can be considered food deserts, or areas where the availability of healthy and affordable foods is often difficult. Both of these characteristics attribute to hunger within Easton.

According to a USDA report in 2010, over 133 billion pounds of food available in the U.S was accounted for as waste, all the while, it is said that 1 in 6 Americans live in hunger. There is a clear disconnect between food consumption and waste and the lack of food resources available for those in need. This disconnects and a rise in hunger awareness has led to what today is called the Food Recovery Movement.

“Fighting Waste, Feeding People”

A national effort to combat hunger and a growing awareness of daily excessive food waste, has spurred the creation of organizations such as the Food Recovery Network and Campus Kitchens. Aided by the prior development of non-profits such as Feeding America, these organizations have one goal, and that is to retrieve food that would otherwise go to waste and distribute it to those in need. Through this redistribution of food we acknowledge concerns about hunger, resource conservation and equity, and environmental and economic cost associated with food production, distribution, and waste. Eliminating food insecurity entails not only addressing problems of immediate hunger, but also confronting the issues of food access, affordability, and sustainability.



Feeding America, a non-profit organization started in 1979, has been a main player in the field of hunger awareness in the United States. Today they have provided the fundamental information that has been the foundation of which many food rescue programs have developed their goals and values based on. Feeding America has annually provided billions of pounds of food to Americans in need through the establishment of a nationwide network of food banks. Today, Feeding America is the nation's largest domestic hunger-relief organization and in 2014 they developed the nation's largest and most comprehensive study series into charitable food distribution in the U.S., *Hunger in America 2014*. Through a dynamic infrastructure and management Feeding America has secured food donations for millions.

As the first of its kind, Feeding America has influenced the development of other similar organizations such as the [Food Recovery Network](#) (FRN). FRN was initially started in 2011 as concerned students at the University of Maryland decided to address food issues they realized on their campus and amongst many other campuses; “**huge amounts of leftover food from campus dining halls and sports events were being thrown away**” (Foodrecoverynetwork.org, 2014). What began as three concerned students at the University of Maryland has expanded to a network of Food Recovery programs at over 95 colleges and counting.

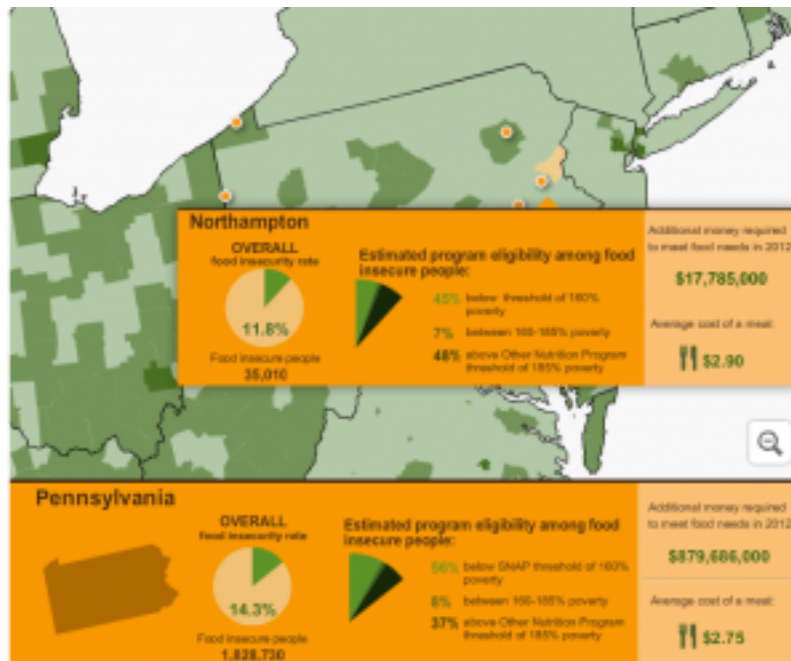
The growth of the Food Rescue movement can be attested to the larger growth in awareness that many in the community are taking. It is a movement that has been driven by concerned students, citizens, and organizations. The goal: to address hunger issues, community collaboration issues, and essentially fill the gap between the resources we have and misuse and providing these resources to the millions who need it.



THE
CAMPUS
KITCHENS
PROJECTSM

Hunger in Easton

This year marked the first *Food Waste & Hunger Summit*, a two day conference co-hosted by FRN and the [Campus Kitchen Project](#). Here, student leaders convened to discuss the issues of food insecurity and gave participants a forum to learn about the issues of social justice, non-profit management, public health and fields that play dynamics roles in the causes of hunger in America.



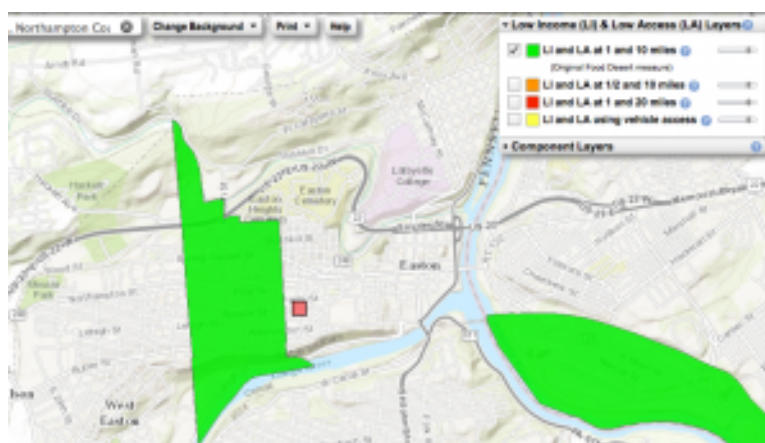
Food Gap in Northampton County

Today, issues of food justice, unemployment, local government budget cuts, and food insecurity add to the issue of hunger within the City of Easton. As a relatively small and quiet city, development in Easton has been halted over the last 10 year due the lack of economic infrastructure, and overall economic limitations of the city. In recent years the state of Pennsylvania has experienced a large spike in poverty since the recent recession. The most recent state budget contained cuts to education, healthcare, and other support services for struggling families.

Considered slightly a food desert, many of the low income residents within the city have limited access to a supermarket or fresh affordable sustainable foods. A 2009 report put out by the U.S Department of Housing and Urban Development reported that in 2009 over 23% of the population in Easton lived in poverty today that number is roughly 16%. For many of those who live in poverty, being able to provide healthy food for their family becomes one of their last priorities. This means that most families who are struggling to provide food for their families provide processed foods that provide empty calories.

Throughout the city exist many need based services with goals of providing those in the community who cannot meet daily needs with daily essentials which include shelter, food, and education. From the soup kitchens, food banks, and community centers there are limited places

that provide help and food for the many citizens in need but with limited resources and minimal amount of funds, these organizations are not always able to help everyone.



Highlights the food desert areas within Easton
Retrieved from :<http://www.ers.usda.gov>

Food Justice for Easton

The lack of accessible sustainable and freshly grown foods and overall lack of resources within the city has led to the development of many community / citizen run organizations aimed at filling this “missing link, gap, or middle” in the local food infrastructure.

Hunger Coalition- As a response to hunger within the city, The Hunger Coalition is a newly developed organization that is working to support and identify long-term solutions and support systems for the hunger problem within the City of Easton. Collaborating with other local groups, agencies, and community members and nonprofit the coalition is trying to develop a way to link food supplies, educational resources, and the community. With its first community forum October 2014 the Hunger Coalition is well underway on identifying community needs, resources and trying to coordinate efforts. One of their main concerns is addressing childhood hunger and using the resources of schools and summer meals and a temporary solution.

Easton Farmers Market- Established in 1752, Easton’s Growing Farmers Market has aided in the supply of fresh and locally grown foods. “The purpose of the Easton Farmers’ Market is to provide fresh, high quality, local produce and food products directly from regional growers to the consumer.” Much of Pennsylvania’s economy depends on agricultures but a lack in the food chain and food production and distribution system makes fresh food not always easily reached.

Veggie Van- A Lafayette College student class initiative in collaboration with neighborhood partnerships worked to provide and increase access of fresh food to communities such as the West Ward. Besides the goal of providing affordable healthy foods, veggie vans goal was to show how urban area farms could make a difference.

Neighborhood Gardens and Farms- Within the community the need for fresh foods and projects like the Veggie Vans have influenced the continuous development of local farms like Lafayette College's LaFarm and Easton's Urban Farm.



Food Rescue Program at Lafayette

As a large stakeholder within this community, Lafayette College, located on College Hill has the ability to provide food resources to some of the local food pantries within the community. With six different dining locations, the school could potentially provide pre-packaged or uncooked produce to local community food pantries.

Every lunch period over 300 pounds of food are prepared at the two large dining halls on campus. Of those three hundred or some pounds, a percentage will never see it to the buffet line and instead will either be stored and reserved the next lunch period, composted, or thrown out. With the potential to provide thousands of meals annually to those less fortunate through food recovery programs, the real question becomes, why doesn't every college in America recover food?

Taking the food and hunger issues specific to Easton into account our goal is to develop a sustainable Food Recovery program here at Lafayette that will reroute, as food programs at other

schools have done, salvageable food to those in need. By analyzing the legality and policies that the school will need to consider, the cost of implementing such a program, and coming up with a plan, we believe that this program can help hundreds within the City of Easton and furthermore, it further connects us to the community. Some essential community partnerships we are currently looking into is the roll of organizations like the CACLV, the Hunger Coalition, Second Harvest, and the Easton Area Neighborhood Center.

Our program, although it is not the solution to world hunger, will allow Lafayette students and the college as a whole to take account for our actions in the environment and in this community. By implementing a food rescue program we will become a part of the larger food and hunger discussion. A food rescue program at Lafayette will be a smaller subset solution to the larger food systems issues but, the overarching goal will be to help us further embrace our social responsibility.

Developing this program and achieving our goal requires the development of a volunteer base, establishment of program guidelines, and a well-developed/defined connection and relationship with the Easton Community. How we went about establishing preliminary infrastructure for a Food Rescue program at Lafayette is covered in the following sections.

Take a look at the next section, our policy analysis, [here!](#)

Chapter 3: Policy Analysis

Lafayette College: Food Rescue Program

Policy Section

This section will cover a policy analysis of implementing a Food Rescue Program at Lafayette College. An important step in a policy analysis of the implementation of this type of program is developing an understanding of the critical stakeholders involved in the implementation and execution of the food rescue program. There are three main groups of stakeholders involved in this project. There is Lafayette College, the Easton community, and a food collection agency. Within each of these main groups the stakeholders can be better defined.

Starting with Lafayette College there are three main players in the implementation of a food rescue program. We have identified these players as Bon Appétit, the Lafayette Administration, and the Lafayette College student body. It is impossible to determine the feasibility of a food rescue system at Lafayette College, or implement and execute a system without the full cooperation of Lafayette College's dining services. The current provider of Lafayette College's dining services is Bon Appétit. Bon Appétit became Lafayette College's dining service provider for the Fall of 2013. Lafayette College's Bon Appétit is part of a company based in Palo Alto, CA. They are an on-site restaurant company which offers its full food-service management to corporations, universities, museums, and specialty venues. Bon Appétit services over 500 restaurants in over 32 states. They are self-proclaimed to follow and uphold environmentally sound sourcing policies. They have been active in setting up programs within their organization addressing issues such as local purchasing, overuse of antibiotics, sustainable seafood, the food-climate connection, humanely raised meats and eggs, and farm workers' rights.

Bon Appétit holds its community involvement paramount within its organization nationwide. Since Bon Appétit is a member of so many different communities, it strives to be actively involved and engaged with those communities it is a part of. The company holds many policies to help support their communities. Some examples of these supportive policies include: chefs being required to source at least 20 percent of their ingredients from small, owner-operated farms and artisan businesses within a 150 mile radius; aiding local schools and non-profits in hosting fundraising dinners, volunteering at local food banks, and donating to food recovery programs; and their Fellows Program. The Fellows Program is a means of dispatching three recent graduates to make visits to college campuses around the country to inspire students to also get involved in activities like campus farms and food recovery projects. Nationally, Bon Appétit has a proven political structure and formation of corporate values to be the driving force behind a food rescue program at Lafayette College for the Easton, Pennsylvania community.

BON APPÉTIT
MANAGEMENT COMPANY

food service for a sustainable future®

Are main contact at this point is the Bon Appétit General Manager here at Lafayette College, Joel Blice. He was able to confirm the ability for Bon Appétit to implement this type of food rescue project at Lafayette College. He also provided valuable input on the types of concerns he and Bon Appétit would have. These challenges are mentioned by General Manager Blice in the following excerpt from an email conversation:

1. *The two challenges I think of right away would be cost and food safety. In the cost area we would need labor, packaging and transportation. Perhaps the labor could be a volunteer effort, I'm sure we could make that work.* Food safety is always a great concern; there should be a required training class for the volunteers prior to allowing them to participate in the food recovery effort.

These challenges of cost and food safety are both vitally important to think about and can be better understood in our [technical](#) and [economic](#) sections. However, Food Safety should not be a concern legally by Lafayette. The Bill Emerson Good Samaritan Food Donation Act, which simply protects both the donors and the receiving agency from liability charges unless gross misconduct is found. This law was signed by President Bill Clinton in 1996. Additionally states have Good Samaritan policies which protect for donations of good faith from liability charges.

We also were able to listen to a very informative webinar entitled “Donating Unsold Food”. A major discussion point of the webinar was the policy issues associated with food recovery programs. One presenter a professor at the University of Arkansas School of Law, discussed in great detail the legal issue with food recovery. The main takeaway from here presentation there has never been a single lawsuit regarding liability of donated food. She explains the barriers there are to cross including the misconception of the legality of food donation and the necessary training and oversight needed when implementing a program. Nicole Civita’s’s presentation can be viewed [here](#).

Mr. Blice also offered his insight on stakeholders involved in this sort of project which lines up with our analysis:

2. *In an opportunity that will truly benefit members of the greater Easton community everyone should be a stakeholder! I would say that this effort could be driven by students and Lafayette Dining primarily, along with some initial assistance from the Lafayette community in assisting with delivery and packaging.*

Mr. Blice also provided a confirmation of Bon Appétit's involvement in food recovery programs at other colleges and universities across the country:

I have just heard back from our Bon Appétit fellow who coordinates food recovery programs for us across the country. We currently have at least 100 accounts doing some type of food recovery.

Nationally, Bon Appétit is actively partnered with an organization called the [Food Recovery Network](#) (FRN). The Food Recovery Network is a student run organization with a mission to recover leftover food at college campus dining halls to donate to those in need. Whittier College was the first Bon Appétit School to join as a Food Recovery Chapter last year and has donated 1,361 pound of food to date which is equivalent to over 1,000 meals. The University of Portland and Mount Saint Mary's are examples of other Bon Appétit schools to join the Food Recovery Network and actually developed a [A Guide to Food Recovery Network for Chefs and General Managers](#).



The Food Recovery Network is a professional organization started in January of 2012. Students from four colleges came together and created the Food Recovery Network determined to create a food recovery program on every college campus in the country. It initially spawned from a University of Maryland project noticing the amounts of food waste on campus coupled with the community's hunger needs. As of May 2014, the Food Recovery Network has implemented programs at more than 95 colleges spanning 26 states, Puerto Rico and Washington D.C. These programs have been able to recover over 400,000 pounds of food. Recently the Food Recovery Network has been able to gain the support of Chartwells in addition to Sodexo, Bon Appétit, and many independent dining providers. Examples of schools in Pennsylvania alone which are involved as active chapters of the Food Recovery Network include: Allegheny College, Drexel University, Lycoming College, Mercyhurst University, Millersville, University of Pennsylvania, Penn State Erie, The Behrend College Penn State, Saint Joseph's University, Shippensburg University, Susquehanna University, University of Pittsburgh, and University of the Sciences Villanova University. This list of schools includes schools as small as Lycoming College (1400 enrolled) to universities as large as the University of Pittsburgh (35,000). Lafayette College could be a strong candidate to get involved with the Food Recovery Network, having ties to Bon

Appétit while also belonging to an Easton community which we demonstrated has a need for the food in our [social context analysis](#).

Another very important stakeholder group other than Bon Appétit is the Lafayette student body. In order for a chapter of a Food Recovery Network to run effectively, smoothly, and with sustainability is for students to become involved, interested, and invested in the organization and food recovery. As Joel Blice mentioned, food safety is a major concern when dealing with food recovery in both packaging and transporting food. Depending on the system implemented (see [technical analysis](#)), students involved in a food rescue program would need to undergo training in some function. But most importantly there needs to be more students (especially sophomores and juniors) aware of the issue we (Chris Castello, Scarlett Jimenez, and Matt Schultheiss) are trying to solve. As the three of us are seniors and this program will not be able to be implemented within the time we are active students here, there is a need for more to get involved and to be actively engaged in the program's goals and have it run smoothly and effectively.

As mentioned earlier, the Easton community is another important stakeholder in a possible food rescue program at Lafayette College. Although the community is covered with more depth in the [social context section](#), it is important that this project has contacts and interest from the Easton community in order to be successful. We have had discussions with the Center for Community Engagement to find the best way to get Easton involved with this project. An organization that may be very interested in this project may be the [Hunger Coalition](#) recently formed by Easton Community members. The Coalition is new and looking to help solve food insufficiency in Easton, PA.

The final important stakeholder for the food rescue program at Lafayette College is finding an organization to distribute the food to those in need. This may (and maybe ideally would) work in tandem with the Hunger Coalition. Some organizations in the area that could be involved include NORWESCAP, Second Harvest Food Bank, and the CACLV (Community Action Committee of the Lehigh Valley).

NORWESCAP is a non-profit corporation which provides food to counties in need primarily in New Jersey. They are located the closest to Lafayette College, and possess a system for food distribution. And after discussing with the NORWESCAP's director Helene Messner, we found out that it is politically unfeasible for them to service the Easton community. They are allowed to receive food donations from Pennsylvania, but cannot distribute that food to Pennsylvanian's by law. Also they are not allowed to receive perishable foods by law. Ms. Messner did mention Second Harvest as the food bank for this area. Second Harvest is a food bank which serves the Lehigh Valley and is partnered with the CACLV. According to [CACLV 2012-2013 Annual Report](#), Second Harvest has distributed 6.95 million pounds of food for the 2012-2013 year (more than 9% over the previous record-setting year). 1.4 million of this aforementioned food included perishable food. This food has been distributed to 69,000 individuals via 200 non-profit organizations including shelters, soup kitchens, and pantries throughout the six county regions. These organizations possess the volunteers and reach to be able to provide an outlet for the recovered food at Lafayette College.

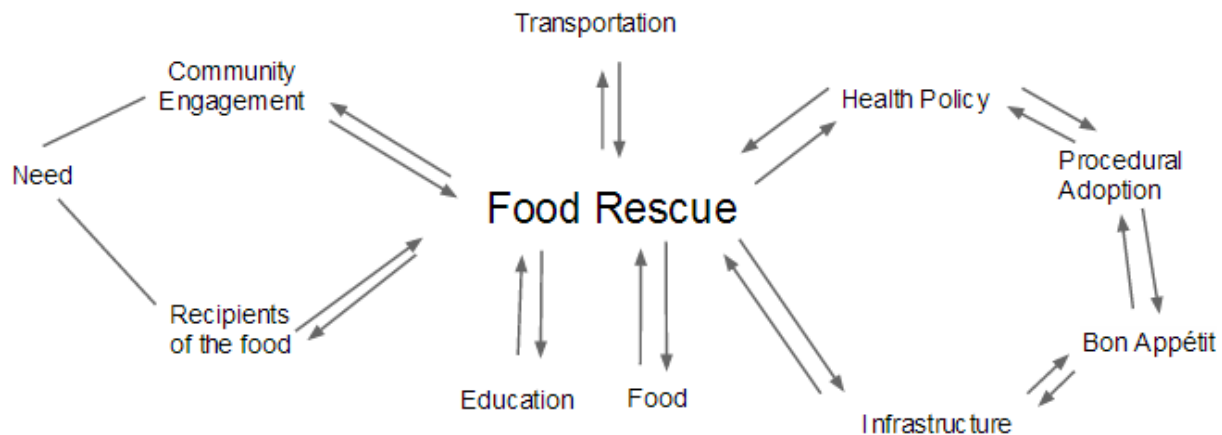
Bon Appétit, the Lafayette student body, the Easton community and a local food collection agency all encompass the stakeholders within the scope of a food rescue program at Lafayette College. Bringing these groups together and establishing a dialogue and relationship is a critical step which this project has striven to do. It will be impossible to implement a food rescue program without the cooperation of all stakeholders. With these stakeholders in place the project has the political feasibility to be successful.

Chapter 4: Technical Analysis

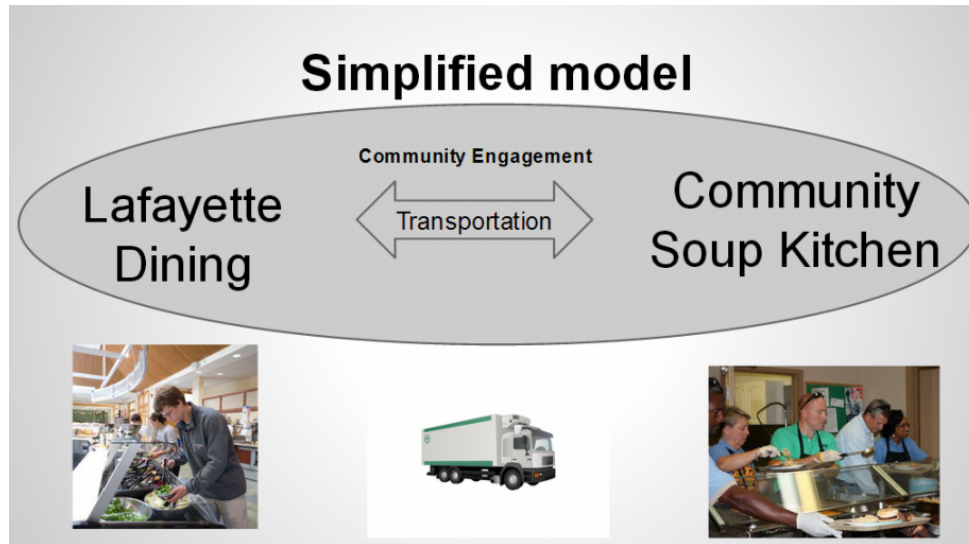
A food rescue program involves the development of a interconnected system. The proper development and understanding of the different parts that are necessary in order to run a food rescue system is crucial to the success of the actual program. The way it is designed and executed will affect operation down the line. Food rescue is a great example of a system that is both technology dependent while having other aspects to it that are completely separate from technology. There are many different aspects of food recovery that are interconnected which all must be thought of and considered when developing a technical system for a food rescue program. Though a food rescue program at Lafayette College would be similar to a model at other colleges, it is imperative to consider Lafayette specific things (this would include the social, political, and economic contexts covered in the other sections.)

To understand how we designed our model for food rescue first we should look at the complex sociotechnical system we developed to better understand and answer our research question: **What would it take to implement a food rescue program at Lafayette College?**

The Sociotechnical System



As discussed in the [Policy Analysis](#), there are four main stakeholders (Bon Appétit, Lafayette Students, the Easton Community, and a local food collection agency) falling under the main groups of Lafayette College and the Easton community. These stakeholders need to encompass these critical aspects in order for our technical system to work. In order to provide ourselves with a more feasible design model, we have simplified the model a bit giving a better picture of what needs to be accomplished in order for a Lafayette College food rescue program to be successful.



This model gives a visual representation of what a food rescue program would look like at Lafayette College. The system requires a direct connection from Lafayette Dining services to a community organization. This model depicts the reciprocal relationship between Lafayette College Dining and the Easton Community. Lafayette as the donor of the food is collaborating with the recipients of the Easton Community through **community engagement**. Although the food is physically moving from donor to recipient, in order for this model to be successful both parts of the model must be collaborative, which is why we chose to visually show the model in a circular shape with community engagement as the driving force. This visual representation emphasizes the connection and relationship of the parties within the model.

In a discussion with Claire Cummings, Waste Specialist at Bon Appétit Management Company, she described two types of systems which other Bon Appétit schools have utilized. One type of system is a student-run system and the other is a direct system. The student-run system would involve students running the point on the food recovery program. Bon Appétit has a developed relationship with the Food Recovery Network, which is an organization dedicated to developing these programs on colleges across the country. Students would package and transport the food to a local food agency which would distribute it to those in need. In a direct system, students are not involved. There is a direct partnership between the dining hall and the local food agency. Both systems are viable options, however being at a college with a student body as active and involved as Lafayette, we feel the best system for Lafayette would be a student-run system. This type of system would be valuable and rewarding to the students involved and would promote more community engagement, which is vital to the success of the program as indicated in our model.

In terms of Food Recovery Programs through Lafayette College, Bon Appétit as a franchise has over 100 corporate cafes that have established food recovery programs. Of those 100, 25 are college or universities that have implemented a student run/assisted program. The other type of program available has no student base and instead it is a direct relationship between the donor, Lafayette, and the organization(s) we choose to partner with. For the purposes of the program we are trying to develop, the future goal is for it to be student assisted and ran, although this could potentially change due to things like the school's legal concerns and student interest.

The most feasible way to get a food rescue program started is to utilize Bon Appétit's relationship with the Food Recovery Network to start a chapter at Lafayette College. In order for a chapter to be started there needs to be a student organization interested in taking on the project. There are two options for finding a student organization to take on this program. One, create a new organization. Creating a new organization through student government would be a feasible option for obtaining the necessary student support for this type of project. Lafayette College is an easy place to start a club and a list of all the different organizations already offered can be found [here](#). The second way of obtaining a student organization to manage or work on this initiative would be finding an existing club on campus to take on the task. Through the Landis Outreach Center there are a number of organizations with related interests that can be brought together to work on developing the food rescue program. Some of these organizations include Oxfam Hunger and Poverty Awareness, Meals @ Third Street, or Safe Harbor Homeless Shelter. A third option would be a combination of the creating an organization and finding existing organizations. This would be accomplished by creating an organization and then recruiting the help of existing organizations. Whichever method is used it will be imperative to have a student organization actively involved in the operation of the project for a food rescue system to work properly.

Part of developing the student organization can be done through the Food Recovery Network. As highlighted in our [policy analysis](#), this organization has the resources, experience, and familiarity with Bon Appétit to help with the process. They offer full-time staff dedicated to providing resources to new and existing food recovery programs across the nation. For a Food Recovery Network chapter to run effectively, there needs to be a core group of students (around 2-7). They also need a student to be the contact/point-person to communicate and collaborate with. It is ideal for this person to be actively involved in the project through the starting and implementation phases. For this reason, it is best that a sophomore or junior get involved with this project.

Other than a student group to run the food rescue program, it is important to find the proper recipient for the food. This search is not an easy decision as we must understand the social implications of our selection. The Second Harvest Food Bank services the Lehigh Valley area. However to service Easton we need to find the right location or combination of locations that has the ability to quickly distribute the rescued food. Janet Ney, Coordinator of Advocacy and Outreach for the Second Harvest Food Bank, provided us with these current locations for [Easton hunger relief sites](#). She also mentioned the need for a soup kitchen in the West Ward of Easton, however that is another project within itself. The list provides many options however the most likely to be able to receive and distribute prepared goods are the Greater Shiloh Soup Kitchen and the Safe Harbor shelter. The other sites are food pantries which typically receive and distribute packaged foods. It is important to include the location of the food relief site in the planning and organizing of the food rescue program.

Logistics of the the program would be dependent on what our partner organization's limits, capabilities, and needs are. In terms of finding non-profits or capable partners, the requirements by Bon Appétit would be an organization that has a kitchen, whose hours would coincide with delivery times of students schedules, and have capabilities of storage and transportation. The necessary storage for the partner would need to be approximately enough to store 100 pounds of

food (approximated from Denison Case Study in [Economic Context](#)). This is about 20 trays of food. Refrigeration overnight would be required. Also freezing may be necessary depending on the number of people using the partner organization.

On Lafayette's side, there are three technical components to consider: packaging, storage, and transportation. For packaging Bon Appétit's current practices line up with the necessary packaging for a food rescue program including labeling and dating. Food at Lafayette that is stored or that has been donated in the past is always packaged under the same conditions and with the same requirements. They are labeled, dated, allergens if any are sometimes specified. Joel Blice noted that additional labor for packaging could be handled by 1 to 2 student volunteers. The food would need to be packaged into transportable trays. There are two options hotel trays and reusable trays. Hotel trays are currently used by Bon Appétit when transporting trays due to the low initial cost and the fact that they are disposable. Reusable trays have a higher initial investment and require more labor for cleaning on Bon Appétit's end. For this program to be truly sustainable an investment in reusable trays will be needed (see [Economic Context](#)). As for storage, all storage would take place in the walk-in refrigerators already in-use by Bon Appétit. Joel Blice said Lafayette would have the storage capacity to store excess food given a three day a week donation model. This way the food would only need to be stored 24 hours. Transportation could be done on the part of the partner organization depending on their labor force. However it is more likely that student's would be involved in the transportation of the food. Lafayette College mini-vans would be used to transport the food to the partner organization. It would take one student volunteer and one mini-van to transport the projected amount of food. Below is an example of what the student volunteer schedule would look like.

Sunday:



9PM-10PM: 2 students packaging

Monday:

9PM-10PM: 2 students packaging

Tuesday:

8AM-8:30AM: 1 student transporting

9PM-10PM: 2 students packaging

Wednesday:

9PM-10PM: 2 students packaging



Thursday:

8AM-8:30AM: 1 student transporting

9PM-10PM: 2 students packaging

Friday:

9PM-10PM: 2 students packaging

Saturday:

8AM-8:30AM: 1 student transporting

9PM-10PM: 2 students packaging

In terms of the kinds of food we would deliver, Lafayette has 6 facilities, 2 of which are larger buffet styled dining halls. The other four are closer to retail with various grab and go options. We see the larger buffets dining halls as our main supplies of food. The types of food we can deliver is also dependent on what our partner organization is willing to take. Some of them might be willing to take only pre-packaged foods while others will accept prepared foods that have not been put out and have been kept under safe conditions.

Chapter 5: Economic Analysis

The economic context of a food rescue project is a vital component to the enduring success of this program. The problem with relying solely on an economic analysis in planning is that economic models do not always consider the other contexts which we have explained in our previous sections. This section will discuss the direct and indirect costs associated with the implementation of a food rescue program at Lafayette College.

An estimate of associated costs are included in the table below, followed by a discussion of where these costs are derived.

Assumptions:

- 3 trips per week to donation agencies
- \$3/ gallon and avg 20 mpg for the trucks or vans used
- Pre-existing insurance costs are not included as these vans and trucks are already in use
- Lafayette College would donate 300 pounds of food per week. Based on peer university comparison.
- The following estimates are derived from conversations with Bon Appétit and members of the Denison University community.

Input	Cost (or Benefit)
Labor from Student Manager	@~10 hours a week* @ \$10/hour = \$100/week
Labor from volunteers	0 explicit cost; 3 hours a week of opportunity cost at less than \$150/ week
Labor from Bon Appétit	No extra labor cost
Transportation to donation agency	2 miles to Greater Shiloh Soup Kitchen:(12 miles /20mpg)* \$3 = \$1.80/ week
Reduced waste hauling cost	~ 300 lbs/week* \$0.035/lb * = \$10.65/ week
Disposable trays	\$.1 /tray * 60 trays/week @ 5lbs/tray= \$6.00/week
Reusable trays	120 steel trays @ \$33.33 = \$4000

The direct costs associated with starting a food rescue program at Lafayette College are labor costs and transportation costs. The labor costs come from the extra man hours it would take to package the food after each night. The transportation costs are the man hours associated with transporting the food from the Lafayette College Dining Hall to the local donation agency. Also the cost of fuel and the operating and maintenance costs of the vehicles are other things to be considered when thinking of the economics of a food rescue program.

The indirect costs include the greenhouse gas emissions from the transportation vehicles and the opportunity cost of the man hours associated with packaging and transportation.

The economic benefit of a food rescue program is directly linked to the savings in the hauling of food waste. Environmental benefits are derived by limiting food waste in the landfill. This includes the benefits of more space in the landfill and less methane emitted by food waste decomposition. The social benefit of implementing a food rescue program is related to social justice and food justice. This program will prove valuable for both Lafayette College and Easton.

According to the Food and Agricultural Organization, every child whose physical and mental development is stunted by hunger and malnutrition stands to lose more than 10% in lifetime earnings. The cost of under-nutrition to national economic development is estimated between US\$1.4 to \$2.1 trillion”

Source: Foodbanking.org

While the general data we have is disparate for Easton and Lafayette College, based on the findings of the Food and Agricultural Organization of the United Nations and data from other sources, it is clear that there is much broader economic benefit to the local economy when everyone can be more productive as a result of being appropriately nourished.

The conundrum in this project is how do you quantify the value of the massive amount of food that could be donated each day, such that the economic costs, short and long term, are worth the expense.

In this section we have discussed several economic aspects of a Food Rescue project. The question that we aim to answer is: what environment makes a food rescue project economically feasible? As previously mentioned, an effective food rescue plan will have to account for economic cost and benefit. This includes explicit economic costs and benefits, but it should also include the more obtuse, but equally important, benefit to society.

While our research and interviews with stakeholders at Lafayette College have not warranted explicit costs of a Food Rescue system. The following is a case study from Denison University which has a very similar student body size of 2,400 students. The means by which a similar institution have launched a food recovery network may prove to be a meaningful resource. As this systems has helped for the basis of many of the numbers seen in the beginning table.

Denison Food Recovery Network:

Adapted by Matt Schultheiss '15 at Lafayette College in summary of communications from Rachel Auerbach '16 at Denison University

Denison University and a few student leaders there took deliberate steps to achieve a successful Food Recovery Network.

The first step is to confirm that Dining Services is willing to work with the students to establish a food rescue system. Secondly, the institution needs to have space. This means space to store pans as well a sample refrigeration space. One of Denison University's biggest issues was refrigerator

space, as the pans take up a lot of space. Third was to set up partner organizations and figure out the best way to get the food to them. Denison University works with places like the Salvation Army, St Vincent de Paul, YES Clubhouse (an after school program for kids), who get food from the university every week. Some organizations are willing to pick up the food from campus; others don't have the manpower so Denison will take the food to them. It is important to keep the food moving, otherwise it will need to be thrown away, which defeats the purpose. Students at Denison plan to match up quantities of food acquired from the dining hall(s) and quantity of food that can be taken by agencies. The final challenge for Denison was to get students on board to pick up the food. Targeting areas of campus such as environmental advocacy student groups and Environmental Studies departments are good resources for volunteers to lead this effort.

The second step is to figure out the logistics involved in this system. When Denison started its food rescue program they used disposable aluminum pans which, while convenient, are not a sustainable solution. The aluminum pans proved not strong enough to carry some food items, and this resulted in food being soiled by spilling instead of being served to people in need. The most notable set back with aluminum pans is that long term costs are high, as there is a need to continually purchase new disposable pans. Denison University switched to reusable stainless steel pans with lids which successfully addressed all of these challenges. For both of Denison's dining halls, students established a schedule with the dining halls so that students pick up foods at convenient times. Denison currently recovers food from two dining halls.

Curtis Dining Hall and Huffman Dining Halls at Denison University both have the capacity to be donating food, but only one has the space to actually store the food. As a result of this challenge, students have used peripheral space to establish a separate refrigeration location for food from this specific dining hall. At the two storage facilities, all food is logged (weight and types of food) and allocated appropriately to each of the partners that Denison University is working with. Each organization returns pans clean to the students for reuse.

The economic implications of the food recovery system to Denison University are limited. All students who pick up food are volunteers, however the student leader is compensated for the organizational work that needs to be done to arrange for these student-volunteers. Based on preliminary findings, the extra steps that were taken by dining services employees to set aside food were minimal to none. Denison University spent \$4000 for 120 stainless steel pans, this cost was assessed based on the aforementioned burdensome long term costs of disposable pans. Student volunteers drive University vehicles to the locations, as a result travel expenses are ambiguous but limited to overall maintenance and operation costs of these vehicles.

The food that is donated is significant. Denison University estimates that total amount of donated food per week equals 300 pounds. This food would have otherwise been sent to the trash and wasted. Through the use of Rock and Wrap it Up's (an anti-poverty think tank) [Whole Earth Calculator](#), we were able to estimate that 300 pounds of food per week is equivalent to 231 meals for those in need and 228 pounds of carbon dioxide equivalent not emitted from landfills. Any food items that have not been brought out are eligible to be donated. Some of the items donated at Denison include Cooked vegetables, pasta, pizza, meat (chicken, beef, pork), vegetarian dishes, rice and others.

The success of Denison University's food rescue system has depended on many factors. The most important of these aspects is ensuring that the people involved are reliably inputting the labor necessary to deliver this food to the organizations in need. Students agree that being a part of this project is a semester-long commitment and this has proven to be an effective means of retaining volunteers. Denison University hopes to continue this food recovery network far into the future.

The intricacies of the Denison program prove that these systems require the collaboration of many stakeholders. The donation of 300 pounds of food each week by Denison University is an important resource for local organizations' to properly provide for those in need. By parallel, an equivalent amount of food donated by Lafayette College could significantly increase the ability of the Easton community to feed citizens who unable to get proper nutrition.

The [Easton Hunger Coalition](#) aims to provide all residents with access to healthy food. The analysis outlined in this section should be carefully considered as not only an explicit economic measurement, but instead a measurement of more broadly what kind of economic system will need to be in place. Like at Denison Univeristy, it may be necessary to compensate a student leader for the large amount of time spent to organize this kind of effort. Understanding long term costs, and what is acceptable costs will also be necessary. For instance, can Lafayette afford to use some of its own vehicles to transport food? These questions and those posed in other sections of this site will need to be addressed.

Chapter 6: Conclusion

What have we learned?

Our research question was “*What would it take to implement a food rescue program at Lafayette?*”. We explored this question in four contexts in great detail: the social context, the political context, the technical context, and the economic context. This gave us the broad perspective this problem needed to fully understand.

Social Context

Our main conclusion from our study of the social context of a food rescue program at Lafayette college is that it is socially feasible for food rescue program to be implemented within Lafayette community. The city of Easton has a large need for such a program and Lafayette has resources to aid hunger within this area. In particular, the recently formed Huger Coalition of Easton is great evidence of the community efforts being made to fill this hunger gap and link resources to need. In a recent meeting held at Lafayette College, we discovered that the Hunger Coalition would be very interested in assisting in the development of a Lafayette college food rescue program. Also Lafayette College is a liberal-arts college that prides itself on community engagement. A food rescue program is a great way for Lafayette to take into account its role and actions in this community and be involved in a discussion it may not have been before. The food rescue program would be a way for Lafayette to reduce food waste, increase community involvement, and raise awareness to a bigger problem of hunger and food waste on a national level.

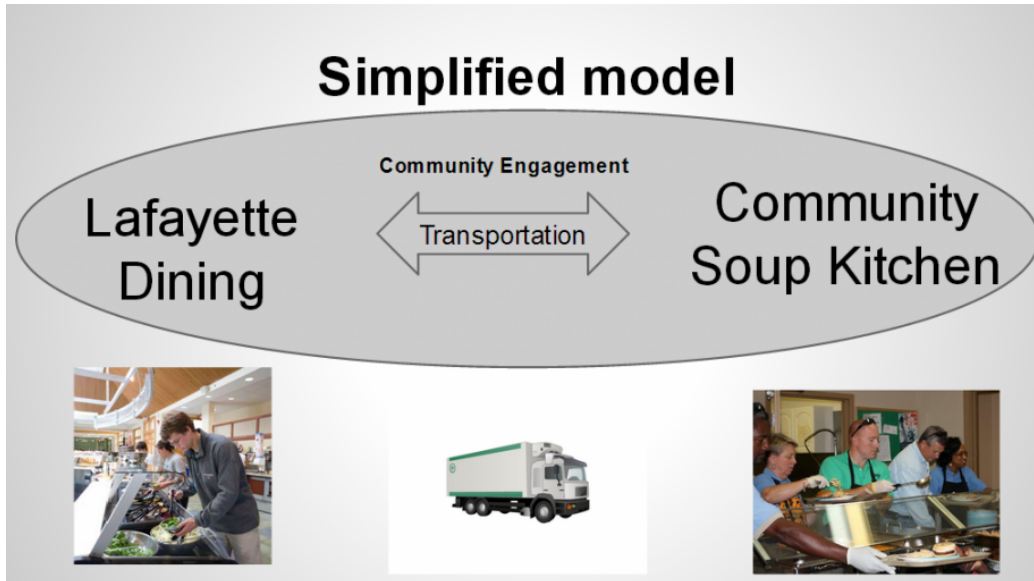
Policy Analysis

Our main conclusion from our policy analysis is that it is politically feasible to implement a food rescue program at Lafayette. The stakeholders involved with the implementation of a food rescue program are Bon Appétit, the Lafayette Administration, the Lafayette student body, the Easton community, and a food collection agency. Through various conversations and research we have been able to verify the interest in such a program from Bon Appétit and the Easton community. We have also verified that there are food collection agencies within the area capable of receiving the food. The only stakeholders we have not been able to verify an interest from is the Lafayette student body and the Lafayette administration (see What are the next steps?).

We also learned about the legal issues associated with food recovery. Our findings were that in general there are no legal issues with donating food. There are laws in place both on the federal and state level to protect both Bon Appétit and the food collection agency with good faith food donations. And according to a new report from the University of Arkansas Food Recovery Project, there has never been a single lawsuit regarding liability of donated food. Therefore other than any college policies regarding students in the kitchen, we do not foresee any policy related issues to obstruct the implementation of a food rescue project.

Technical Context

Although the complete technical context could not be developed, in general Lafayette has the capability to implement a food rescue program within the community. We were able to discuss with Bon Appétit's waste specialist Claire Cummings about 2 basic models other Bon Appétit colleges have followed. The two models include: a student-run model (typically through the Food Recovery Network) and a direct model. Both models have their merit but we believe given the resources of the community, a student-run model would be ideal. This model would provide more support for the program and would aid in Lafayette's community engagement efforts.



The picture above shows what the technical system would look like. What this model is missing is the actual scheduling, labor force, transportation source, and materials needed to actually work.

Economic Context

The general understanding of the economic costs in a food recovery system is that the most costly aspects will result from the transportation and storage of food. Because the people helping to actually run the program will likely be volunteers or paid through a non-profit organization, labor costs would not be incurred by Lafayette College. Long term solutions for the transportation and storage of food will be necessary for a sustainable future to this program. As noted in the Denison case study, buying disposable pans can prove to be costly. Instead a further investigation into investing in reusable pans is advised.

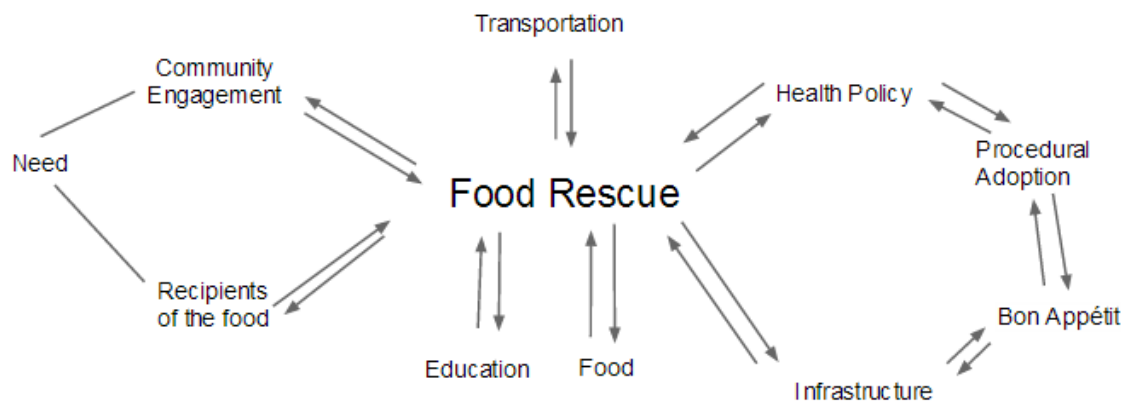
Overall Conclusion

Bringing all together from each aspect of the project, we learned that it is feasible to develop a food rescue program at Lafayette College. Everything necessary for implementing a food rescue program exists pertaining to Lafayette College. The need of the Easton community is apparent and organizations such as the Hunger Coalition can act as the community voice. The

stakeholders involved in a Lafayette College food rescue program have the capability and interest of implementing a program. Most importantly Bon Appetit has the experience and interest in implementing a program. The Food Recovery Network is growing and thriving at college's and universities across the nations including 25 Bon Appetit schools. Technically, the storage capacity of Lafayette dining would support a food rescue program. Transportation can be provided by students or the local agency in their own vehicles or Lafayette College can allow for the use of mini-vans. The direct expenditures of the program only include the cost of trays for transport and the cost of gasoline, both of which are relatively low.

Our study determined the variables we identified in our sociotechnical system (seen below) all exist and support the implementation of a food rescue program. However there are challenges and steps that must be taken for food rescue to become a reality at Lafayette College.

The Sociotechnical System



What are the next steps?

A food rescue program at Lafayette is possible with the right resources. As outlined in this site, the limitations to successfully starting food rescue projects nationally and at Lafayette are economic, social, technical and political (hence the format of the site). While lofty, there are only a few specific aspects that need to be addressed before Lafayette can get a program off the ground.

There are a few critical meetings that have yet to take place. Stephen Schafer, Controller and Associate Vice President of Finance, will have keen insights on whether or not this is financially feasible as well as whether or not donating food represents an appropriate risk to the College. After this meeting and other pertinent conversations with Lafayette College administrators have been completed, it will be necessary to partner with a national organization such as the [Food Recovery Network](#) to help get food at Lafayette College effectively into an emergency food

system. Organizations like this can often provide [financial support](#) for initial investment in equipment (such as pans).

Technological issues surround how to actually deliver and store food. From conversations with Joel Blice, it seems that refrigeration space is not an issue and there could be space devoted to this type of program. However, Dining Services would not be able to transport this food. This last technical challenge is a result of complex economic and political forces. Other technical issues that need addressing during the implementation of this project would be a direct community recipient. Second Harvest Food Bank is a potential recipient however, finding local soup kitchens and churches that could handle prepared food donations is an important step once a student infrastructure is created on Lafayette's end.

This being said, the steps that will need to be taken lie mostly in economic and technical challenges. These challenges include ensuring a sustainable cohort of student volunteers to package and potentially transport food. This will most likely be achieved through the FRN chapter. Finding the correct partner for donations is critical since the success of the program depends on the partner's ability to serve those in need. There is an exciting future for Food Rescue at Lafayette, with the right students to help carry this forward. This program will prove to only further strengthen the College's relationship with our local communities and will help in the solution to the problem of food waste and hunger.

But for this project to have any of these it needs to be developed and implemented to the next level. In short, here is a list of what to do next:

1. Talk with Lafayette Administration

Talk with Stephen Schafer, Controller and Associate Vice President of Finance about costs on the college's end and legal concerns of the college

2. [Start a Food Recovery Network Chapter](#)

A Sophomore or Junior student needs to act as the initiate to starting a food recovery chapter for continuity. Starting the chapter will provide resources for developing a student organization and costs of trays and transportation.

3. Find local agency

After the chapter is formed the contact from FRN will aid in partnering with a local food group. Also use the list of [Easton hunger relief sites](#) as a starting point.

4. Implement

Coordinate with Joel Blice, Claire Cummings, FRN, and the local agency to set up the logistics of the program.

Those who may utilize our findings will need the following contacts to help develop Lafayette's food rescue program.

People to contact to continue growth of the project:

Joel Blice (General Manager, Bon Appetit Lafayette)

email: blicej@lafayette.edu

phone: 610-330-5346

Claire Cummings (Waste Specialist, Bon Appetit Management Company)

email: claire.cummings@BAMCO.com

Janet Ney (Second Harvest Food Bank)

email: jney@caclv.org

Office: 484-893-1106

Cell: 610-248-9902

Bonnie Winfield (Center for Community Engagement)

email: winfielb@lafayette.edu

phone: 610-330-5813

[Food Recovery Network](#)

to start a chapter

Lafayette College has the ability to implement a food rescue program. With the movement towards sustainability nationally and on Lafayette's campus the current state of how Lafayette deals with its pre-consumer food waste is unacceptable. A food rescue program at Lafayette would act as a sustainable practice and part of the solution to some of the world's most challenging problems (hunger and waste). It is time for Lafayette to join the growing initiative of college's across the nation creating food rescue type programs. A Food Recovery Network Chapter is the best way for Lafayette's program to get going. It is time for Lafayette to stop being part of the larger problem and start being part of a growing solution.