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The Garbage That We Eat: Metabolizing Food-Waste in New Orleans, Louisiana

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THE GARBAGE THAT WE EAT:
METABOLIZING FOOD-WASTE IN NEW ORLEANS, LOUISIANA

A Thesis
Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Master of Geography
in
The Department of Geography and Anthropology

by
Kelly Haggerty
B.A. Bloomsburg University of Pennsylvania, 2017
May 2019
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Abstract

The 2017 Climate Action for a Resilient New Orleans report strives to divert 50 percent of waste by 2030. In the same year, waste companies had only managed to divert 5 percent of the total annual waste in Orleans Parish. Nearly a decade away from 2030, city officials have not even tested or implemented strategies to reach this goal. While city officials scramble to launch pilot projects, community and grassroots organizations center around recovering and transforming garbage and food waste. Using interviews and surveys with food-waste organizers from May to August 2018, this paper reveals that managing food-waste on a local scale contributes to the circulation and metabolization of resources in New Orleans. Nearly 100 restaurants, cafes, markets, grocery stores, offices, and hotels in Orleans Parish partner with community organizations to separate their food waste. The food-waste either feeds animals on urban farms, becomes compost soil, and if packaged and edible, is distributed to food banks and food insecure families. In the organizers’ pursuit to divert waste from landfills, they create jobs, gain personal wealth, and transform waste into new commodities or resources. This paper views the city in terms of its sustainable urban metabolism, explaining the different scales in which waste reduction and recovery occurs in New Orleans.
Chapter 1. Introduction

1.1. Introduction

In July 2017, the New Orleans Office of Resilience and Sustainability released a report calling for the reduction of 50 percent of its greenhouse gases by 2030. A part of this mission is to reduce urban waste by 50 percent by 2030, and 100 percent by 2050. In their pursuit to reduce waste, city officials plan to decentralize waste streams that are handled by several different companies and coordinated between the public and private sectors. However, nearly a decade away from this goal, the rhetoric in the report suggests city officials have not implemented, strategized, or gathered sufficient data to explain exactly how they will reach this goal. Their 2014 inventory using the Global Protocol for Community-Scale Greenhouse Gas Emissions (GPC) estimates that New Orleans emitted a total of 3,606,199 (3.6 million) metric tons of CO\textsubscript{2} equivalent. Only 6 percent, or 208,000 metric tons of CO\textsubscript{2} equivalent derives from waste streams, however, no documentation shows how they came to this number. Mr. Hebert, Chief Deputy and lead author of the *Climate Action for a Resilient New Orleans*, writes that the City, “will lead”, “will explore,” “will include,” “we will launch,” without explaining practical actions to reduce these numbers.

The Department of Sanitation (DOS), which oversees the city’s waste management and recovery operations, offers curbside recycling to small businesses, single-family dwellings, and

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multi-family dwellings, and properties including those with four units or less, which generate less than 96 gallons of solid waste at each routine collection outside of the French Quarter and less than 35 gallons of solid waste at each routine collection within the French Quarter.\(^4\) It does not offer recycling or collection to hotels or large businesses.\(^5\) As of 2015, 41 percent of residential properties requested a recycling bin from the Department of Sanitation, which has only diverted 5 percent of the total amount of waste sent to landfills.\(^6\) Commercial entities typically have to hire their own recycling company if they care to recycle.

Managing waste in New Orleans is a complex system involving crucial factors such as the landscape’s fragile ecosystem and large volume of wastes that are influenced by the robust tourism industry and tourist and festivals throughout the year. Over 10 million tourists from all over the world came to New Orleans in 2017 to sample the food, tour the swamps, and view the architecture.\(^7\) The city hosts an average of 133 festivals annually,\(^8\) and is home to over 1,200 restaurants, cafes, markets, and bars.\(^9\) Together, they contribute to a large amount of waste.


\(^5\) NOORS, Climate Action for a Resilient New Orleans, 50.

\(^6\) Ibid.


waste not considered in the 2017 *Climate Action for a Resilient New Orleans* report, for which *Urban Strategies for Waste Management in Tourist Cities* report states that tourist cities face additional challenges related to water prevention and management.\(^{10}\)

The huge volume of tourism related waste is a problem because of the region’s relatively flat landscape, and the parts of the land lying under sea level makes in-ground garbage dumps difficult to create. As a result, landfills in New Orleans and surrounding parishes dump the city’s waste onto “garbage mountains.”\(^{11}\) For example, the Old Gentilly landfill in New Orleans East, has the capacity to reach 130 feet high in the next two decades.\(^{12}\) These garbage mountains impact surrounding neighbors, for example, the Agriculture Street Landfill used for Hurricane Betsy demolition debris in 1965 experienced ongoing surface fires and has been linked to health issues in residents, including cancer.\(^{13}\) It is important to note that New Orleans “garbage mountains” is not unique to the region, however, they still threatens surrounding land and water which can ultimately injure the residents in surrounding parishes. Debris disposal after Hurricane Katrina in 2005 was no better, as 100 percent of the household waste and debris from the storm went to nearby landfills and some out of state,\(^{14}\) wiping out existing recycling stations. Officials suspended recycling in New Orleans for six years after the

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\(^{12}\) Ibid.

\(^{13}\) Ibid.

\(^{14}\) Ibid.
storm. Nevertheless, Mardi Gras, festivals, nightlife, and revitalization continued after Katrina, attracting nearly 4 million tourists in 2006 and resulting in continuous dumping of recyclable materials such as cardboard boxes, aluminum cans, plastic bottles, glass bottles, and food-waste into Louisiana landfills.

The large amount of waste in landfills threatens nearby ecosystems and neighborhoods. The mounds of waste above ground can contaminate Lake Pontchartrain, the Mississippi River, and agricultural, residential, and commercial lands in the event of another disaster. Despite New Orleans’s history of ineffective efforts to sort and recycle waste, especially after disasters, efforts to recycle and reuse waste are looking up. In 2006, the Louisiana legislature directed the Louisiana Department of Environmental Quality (LDEQ) to create a Disaster Debris Management Plan that would prioritize the reuse and recycling of materials after a disaster. After Hurricane Isaac in 2012, the city also created a plan for the LDEQ to compost tree branches and shrubs.¹⁵

A significant consideration in diverting 50 percent of urban waste by 2030 in the issue of food waste, especially in city known to attract tourists for its cuisine. Food waste is any food that is deemed as inconsumable, namely, due to food safety laws or cultural perceptions of unacceptable food. The U.S. Department of Agriculture estimates that in 2010, 31 percent of food produced was not available for human consumption and either was sent to landfills,

¹⁵ Ibid.
compost facilities, or animal feeding operations.\textsuperscript{16} According to the U.S. Environmental Protection Agency, food-waste constitutes of 22 percent of municipal solid waste that goes into landfills. Food waste adds stresses to the environment by using water, land, and energy resources, and contributing methane gas to the atmosphere. If not treated as waste, it has a variety of benefits such as compost soil for urban farms and residential gardens, providing food for animals on urban farms, and feeding food-insecure families, and creating jobs in the process of transforming waste to resources. As of May 2018, New Orleans offers food-waste drop-offs at their recycling day on the second Saturday of every month, but they do not anticipate launching curbside food-waste collection for at least another decade.\textsuperscript{17}

In a city with an abundance of restaurants, and celebrations, with little landfill capacity, local officials have become increasingly pressured to find sustainable solutions for waste streams. Unfortunately, the city’s inability to implement food-waste management relegates the task to local residents, grassroots and community organizations, and private companies. And that is exactly what is happening in the name of food-waste management in New Orleans. If households or businesses want to reduce food-waste disposal to landfills, they have to seek services from community organizations, generally created and operated by local residents. These community organizations use three primary methods to redirect food wastes: (1) making edible foods available for community kitchens or food insecure individuals, (2) using it as animal

\textsuperscript{17} Cynthia Sylvain-Lear, Conference Presentation at the New Orleans Compost Conference, November 4, 2017.
feed in urban farms, and (3) converting it to compost for fertilizing soil. In addition, the organizations have an overarching collective mission to educate the public through websites, social media, conferences, free compost classes, and city-council meetings. They also partner with organizations around the city to recover and transform materials that aid the maintenance of their own organizations, including cardboard boxes, yard waste, woodchips, sawdust, mulch, or sugarcane husks. These organizations are helping introduce food-waste management in New Orleans, especially through bringing patrons, and civic and NGO organization leaders together. Most of these operations are limited liability company’s, small-scale, grassroots, urban farms and gardens, detached from the municipality, and in the early stages of establishing their own infrastructure. Many of these organizations hire youth and VISTA members, both creating jobs and introducing new skill sets to the youth community. These organizations innovatively operate to utilize resources around the city in order to divert food-waste from landfills.

These New Orleans NGOs recognize the benefits of food-waste, both to the overall benefit of the global environment by diverting waste from landfills and to local economies by creating jobs and resources. Their actions collecting and recycling food-waste and other materials around the city contribute to the urban circulation and metabolization of resources. Christopher Kennedy defines urban metabolism as “the sum total of the technical and socioeconomic processes that occur in cities, resulting in growth, production of energy, and the elimination of waste.”¹⁸ The food-waste organizers collection and recycling of garbage that the

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citizens of New Orleans produce, fits an urban metabolism model of sustainable practices and a circular economy, also known as sustainable urban metabolism, a term coined by Paulo Ferrão and John E. Fernández in 2013. Sustainable urban metabolism offers a perspective on urban sustainability, through the lens of metabolizing material and energy resources that come into the city, recycling and reusing materials in the city, and minimal excretion of waste from the city. Using the lens of sustainable urban metabolism, this paper highlights how the community and grassroots food waste organizations fit into this framework of reusing, circulating, and metabolizing waste resources as transformed commodities. It also highlights that the way their efforts fit the Climate Action for a Resilient New Orleans mission and strategy to combat waste as a whole. However, there is a disconnect between these two socio-political groups, which this paper seeks to expose.

Over the last decade, scholars increasingly use waste as a lens to explore environmental politics, urban history, social behavior, capitalism, modernity, risk, regulation, and governance. The growing focus on waste in academic circuits coincides with new geographies of waste, including but not limited to hazardous waste trade, alternative practices in waste management, waste infrastructure in the developing world, increasing subnational transfers of municipal solid waste, and growing piles of e-waste. However, geographer Anna Davies highlights how waste management itself is an understudied topic among geographers, which deserves more attention, especially in a globalizing world. She explains that waste management is a global issue but has always been a task for local governments. In reading Davies work in

29 Davies, *Geographies of Garbage Governance*, 3.
waste management and governing, I discovered that geographers seldom address food waste as the principal topic of discussion. While food waste is a subset of waste and the waste literature, little research in geography addresses food recycling in urban settings. Additionally, publications on urban metabolism rarely bring food waste to the forefront. And the literature that does exist about food waste is written not by geographers, but by journalists, sociologists, or engineers with more quantitative measurements.

While literature exists in geography and urban metabolism addressing community recycling, food waste as animal feed, and food security in urban settings, seldom publications exist to connect how community and grassroots organizing to recycle food waste contributes to the sustainable urban metabolism of a city. What is missing in the geographic literature is the direct link between food waste, urban metabolism, and community or local organizations. This research brings food waste to the forefront of discussions in the geographies of waste. It also considers how food waste is an important topic to discuss in geography considering urban sustainability. It looks at how food waste is a crucial asset in urban spaces when discussing urban metabolism.

1.2. Research Goals and Questions

This paper seeks to understand food waste management from the perspectives of food waste organizers, and how they operate within parish limits. The goal of this paper is to illustrate three things at the local scale: (1) food waste is not a lost commodity, and that it is a highly valuable resource if repurposed and managed correctly; (2) the community management of food waste benefits the local economy by creating jobs, and decentralizing the complex
system of waste; and (3) the achievement of local citizens contributes to the advancement of urban sustainable efforts in the city. To reach these three goals of research, this paper will ask two broad questions:

1) What are the local geographies of everyday food waste management practices in New Orleans? What is the geographic scale of household and restaurant transport of waste to food recycling stations, the geographic range of food waste operations, and the relationships of food-waste management to the overall economic geography of the city? How does it work in terms of the city’s geography?

2) Do the multiple organizations involved in food, local attitudes about food recycling, and organizational practices provide a foundation for a more integrated municipal food-waste management system? How do they interact, do they overlap geographically, are they municipal in scale (or is city-wide management only achievable by city government involvement)?

In order to answer these questions, I spent May – to – August 2018 conducting ethnographic research in New Orleans. I utilized interviews, surveys, and participant observation with the food-waste community organizations in Orleans Parish (Figure 1.1). This method enabled direct responses from organization leaders, organization supporters, and local residents and participants about food-waste management operates within the city (geographic range, scale of operations, and relationship to the overall economic geography of the city). Additionally, using ethnographic methods captured local attitudes about food-waste management, and how they might perceive the future of food-waste management in New Orleans.
This thesis takes the title, “Garbage that We Eat” from the efforts of organizers transforming garbage into useful and valuable resources that ultimately contribute to additional food resource. I discuss garbage and waste interchangeably throughout this thesis, namely, because the New Orleans grassroots organizations primarily define the material that they recover as waste. However, the city ordinance uses the word garbage for what they organizers define as waste.

Waste, or garbage, is defined as residue materials, objects, and environments that have been rejected or damaged and deemed useless. This definition primarily focuses on domestic, municipal waste rather than industrial or hazardous waste. Food-waste is a subset of the definition of waste and garbage because food is a product that, once wasted, is deemed as

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31 Davies, Geographies of Garbage Governance, 4.
32 Ibid.
useless or incomsumable. So too, the Department of Sanitation in New Orleans meshes these two definitions into one. In other words, their definition of garbage places food-waste as a part of this definition:

Garbage is defined as all putrescible waste matter except sewage and recognizable industrial byproducts; putrescible vegetable matter, animal offal, and animal carcasses; and animal and vegetable matter, as waste from kitchen, restaurants and food stores, and all burnable rubbish such as paper, cardboard, rags, floor sweepings, excelsior, boxes or barrels of wood when broken up and similar small articles of burnable nature.33

1.3. New Orleans Community Food-Waste Organizations

Dig Easy34

Digeasy is a non-profit organization, started by six community members, who manage a compost site in a community garden in the Bayou St. John neighborhood. This site was originally maintained by neighbors and Slow Food New Orleans, a national movement that supports small-scale farms. Digeasy staff pick up food-waste for free from three local cafes and turn that food-waste to compost soil. Staff use the compost in the community garden or distributed it to friends and neighbors around the city, but never sell it. Digeasy’s main purpose is to educate the public through free compost training courses and online tutorials. These courses have been held at the Whole Foods Market on Broad Street, schools, or on a supporter’s property on Port Street. The instructors educate the public about the ways households can compost food-waste in their own home, including the use of tumblers,

34 https://digeasy.org/.
backyard compost structures, and worm casting. Additionally, they provide guides and various websites for the course participants to take home. The community garden serves a demonstration site for future community-based composting projects.

Digeasy partners with organizations around the city, such as the Recirculating Farm Coalition, and Nola Food Policy Advisory Committee (Nola FPAC) for funding and support during these courses. They also attend city council meetings, and contribute to the Environmental Advisory Committee’s reports. Additionally, neighbors and friends donate their yard waste (tree clippings, branches, shrubs, leaves) to Digeasy’s compost site to aid the decomposition of food-waste.

Figure 1.2. Introduction to Composting class by Digeasy. Photo taken by Author.

Composting Network
Composting Network, founded by Joe Brock in 2010, is a for-profit business that originated from a community organization called Nola Green Roots. Its goal is to divert compostable materials from landfills by transforming them into naturally-made compost. The organization offers compost and soil products, commercial composting services, residential composting services, a compost drop off location for landscapers, classes and workshops, and composting at events for residential and commercial customers.

Table 1.1. Contract fees for Composting Network services, and the geographic range of pick-up schedule.

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36 Ibid.
37 Ibid.
<table>
<thead>
<tr>
<th>Day of the Week</th>
<th>Zip code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>70005, 70125</td>
</tr>
<tr>
<td>Tuesday</td>
<td>70122, 70115, 70116</td>
</tr>
<tr>
<td>Wednesday</td>
<td>70112, 70113, 70114, 70118</td>
</tr>
<tr>
<td>Thursday</td>
<td>70117, 70119, 70130, 70139, 70146</td>
</tr>
<tr>
<td>Friday</td>
<td>70116, 70122, 70124, 70002, 70001</td>
</tr>
</tbody>
</table>

1 Compost Can – $25 per month for 1-day per week service  
2 Compost Cans – $45 per month for 1-day per week service  
3 Compost Cans – $65 per month for 1-day per week service  
4 Compost Cans – $85 per month for 1-day per week service

Composting Network’s primary customers are restaurants, cafes, and markets around the city. This includes, Chick-fil-a, the Ernest N. Morial Convention Center, Tulane University, French Truck Coffee, Folgers Coffee, and more. This food-waste is taken to their compost facility in New Orleans East, and transformed into compost soil, compost tea, worm castings, and worm casting tea. The finished compost goes to the production of fresh, pesticide-free fruits and vegetables, herbs and mushrooms grown in local community gardens. The compost is also sold at several different locations, including in Alabama and Mississippi.

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38 Liquid fertilizer for flowers, vegetables, and houseplants.  
As of May of 2018, Composting Network signed a contract with the Department of Sanitation to set up food-waste bins at the city’s recycling day on the second Saturday of every month (Figure 1.3).

Figure 1.3. Composting Network food-waste bins. Location at the Department of Sanitations recycling days every second Saturday of every month. Photo taken on May 12th, 2018, photo by Author.

Compost NOW (New Orleans Waste)

Compost NOW (New Orleans Waste), founded by Lynne Serpe in January 2017, offers free food-waste drop-offs at Orleans Parish Public Libraries for residents. The founder of Compost NOW conducted a similar pilot project with the Queens Library System in Queens, New York, where it led to municipal residential food-waste collection. Compost NOW builds a network of community composters in every neighborhood in New Orleans, collectively diverting tons of food waste from the landfill each month. Use of the drop-off sites is free of charge, and open to the public. Serpe, staff, and volunteers partner with the New Orleans Public Library to
build on the community library model of reuse and resource sharing in a place that’s convenient to everyone, across all demographics and ages.\textsuperscript{40} Her idea is to, “keep community resources in the community.”

Table 1.2. The seven libraries that Compost NOW worked with during the summer of 2018.

<table>
<thead>
<tr>
<th>Library</th>
<th>Location</th>
<th>Day</th>
<th>Time</th>
<th>Partner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosa Keller Library</td>
<td>Broadmoor</td>
<td>Saturday’s</td>
<td>10:30 am - 12:00 pm</td>
<td>Schmelly’s</td>
</tr>
<tr>
<td>Hubbell Library</td>
<td>Algier’s point</td>
<td>Saturday’s</td>
<td>2:00 pm -3:30 pm</td>
<td>Sugar Roots Farm</td>
</tr>
<tr>
<td>Norman Mayer Library</td>
<td>Gentilly</td>
<td>Sunday</td>
<td>2:00 pm – 3:30 pm</td>
<td>- -</td>
</tr>
<tr>
<td>Children’s Resource Center</td>
<td>Uptown</td>
<td>Monday’s</td>
<td>4:00 pm – 5:30 pm</td>
<td>Schmelly’s</td>
</tr>
<tr>
<td>Carriage House Bookshop</td>
<td>Uptown</td>
<td>Wednesdays</td>
<td>12:30 pm – 2:00 pm</td>
<td>Schmelly’s</td>
</tr>
<tr>
<td>Mid-City Library</td>
<td>Mid-City</td>
<td>Wednesday’s</td>
<td>5:30 pm – 7:00 pm</td>
<td>Schmelly’s</td>
</tr>
<tr>
<td>Alvar Library</td>
<td>Bywater</td>
<td>Thursday</td>
<td>5:30 pm - 7:00 pm</td>
<td>Speak Easy Farm</td>
</tr>
</tbody>
</table>

Compost NOW requires participants to freeze their food scraps to avoid rodents and reduce odors that would disturb library patrons. Local farmers pick up the frozen food scraps, and bring them to their farms either to compost or feed to animals. As of 2019, Compost NOW expanded to ten libraries, adding Martin Luther King library in the lower Ninth Ward, Nora Navarre in St. Claude, and Main Library in the Central Business District. The program partners with five urban farms, including Schmelly’s Dirt Farm, and diverted over 100,000 pounds of food since the beginning of the program.

\textsuperscript{40} “About Compost NOW,” Compost NOW, accessed on December 22nd, 2018, https://www.compost-now.org/.
Community Kitchen Collective

New Orleans Community Kitchen Collective (CK) is a volunteer-run food-share organization that serves hot meals to residents every Tuesday afternoon in the Duncan Plaza of the New Orleans Central Business District. CK has been in existence for almost six years, establishing themselves from an earlier project called FUCNO (Food Under Claiborne New Orleans), who collected food-waste from food distributors, cooked, and served hot meals to residents under the New Orleans Claiborne Street Overpass after Hurricane Katrina.

CK organizers staff their program in three to four volunteer shifts that contribute to the overall success of the program. The first shift picks up the food in the CK van from food distributors and grocery stores. This typically happens between the hours of 8:00 am to-10:00 am (Figure 1.5). The staff bring the food to the backyard kitchen where they prepare, cook, and
package food. This is typically occurring between 10:00 am and 2:00 pm. Four to seven volunteers come every Tuesday to cook for CK, and one of those volunteers is the day’s organizer. After cooking is completed, around 2:00 to 2:30 pm, another round of volunteers brings the food to Duncan Plaza and serve it to whoever would like a meal that day. Generally, this meal attracts the individuals and families living in tents underneath the bridge, but on a few occasions, city council members from the nearby buildings in the Central Business District have come and enjoyed a meal.

The collected food comes from five food distributors and grocery stores. In addition, any restaurant or food store that has sporadic surpluses or that are shutting down for a period of time are able to donate their food to Community Kitchen. The donated food is still perfectly edible, yet, includes items rejected from food distributors and grocery stores due to aesthetics or imperfect packaging. The staple foods are fruit salad, green salad, and red beans and rice. Several neighbors also stop by the kitchen during cooking to take home some of the collected foods. This food helps food insecure families in the neighborhood, and helps build community interest in food recovery. Generally, the individuals shopping in the backyard kitchen take home boxed foods, juices, fruits, greens, or anything the volunteers are able to divert from cooking.

Table 1.3. CK’s schedule every Tuesday.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food pick-up</td>
<td>8:00 am – 10:00 am</td>
<td>Five food distributors in the city</td>
</tr>
<tr>
<td>Cooking</td>
<td>10:00 am – 2:00 pm</td>
<td>7th Ward</td>
</tr>
<tr>
<td>Serving</td>
<td>3:00 pm – 4:00 pm</td>
<td>Duncan Plaza, Central Business District</td>
</tr>
</tbody>
</table>
This organization benefits the businesses that donate because under the Good Samaritan law, organizations that donate are allowed tax write offs. Additionally, the Good Samaritan Law, protects the food donors from law suits, in the case of illnesses.

Figure 1.5. Community Kitchen Collective’s food transportation van. Photo taken on August 21st, 2018 by Author.

**Grow On Urban Farm**

Grow On Urban Farm is a non-profit permaculture farm on a half-acre property in the St. Roch neighborhood of New Orleans. Grow On collects garbage from around the city to utilize on the farm, and demonstrates to its neighbors how permaculture farming is a productive form of urban farming. Permaculture is a form of regenerative farming that uses and reuses materials on the farm to continuously build the ground soil higher, with an ultimate goal of self-sufficiency and sustainability. The garbage typically comes from a market in the neighborhood nearby, neighborhood yard waste, construction companies, or cardboard boxes from
commercial properties used to build the layers of soil on the farm, create compost soil for gardening, and feed the chickens and rabbits. Grow On hosts educational courses, tours, and community fundraising events to offset any expenses that operations incur.

Since August of 2018, Grow On removed the animals from the farm, and the operation moved to 24 Carrots Youth Farm, a non-profit that hires youth farmers and educates the public about community gardens in its outdoor classroom. 24 Carrots also started a free residential food-waste pick-up program in the neighborhoods of St. Claude and Bywater.

Figure 1.6. Grow On Urban Farm’s permaculture site in St. Roch, New Orleans. Photo taken on July 5th, 2018 by Author.

Schmelly’s Dirt Farm

Schmelly’s Dirt Farm, founded by Nico Krebill, is a for-profit compost company that offers commercial and residential food-waste pickups. Commercial and residential properties contract with Krebill for food-waste collection. Staff transport the collected waste to a 2-acre
property that is part of Hollygrove Farmers Market in the Hollygrove neighborhood. Schmelly’s has been in operation for nearly four years now and has contracts with over thirty restaurants, cafes, markets, and grocery stores. They also partner with Compost NOW to pick up food-waste from five libraries.

Schmelly’s manages food-waste through a windrows compost technique, which requires the continuous turning of decaying compostable materials. In order to create fertile compost soil, the compost pile must receive consistent amounts of carbon sources. Typically, food-scraps serve as a nitrogen source. Therefore, Schmelly’s partners with arborists and construction companies in the city that drop off woodchips, sugar cane husks, yard waste, mulch, and leaves that are the carbon source. The combination of the food-waste that Schmelly’s collects, and the drop-off of waste from other companies in the city, creates compost soil. Schmelly’s compost soil goes to the Hollygrove community gardens, is sold, or given away to community members and friends.

The profits from contracts with residential and commercial properties and selling the compost go towards hiring young community members and creating more jobs. They also participate in the Environmental Advisory Committee’s reports.
Second Harvest Food Bank

Second Harvest Food Bank provides food to over 700 community partners and programs in 23 parishes in Louisiana (Figure 1.8). They are a national organization, a part of the non-profit organizations called Feeding America. Their Jefferson Parish office recovers packaged foods and produce from restaurants and food distributors in Orleans Parish, and distributes it to food pantries and families in Orleans Parish. They also distribute to neighboring parishes. Second Harvest hires over fourteen staff members, and recruit’s volunteers to help manage the distribution to pantries and families.
Other Organizations Involved in Food-Waste Management in New Orleans

Food-waste management extends beyond the seven principal organizations. Several organizations either help raise public awareness, fund food-waste organizations, or involved national organizations and university students in local activities. For example, the Edible Schoolyard consists of gardens set up at four local school districts to educate kids about recycling cafeteria food scraps in compost bins in its garden, and using the compost to grow food. This organization gained visibility through a widely distributed Anthony Bourdain food-waste documentary called Wasted!. In addition, Keep New Orleans Beautiful funds grassroots organizations to continue their work. The LSU Agcenter and Nola Trash Mob have online educational postings about back yard and in-house composting and food waste management.
strategies. There are also small scale community social networks that establish the redistributing and sharing of food scraps for backyard gardens.

- *Edible School Yard*
- *Recirculating Farms Coalition*
- *Grow Dat Youth Farm*
- *Keep Louisiana Beautiful*
- *Keep New Orleans Beautiful*
- *Global Green*
- *Hollygrove Farmers Market*
- *Food Rescue US*
- *LSU Ag Center*
- *Green Light*
- *Green Project*
- *Nola Trash Mob*
- *Nola Green Roots*
- *Coalition to Restore Coastal Louisiana*
- *Green Justice Legal*
- *Environmental Advisory Committee*
- *LifeCity*

1.4. Thesis Outline

The following chapters will demonstrate how the literature connects to the empirical evidence from field work, and how the findings answer the research questions. Chapter two highlights three different, but interconnected, academic topics which provide intellectual frameworks for this research. In particular, it considers the academic literature in waste management, food-waste, and urban metabolism. It considers each topic in the larger geographical context, and specifically, as it pertains to waste management.

Chapter three highlights the major methodological tools used in this study. The tools include surveys, participant observation, interviews, and content analysis. It details the strengths and weaknesses of each method and explains how they contributed to the findings. It
also details strategies used to collect this information and the processes used to the data. Specifically, for the months of May through August 2018, I collected four interviews with organization leaders, 248 surveys with residential participants of Compost NOW, and volunteered while collecting field notes.

Chapter four answer the research questions articulated in Chapter one. Specifically, this chapter considers the findings from research, and connects these findings to the overall economic geography of New Orleans. Food-waste organizers are in the early stages of establishing infrastructure, yet, making a name for food-waste management in the city while forging a strong relationship with the Department of Sanitation and the City Council. It explains that the grassroots organizations overlap economically and geographically. They interact with each other and with various city departments. It also details that these grassroots organizations are not municipal in scale, but have set out plans to become municipal in scale, while sustaining the same strategies of contributing or supporting local and community companies.

Chapter five explains how food-waste organizers contribute to the sustainable urban metabolism of New Orleans. Through creative use of waste resources in the city, organizers transform refuse into new commodities and resources. In the process, they create jobs, keep the resources in the city, divert waste from landfills, and bring a new form of economic exchange into the city.

Lastly, Chapter six summarizes the thesis by highlighting the answers to the research questions, and proposing possible future research opportunities.
Chapter 2. Literature Review

2.1. Concepts in Waste

2.1.1. Terms and Definitions

The term waste has multiple meanings and applications. It is used as a verb, noun, or an adjective to refer to thoughtless spending or consumption; failure to take advantage of an opportunity or a place that is uncultivated, uninhabited, or devastated; as well as a catch-all term for unwanted or unusable substances and materials. Although academics debate the origins of the term waste, several agree that early use of the word waste centered on land that could not support agriculture. This definition changed as time passed and societies developed irrigation and drainage techniques for “transforming waste into productive real estate.” These “wastelands” were also used for animals to graze, later becoming a source of food.

Therefore, wastelands as explained by both Colten and Engler, were not worthless or useless, and in fact, provided useful, alternative uses. The notion that waste has redeemable qualities, suggests that waste is not a permanent condition. Food-waste is a subset of this category in that food-waste is not useless, but has redeemable qualities such as compost soil or feed for farm animals.

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41 Davies, Geographies of Garbage Governance, 4.
43 Ibid., 173.
Today, waste is generally known as unwanted or unusable materials, but policymakers, academics, and government officials all have different definitions of the term. This linguistic inconsistency becomes a problem when attempting to alleviate urban waste issues, especially when trying to move towards sustainable urban development.

The Organization for Economic Cooperation and Development (OECD) defines waste as: Materials that are not prime products (i.e. products produced for the market) for which the generator has no further use for their own purpose of production, transformation or consumption, and which he discards, or intends or is required to discard. Wastes may be generated during the extraction of raw materials during the intermediate and final products, during the consumption of final products, and during any other human activity.\(^\text{45}\)

Under this definition, once a substance or object is defined as waste it remains so until it has been fully recovered or does not pose any potential threat to either human health or the environment. Once recovered from, “the generator that has no further use for own purpose of production,” the new “generator” or “owner” of this material or object can then re-purpose and recover it to a new use. Food waste is a subset of this definition. For example, once an item in a grocery store exceeds its market sell-by date, the item cannot be sold, but it can be re-distributed or donated to a food-bank or non-profit, and not wasted as a result.

Other definitions exist to define materials that we discard. The terms rubbish, refuse, and trash may signify the complex ways we use these terms that often lead to disagreement about their definitions.\(^\text{46}\) Yet, establishing shared definitions of waste is vital to the generation

\(^{45}\) Ibid., 7.


\(^{46}\) Davies, *Geographies of Garbage Governance*, 4.
of compatible data, discourses, and for effective waste-management planning. Rathje and Murphy (1992) write:

Trash refers specifically to discards that are at least theoretically “dry” – newspapers, boxes, cans, and so on. Garbage refers technically to “wet” discards – food remains, yard waste, and offal. Refuse is an inclusive term for both the wet discards and the dry. Rubbish is even more inclusive: It refers to all refuse plus construction and demolition debris. The distinction between wet and dry garbage was important in the days when cities slopped garbage to pigs, and needed to have the wet material separated from the dry; it eventually became irrelevant, but may see a revival if the idea of composting food and yard waste catches on.

Rathje’s and Murphy’s definition of garbage relates to how some scholars describe “waste,” as these two terms describe substances or materials deemed useless by an individual, yet, useful for another.

Despite efforts to define waste that applies to various public and private sector activities, definitions and uses of discarded materials, objects, and substances remain underdeveloped. To be clear, this thesis uses the term waste and garbage for a number of reasons: (1) its historical use demonstrates that something deemed as waste can be used, reused, or transformed; (2) its contemporary use suggests that once an individual gives up her right, ownership, or sense of property toward that object (deemed as waste), it may pass to the hands of another to make use or disuse of it. As the definition relates to this research, individuals that choose to hand food waste to non-governmental organizations (NGO’s) allow

\[47 \text{Ibid.}, 5.\]

\[48 \text{William Rathje and Cullen Murphy, } \text{Rubbish!: The Archeology of Garbage} \text{ (New York: HarperCollins 1992), 9.}\]
others handle this discarded material, which fits within the meaning of each of these definitions of waste and garbage.

2.1.2. History of Domestic Waste and Sanitation

2.1.2.1. Pre-Industrial Urban Waste Management and The History of Domestic Waste

Contemporary urban waste management is a product of the history of domestic waste and the origins of sanitation. Collection and disposal techniques are the result of a long history of strategies and regulations put in place by local governments and municipalities. The history of domestic waste and the origin of sanitation provide insight to how contemporary societies have adopted current collection and disposal strategies, namely, the collection, hauling, and dumping of waste for the purposes of “cleaning” where humans live. The way that societies manage waste derived from anxieties about health, including hygiene and sanitation, resulting in systems of waste collection and disposal.

The origin of domestic waste dates back to ancient civilizations where the Minoans created a system of burying solid wastes, and the Romans institutionalized the first known municipal waste collection where householders threw their waste into the streets to be collected by horse and cart and transported to an open pit. Yet, other scholars believe formal management began with regulations put in place to haul waste in sixteenth century Paris.

When England ruled France, city officials of France banned waste disposal in public water courses and ditches, but still allowed residents to throw garbage out of home windows.

49 Davies, Geographies of Garbage Governances, 9.
50 Engler, Designing American’s Waste Landscapes, 21.
51 Ibid., 7-8.
According to Laporte, the origin of domestic waste regulation in fact started with the November 1539 law that sought to manage the waste mounds beyond the city that were so high they obstructed the defense of Paris.\textsuperscript{52} Scholars, including archeologist, do not agree on the exact origins of waste collection and disposal comes from because of the various different societies in different time periods. However, the regulation set forth in France spread throughout the Europe.\textsuperscript{53}

One ingenious regulation provided that whoever brought a cart of sand, earth, or gravel into the city had to leave with a load of mud or refuse.\textsuperscript{54} Yet, as time progressed, small towns became more densely populated, and business establishments produced larger quantities of inorganic and organic waste, exacerbating the problem of waste in the streets. Collection and disposal method created by Europeans carried over into the America cities in the eighteenth century. Urban areas tolerated roaming animals and residents kept them in households well into the nineteenth century.\textsuperscript{55} During this time, stray animals in the streets fed on any organic waste disposed in the streets or in garbage cans, which reduced the amount of food-waste in dumping grounds and offered a degree of street cleaning.\textsuperscript{56} In rural settings of nineteenth

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\textsuperscript{52} Engler, \textit{Designing America’s Waste Landscape}, 8.

\textsuperscript{53} Laporte, \textit{A History of Shit}, 56-57.

\textsuperscript{54} Engler, \textit{Designing America’s Waste Landscape}, 8.

\textsuperscript{55} Strasser, \textit{Waste and Want}, 36.

\textsuperscript{56} \textit{Ibid.}
\end{flushright}
century U.S., households utilized most waste produced in the house. Nevertheless, before industrialization, local governments implemented collection and disposal management processes as well as the utilization of waste resources for household products in rural settings and animal feed in urban settings.

2.1.2.2. Sanitation and Hygiene

Pre-industrial societies were relatively dispersed and dumping grounds were available at the fringes of settlement. As society entered the industrial era, urbanization accelerated alongside population growth, which also led to the concentration of domestic dumping grounds near urban edges. Health and sanitation problems in the eighteenth and nineteenth century were directly linked to poor waste-management practices. After cities began installing sewers in the 1850s, different norms of behavior and cleanliness, now discussed under the terms of “hygiene” and “sanitation” became common. These terms generally refer to systems that support health, including clean water and sewage removal systems that manage human waste. Hygiene and cleanliness became key motivations for collection and disposal practices.

Local circumstances largely determined the quality of sanitation in preindustrial America, and this was no different in industrial America. The remarkable growth in technology concentrated factories in and around cities and accelerated the influx of rural residents to work

57 Ibid.
58 Ibid.
59 Ibid., 9.
61 Melosi, Garbage in the Cities, 11.
in urban industries. Together these two processes, caused an array of environmental problems. Yet, by the turn of the twentieth century, most municipalities established waste collection and disposal systems, and dumping was the most common method used for general refuse. One of the systematic collection and disposal practices was the sorting of food waste for animal feed. However, food safety considerations inhibited this process. Exporting waste food to farms, established a systematic process that sent waste to fringe locations.

By the 1960s environmental protection became a prime consideration in waste politics and practice. Municipalities transferred responsibility for waste management to corporations, and environmental advocacy groups forged nonprofit recycling organizations. A major question to be addressed was, to what degree did the potential breakdown of sanitation technologies, the increasing awareness of the environmental implications of water and land pollution, and the shrinking resources to confront myriad problems lead to a reevaluation of the premises upon which sanitary services had been based for more than two centuries?

Globalization, increased mobility, radical individualization, electronic communication, and hyper-consumerism drove local governments to build waste landscapes as sophisticated containers, material transfer stations, and transaction places at a variety of scales and facilitate the flow of matter back into society. Today, modern society experiences the most intense refuse problem.

64 Melosi, Garbage in the Cities, 1.
As a whole, the history of dumping garbage outside the urban area in order to clean the city and reduce health hazards may explain why cities’, such as New Orleans, primary collection and disposal systems depend on dumping or landfilling municipally waste. Yet, the history of sanitation and the origin of domestic waste does not explain why individuals in society began to dissociate themselves from waste. This complex history of waste management, sanitation, hygiene, and the rise of industrialization and complex globalization through increased mobility, consumerism, and communication sparks questions among social scientists about how waste affects Western social norms. The history of domestic waste and the origin of sanitation lead to a wide array of literature from the social sciences and humanities addressing waste. Scholars suggest waste accelerated due to extravagance, ignorance, and social stratification.\(^{65}\) They also point out that waste is a social construct, and the perception varies between culture and place.\(^{66}\)

### 2.1.3. Cultural Concepts and Theories

#### 2.1.3.1. Social Class and Order, Disposability, and How We Perceive Waste

Social concerns about wastes may be approached through concepts of materiality, social stratification, and cultural perceptions of waste. To begin, two fictional books suggest that Western society’s concern with hygiene and sanitation transitioned into anxieties, individually and collectively. Kevin Lynch describes two extreme and contrasting nightmare cities called Cacotopias, one wasteful and one wasteless. The wasteful nightmare depicts everyone

\(^{65}\) Strasser, *Waste and Want*, 35.  
drowning in mountains of waste, where no real waste collection and disposal system is put in place. The wasteless place depicts no room for waste, for example no room for partying, burying dead bodies, and the mentally ill population.\textsuperscript{67} Calvino writes about the imaginary city of Leonia, where the most valuable technologies are street cleaner technologies. In this society, everything that is new today is garbage tomorrow. The danger of a landslide grows each day as trash accumulates in heaps in the hinterlands.\textsuperscript{68} These fictional stories attest to everyday social phenomena, and society’s relationship with the waste they produce.

From an academic standpoint, there are threads of work that systematically attend to the social phenomena of waste and so acknowledge their roles in processes of social organization and social change.\textsuperscript{69} William Rathje began his work on what he called “garbology” in the early 1970s, and he applied archeological methods to the study of garbage, with the assumption that modern-day explorations of trash could yield important insights into the cultures that produce it – similar to the study of prehistoric waste middens.\textsuperscript{70} Rathje partnered with Cullen Murphy to point to methodological tools that enable the study of wastes.\textsuperscript{71} Rathje and Murphy’s work influenced decades of scholarship pertaining to perceptions of domestic waste. Importantly, an array of literature demonstrates that societies attempts to create fixed

\textsuperscript{70} \textit{Ibid.}, 4.
\textsuperscript{71} \textit{Ibid.}, 9.
categories around waste. In the case of food waste management in New Orleans, the restaurants fixed category of food waste in the bin means they have no use for that resource anymore, but the food waste bins picked up by organizers create a fixed category meaning a useful product.

Mary Douglas points out “where there is dirt there is a system” emphasizing the sorting of dirty from clean. For example, clothes on the ground indicates dirt, and clothes hung up in the closet indicates clean, which involves systematic ordering and classifying.\(^72\) Washing materials and items that are deemed as dirty, systematically place items in a location deemed as clean to get rid of the dirt. This suggests the fixed cultural categories regarding purity of clean, and the danger of dirt. Eliminating dirt thus indicates sorting, order, social stratification, and class.\(^73\)

John Scanlan uses metaphors of garbage to define what society largely ignores, makes invisible, and detaches from the everyday life, although garbage is always part of our lives. He demonstrates that the metaphorical garbage in landfills reflects Western ideas and behaviors about what we consider “filth.”\(^74\) This sorting out of “filth” exposes what society categorizes as valuable behaviors, manners, objects, substances, and materials.

Martin O’Brien develops the notion of “rubbish imagination” that considers what society would look like if waste was a central focus of people’s lives. Like Scanlan, he urges that contemporary Western societies should be understood as “rubbish societies” - not in the sense

\(^72\) Douglas, *Purity and Danger*, 5.
\(^73\) Strasser, *Waste and Want*, 5.
that they are “throwaway cultures” but, rather, that rubbish is and always has been central to processes of social organization.\textsuperscript{75}

Anthropologist Michael Thompson suggests that the process of categorizing rubbish is one part of a wider system of categorization and valuation. For Thompson, rubbish is not waste in the sense of being redundant and worthless stuff, rather it is a “region of flexibility” that resides between transient (decreasing) value and durable (increasing, or at least stable) value.\textsuperscript{76} Essentially, he makes the case that waste may or may not facilitate movements between transient and durable values, and is therefore central to our understanding of how society controls value.

Zsuzsa Gille’s makes clear that waste is neither a fixed category determined by culture nor the simple outcome of policies determined by politics. Rather she develops the concept of “waste regimes” to account for the institutions of wastes and the order of management, represented, and politicized of production and distribution. She highlights how these regimes vary across space and time and reveal the contingent and relational character of “waste” even as their material reality remains a serious concern.\textsuperscript{77}

As a whole, these studies demonstrate how waste materializes in the process of cultural categorization, yet, are evidently detached from the reality in which they stand. Ignorance and

\textsuperscript{75} Evans, \textit{Food Waste}, 5.
\textsuperscript{77} Zsuzsa Gille, \textit{From the Cult of Waste to the Trash Heap of History: The Politics of Waste in Socialist and Postsocialist Hungary} (Bloomington, IN: University of Indiana Press, 2007).
silence about the “filth” that defines our everyday activities raise serious question about how we view waste, how we have come to these views, and how these views define us.

Strasser argues that disposability originally made people feel rich: with throwaway products, they could achieve levels of cleanliness and convenience once available only to people with many servants. She explains sorting has become an issue of class, and trash-making both underscores and creates social differences based on economic status. For example, thrift stores depend on rich people to cast things off and even to subsidize their operations with cash or volunteer work, while the poor patronize these charitable goods. What is rubbish to some is useful or valuable to others, and the ones who perceive value are nearly always the ones with less money.

Strasser also points out that classifying trash exists in the placement of these objects. Trash is always put in the corners of the home, taken out to the curb, hidden in bins, and marginal objects go in marginal spaces such as attics or basements. Bulkeley and Gregson observe that recycling bins represent an affront of interior aesthetics and kitchen design. Additional cans in the kitchen are considerably “ugly, “garish,” and add “clutter” that disrupts “cleanliness” and the display of order within home interiors.” In addition, bins in the home or

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78 Strasser, Waste and Want, 9.
79 Ibid.
80 Ibid.
82 Ibid., 937.
kitchen represent the creeping intrusions of “the council”, or the institutionalization of trash, into people’s homes.\textsuperscript{83}

Laurence Douny proposes a perspective on domestic waste that differs from previous studies of Western cultures. Her ethnographic research in the Dogon of Mali exposes a more positive relationship with animal excrement, bodily dirt, litter, and unwashed cooking utensils – that Western societies deem as unclean\textsuperscript{84} -- exposing our anxieties about how we view discarded objects as merely cultural constructs.

Gay Hawkins’ explains that environmental discourses and alarmist rhetoric dominated westerners’ relationship with waste. She suggests that waste, not the environment, should be placed at the center of analysis. She claims the relationship between the public and the private and routines of self-maintenance and embodiment define our responses to excrement.

Geographer Sarah Moore explains that waste is a parallax object that “disturbs the smooth running of things,” whether viewed as hazard or risk, fetish or commodity, abject or affect. Waste, therefore, evokes conversations about development, justice, sustainability, and progress.\textsuperscript{85} It elevates refuse as a means for examining some of our most fundamental institutions.

As a whole, social science research suggests waste is a social construct. The perception of waste is a product of history, economy, politics, and geography. Waste has and always will be flowing between the cultural categorization of using it, not using it, or transforming it into a

\textsuperscript{83} \textit{Ibid.}
\textsuperscript{84} Douny, “Materiality of Domestic Waste,” 310.
\textsuperscript{85} Moore, “Garbage Matters,” 782.
new use. More recently, in the late twentieth and early twenty-first century, geographers look towards the influences that institutions, governments, and organizations have on individuals in a society, to consider the relationship of waste and governance.

2.1.4. Geographic Perspectives

2.1.4.1. Governance of Waste

If you walk down the streets of New Orleans there are different categories of trash bins outside almost every type of building: homes, businesses, and restaurants. Each type of bin bears a particular marking and receive pick on a routine basis. The bins are a central feature of our urban landscapes, though, historically similar containers have always been, “out of sight, out of mind.”

Waste, whether hazardous or simply excess, is increasingly becoming a global problem, but this has not always been the case. Traditionally, garbage and wastes were an individual responsibility. As they became health and environmental problems, society acknowledged refuse as a community responsibility and local governments assumed responsibility. In some locations, governing bodies hire private contractors to deal with wastes. These broad generalization reflect a changing scale of governance, but despite social science discussions about waste governance, this topic is understudied.

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86 Strasser, Waste and Want, 5.
87 Melosi, Garbage in the Cities, 12.
88 Ibid.
89 Ibid.
Geographer Roberta Sonnino discusses food waste in hospitals and cafeterias.\textsuperscript{90} Her later work addresses food security in sustainable urban environments,\textsuperscript{91} briefly addressing how food waste is an issue in urban spaces she never brings it to the forefront of her research.

Geographer Jutta Gutberlet writes in her book \textit{Recovering Resources – Recycling Citizenship: Urban Poverty Reduction in Latin America} about community recycling efforts in Brazil alleviate socioeconomic inequalities and poverty. Although this research addresses community recycling efforts, it does not relate to urban sustainability.\textsuperscript{92}

Anna Davies provides a critical account of the governance of municipal waste in different locations by examining public sector practices, from the local to the supra-national level, and the interactions among public and private actors in the field. She points out that garbage is mobile and moves both within and between political units (municipal to state) and in doing so traverses administrative and political boundaries, and falls under differing management approaches.\textsuperscript{93} Yet, waste is largely managed by local governments and communities.

Mihai similarly explains that municipal waste management in the last two decades has become a global environmental priority in the context of producing an increasing amount of

\textsuperscript{93} Davies, \textit{Geographies of Garbage Governance}, 4.
waste due to the expansion of mass consumption societies. S/he concludes that although municipal waste management demands multidisciplinary and interdisciplinary researchers; including engineers, chemists, physicists, economists, and more recently, geographers, sociologists, lawyers, and psychologists; it is a topic that must be approached according to the geographical features of the territory concerned. This study highlights a few key quantitative tools used to study waste management, Life Cycle Assessment (LCA) and cost-benefit analysis (CBA):

- LCA is an environmental engineering approach analyzing the various methods and technologies used in waste management in terms of measures of the resulting emissions (CO2 and VOC, dust and powder) power consumption, and environmental issues involved.
- CBA compares and models costs for various waste management options in order to assure effective management of public and private expenditures.

Although Mihai recommends studying municipal waste management through a geographic lens, multiple means of activity can be evident, intermeshed, and in conflict. The LCA and CBA are widely used in literature about waste management. The use of LCA and CBA in geographic texts may lead studies understand the best technical solutions for waste in a given location. These quantitative assessments of waste streams can then be applied to the modes of governing approach that engages with the structures, agencies, institutional relations, and technologies of a particular location. These geographic assessments combined contributes to

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95 Ibid., 39.
96 Ibid.
98 Ibid.
understanding the space dedicated to waste management and suggests that technical solutions should adapt to the territory concerned. In 1974 conservative estimates indicated that nearly 90 percent of the $5 billion annual collection and disposal costs in the United States went towards collection alone. A mere 10 percent went to the process of disposing all the waste collected.

2.1.4.2. Dumping Grounds

Waste governance has inevitable links to deliberate institutional decisions about waste placement. Pollard links geography and economy in marginal regions of Europe from the Middle Ages to the nineteenth century and considers instances of marginal groups or individuals categorized as “minority” or “other,” who inhabit the borderlands of a relatively stable state. In an examination of environmental racism, Pulido demonstrates how whites secure cleaner parts of the environment in Los Angeles, and that suburbanization and decentralization are markers of white privilege and contribute to environmental racism. On the other hand, Pellow demonstrates in his case study of Chicago that solid waste and pollution is in everyone’s backyard, but they burden people with lower incomes. Yet, there is no denying that waste will eventually become a middle- and upper-class issue because waste production is

99 Ibid.
100 Melosi, Garbage in the Cities, 195.
101 Sidney Pollard, Marginal Europe: The Contributions of Marginal Lands since the Middle Ages (New York: Oxford University Press, 1997).
not going to end anytime soon.\textsuperscript{103} Nevertheless, garbage routed to marginal spaces affects populations around those areas, particularly those who are recent arrivals and often represent lower-income or minority populations.

\textbf{2.1.5. Where There is Muck, There is Brass}

Currently, people realize that garbage management cannot be reduced to a pragmatic and efficient disposal system. Consequently, waste experts are directing efforts towards reducing and monitoring the production and accumulation of waste while also facilitating its recirculation. Moreover, local governments and national organizations have begun to recognize the value of reusing waste, much like the common practices of the nineteenth and early twentieth century. These approaches have merits and productive possibilities, and provide linkages between the continuous flow of matter and energy.

Scholarship regarding the re-use and recycling of waste is well developed, but the practice of municipal sorting and recycling remains incompletely developed. As a result, many local, non-state, and non-governmental organizations take the matter into their own hands. Community members typically start these organizations with interest in recycling, and they search for innovative and creative ideas to re-use resources around the city. For example, Reno’s study of scavenging and dumping in a Michigan landfill, suggests that by stripping materials of their formal original meanings, individuals can manipulate and transform rubbish into valued items. In addition, an individual’s ability to transform certain types of waste

depends on class, and their self-perception. Supporters of waste reduction, for example, see the disposal of any materials through a landfill or incineration as a flagrant misuse of valuable resources, while others might see the reclamation of energy from waste through incineration as a useful form of resource recovery. Equally a fifteen-year-old computer within a European academic institution may be considered redundant (waste) because of its important incompatibility with information technology upgrades, but the same computer may be seen as a fully functioning machine for other community sectors or a source of valuable recyclables for less economically developed societies. Thompson famously said:

People in different cultures may value different things, and they may value the same things differently, but all cultures insist upon some distinction between the valued and the valueless.

Gutberlet discusses how co-operative recycling practices combat both waste problems and urban poverty. Other pressing questions include: how products become valuable commodities, who undertakes transformative/regenerative practices and under what conditions? Similarly, Mintz stresses the creativity, originality, and talent with which people use waste materials outside western economies in “capital-scarce, labor rich context” and the contribution these activities make to the effectiveness of so-called backwards economies.

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In sum, numerous scholars, such as Strasser, Scanlan, Melosi, Moore, O’Brien, Engler, Davies, Thompson, and others, mention that most of domesticated waste that goes into landfills have usable qualities. Whether the entire object can still be used, or parts of the object, there is a massive problem with the way we manage our waste.

A part of this under-developed waste management system is the sorting out of food waste. In some locations, collection and disposal practices sort food waste out of the general waste heap to feed animals, especially in times of economic crisis. Yet, these practices seldom carried out in modern American cities. As a result, discarded food remains a waste along with every other object.¹¹⁰

2.2. Food Waste Literature

2.2.1. Definitions

The United States Environmental Protection Agency defines food waste as “uneaten food and food preparation wastes from residences and commercial establishments such as grocery stores, restaurants, and produce stands, institutional cafeterias and kitchens, and industrial sources like employee lunchrooms.”¹¹¹ United Nations Save Food initiative, Food and

Agriculture Organization, United Nations Environment Programme, and stakeholders have agreed upon two important definitions:  

Food loss: the decrease in quantity or quality of food. Food loss in the production and distribution segments of the food supply chain is mainly a function of the food production and supply system or its institutional and legal framework. 

Food waste: (which is a component of food loss) is any removal of food from the food supply chain which is or was at some point fit for human consumption, or which has spoiled or expired, mainly caused by economic behavior, poor stock management or neglect. 

This thesis focuses on food waste, as opposed to food loss because it does not focus on food loss on the farm or in pre-retail. Yet, it is still important to present this information in the literature review as it contributes to the amount of unconsumed food. The definitions presented above are important to this overall thesis research because the food-waste that I study is from commercial and residential properties. These definitions, especially the definition from the Environmental Protection Agency, set the stage for the type of food-waste this research addresses, specifically, highlighting where it comes from, i.e. grocery stores, restaurants, residences, and cafeterias. 

### 2.2.2. Amount of Food Waste

Food waste occurs in every stage of production, transportation, and distribution. Approximately 30 percent of food produced in the United States goes to waste, valued at $162

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billion annually,\(^\text{113}\) and falls within a range of 35 million to 103 million tons.\(^\text{114}\) The average American discards about five pounds of trash a day. Since, on average, 12 percent of what we throw away is or once was edible, we can estimate that each one of us discards half a pound of food per day, about 197 pounds of food per person a year.\(^\text{115}\) That volume is enough food to fill the Rose Bowl in Pasadena, California daily.\(^\text{116}\) A 2010 study by the United States Department of Agriculture estimates this amount of food equals about 141 trillion calories.\(^\text{117}\) Authors Mandyck and Schultz put the volume in perspective;

> Imagine buying three bags of groceries. If you dump half of one outside the window on the way home, that represents the loss that occurs during harvest processing and distribution. Toss the rest of that bag in the garbage, and that represents the waste from retailers and consumers.\(^\text{118}\)

### 2.2.2.2. Why Do We Waste So Much?

There is a complex and intertwined explanations for the large volume of food waste by the contemporary agri-food commodity chains. Although some food waste is unavoidable, due

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\(^{115}\) Bloom, *American Wasteland*, xii.


to seasons, weather, insects, or disaster, most food waste is the result of decisions made somewhere between the farm and the consumer’s plate.

Epidemic diseases and awareness of hygiene and sanitation amplified anxieties about cleanliness and purity. Safety rules to protect consumers from dangerous industrialized food became prevalent during the industrial era, and industrialization enabled improvements in packaging, chemical preservation, and safety labeling. In developed countries, packages designed to transport materials from factory to retail amplified the throwaway culture.¹¹⁹

Packaged foods came as a relief to some consumers by ensuring the idea of sterilization. Food-safety laws required a sell-by label on any packaged foods for retail, or a use-by label for consumers; which wrongly implied the expiration of food. Large-scale producers treated food as a commodity rather than as a source of nutrition, and individuals acquiesced to regulations that defined our food. In addition, federal law requires that before leaving the fields, food must undergo inspection as required by standardized U.S. Department of Agriculture (USDA) guidelines.¹²⁰ Bloom reveals in his book:

When inspectors check shipments of iceberg at the Whole Foods’ distribution center, they are looking for soft heads, insects, too much trimming, not enough trimming, leaves starting to break or split, too much dirt, heads that are opening, worm damage, mechanical damage, overall injury, lack of freshness, the wrong temperature (taken by laser or probe to see if the truck was too warm), the wrong size, discoloration of the “ribs” (corner of the leaves) or other parts, darn and scabbed “butts” where the head was cut from the stem, freeze damage, “spotting: (from insect damage), and “tip burn” (from too much wind or sun).¹²¹

¹¹⁹ Strasser, Waste and Want, 16.
¹²⁰ Bloom, American Wasteland, 6.
¹²¹ Ibid.
The use of machinery when harvesting and the removal of ugly or blemished food before retail, also known as culling, contributes to food waste. Culling is problematic because the food is not selected to reach the grocery stores because of blemishes, rather than unsafe conditions. Perfectly edible food does not sell at grocery stores because of aesthetics, getting tossed out.

Another major contributing factor in food waste in the both United States and in developing countries was the Green Revolution. The Green Revolution started around the 1940s which contributed to the increased production and high yields of monoculture crops such as corn, soy, and wheat. Its goal was to increase yields to feed the growing global population and was successful for nearly half a decade. The high yields of food lowered staple food prices, competing with local food systems, and resulting in food traveling longer distances to reach the plates of consumers at affordable prices. Refrigerating food became a consideration during long-distance shipments. Food followed a multi-stage commodity chain: from harvest to packing plant to container to ship to truck to warehouse back to truck to retailer to consumer. Five or six different entities might be involved. The entire journey could take two to three

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125 Mandyck and Schultz, *Food Foolish*, 6-7.
weeks. Americans’ shift from rural, farming life to an urban, nonagricultural society removed many from direct access to food production.

The extraordinary growth of cities resulted in a rising middle class— which lead to demands for improved diets consisting of meats, vegetables, and dairy, and less grain, food more subject to spoilage. David Evans notices a parallel between the debates about the economic crises of 2008 and debates about climate change. He studies the overlaps of consumers attempting to reduce their environmental impacts while remaining frugal in sustainable consumption, and he finds that the parallel between the two are not as clear as originally thought.

Interestingly enough, many scholars conducting quantitative research argue that the most waste occurs on the consumer level and in the household. Mary Griffin, Jeffery Sobal, and Thomas Lyson looked at one U.S. county for a decade to find that 60 percent of 10,205 annual tons of food waste came from consumers. Yet, an entire contradicting body of literature suggests that product law drives food waste production, political economy, and food

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126 Ibid., 36.
127 Bloom, American Wasteland, xii.
128 Mandyck and Schultz, Food Foolish, 2.
131 Ibid.
safety. While the largest amount of food waste occurs on a consumer level, this may be a result of confusing policies, an economy that favors growth, and applied sell-by dates. Above it all, blaming the consumer, and pressuring the household to reduce food waste does not solve the large systemic issues.

In sum, the shift from rural to urban, consumer detachment from primary food production, changes in agricultural production, fear of dangerous pathogens and food allergies, and a food system under capitalism are all reasons that contribute to the waste of food.

2.2.3. Environment, Economic, and Social Impacts

The majority of food discarded today ends up in landfills, which results in the associated problems involving use of water, land, and energy resources; potential production of air, water, and land pollution, and release of the greenhouse gas methane. These processes all amplify the effects of climate change and offer no relief to food insecurity or hunger.

Energy used in producing food that is not consumed, contributes to 3.3 billion metric tons of greenhouse gas emissions.\textsuperscript{132} This mis-used energy includes the fuel consumed by tractors planting and harvesting crops, used to pump water onto fields, used by machinery processing and packaging facilities, and the transportation of food from field to retail store. When you combine the energy consumption of distribution with production, our food represents 17 percent of total American energy use.\textsuperscript{133} If the U.S. food production and distribution system was a country, it would be the third largest emitter of greenhouse gases

\textsuperscript{132} Mandyck and Schultz, \textit{Food Foolish}, 3.
\textsuperscript{133} Bloom, \textit{American Wasteland}, 19.
behind China and the United States. On top of it all, Americans make up less than 5 percent of the world’s population, but we generate almost a quarter of global greenhouse-gas emissions (GHG).

To make matters worse, food buried in landfills today can be emitting gas twenty years from now. This gas, also known as methane, traps heat with estimates of a “global warming potential” (GWP) that is 21 to 25 times more than that of the country’s CO₂ over a 100 year period. Landfills are the second leading source of human-related methane emissions in the United States, account for 23 percent of all methane emissions in 2007, and, of all materials, food has the highest rate of methane yield.

Stuart advocates that reducing waste and a better control of our production system is a potent approach to relieve pressure on the world’s remaining ecosystems and its changing climate. Saving 250 million metric tons of food from the waste chain would be equivalent to reducing carbon emissions by 600 million metric tons annually.

Around the globe, about 805 million people remain chronically undernourished, 2 billion individuals suffer from micronutrient deficiencies, and 100 million children under the age of 5

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134 Mandyck and Schultz, *Food Foolish*, 3.
139 Mandyck and Schultz, *Food Foolish*, 31
are underweight.¹⁴⁰ In the United States, there are nearly one in seven individuals that fit under the definition of food insecurity, a term coined in 2006 by the U.S. government to describe households that lacked the money to ensure consistent access to adequate food.¹⁴¹ Yet, increasing awareness exposes this definition’s failure to acknowledge that the Green Revolution’s goal to feed the world became a problem of distribution, not production.¹⁴² In other words, the globe produces plenty of food to feed everybody on the planet, but not everybody has money or access to adequate food. The hunger statistics raise serious concerns when considering that Western societies waste nearly half of their food.

Although efforts to reduce the impacts of hunger have increased since the late twentieth century, few governmental organizations address legal and policy approaches to reshape our relationship to food, hunger, and waste.¹⁴³ The 1996 food summits in Copenhagen and Rome produced a shared goal of halving world poverty and undernutrition by 2015. In 2000, the Millennium Declaration recommitted the global community to the goal of halving the proportion of people who suffer from hunger.¹⁴⁴ Yet, understanding how to link the issue of hunger, with the issue of food waste remains embryonic.

¹⁴⁰ Mandyck and Schultz, Food Foolish, 9.
¹⁴¹ Ibid., 10.
2.2.4. Laws

A number of interdisciplinary fields address how policy and law shape the way we view food and waste. The legal framework contributes to how we manage food wastes, but if crafted and applied effectively they can aid in the reduction of food waste. Understanding the policies that influence how we deal with food waste can partly explain consumer behavior, provide examples of the best way to manage food waste, and suggest future routes for food waste management.

Nicole Civita writes an in-depth article unpacking the stigmas impinging on food donations. She argues that there is no federal or state law that prohibits the donation of food or mandates disposal of food that did not sell. Yet, fear of legal prosecution and risks that may arise from donating contaminated foods drive consumers to discard out-of-date foods. Since 1977 state laws have shielded food donors and charitable food providers from much of the legal liability associated with their donations. The Good Samaritan Law protects food donors from getting sued by individuals who become ill after consuming donated foods. This federal law lowers the legal risk for organizations that donate food past its sell-by or use-by date. All fifty states follow the Good Samaritan Law, yet, not all states enacted identical statutes. As a result, the Bill Emerson Good Samaritan Food Donation Act of 1996 (BEA) created a national minimum liability protection standard for food donation-related activities. Lastly, the Bill Emerson Act enables food donors to deduct federal taxes through the Internal Revenue

146 Ibid., 313-351.
147 Ibid., 319.
This tax deduction is traced through donations to a non-profit, 501(c)(3), a public charity, or a private operated foundation.

A 2013 study by the Natural Resources Defense Council (NRDC) reported that consumers often misunderstood the sell-by or use-by labels on packaged foods, leading to food waste. In addition, lack of label regulation can result in large quantities of food being removed from the market. The NRDC’s three-year study combined results from an analysis of the relationship of food reduction, longer shelf life, reduced storage temperature, and energy costs.

Lastly, Bradshaw explores the limitations of waste law through legislation actively removing food from the supply chain. Many legal requirements impinge on food waste – from food safely to labelling, tort to tax, competition law to contract, definitions of waste, and the failure to value food adds to the structural causes of food waste, rather than providing tools to address it.

2.2.5. Reuse and Recycling of Food

Dating back to 1835, Lydia Maria Child explained in *The American Frugal Housewife* that nothing should be thrown to the pigs which should have been in the grease-pot and nothing should be in the grease-pot that could be served to nourish your family or a poorer one.

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149 Jackie Wei, "New Report: Food Expiration Date Confusion Causing up to 90% of Americans to Waste Food". *NRDC*, Last Modified on September 18th, 2018.
Child’s notion of a feeding hierarchy emphasizes both the historical context from which we managed waste in society, as well as how we valued food. Early in the industrial era, cities began to look at food waste less as an individual responsibility and more as a community obligation. From the end of the nineteenth century through the middle of the twentieth century, most municipalities had a trash/garbage/refuse collection and disposal system, and many municipalities collected food waste (called “garbage” as opposed to “trash”).

Today, Western societies deal with a bigger refuse problem than ever before. Food waste is a product of material flows. The more materials coming into a city, the more materials leave, or if managed differently, the more materials the city is able to reuse and recycle. These materials possess huge variation in terms of their ultimate uses, re-uses, and abilities to be transformed into different, valuable commodities. Figure 2.1 suggests the hierarchy of strategies that can facilitate food-waste management. It starts with source reduction, a level where the reduction of food-waste also considers the reduction of energy, water, and land put into the production of that food. The last source is landfilling, after all other options are exhausted. However, many contemporary cities associate food-waste with the regular trash heap, which skips all the sources suggested in Figure 2.1 other than landfilling. This is largely the problem for New Orleans food-waste management.
Organizations can take steps in each phase of the production-distribution-consumption-disposal process to prevent and divert wasted food. Each tier focuses on different management strategies for wasted food, illustrating that the greatest reductions can be achieved at the upper end of the supply chain through source Reduction.

Evans points out that an increasing number of local authorities in the U.K. have rolled out infrastructure intended to capture surplus and excess food, diverting it from landfills. Yet, in the United States large-scale composting is all too rare. American cities and towns, however, are increasingly realizing the value of turning food waste into a useful soil amendment that

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154 Evans, Food Waste, 69.
recirculates nutrients into growing of new foods. Some Americans are even learning about worm composting\textsuperscript{155} and in addition, a fraction of Americans still feed scraps to hogs or other animals.

2.3. Urban Metabolism Literature

2.3.1. Terms and History

Karl Marx first discussed ideas similar to urban metabolism in 1867, though he never defined it as such, and used the concept of metabolism to describe the material and energy exchanges between and society in his critiques of industrialization\textsuperscript{156} Wolman coined the term urban metabolism in 1965, defined as all the materials and commodities needed to sustain the city’s inhabitants at home, at work, and at play.\textsuperscript{157} He explains this definition through the flows and processes that involve the entire spectrum of activities in a hypothetical city. He raises three concerns about the provision of adequate water supply, the effective disposal of sewage, and the control of air pollution. Wolman’s model considered a linear model, which included the inflow and outflow rates in a city with a population of one million people. For the next half century, the term experienced gradual recognition and accelerated in the last decade.

Researchers and local governments perceive the term in two ways: an ecosystem or a body. Wolman coined the term by explaining the city like an ecosystem. He explained the city analogous to an ecosystem because the city takes in resources the same way organisms in an

\textsuperscript{155} Worms feeding on food scraps to excrete waste that is fertile soil.


ecosystem consume food and sunlight. However, as time progressed, and people used the term to explore other schools of thought, many of these scholars as analogous to the body. This is especially true during the time of consumerism, capital growth, industrialization, and urbanism. When considering the city like a body, every intake of resources matters for the maintenance of organs and anatomical systems. If those resources do not find a place within the city, or the body, then they are excreted as waste. Metabolism defines the maintenance of life through the digestion of resources for energy, and the distribution of this energy to various and complex processes within the body. Research perspectives as diverse as industrial ecology, political ecology, and urban ecology have converged with the interest of reaching a more profound understanding of the urban metabolism and specifically the interactions between natural and social systems, as well as resources and their impacts on the urban environment.

An urban metabolism approach provides an effective perspective to gain information on energy efficiency, recycling of materials, waste management, and infrastructure of an urban system. Urban metabolism occurs every day through the inputs, outputs and storage of energy, water, nutrients, materials, and wastes within an urban region. In an industrial system, the material and energy flow is one-way, converted by labor and capital into industrial

158 Zhang, “Urban Metabolism,” 464.
161 Kennedy, Pincetl and Bunje, “The Study of Urban Metabolism,” 1.
products and byproducts. The remainder of the industrial products are either excreted as waste out of the city, or transformed into a new resource returned to the ecosystem but does not nourish it (at least much of it).

Giradet proposed that urban metabolism is more circular than Wolman’s linear explanation.\textsuperscript{162} However, neither of the circular or linear analyses describe the inner processes of the system that make up the energy consumption and waste production, explained to be the “black box.” Decades of research have shown the limitations of these approaches and the constraints they place on researchers. Thus, a major research priority has been to escape the black-box model and quantitatively analyze metabolic aspects such as production, consumption, and circulation within and among the components of an urban ecosystem.\textsuperscript{163} Girardet’s cyclical process illustrates how outputs can be returned back into the urban system (Figure 2.2). Since this breakthrough, the term urban metabolism shifted from a theoretical approach to a very practical framework used by urban planners, policy makers, engineers, and landscapers to measure energy consumption and excretion. To understand an urban ecosystem, it has become essential to embrace a more holistic conception of the interaction between bio-physical processes and urban society.\textsuperscript{164}

\textsuperscript{162} Zhang, “Urban Metabolism,” 465.
\textsuperscript{163} \textit{Ibid.}, 467.
In 2007, Kennedy, Pintl, and Bunj explicitly re-defined urban metabolism as “the sum total of the technical and socioeconomic processes that occur in cities, resulting in growth, production of energy, and elimination of waste.” This definition in part catered to scientists who viewed the city quantitatively, prompting some scholars to question what it really means to study urban metabolism. Conceptualizing the internal exchange of material and energy is crucial to the study of resources and waste because rapidly growing cities will need even more resources to sustain their local populations and activities and by extension generate more wastes. With growing concerns about climate changes, this framework becomes a key element in determining and maintaining levels of sustainability and health in cities around the world.

More recently, civil engineers have used urban metabolism to support environmental friendly design. Building on these advancements, researchers have started to use an urban metabolism

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165 Zhang, “Urban Metabolism,” 465.
framework to identify sustainable solutions, such as circulating resources back into the city that would otherwise be outputs.\textsuperscript{168}

\textbf{2.3.2. Research Methodologies in Urban Metabolism}

The quantitative methods assess and describe the urban flows and their impacts. The Material Flow Analysis (MFA) or “mass balance”\textsuperscript{169} measures the materials flowing into system, the stocks and flows within it, and the resulting outputs from the systems to other systems in the form of pollution, waste, or exports. Much like Wolman’s example of a hypothetical American city, this method is based on the concept that the mass of the resources used will equal the mass “plus” stock output. It is closely associated with the industrial ecology and engineering fields.\textsuperscript{170} The MFA technique has become the mainstream approach to urban metabolism because it uses units that the public, workers, government officials, and researchers can understand. Lastly, the MFA often considers studies and assessments from the life cycle assessment, an analytical framework mentioned in section 2.1.3 which considers the direct, indirect, and supply chain effects of resource transformation and use, and takes into account the environmental impacts from extraction to final disposal.\textsuperscript{171}

Another technique involves the energy-flow-analysis (EFA) or “energy balance”\textsuperscript{172} concept that proceeds on the notion that energy embodies “the amount of useful work that

\textsuperscript{168} Ibid.
\textsuperscript{170} Pincetl, Bunje, and Holmes, “Expanded Urban Metabolism,” 196.
\textsuperscript{171} Ibid.
\textsuperscript{172} Zhang, Yang, and Yu, “Urban Metabolism,” 11247-63.
can be performed by the energy in a system.”

This approach is also known as Emergy which attempts to show the qualitative differences of mass and energy flows that were ignored by previous urban metabolism researchers. However, researchers favor MFA over EFA which resulted in overlooking major environmental and social issues.

While the two methodologies mentioned above brought significant attention to material flows, a major shortcoming is their inability to measure and assess the level of sustainability. Politics influence socio-environmental processes and “the metabolism of the city is not only shaped by visible flows, but also by the ways in which different forms of circulations are imagined and represented through the city.” Vanesa Broto, Adriana Allen, and Elizabeth Rapaport argue that looking closer at the organization of production and consumption flow patterns, that is; materials, energy, people meanings, and power; is necessary for addressing urban sustainability challenges.

Using urban metabolism as a methodology to study a single field, discipline, or framework neglects what Wolman notes as the entire spectrum, that is, influences from society, economy, and politics. Recently political ecologists have used an urban political ecology lens to consider metabolism and circulation. In *The Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism* the authors encourage an urban political ecology approach to

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examine cities as socio-environmental assemblages. Each chapter is a different case study that emphasizes the theme of metabolism and circulation in urban spaces. Specifically, editors make note of ten important processes that can describe and theorize urban metabolism. In short, they are: 177

1) Environment and social change co-determine each other.
2) There are not clear boundaries between the urban world and the cyborg world.
3) The result of environmental conditions is not independent from historical, social, political, and economic events.
4) All socio-spatial processes are invariably physical, chemical, and biological.
5) Socio-environmental metabolisms both enable and disable social and environmental conditions.
6) Processes of metabolic change are never socially or ecologically neutral.
7) Henri Lefebvre’s “Right to the City” invariably implies “right to metabolism,” and there is a power geometry that shapes particular social and political configurations and the environments in which we live.
8) Political ecology seeks to answer what or who needs to be sustained and how this can be maintained or achieved.
9) Environmental transformation is not separate from class, gender, ethnic, or other power struggles.
10) Socio-ecological “sustainability” can only be achieved by means of a democratically controlled and organized process of socio-environmental (re)construction.

This book re-exposed theoretical perceptions the city, considering the socio-economic metabolism that sustains circulation processes. 178 The notion of metabolism sets up the

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circulation of matter, values, and representations as the vortex of social nature. This is not just simply a repetitive process of circulation through already established pathways. The pathways continually re-establish themselves through different and varying political and economic exchanges, including policy change, creation of jobs or businesses, or a changing market.

In sum, the creation of the term urban metabolism spans many fields and methodologies. Its inception simply explained the energy intake and waste excretion of a city, but the term slowly began to consider the internal social, economic, and political networks within the city where energy metabolizes and energizes. Local governments and policy makers slowly adopt the term to view the urban metabolism of their city, and more recently, use it to see how they can become more sustainable. In the case of New Orleans, this is exactly what the Climate Action for a Resilient New Orleans reports seeks to do. However, the city’s report potentially falls under the category of a “black box” in that it never explains the internal networks that comprise a city.

In relation to this research, scholars in urban metabolism, such as Mattias Erikkson, Ingrid Strid, and Per-Anders Hansson address recycling food waste, especially through animal feed, as a way to combat environmental issues. However, the few publications that exist often just a calculate or discuss the needs and benefits of preventing food waste rather than evaluating actual prevention measures. Also among urban metabolism authorities, Alexis

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Laurent et al. explain that food waste management is largely dependent on the local context, explaining the impracticality of hauling heavy and bulky fast degrading food waste, therefore, that is why most municipalities address food waste along with its general solid waste.\footnote{Alexis Laurent et. al, “Review of LCA Applications of Solid Waste Management Systems – Part 1: Lessons Learned and Perspectives,” \textit{Waste Management} 34, (2013): 573-588.}
Chapter 3. Methodology

3.1. Introduction

This chapter presents the ethnographic methods utilized in this project’s field work. Ethnography elicits and describes processes of innovation and structuration and processes that occur in everyday life.\textsuperscript{182} Geographers use ethnographic methods when quantitative methods alone cannot lead to conclusions about a certain spatial phenomena or when they simply seek a more nuanced, place based account.\textsuperscript{183} This approach enables geographers to theorize about space, place, scale, landscape, and environment to develop further understandings of spatial processes and concepts in ethnography.\textsuperscript{184}

From May to August, 2018, I utilized ethnographic research tools such as interviews, surveys, participant observation, and discourse analysis to collect and analyze information. This form of research served best for understanding food-waste management in New Orleans because food-waste community organizing is still establishing its infrastructure. Very little quantitative or qualitative data exists regarding food-waste management in New Orleans, therefore, this form of data collection reveals why and how these organizations operate in the city. Questioning leaders and participants of organizations about their motivations, incentives,

\textsuperscript{184} \textit{Ibid.}, 177.
and how they operate within the city is crucial to understanding how food-waste management works in the city.

Engaging in the livelihoods of the New Orleans residents played a critical role in collecting data for this ethnographic research. Working alongside residents fostered acceptance into the community and built rapport with individuals that I otherwise would not have interaction with. I began building rapport through the snowball technique, which utilizes primary contacts to seek out other contacts that pertain to my research. Specific means of interaction included participating in and observing volunteer events, community and urban gardening, managing compost bins, attending community events, emailing organization leaders, and attending farmer’s markets. Participating and observing employed mutualism and established respect between myself and individuals involved in food-waste management. During the course of participating and observing, I collected surveys with Compost NOW participants. Lastly, participating and observing lead to four interviews with organization leaders, which is core to ethnographic data collection and analysis.

First, I explain how I came to select this field site and topic. Next, I describe the tools that I used in the field to obtain data and information that influenced my findings, simultaneously describing challenges I encountered throughout the process. Then, I describe the how analyzing my findings lead to theoretical framework of urban metabolism. Lastly, I explain why these ethnographic methods were the most appropriate tools to reach the thesis conclusions.
3.2. Preliminary Research

This research began at the Compost Conference on November 4, 2017, in the Mid-City Library in New Orleans. This compost conference was the first ever food-waste management conference in New Orleans, and it brought together organization leaders, city officials, and the general public to discuss the current status of food-waste management in New Orleans and where it is going. I took notes throughout the conference and introduced myself to individuals in the room. This experience pushed my field work forward, allowing the community to become familiar with the work I planned to do in the upcoming summer.

Following this experience, I utilized snowball sampling techniques to meet new organizations and leaders, and continue to learn about everything happening in food-waste management in New Orleans.

3.2.1. Snowball Sampling

Early on, I discovered the best way to gather information about food waste management in New Orleans was to begin with an ethnographic method known as snowball sampling, and use this method to build rapport with the community. Snowball sampling is the process of utilizing primary contacts and sources to seek out other contacts that pertains to research.\(^\text{185}\) I began this process after contacting the FFNNO and receiving a referral to Nico Krebill, the organizer of Schmelly’s Dirt Farm and Community Kitchen Collective. The

subsequent invitation to the Compost Conference enabled me to build rapport with the other food waste organizers in the city.

Between November and May, I visited New Orleans about once a month to attend events and meet with organization leaders, such as Krebill with Schmelly’s, and to volunteer for organizations, such as Community Kitchen. I went through the IRB process with Louisiana State University requesting human subject’s exemption for my field work (Appendix B). This project qualified for IRB exemption because the individuals interviewed signed a form allowing for me to use a recording device and use their name only with their consent. The IRB exception did not create any challenges in the research goal to document emerging geographies of food waste practices through a multi-stage effort of integrating myself into the community, building rapport, and conducting formal, documented interviews, and conducting surveys.

3.2.2. Field Work Background and Participants

Following preliminary research, I was well aware of all the food-waste management efforts within Orleans Parish, including the Department of Sanitation’s modest efforts. I decided to study the community organizations that were participated as either panelists, attendees, or contributors to the Compost Conference. Therefore, the target participants for interviews included non-profits, limited liability companies (LLC’s), local non-government organizations (NGO), and the city Department of Sanitation (DOS) (Table 3). With the exception of the DOS, these organizations are community-based/grassroots bodies. Importantly, I included an organization that is not grassroots, but locally based: Second Harvest Food Bank.
This project does not include food-waste management that extends beyond grassroots organizing, that is, household composting, on-ground composting or animal feed for farms, and small social networks that function within and between networks. The target interviewees may seem broad and unspecific, but it is important to remember that food waste management is a relatively new practice on a community level in New Orleans. Subjects who I interviewed are often connected in systematic ways, which is intentional in grassroots organizing around this newly emerging practice.

Table 3.1. Research techniques used for different food waste organizations.

<table>
<thead>
<tr>
<th>Organization Type</th>
<th>Name of Organization(s)</th>
<th>Method of research</th>
</tr>
</thead>
<tbody>
<tr>
<td>City/ Orleans Parish</td>
<td>Department of Sanitation</td>
<td>Field Notes, building rapport, emailing, website</td>
</tr>
<tr>
<td>Community organizations (LLC’s, non-profits, community gardens, urban farms)</td>
<td>-Compost NOW (New Orleans Waste) -Composting Network -Schmelly’s Dirt Farm -Digeasy -Community Kitchen Collective -Grow On Urban Farm/ 24 Carrots Urban Farm</td>
<td>Interviews, Surveys, Field Notes, building rapport, Participant Observation, measuring food waste recovery</td>
</tr>
<tr>
<td>National organizations with a local office</td>
<td>-Second Harvest Food Bank -Food Rescue US</td>
<td>Field Notes, building rapport, emailing, measuring food waste recovery</td>
</tr>
</tbody>
</table>

Snowball sampling did not lead me to the Lower Ninth Ward, therefore, I did not study any grassroots organizations in that neighborhood. There was not much information about

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186 Any food waste produced on farms that is composted on that very same farm.
187 For example, a volunteer at Compost NOW partnered with Schmelly’s to compost at their wedding.
organizations in the Lower Ninth Ward at the Compost Conference, though, I did hear from a local resident that there are multiple small social networks with the nearly forty urban and community farms and gardens. Additionally, one organization that is a permaculture education center in the LNW hosts several compost classes. Lastly, starting in 2019, Compost NOW will open at the Martin Luther King library in the Lower Ninth Ward, where a local farm will use that waste for fertile soil.

3.3. Research Techniques

3.3.1. Participant Observation

Participant observation requires ethnographers to pay close attention to, and sometimes partake in, everyday geographies so they can become familiar with how certain populations operate in various settings.\(^ {188}\) Participant observation involves spending time being, living, or working with people or communities in order to understand them and it built from two familiar approaches: observation and participation.\(^ {189}\) Observation of spatial phenomena has been central to geographical methods since the discipline’s outset. Participation is a form of involvement in or association with a group, practices, or events.\(^ {190}\) This level of engagement is an essential part of developing a certain level of awareness and

\(^{188}\) Watson and Till, “Ethnography and Participant Observation,” 77.


\(^{190}\) Ibid., 177.
sensitivity towards common practices, morals, and ethics within the community being observed.\textsuperscript{191}

Field notes are a part of participant observation, and are crucial to remembering information from participant observation. I kept a detailed record of dates, events, experiences, and observations while in the field. After field experiences, I recorded detailed notes, unless the event was a conference, or a one-on-one meeting where I asked the individual’s permission to take notes.

The ethnographer writes down in a regular, systematic ways what she observes and learns while participating in the daily rounds of the lives of others. In so doing, the researcher creates an accumulating written record of these observations and experiences. These two interconnected activities compromise the core of ethnographic research: first hand participation in some initially unfamiliar social world and the production of written accounts of that world that draw upon such participation.\textsuperscript{192}

These notes became a reference point to connect information in the field. They also exposed interesting findings that I would not otherwise learn. For example, several residents talked about the Environmental Advisory Committee’s (EAC) Composting Recommendations report that was sent to the city council in 2017. This document is not general knowledge, nor was it addressed at the Compost Conference. As a result, taking notes, and revisiting those notes, enabled me to ask organization leaders during participant observation about the EAC. Lastly, collecting field notes narrowed down appropriate questions to address in interviews, tailoring the questions for each interview with organizations leaders.

\textsuperscript{191} Kathleen DeWalt and Billie DeWalt, \textit{Participant Observation: A Guide for Fieldworkers} (Walnut Creek, CA: AltaMira Press, 2002), xi.

3.3.2. Surveys

Behavioral geographers first used surveys to examine people’s environmental perceptions, travel behavior, and consumer choices.\textsuperscript{193} Survey research is particularly useful for eliciting people’s attitudes and opinions about social, political, and environmental issues such as neighborhood quality of life or environmental problems and risks.\textsuperscript{194} Finally, conducting surveys involves a series of steps, including designing and pretesting the questions; choosing a survey strategy; identifying sample of potential respondents; and administering the survey.\textsuperscript{195} Collecting surveys reveals common themes or contradicting ideas among a certain population of people. They capture a moment in time about individual’s perception on a particular topic. However, surveys may be misinterpreted by the participant. The intentions behind a survey question may be misperceived by the participant, and then the results of the answer are skewed.

On May 1st, 2018, I sat down with founder of Compost NOW\textsuperscript{196} Lynne Serpe to discuss conducting surveys. Surveys were only distributed to participants with this organization to keep data consistent. The survey questions both influenced my research and provided her organization with more understanding of the individuals participating in her organization.

\textsuperscript{196} Ibid., 86.
\textsuperscript{196} Please reference section 1.2 to recall information about Compost NOW.
Expanding survey collection beyond participants of this one organization and creating questions for multiple groups would present challenges in aligning the results, an issue McLafferty cautions against. In addition, surveys bring household participation data into this research, revealing that food-waste management happens on multiple levels in New Orleans.

Compost NOW is the only food-waste organization that merely offers food-waste drop-offs for local residents. Asking participants to fill in a survey served as an essential part of my research because it revealed local resident’s attitudes and behaviors about food-waste management in New Orleans. Questions revealed why individuals participate, how they found out about Compost NOW, how often they drop-off their food-waste, if they drop-off their food-waste in any other location in the city, and more. The eighteen questions are in Appendix A.

The purpose of creating the survey questions, as mentioned, was to help Compost NOW understand a little bit more about the residents that participate in its program, and to inform this thesis about the service areas for the drop locations. Specifically, Compost NOW was interested in gathering information around ethnicity, gender, diet, and how these individuals found out about the program. I, on the other hand, was interested in finding information about location, neighborhoods, and if these participants engaged in other ways or places of managing food waste (i.e., garbage disposal, backyard compost system, Hollygrove Farmer’s Market food-waste drop-off bins).

I approached participants in the Compost NOW food-waste drop-off procedure. I politely asked participants if they would be would take a few minutes to fill in the survey. I opted for direct contact, rather than posting the survey on the Compost NOW website to
increase the likelihood that individuals would respond to me directly rather than scrolling by an online survey. At first, I was timid to impose on people, but after a week, I found comfort encouragement in speaking with individuals because all the previous participants were extremely willing fill in the survey and indicated their support for the program.

The questions took participants three-to- five minutes to complete on average. I only required participants of Compost NOW to fill in the survey once. I collected a total of 248 surveys from May 22\textsuperscript{nd} – June 23\textsuperscript{rd}, 2018. I attended twenty-six out of the total possible thirty-four drop-off times in a months’ time frame. I missed two Norman Mayer collections, one Children’s Resource Center, one Alvar Library, two Rosa Keller, and two at Hubbell.\textsuperscript{197} On one Saturday it was raining so hard during the Hubbell Branch collection that no one that had not filled in the survey came to drop off their food waste. Other than the rain day, I missed additional collection days due to other obligations. In total, I spent 52 hours collecting surveys from Compost NOW patrons.

It is important to point out that these 248 surveys do not reflect the total number of individuals dropping off on a monthly basis. As mentioned, the surveys were created for individuals to only fill them in once. From a particular point of view, this survey collection could reflect the lowest possible number of individuals dropping off food waste per month. Only a few people declined to participate, a few more said they were busy and would do it another time, but the rest were surprisingly happy to help and willing to participate. In addition, a large number of people take vacations during the summer months and this reduced the average

\textsuperscript{197} Please see section 1.2 for weekly Compost NOW food-waste drop-offs.
number of drops offs.\textsuperscript{198} This survey collection sparked a lot of interesting conversations about the city-wide waste-management operations. This is especially the case with people that moved to New Orleans from others cities that collect food waste as part of their everyday waste practices.\textsuperscript{199}

3.3.3. Semi-Structured Interviews

A semi-structured interview is a verbal interchange where one person, the interviewer, attempts to elicit information from another person by asking questions.\textsuperscript{200} The interview includes questions prepared by the interviewer, but also allows for further questions and discussion to flow outside of prepared questions. Furthermore, semi-structured interviewing is:

> About listening. It is about paying attention. It is about being open to hear what people have to say. It is about being non-judgmental. It is about creating a comfortable environment for people to share. It is about being careful and systematic with the things people tell you.\textsuperscript{201}

My involvement in field work enabled four interviews with individuals representing five organizations. These interviews were semi-structured, open-ended, at the location of the individual’s choosing. Nico Krebill interviewed on behalf of two organizations, once for each of the two organizations they lead: Community Kitchen and Schmelly’s. Another interview

\textsuperscript{198} Empirical observations by Lynne Serpe and myself.
\textsuperscript{199} Either through municipal food waste collections or similar community organizations.
\textsuperscript{201} \textit{Ibid.}, 103.

involved two members, Antonio Alonzo and Jakob Pohlman, who run the same organization that is Digeasy. The fourth interview was with Lynne Serpe with Compost NOW.

I gave the research questions to the participants ahead of time so they had an idea of what I would ask. In addition, I let the participants add in, edit, or critique any questions they did not understand or find valuable for the interview. And of course, I made sure each organization leader knew they did not have to answer any questions they would not like to answer. Appendix C contains the open-ended questions given to Compost NOW. I used a tape recorder to capture the interview, to later transcribe and code for common themes.

3.3.4. Measuring the Bins

In order to answer the research question regarding the geographic scale of these food waste organizers, it was important that I record the amount of food each organization managed. This number reveals the highest potential of food each organization recovers, or can recover, monthly. I obtained the capacity of the bins, in gallons, and estimated the amount of pounds per gallon. Serpe and Krebill, weighed their bins in 2017 to see how much food they were recovering. From that measurement, Serpe and Krebill have been able to estimate the weight of full bins. Because food-waste management is still in the stages of establishing its own infrastructure, systematic techniques such as weighing bins every week to report to customers or use as business data is not a part of their business practice. The time, finances, and bureaucracy of the incipient enterprise is not reported to any oversight agency for purposes of gauging activity or for risk/ impact assessment. While regular monitoring is on their radar, most
organizations do not have the finances, time, or capacity to factor this into their business at the moment.

3.4. Metabolizing the Methods

By the end of August, my field work ended, and I moved from New Orleans back to Baton Rouge. There were two occasions when I returned to New Orleans for research: an interview with Compost NOW on September 14th and a volunteer recycling opportunity with the Young Leader Coalition (YLC) of New Orleans on October 6th. After completing all interviews, field notes, and surveys, I began to code these texts for common themes that I noted in both the field and in the notes, a crucial part of good research.202

3.4.1. Coding the Surveys

In the course of collecting surveys, I took notes of any conversation that I had about composting or food-waste management in New Orleans. These interactions were typically in front of the libraries, brief, and often enabled by individuals asking about my graduate program. In other cases, a conversation followed a patron’s confusion about survey questions (Appendix A). For example, the first questions on my survey, “Where were you born? How did you manage food waste in this location?” sparked confusion in a high percentage of participants. Although I realized after finalizing the survey that this question could have been reworded, I explained to participants that I would like to understand how they grew up

\[\text{202 Dewalt and Dewalt, } \textit{Participant Observation: A Guide to Fieldworkers}, \text{ xi.}\]
managing food waste. Nevertheless, the multiple layers of interpretation arising from survey responses is a common issue surrounding survey analysis.

In order to find common themes, I coded the survey’s for commonly used language, terms, or ideas. For example, in the question, “why do you compost food waste?” participants had an array of answers such as, “to divert waste from landfill,” “create fertile soil,” “help local farmers,” or simply “environmental reasons.” In some cases, participants mentioned two or more of the answers above. Essentially, I created categories for responses that would fit into all the answers above. Creating categorizes dependent on the participant’s answer enabled me to see how the survey respondents viewed both Compost NOW and food-waste management. It also suggested some other interesting themes that are later implemented in my findings section.

3.4.2. Coding Interviews and Field Notes

Information collected from the compost conference and in the course of volunteering for these organizations revealed some patterns. These patterns include organizations interacting with each other and finding innovative solutions for food-waste. However, other patterns emerged in interviews and in field notes. For example, urban metabolism became evident after coding and reviewing all field notes and interviews. All of these findings will be discussed further in Chapters four and five.

Developing these codes became useful in explaining and justifying how food-waste organizers operate within Orleans Parish. Creating codes is the key to transferring real life experiences into academic text, as:
Ethnographic coding involves line-by-line categorization of specific notes. In this process, the researcher’s stance toward the notes changes: The notes, and the persons and events they recount, become textual objects. Reading through and coding field notes on a line-by-line basis inundated the ethnographer with new ideas, insights and connections.\textsuperscript{203}

Immediately following interviews, I transcribed them into a Word document. In the process of transcribing, I wrote comments on the side of the document that might indicate particular patterns, themes, or connections that I had not been aware of. This enabled research to fit under larger patterns that I was noting in the field, and additionally, fit into my field notes. There was a total of 4 hours and 33 minutes of recorded interviews. Two of the interviews were over an hour in duration and the other two were both less than an hour. The coding process was the same for my notes and transcriptions. For my field notes, anything written on paper was put into a digital Word document.

3.5. Ethical Considerations After Field Work

My thesis proposal originally aimed to create a map that would highlight the pattern where food waste comes from, the recycling stations receiving (kitchens, farms, compost companies, and where that transformed food waste goes (compost, animal feed, or food insecure families). The map would show the locations, transportation routes, and interaction pathways of food-waste collection to recycling stations.

While in the field, I collected the data that could support this research goal through the following research steps: surveys asked participants to record the zip code they are coming

\textsuperscript{203} Emerson, Fretz, and Shaw, \textit{Writing Ethnographic Fieldnotes}, 172.
from, and the library they dropped off. When analyzing this data, the results from the surveys show the number of residents or households that participated in Compost NOW. Additionally, I collected the location of each organization's recycling station, and where they picked up food-waste. Put together, the route from where food-waste is produced (either from household or commercial properties) to a recycling station could show the geographic patterns and interactions of food-waste management in the city.

However, I encountered a few barriers that challenged the idea of creating a map: (1) many of the clients that partner with food waste organizers requested to remain confidential; and (2) given the incipient nature of food-waste management there are no records regarding the distribution of finished product. In other words, these community organizations either give compost away for free to neighbors, friends, family, or farms, or they sell it for cheap without recording where it goes. Therefore, if I did create a map, it would merely show where food waste comes from and which food recycling station it goes to, and not where it is distributed. The one organization that does keep a record of how much food waste is collected and distributed as compost is Composting Network, but its staff did not reply to emails or calls. Information about Composting Network merely came from articles online or information they stated at the Compost Conference. Other than these two forms of information, the founder of Composting Network was hesitant to share information about the company with me. For this reason, the cartographic goal in my proposal was impossible to complete. Importantly, the methods I used in the field still revealed the answers to my original research questions.
Chapter 4. Digesting New Orleans Food-Waste Geographies

4.1. Introduction

Food-waste management in New Orleans is still in its embryonic stages, yet, it is gradually growing and establishing its own infrastructure. Leaders in the food-waste management arena interact with each other, through partnering and aiding the viability of one another. Their activities also overlap, through offering the same services in Orleans Parish. Through interaction and overlapping services, they develop new strategies that contribute to the socio-economic health of the city by creating jobs and aiding businesses. This chapter answers the research questions from chapter one, and highlights how the organizations remain viable within the city limits, and how they operate under city ordinances. Too, it addresses the location, distribution, and spatial organization, or the economic geography, of food-waste in New Orleans. Specifically, in addressing the thesis’s research questions it presents food-waste management as an emerging practice in New Orleans that has a well-defined niche activity network.

4.2. Volume of Municipal Waste Collections and NGO Food-Waste Collection

This section addresses the scale of waste and food-waste in New Orleans. Information collected during my field work suggests that food-waste organizers do not collect food-waste on a municipal scale. Reports by the DOS, and data collected over the summer of 2018 support this finding, however, evidence does not exist to document the exact amount of food-waste hauled out of the city daily. This lapse in data does not suggest that food-waste managers can never reach the level of collecting all food-waste in the city since the food-waste compost
facilities are growing daily. It is difficult to document the total amount of food-waste hauled out of the city every day/week/month because over fifteen private contractors are involved with municipal waste collection, and they do not separate food-waste from the general trash heap. Therefore, the amount of food-waste New Orleans produces is unknown. Even the DOS is unaware of these statistics.

At the Compost Conference on November 4th, 2017, Cynthia Sylvain-Lear the Director of the DOS reported the city’s waste management statistics. As of 2017, the city has $30-40 million in landfill and recycling contracts. From January to September in 2017 the city sent 139,000 tons of waste to landfills, and recycled 7,000 tons. In addition, it started the recycling drop-off day every second Saturday of the month, which receives about 600 cars204 annually (Figure 4.1). The department works with state agencies to recycle paper, plastics, metals, and e-waste, and they are working to integrate glass curbside glass recycling. About 59,000 housing units are registered to recycle.205 In October of 2018, the deputy director of the DOS reported that the number had risen to about 60,000 housing units,206 with the potential for involving 130,000 housing units. He said the city would be happy to have 80,000 of those signed up to recycle. According to the U.S. Census Bureau, there are 154,895 occupied housing units in New Orleans,207 showing that a mere fraction of the city’s residences are recycling with the city. The

204 Citizens are supposed to drive, as opposed to walk their recycling to each station.
206 Mathew Torri, discussion at the Young Leadership Council (YLC) tent at the Beignet Fest, October 6, 2018.
remaining residents can sign contracts with private companies that do not work for the city, but usually charge a higher price.

Figure 4.1. Department of Sanitation Recycling Drop-Off. Photo by Author.

In terms of composting, Sylvain-Lear made clear that the city would not establish curbside composting for at least another decade. Yet, it makes small and gradual efforts toward establishing food-waste curbside recycling. A portion of the green waste from Hurricane Isaac in late August 2012 resulted in 24,149 cubic yards of compost mulch after grinding. The Composting Network composted approximately 3,036 cubic yards of rubbish from the February 7, 2017 tornado. Sylvain-Lear estimated the city would collect nearly 6,000 tons of food-waste if it establishes curbside food-waste pick up. For the future, the idea is to divert 50 percent of waste from landfills by 2030. Less than a year after the tornado, the city launched its composting in May 2018 at the Department of Sanitation recycling day on 2829 Elysian Fields,

208 Cynthia Sylvain-Lear did not explicitly say who managed the green waste.
setting up eight 48-gallon Composting Network bins for residents. The first month did not experience many drop offs, but activity has been growing gradually each month.

The city partners with Richards Disposal and Metro Disposal, two private companies that haul solid waste. Among the entities able to sign a solid waste contract with the city are small businesses and residents in single-family and multi-family dwelling with four or fewer units. Service is limited to those that produce less than 96 gallons of solid waste twice a week outside the French Quarter and Downtown, and no more than 45 gallons of solid waste inside the French Quarter or the Downtown Development District.\textsuperscript{210} The households and restaurants that do not qualify for waste collection with the city have to sign contracts with private companies to haul their solid waste and recycling. Today, over fifteen private waste haulers are active in New Orleans.

The principal participants in food waste management are a group of NGO’s that handle in excess of 48 tons per month, excluding Second Harvest Food Bank (Table 4.1). The tonnage is based on amounts collected during my fieldwork from May through August 2018. The volumes are not static since these organizations and the volume of food they recover continues to grow. Second Harvest and Schmelly’s Dirt Farm are the only organizations that provided concrete numbers derived from actual collection records. Digeasy, Compost NOW, Community Kitchen, and Grow On individually worked with me to estimate their monthly totals. Composting Network did not supply an estimate. The monthly tonnage represents the highest weight that

each organization seeks to recover each month. That is, it reflects the capacity of the bins they provide the participating restaurants, cafés, or households. It is difficult to estimate how much food is actually recovered for a variety of reasons, including, the absence of scales to measure the weight of each food-waste bin, the type of food in bins and its moisture content. For example, coffee grinds are extremely heavy and pieces of bread are not so heavy.

If you figure 4 pounds/gallon, we’re actually light in our estimate for the smaller 21.85 green bins but they are such an awkward shape there are likely a lot of gaps (until food thaws). A gallon of water is 8.34 pounds so I’m using less than half of that as my estimate, since I’m not differentiating between coffee grounds, watermelon rinds etc.²¹¹

Table 4.1. Amount of food waste each organizations recycles.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Tons of Food Recovered Per Month</th>
<th>Organization model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Kitchen Collective (CK)</td>
<td>1.5 tons / month</td>
<td>Non-profit</td>
</tr>
<tr>
<td>Compost NOW</td>
<td>4.98 tons/ month</td>
<td>Non-profit</td>
</tr>
<tr>
<td>Schmelly’s Dirt Farm</td>
<td>39.5 tons / month</td>
<td>For-profit LLC</td>
</tr>
<tr>
<td>Digeasy</td>
<td>1.2 tons a month</td>
<td>Non-profit</td>
</tr>
<tr>
<td>Second Harvest</td>
<td>892 tons / month</td>
<td>Non-profit</td>
</tr>
<tr>
<td>Grow On Urban Farm</td>
<td>.88 tons / month</td>
<td>Non-profit</td>
</tr>
<tr>
<td>Composting Network</td>
<td>N/A</td>
<td>For-profit LLC</td>
</tr>
<tr>
<td>Total</td>
<td>944.56 tons/ month</td>
<td>N/A</td>
</tr>
</tbody>
</table>

²¹¹ Lynne Serpe, email to Author, June 19, 2018.
It is crucial to note that these numbers are ever-changing, namely, because they are gradually growing. Another complicating factor is a number of New Orleans residents leave Louisiana during the hot summer months and this would reduce the tonnage during the peak travel season. For example, this report only considers the seven libraries that Compost NOW worked at during the Summer of 2018, yet, they have expanded to ten libraries as of January, 2019. Adding these libraries to the numbers would dramatically change the weight of food recovered.

With our growth, we are collecting 100,000 pounds or 50 tons per year. So 100,000 pounds would be my minimum goal to divert from landfill looking forward. I do have 100,000 pounds that we did divert since the beginning of the program.  

Community Kitchen (CK) is the only grassroots organization that does not recover food by the bin. Instead, its staff collects ugly, blemished, or rejected food by the box from distributors and grocery stores. Therefore, it was difficult to estimate CK’s waste collection, On the other hand, CK always collects food-waste four times a month. Due to its consistency, Krebill built a strong relationship with food distributors and grocery stores in New Orleans, ensuring Community Kitchen will always receive food every Tuesday.

The food we collect varies. Sometimes we go to the produce distributor and they have like box of shredded lettuce for us and that is it. Sometime they have seven, 50 pound sacks of onions and like 3 cases of squash and a bunch of boxes of tomatoes. On average 500-1000 pounds of food per week.

Lastly, Grow On Urban Farm transferred its compost project to 24 Carrots Farm in August of 2018. As a result, the numbers for Grow On Urban Farm in Table 4.1 may have increased or decreased since the completion of field work. 24 Carrots Farm also added a

212 Lynne Serpe, Compost NOW, interviewed by Kelly Haggerty, September 14, 2018.
neighborhood compost collection in the St. Claude and Bywater neighborhoods. It distributes 5-gallon buckets to neighbors, with instructions, and set it out once a week. This project began after August 2018, therefore, was not a part of my field work.

4.2.1. Are the Community Organizations Municipal in Waste Volume?

Using the waste volumes provided by the NGO’s, this section considers the scale of food-waste operations. The most reliable estimates indicate that food waste comprises 22 percent of landfill waste. Based on this estimate, New Orleans small businesses and housing units generate about 30,580 tons of food-waste out of the 139,000 tons of waste sent to landfills in a nine-month period. This amount of waste represented wastes from more than double of the housing units that served by the DOS. To be clear, 154,895 total units is 2.625 times more than 59,000 housing units the DOS supplies recycling bins to. Doubling that total and adding another quarter for the remaining three months of the year suggests households produce 107,030 tons annually ([30,580 X 2.625 / 9] X12)\(^{214}\) (Table 4.2). This estimate does not include restaurant, café, hotel, and grocery store food-wastes.

Compost NOW is the only grassroots organization that offers free food-waste drop-offs for households at libraries during May to August, 2018, therefore, it represents the only household food-waste collection organization in this thesis. There are other food waste management options: 24 Carrots Farm which started its neighborhood compost collection in August of 2018, as well as any individual back yard composting, scrap feeding to animals, personal delivery of compost directly to urban farms or friends, or individuals who received a

\(^{214}\) Equation to estimate total amount of residential food-waste.
compost bin from 24 Carrots Farm. Additionally, Schmelly’s Dirt Farm and Composting Network offer residential food waste pick-up. However, Schmelly’s did not pick up from any residential properties at the time of my field work, and Composting Network did not reveal its clients for this research. Nevertheless, Compost NOW has the capacity at seven libraries to recover 44.84 tons of food waste in a nine-month period. Their expansion to ten libraries in more neighborhoods implies that the volume of food-waste recycling increased. My estimates reveal about 59.8 tons of household food-waste per year goes to Compost NOW (Table 4.2), which is 17.9 percent of the estimated total amount of food-waste the households of Orleans Parish.

Table 4.2. Waste volume estimates in Orleans Parish.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Type of Property</th>
<th>Type of Garbage</th>
<th>Number of residencies</th>
<th>Data Collection Date</th>
<th>Time Frame</th>
<th>Estimated Annual Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Sanitation</td>
<td>Housing and businesses 4 units or less</td>
<td>landfill</td>
<td>59,000 units</td>
<td>November, 2017</td>
<td>January – September, 2017</td>
<td>185,333 tons</td>
</tr>
<tr>
<td>Compost NOW</td>
<td>Housing and small businesses</td>
<td>Food-waste</td>
<td>N/A</td>
<td>July, 2018</td>
<td>January – September, 2018</td>
<td>59.8 tons</td>
</tr>
<tr>
<td>Orleans Parish</td>
<td>Housing</td>
<td>landfill</td>
<td>154,895 units</td>
<td>July, 2018</td>
<td>January – September, 2018</td>
<td>486,500 tons</td>
</tr>
<tr>
<td>Orleans Parish</td>
<td>Housing</td>
<td>Food-waste</td>
<td>154,895 units</td>
<td>July, 2018</td>
<td>January – September, 2018</td>
<td>107,030.8 tons</td>
</tr>
</tbody>
</table>

Schmelly’s does pick-up Compost NOW’s food-waste to compost on their land.
Due to the modest infrastructure supporting food-waste collection and management in New Orleans, the volumes diverted from landfills are likely to increase slowly. Additionally, the two principal estimates come from different years, although they cover the same time span. The estimates do not include the landfill or food-waste management of restaurants, hotels, grocery stores, universities and food distributors.

The organizations that provided information for this thesis recover approximately 944.56 tons/month, or 11,334.72 tons annually including Second Harvest Food Bank which collects food-waste and re-distributes it in surrounding parishes. Not including Second Harvest, the grassroots organizations recover 48.06 tons of food per month. In total, these organizations partner with nearly 100 restaurants, cafes, offices, grocery stores, and food distributors. A report in May 2018, stated there are a total of 1,216 restaurants in New Orleans. The food-waste organizers only sign contracts with a small fraction of the total number of restaurants, bars, and cafes.

In sum, under-developed waste-collection records in New Orleans result in a lack of knowledge about how much waste the city collects as a whole. The numbers presented in this chapter are merely estimates based on two sources of data collection: (1) Sylvain-Lear’s report to the Compost Conference in November of 2017, and (2) field work from over the summer. Additionally, these records only represent a snapshot in time. The volume of food waste is highly dynamic through the seasons and over time. Nevertheless, the numbers still indicate a wide gap in recovery between the general landfill collection and NGO efforts, suggesting as of

\[216\] McNulty and Adelson, “How Many Restaurants Does New Orleans Have?”
2018 the food-waste organizations do not recover a significant portion of food-waste on a city-wide scale. If the Climate Action for a Resilient New Orleans would like to reach their goal of 50 percent urban waste diversion by 2030, they will need to salvage 243,250 tons of food-waste a year from households alone, according to 2017 statistics.

4.2.2. Geographic Range and Scale of Community Organizations

Food-waste recycling stations spread throughout the city by the organizations in the last decade, in nearly all districts, including the Lower Garden District, Uptown, Irish Channel, French Quarter, Central Business District, Bywater, St. Claude, 7th Ward, 8th Ward, 9th Ward, Gentilly, Upper East Side, Algiers Point, and Mid-City (figure 4.2). Compost typically remains in Orleans Parish, except for Composting Network’s product which sells its finished compost to companies in Mississippi and Alabama. In addition, Second Harvest collects and distributes food in Orleans Parish, but its office is in Jefferson Parish, and it also collects from and distributes to neighboring parishes. In other words, their entire food-waste collection and distribution system is not restricted to Orleans Parish (Figure 4.2). The restaurants, cafes, grocery stores, or food distributors who partner with the food-waste organizers are not included in this map.

Figure 4.2. NGO food-waste recycling stations in New Orleans, Louisiana.

Table 4.3. Coordination with Figure 4.2.

<table>
<thead>
<tr>
<th>Color and Number</th>
<th>Organizations</th>
<th>Partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green #5</td>
<td>Second Harvest Food Bank</td>
<td>N/A</td>
</tr>
<tr>
<td>Green #2</td>
<td>Schmelly’s Dirt Farm</td>
<td>Compost NOW, Growdat Youth Farm</td>
</tr>
<tr>
<td>Green #3</td>
<td>Community Kitchen Collective</td>
<td>Schmelly’s</td>
</tr>
<tr>
<td>Green #1</td>
<td>Digeasy</td>
<td>Grow On, Recirculating Farms Coalition</td>
</tr>
<tr>
<td>Green #4</td>
<td>Grow On Urban Farm</td>
<td>24 Carrots Farm</td>
</tr>
<tr>
<td>Green #6</td>
<td>Composting Network</td>
<td>Department of Sanitation</td>
</tr>
<tr>
<td>Purple #1-7</td>
<td>Compost NOW</td>
<td>Schmelly’s, Keep Louisiana Beautiful, Global Green, Growdat Youth Farm</td>
</tr>
</tbody>
</table>

The seven purple numbers one through seven on the map represent the libraries that Compost NOW partnered with during the Summer of 2018. As of January 2019, the organization added three more libraries, including a library in the Lower Ninth Ward. Serpe\textsuperscript{218} advocates for more recycling stations to reduce waste transportation costs and emissions.

\textsuperscript{218} Serpe, Compost NOW.
Diesel fueled trucks typically transport waste to landfills. We are diverting waste from landfills to reduce methane emissions released into the air. So I want to be aware of the food-waste miles. I don’t want to help one issue and hurt another.\textsuperscript{219}

All organization personnel interviewed indicated that the distance food-waste travels from drop-off location to recycling station (compost, animal feed, kitchens), food-waste miles, is a principal concern. The ideal situation for these organizations is to reduce the distance of food-waste collection to food-waste recycling.

Decentralizing food-waste drop-off sites helps food waste miles, reduces emissions into the air, and it keeps the resources local. As municipal services expand whether it means public drop offs or curbside sooner or later shipping food waste to a landfill or a large composting facility. Which is often located a number of miles outside the city.\textsuperscript{220}

\textsuperscript{219} Ibid.
\textsuperscript{220} Ibid.
Figure 4.3. Number of Compost NOW survey participants per zip code. The numbers highlighted in purple represent the number of survey participants in food-waste drop offs at the library per zip code. Compost NOW sites exist in area codes 70115, 70125, 70119, 70122, 70117, and 70114. My survey indicates most survey participants in these area codes do not travel far to compost at libraries (Figure 4.3). Another survey questions asked the distance of travel to the Compost NOW site. Among the respondents, 45 percent traveled a mile or less to the library (Figure 4.4).

<table>
<thead>
<tr>
<th>Miles Traveled to Drop-Off Location</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1 miles</td>
<td>111</td>
<td>45%</td>
</tr>
<tr>
<td>1.1-2 miles</td>
<td>33</td>
<td>26%</td>
</tr>
<tr>
<td>2.1-3 miles</td>
<td>25</td>
<td>10%</td>
</tr>
<tr>
<td>3.1-4 miles</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td>&gt;4.1 miles</td>
<td>13</td>
<td>5%</td>
</tr>
<tr>
<td>Didn’t respond</td>
<td>63</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4.4. Miles Traveled to Drop-Off Location. Figure by Author. The left column indicates the total number of survey participants and distance traveled to recycle food waste with Compost NOW. In total, this chart considers the 248 survey participants at all seven libraries. The graph on the right indicates the percentage of these responses.

Nearly half of the survey participants traveled a mile or less to recycle food waste. Travelling minimal distances to food-waste drop-off sites means that the participants divert their waste

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from landfills, reduce trash in their homes, and reduce the amount of waste hauled long
distances with diesel fueled trucks to landfills. However, further research about the impacts of
reducing food-waste miles does not exist.

The survey also asked participants their main form of transportation to the library
(Figure 4.5).

![Figure 4.5. Transportation to Library Location. Figure by Author. The left column indicates the
total number of surveys for each method out of the 248 total. The chart on the right shows the
percentage and color code with the transportation methods on the left.]

Many participants responded that it is difficult to carry food-waste to libraries on foot or
on bicycles. Others wrote that they feared the food-waste thawing (Compost NOW requires all
participants to drop off their food scraps frozen). Despite a solid majority of participants driving
to the library sites (57 percent), the respondents contribute to a grassroots effort that both
diverts waste from the landfills to produce compost that can be donated to farms. Reducing
food-waste miles aligns with Serpe’s overall goal of creating a company that is environmentally
friendly, and this is why this question was on the survey. Additionally, most trash companies in
New Orleans sign contracts paid monthly or annually by the landlord, instead of a, “pay as you throw” contract. A “pay as you throw” contract would reduce the household expenses on trash pick-up. However, because most private contractors, including the contracts with the DOS, this means that residents who participate in Compost NOW likely do not save money on their trash bills. Compost NOW started the program with the idea of reducing the distance food travels to recycling stations. Compost NOW has been quite successful in this pursuit, as their ten library drop-off sites contribute to five community or urban farms, and Schmelly’s collects the rest.

I asked the library system if we can open at two locations - I wanted an uptown and downtown location. Because I want to be very mindful of this idea of food waste miles. I didn’t want people driving 5-10 pounds of food waste 20 miles round trip that seemed to be counterproductive.\(^{222}\)

The organizers goal to decentralize food-waste operations often encounters challenges such as finding affordable land, finding managers for that land, and securing reliable transportation to that land. Most food-waste collection happens in some of the more densely populated areas of the city, therefore, it is difficult to find affordable lots of land that will not create a nuisance and attract pests.

One of the reasons people compost is to reduce carbon emissions so why would we drive all over the city. We keep the pickup restaurants close to the garden in the St. John area. That is also one of the café’s biggest request, they don’t want driving all over the place. They don’t want to be large scale they want everything close.\(^{223}\)

Like Digeasy, Grow On picks up food waste from around the corner from their farm. Grow On’s goal to pick up food-waste in the neighborhood was to demonstrate to the food market how

\(^{222}\) Serpe, Compost NOW.

\(^{223}\) Antonio Alonzo and Jakob Pohlman, Digeasy, Interviewed by Kelly Haggerty, July 30\(^{th}\), 2018.
they have contributed to the farm’s sustainability. Since the project transferred to 24 Carrots which is still in the St. Roch Neighborhood.

For-profit organizations imagine a model like the ones used by Compost NOW, yet, their models are not compatible with decentralization. For-profits must have a sufficient gross income to pay for multiple lots, farm managers, and food-waste transporters. The two for-profit compost facilities share a single parcel of land, which seems to work well for their business model:

Originally I wanted to operate on a bunch of small farms spread around the city. Every time I would pick up compost I could just go to a local farm and drop it off there. That is still possible but the model takes an immense amount of coordination. And compost is labor intensive, it needs to be turned regularly. If you have one site, you can have one piece of equipment there turning the compost when you need to. If you have ten sites around the city, you are driving to ten different sites to maintain each site.224

Schmelly’s still creates routes that reduce driving time and miles around the city. However, their ability to compost on multiple lots of land becomes a challenge when the company only owns one truck, one bobcat, and relies on a few members turning the compost. Compost NOW continues to open up food-waste drop offs at libraries, namely, because they do not have to manage the compost themselves. They simultaneously partner with community and urban farms to take their waste.

Right now I partner with Schmelly’s dirt farm in Hollygrove, Sugar Roots on the West Bank, Speak Easy in the Bywater, and Abundant Flower Farms picks up from Norman Mayer, and we have another farm that is interested in picking up from Nora Navaree which is one of our new libraries. Then Recirculating Gardens is sort of interested in the main library in the CBD. So there are 4 compost stations, and it looks like we will add one or two more by the end of this year and then before we go to Martin Luther King in

224 Nico Krebill, Schmelly’s Dirt Farm, interviewed by Kelly Haggerty, July 3, 2018.
the lower ninth that will be an additional farm as well.\(^{225}\) When we talked in January of 2016 my goal was to completely decentralized food waste recycling stations and to ideally have a local farm for every single library site as close as possible. The challenge there was having the farms that have the capacity and the reliability.\(^{226}\)

In sum, the geographic range of operations offers immense opportunities for collection and partnership in this newly emerging practice. Due to ethical considerations mentioned in the chapter three, I was unable to measure the geographic distances of restaurant waste transport to recycling station.

4.3. Organizations’ Model

This section highlights the different ways the grassroots organizations introduces food-waste management in New Orleans. This process includes: (1) creating entry-level jobs, (2) offering volunteer opportunities, and (3) establishing a symbiosis among organizations.

4.3.1. Creating Entry-Level Jobs

Composting Network, Schmelly’s Dirt Farm, Second Harvest Food Bank, and Compost NOW create jobs through their programs. The jobs are typically entry-level, and are well-suited for students, individuals with a family, or young community members. Composting Network is acknowledged for its ability to create full-time sustainable jobs. One of its employees, Brock, indicated at the Compost Conference that that workers returning home to their families creates a healthy work environment. Serpe made a point to highlight the crucial role of job creation in food-waste management at the compost conference.

\(^{225}\) Serpe, Compost NOW.

\(^{226}\) Ibid.
These entry level positions are good for truck driving, turning compost pile[s], coordinating, managing staff, and staffing drop offs. Down the road composting is going to offer jobs for people and that is really important to begin training individuals for these types of careers.227

Organization leaders see composting and food-waste management as a new form of employment for the next generation, positions unimagined by previous generations. They see this as a training opportunity that will launch a new trend toward a more sustainable economy. The food-waste organizers often find employees through partnering with other organizations in the city.

It is important to show that there are jobs in the composting world. People talk about green collar jobs. People are talking about what we are going to do with our food waste. I think this will be one of the largest jobs in the green collar sector. So there is a field here to hire youth, teach them about this job, and introduce this type of business into the world. This is pushing towards people getting used to this jobs. Nico also wants to make sure they can hire staff. We both partner with Grow Dat to give young farmers jobs when there is one available. I also plan to talk to the Youth Employment Project - YEP - and then with the New Orleans backyard garden network. And then with ground works that mostly does the rain gardens.228

Growdat Youth Farm, a community-supported agriculture (CSA) non-profit youth farm in City Park employs, interns, and educates high school students and young members of the community about farm management and care. Upon graduation from the program, members can apply to work with Schmelly’s Dirt Farm or at Compost NOW.

The mission of my business is to create jobs. Like meaningful “green” jobs, and make that accessible to young people who don’t normally have access to jobs like this. Through Growdat, I can find young individuals interested in agriculture work. So I

227 Serpe, Compost NOW.
228 Ibid.
decided to have one site, and the site is big enough where I can continue to build on that site.\textsuperscript{229}

Schmelly’s Dirt Farm’s ability to consistently employ community members demonstrates the viability of long-term careers in food-waste management. Creating jobs for a new generation of workers also suggests that these waste facilities will be a lot closer to the localities that produce that waste, and as a result, reduce the transportation impacts, which aligns with Serpe’s notion of food-waste miles. Lastly, Second Harvest Food Bank employs a full staff that develops, manages, and implements strategies for the collection of rejected packaged foods, and the distribution of food to kitchens.

Other organizations plan to create jobs through their programs, but they face funding challenges.

We have great organizational design, but I don’t think we are scaling or getting bigger. I am studying this intensive fundraising course, hopefully we can fund people to get paid to be involved. so we don’t have to work full time and do this.\textsuperscript{230}

In sum, this emerging practice has already demonstrated that food-waste management is a place for entry-level jobs, and this practice continues to grow. All organizations surveyed plan to grow their staffs simultaneously as business grows.

\textbf{4.3.2. Volunteer Opportunities}

Digeasy, Grow On, Community Kitchen, Second Harvest, and Compost NOW are able to continue and grow through volunteer contributions. By volunteering, community members are

\textsuperscript{229} Krebill, Schmelly’s Dirt Farm.\textsuperscript{230} Alonzo and Pohlman, Digeasy.
able to meet new people, become a part of a group, and help a good cause. Additionally, 
benefits come to volunteers such as good contacts or food from farms. For example, people 
that help Digeasy pick up their bins from restaurants and cafes get free coffee from the 
vendors. Grow On allows volunteers to take produce, herbs, or other resources for starting 
their own garden. CK usually has an abundance of foods that volunteers can take home. Second 
Harvest has an email list of volunteers, typically students, and in return for their labor, the 
volunteers get credit for school projects and programs. Lastly, Compost NOW connects 
volunteers with different members of the community.

Community Kitchen knew it wanted to run its program relying on volunteers, while 
limiting them to one to three hours shifts to avoid burn out. This approach has been successful 
for nearly six years now, rarely falling short of volunteers.

An important component is to keep every week consistent. The volunteers make sure it 
happens on the same day, every week, so people always know Tuesday is the day 
community kitchen happens. For a year I had to do a ton of work, then momentum 
started kicking in. People invited their friend who was staying in town, new people keep 
found out every week to check it out. It’s that kind of momentum that keeps New 
Orleans functioning. Now we have a group of people that do the scheduling and others 
just show up. It’s really awesome it keeps regenerating itself and keeps going. A lot of 
people keep an eye on if we have enough supplies and if we have gas in the van.\textsuperscript{231}

Such support is the same for Grow On Urban Farm, which runs a program for volunteers to 
receive items from the farm at the end of their shift. For every hour volunteered, individuals 
receive a $10 credit for anything on the farm. This enables volunteers to come through, learn 
about permaculture from staff, and leave with a bag of local produce or soiling pots.

\textsuperscript{231} Krebill, Schmelly’s Dirt Farm.
Compost NOW and Second Harvest both hire staff and accept volunteers. While Second Harvest makes sure its full-time and part-time staff perform different duties than the volunteers, Compost NOW duties do not vary. In other words, Compost NOW’s primary goal is to hire staff to manage the compost bins, but from time-to-time students or friends offer to volunteer their time to manage the bins. Since the beginning of the program, over forty people staffed the compost bins and over 100 people volunteered to manage the compost bins.

Part of the long term sustainability program - the more volunteers that I get the more sustainable it is because less money raised to have to hire staff - however, since I was about to do this as a 100 volunteer program, I still hire staff.\textsuperscript{232}

\subsection*{4.3.3. Food-Waste Organizers Symbiosis}

The food-waste organizations directly link to each other and with other organizations in the city.\textsuperscript{233} Food-waste management in New Orleans is a fairly small niche of individuals and organizations, therefore, members typically know each other, and aid each other for the purpose of keeping the food-waste management effort alive. This partnership replicates the process of symbiosis, that is, the interaction of two separate entities for their mutual benefit.

There are four major forms of symbiotic interactions observed during field work: (1) fostering business partnerships, (2) sharing land, (3) soliciting funding, and (4) starting these organizations from an earlier project.

Compost NOW partners with Schmelly’s, the library system, and local urban farms which mutually benefits all participants. Compost NOW relies on four local farms to pick up food-

\textsuperscript{232} Serpe, Compost NOW.
\textsuperscript{233} See Chapter 1 for a listing of organizations in New Orleans.
waste from four different libraries. The farm picks up the food-waste from the library closest to it, which goes into the compost system or animals on farm. This interaction is typically free of charge for both Compost NOW and the farms, both aiding the viability of Compost NOW and giving the farms nutrition for the animals and raw materials for the compost system. Schmelly’s Dirt Farm collects from the remaining four libraries. Schmelly’s offers Compost NOW a discounted price from the farm’s normal charges, and in turn, Schmelly’s often gives finished compost to Lynne to distribute to community members that drop off compost. Lastly, Serpe’s ability to partner with the library system by offering free food-waste drop-offs simultaneously attracts the diverse demography Serpe hopes to engage in her program, while bringing members to the library.

The library will track the circulation of how many books taking out, how many people are using their computers, how many people are attending their programs. A common misconception is libraries are useless or under used. But the libraries here are almost always full and programs like Compost NOW help keep funding in circulation from the state. So this is why I track 3 numbers because it is overall participation. I like to know when drop offs, how many extra people with the drop offs, and outreaches.

Community Kitchen and Second Harvest receive free boxes of produce from various food distributors and grocery stores around the city, and in turn, the donors get a federal tax deduction.

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234 Serpe strategically chose to offer compost drop-offs only at libraries, as opposed to privately owned land or the farmers market. This is because she believes that libraries are places of resource use and recycling, and they are multi-generational, multi-ethnic, multi-racial, across socioeconomic lines. The intentions of this strategy is to make sure all walks of life in New Orleans are aware that composting is happening in the city, rather than tailoring the project to a place that only certain members of the community learn about.

235 Serpe, Compost NOW.
I had a lot of connections with food distributors, so I knew how to get boxes and cases of produce for free. We give them our 501c3 number, and then we bring that food to a kitchen, where people collectively cook, and then bring it to the Duncan Plaza in the CBD.236

The organizations that partner with restaurants notice that these restaurants decide to manage separate their food-waste from garbage destined to the landfill because of moral and ethical beliefs. In most cases, the restaurants that contract with Schmelly’s spend more on waste collection because they are adding a bin to the already existing landfill and recycling containers. Krebill offers a discount price to restaurants that offer a free breakfast and coffee to Krebill’s staff. There are a few cases where Schmelly’s is able to reduce the cost for customers that effectively sort out every item in the trash that can go to compost or landfill, though, the company only saves money in this case if their landfill contract is “pay as you throw.” Yet, most waste companies in New Orleans do not sign contracts like this and are set more on a month or annual billing cycle. Therefore, reducing waste destined for landfills does not affect the amount they pay until they are able to renew their contract to a lesser amount. As a result, Krebill’s discussions with the restaurants suggests their contract with Schmelly’s Dirt Farm implies they are adding a waste pick up fee.

Restaurants have to pay for a trash service, so they are apprehensive about paying for another trash service. I usually explain to them, “if you have two trash cans, you might be able to reduce it down to one trash can if you effectively separate all of your compost scraps.” So they might be able to lower their trash costs and put that money towards composting. Typically, it might start with costing those more to choose composting but for the most part it is an ethical choice for them. I find the clients that are most inclined to compost are doing it because they think it is ethically right to make sure not all of their trash goes to the landfill. They can separate it out to what is known

236 Krebill, Community Kitchen.
as organic recycling and recycling plastic and paper, so the least amount of trash goes to the landfill. I build a relationship with new clients and I try to convince them that it is the right choice it is the right thing to do. I will provide them with equality service, they will not have to worry about any problems. I will help address any issues. If they have questions I provide them with a flyer they can put in their kitchen that shows them what is compostable. They are earning money in their business and they are giving some to me so I want them to feel good about that.237

Additionally, Grow On and Digeasy do not charge the cafes and restaurants that they serve. Therefore, farms get compost free of charge to use for their crops, and the restaurants do not have an additional fee for waste. Yet, reliability is a shortcoming with this system that operates without contracts, because organizations are not confined to pick up food-waste from restaurants on a particular day and time. Nevertheless, the non-profit organizations that pick up food-waste for free have managed to build healthy rapport between restaurants and organizations.

A part of food-waste organizations’ growth plan is to add impact assessment reports for the restaurants they partner with. This type of report would include weight of food bins, diversion from landfills, amount of compost produced, and reduction of greenhouse gas emissions from the landfill, and ultimately they could serve as an incentive for prospective restaurant customers and provide a useful marketing tool for both compost company and restaurant.

We had some interesting conversations about how a restaurant can sponsor our compost operation. Or to get their logo on a bin. Eventually, we’d like to hand to restaurants an impact assessment report that shows amount of diverted waste from the

237 Krebill, Schmelly’s Dirt Farm.
landfill, reduction in greenhouse gas emissions, and amount of compost created. I think that is one path for funding for a non-profit doing composting work.\textsuperscript{238}

The second interesting observation about the major theme of symbiotic partnerships involves organizations operating from the auxiliary use of other organizations. That is, Digeasy’s compost system is auxiliary to a community garden in the Bayou St. John area, Compost NOW uses library spaces, Community Kitchen operates in a community member’s backyard, and Schmelly’s is operating on auxiliary use land from the Hollygrove community gardens.

Operating auxiliary to another establishment means that the organization is auxiliary to the primary purpose of that land, contributing to it, and inevitably a part of it.

I started composting next to Hollygrove Market, which, at the time had been there for seven years. It had already built this relationship with this neighborhood, the neighborhood knew what this farm was doing. My lot is also not immediately adjacent to any houses which is an advantage. It is surrounded by park land and I never ran into any complaints.\textsuperscript{239}

Becoming auxiliary to existing establishments means that all of the organizations mentioned above operate free of charge on the land they use. Organizations’ ability to partner with existing entities in order to create an organizational model for composting food-waste raises a few questions: what would food-waste management look like in New Orleans if community organizers did not link with existing establishments? Would food-waste management be more difficult? Would it change policy?

There was an interesting thing that Ben found about the Louisiana Department of Environmental Quality (LDEQ) in Agriculture and the Department of Ag and Forestry talk

\textsuperscript{238} Alonzo and Pohlman, Digeasy.
\textsuperscript{239} Krebill, Schmelly’s Dirt Farm.
to each other and think about ways to authorize composting. They let the state decide for rural areas. The distance they tell you to have your compost from the street is bigger than a city lot does not apply to here. Too, I don’t think there is a license available to people like a business license to compost in New Orleans.²⁴⁰

Policies or regulations that do exist have not impacted any organization thus far. This is partially due to the absence of a food-waste definition in the Department of Sanitation’s waste ordinance. The city ordinance defines composting, but nothing further explains procedures should follow if they are managing food-waste or a compost facility. Food-waste falls under the garbage definition (see section 1.3) in the city ordinance, therefore, any waste facility in Orleans Parish, including a food-waste facility, must comply with city regulations.²⁴¹ However, food-waste organizers found regulations set forth by the DOS and the Department of Sewage and Water Board did not apply to them.

The state as in authoritative agency that might oversee licensing or permitting has never come my way. I know what the laws are - I talked to lawyers about it. I am operating on a secondary use land where my composting is secondary to the farm. As long as compost is in conjunction with farm activity then you don’t have to file for a permit. If it is primary use you are supposed to get licensing. You are supposed to register with the department of ag and forestry. They want your info and want to know you are following a best practice’s plan, which is important to me and is something that I follow. I am preparing myself for all of these situations when I have to.²⁴²

Serpe also checked in with the regulations and policies that might affect Compost NOW.

I still went to the quasi-public agency which was the library and as long as the library was fine with my program, there were not too many regulations. I am not selling

²⁴⁰ Alonzo and Pohlman, Digeasy.
²⁴² Krebill, Schmelly’s Dirt Farm.
I am at a library where everything is free, and I am not transporting anything. I don’t have many regulations that I have to worry about.243

I did not obtain information from either Composting Network and Second Harvest Food Bank about their facilities, however, they are not operating auxiliary to other establishments.

The third finding about partnerships is funding and support that flows around and within the city. Recirculating Farms Coalition partners with Digeasy to fund its education courses; Compost NOW received multiple grants from organizations such as Keep New Orleans Beautiful; Grow On occasionally gives tours of its permaculture farm which is funded by the NGO’s, community members, or holds donation seeking events; CK works on a $300 a month budget from fundraisers and donations to sustain its program. The grants that help these non-profits contribute significantly to the continuity of food-waste management in New Orleans.

Lastly, a handful of these operations began their work from another grassroots organizations or pilot projects. For example, Digeasy partnered with Slow Foods New Orleans, which originally dropped off compost in the Mid-City garden. Schmelly’s picked up a small pilot project from a friend that moved away. Composting Network’s founder started its entrepreneurship program from a small gardening business in New Orleans. Community Kitchen originated its idea on a post-Katrina program called FUCNO (Food Under Claiborne New Orleans). Lastly, Compost NOW originated its idea from the same project launched in Queens, New York.

Alonzo: We started volunteering with Slow Foods New Orleans because they were picking up compost from some restaurants and dropping it at a Mid-City garden.

243 Serpe, Compost NOW.
Haggerty: Are you still connected with Slow Foods?

Alonzo: Yeah but they are not very active organization. Basically we inherited the garden from Gary Gronado in Mid City. The garden is mostly taken care of by our neighbors and friend Jessica. She was involved in Slow food. And then we do the compost. We took over the compost operation and continue to do it. We are trying to expand.²⁴⁴

Some of the organizations, such as Composting Network and Schmelly’s Dirt Farm overlap in their services. Both companies offer the same service, however, because food-waste management is in the beginnings stages of development, they do not compete for clients nor do they compete for land. Additionally, all organizations work together and have an overarching goal of educating the community about the benefits of diverting food-waste from landfill.

One project turning into another begs the question about the longevity of each organization. Catarina Passidomo’s dissertation on New Orleans food insecurity and the right to the city,²⁴⁵ noted small grassroots and NGO organizations often do not last long in New Orleans. I witnessed no organizations having to cease operation during my relatively brief four months of field work. This may suggest that these grassroots projects can persist in New Orleans, yet the instability and insecurity around little funding presents challenges to the viability of food waste management. In sum, the partnerships of organizations not only enable the continuity of food-waste management in the city, but it directly benefits the other programs that it helps.

²⁴⁴ Alonzo and Pohlman, Digeasy.
²⁴⁵ Catarina Passidomo, “Right to (Feed) the City: Race, Food Sovereignty, and Food Justice Activism in Post-Hurricane Katrina New Orleans,” (PhD Diss., University of Georgia, 2013), 1-2.
4.4. Environmental Advisory Committee and City Council

The New Orleans Department of Sanitation’s decision to offer compost drop-off on the second Saturday of every month is the only food-waste collection strategy the city has implemented thus far, however, officials are considering further food-waste management. As first steps, the DOS and City Council considered talking to the Environmental Advisory Committee (EAC), a group of New Orleans citizens, to develop a Composting Recommendations Report.\textsuperscript{246}

The Composting Recommendations report suggests methods to incorporate sustainable and environmentally conscious practices in New Orleans waste management practices, while sustaining the local economy through creating jobs, supporting urban farms, and suggesting several ways composting helps retain runoff water.\textsuperscript{247} It suggests similar strategies that the grassroots food-waste organizers implement through the development of their organization. The report mentions the way to implement a city-wide composting program would be through partnering with communities and existing food-waste managers. They state that existing organizations in neighborhoods, community spaces, farms, and other facilities, “repurpose materials that would otherwise be discarded and provides opportunities for market and job expansion in green business, and reinvestment of both resources and money in our community.”\textsuperscript{248} Authors maintain that the report is a beneficial food-waste management first

\textsuperscript{246} Aron Chang, Marianne Cufone, Nick Harris, and Liz Shepherd, Composting Recommendations Report by the Environmental Advisory Committee (EAC), (New Orleans, 2017), 1-44.
\textsuperscript{247} Ibid., 4-5.
\textsuperscript{248} Ibid., 5.
step to achieve the goal of 50 percent waste reduction by 2030 and zero waste by 2050.\textsuperscript{249}

Importantly, it highlights how food-waste contributes to the circulation and metabolization of resources in the city, further addressed in Chapter five.

However, the report has not received much attention since Mayor Cantrell took office in late 2017. The EAC, citizens, and food-waste organizers remain optimistic for the launch of pilot projects recommended in this report, although, governance in New Orleans is chronically slow moving. Most organizers contributed to the report, and advocate for better food-waste management policy to the City Council.

I am the vice chair of the New Orleans Food Policy Advisory Committee. We are an organization that formerly was a city body but we are in the process of trying to become a city advised counseling and I believe we would also be holding meetings in City Council chambers. We would make decisions that we vote on and as representatives of whatever district the city department and industries that stamp of approval from our committee has a high wait and it is easy to approach a city council member. I’m hoping that will happen. There is a governmental affairs committee meeting before the end of August to talk about it.\textsuperscript{250}

Like Alonzo, Serpe works closely with the DOS and City Council in order to help implement efforts to manage food-waste on a municipal scale.

Before Compost NOW started, I reached out to a bunch of organizations, including Keep New Orleans beautiful, one of the board members is Cynthia Sylvain-Lear who is the Director of the Department of Sanitation. I reached out to her about my project before it started and a couple months in to the program, Cynthia dropped off her food waste at Alvar Library. I said wow! The director of sanitation is dropping off her food waste, that's great! So we had an ongoing relationship from the very beginning, and she was supportive and very willing to answer my questions about what the city was planning. She spoke at the open panel at the compost conference and she stayed the entire day. She could have come and left within an hour but she stayed the entire day to hear what

\textsuperscript{249} Ib\textit{id}.
\textsuperscript{250} Alonzo and Pohlman, Digeasy.
people have to say and she generally wants to handle this issue. In that way it’s been helpful. In addition, last year the city started the Environmental Advisory Committee, to explore certain environmental issues. Two requests were for recycling and composting. When it was time for them to write about composting, around September, they invited me, Nico, Brock, and a few other people to speak to the committee.  

Sylvain-Lear’s interaction with community efforts to implement food-waste management strategies further increases the chances that the DOS and City Council will consider food-waste management as a future practice. Yet, municipal-scale endeavors take time to grow, and this is especially the case for New Orleans. As a result, community members take on these efforts themselves.

So my overall goal besides these numerical goals is to push the city into finally taking action into food waste. When we started in January 2017 there was absolutely no option that the city for the residents. We have a mission statement for organization to empower local residents and to take control over the issue of food waste. Part of my own personal philosophy is as much as I believe that this should be a core municipal service. If it is not, we don’t have to wait for the government to do it, we can do it ourselves. That is a part of the philosophy of this. It is a community composting model - the idea of keeping local resources local. And not waiting until someone else comes up with the solution because we are the solution.

Other members believe a municipal compost pick-up might create more problems than solving them.

The city planners, City Council, and Department of Sanitation all talk about a desire of municipal compost programs. Which means that everyone would get compost bins outside their house and it would get picked up by a special truck, taken to an industrial compost facility and turned into compost. But in cities and states that is more the exemption to the rule. A lot of places are adopting it but it is because of private companies pushing what is possible. Only private companies are running organics food waste. There are public sites that do landscape waste like tree cuttings. But when it

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251 Serpe, Compost NOW.
252 Ibid.
comes to compost, you have to pay close attention to your work practices and methods. Serpe Suggests:
A major challenge to a municipal wide collection is the city has to figure out how do they define success, what type of participation? How many resources? Those are the kind short or medium term goals that I wish had been in the report because it is not enough to just say long term/curbside.

Together, the EAC and NGO organizations introduce food-waste management every day in New Orleans through getting volunteers involved, creating entry-level jobs, and becoming auxiliary to and working symbiotic with organizations around the city. While they advocate for better food-waste strategies, they also want what is best for the community overall. The City Council has the ability to implement the EAC Composting Recommendations further, however, neither the EAC nor the DOS suggest municipal waste collection is the best strategy.

To conclude this chapter, the community organizations are not municipal in scale. They do not overlap geographically but they do overlap with their food-waste management strategies. They interact with each other and with the city which, ultimately, benefits food-waste management in New Orleans. Comprehensively, they are doing what the Climate Action for a Resilient New Orleans report proposes. The report states Increased recycling and resource efficiency may also help create new jobs and support local business development. The reuse of limited materials also results in less energy usage overall as less energy is needed to manufacture new products. This is not to suggest the report should turn to these

253 Krebill, Schmelly’s Dirt Farm.
254 Serpe, Compost NOW.
255 NOORS, Climate Action for a Resilient New Orleans, 48.
organizations to create a city-wide project to reduce waste by 50 percent. It shows that the community members made possible what the city is struggling to implement.
Chapter 5. Everything Old is New Again

5.1. Introduction

This chapter highlights how the food-waste organizers contribute to the sustainable urban metabolism of New Orleans. Specifically, food-waste organizers collect resources deemed as waste and transform them into useful and valuable resources. The wastes are typically byproducts of a primary function, such as food from a restaurant or woodchips from arborists. Through the acts of transformation, everything once old, is new again – which contradicts the mantra of consumerism: everything new today is old tomorrow.

Two observations explain how the operations of food-waste organizers in New Orleans link waste management to environmental issues within the city, and contribute to sustainable urban metabolism.

(1) Food-waste organizers in New Orleans recognize that in order to operate in the city, they must become auxiliary to something else. Food-waste organizing either became auxiliary to already existing establishments such as libraries or gardens, or they have transformed from previous pilot projects, for example, Nola Green Roots to Composting Network. To go deeper into this process, food-waste organizers recover products around the city that are byproducts of their primary status (waste) and transform that into viable resources, a process that Michael Thompson refers to as the durability of rubbish.256 Therefore, food-waste organizations function as auxiliary activities in the city and in fact are an essential function to sustainable urban metabolism.

256 Thompson, Rubbish Theory, 120.
The majority of grassroots organizers use compost as their primary method of managing food-waste. The production of compost soil requires a balance of nitrogen and carbon inputs, yet, food-waste only contributes the nitrogen source. Therefore, food-waste organizers must interact with other state and non-state actors to obtain the carbon source, which typically leaves, woodchips, sawdust, brown paper bags, or mulch. The other actors are construction companies, arborists, landscapers, or even friends cleaning up their lawns. By combining these two chemicals, and through the interaction with different types of companies, the food-waste organizers contribute to resource circulation and waste metabolism in the city.

In the Office of Resilience and Sustainability’s pursuit to reduce waste by 50 percent, and to partner with the community in order to do so, its staff proposes to implement the same strategies that the food-waste organizers have been establishing this infrastructure for nearly a decade. Their actions also lead to other practical solutions and strategies set forth by the city, such as the Greater New Orleans Urban Water Plan, that seeks to utilize existing structures to retain and store storm water. A part of this plan is to build interactive water communities, utilize beds of soil, and build ponds to reduce water runoff (see Section 5.3).

5.2. Durability of Food-Waste Organizing

The organizations that exist in New Orleans to combat food-waste operate in symbiosis with and as auxiliary to other entities in the city. They have branched from a pilot project, utilize land owned by another establishment, or recycle waste around the city. To go deeper into this strategy, the waste products that organizers recover around the city are byproducts
from their primary use. In other words, resources, such as lemon or orange peels from restaurants, have already been used or exhausted in that primary function. Or they are simply byproducts from other enterprises, projects, such as woodchips from arborists, sawdust from construction, or yard waste from residential lawns. Food-waste organizers take the opportunity to transform these waste items into new resource, and in a way, utilize these byproducts as their primary function. For example, Community Kitchen and Second Harvest collect rejected retail items. Compost NOW, Digeasy, Schmelly’s, Composting Network, and Grow On collect food scraps and food waste that are the byproducts of post-consumer garbage. These organizations prove that organic and material waste still have valuable nutrients, for people, animals, and soil, that can recycle back into the local economy and ecology.

Thompson discussed this cycle as Rubbish Theory. There are two mutually exclusive categories that are socially imposed on the world of objects: a transient category and a durable category (Figure 5.1). However, the two categories explain that waste is not a fixed category, rather it is constantly in transition from transient objects that decline in value. In the course of their life span, they may linger in a valueless and timeless limbo of rubbish until a creative individual discovers them and transfers them into something deemed durable, or an increase in value. This durable or increased value then can either be another commodity, or continuously be recycled back into itself in circulation.
Take food produced and sold primarily for human consumption for example. What is not consumed becomes rubbish, or has zero value to an individual. A business or another individual then has the opportunity to take this food deemed as rubbish and increase its value, whether that is for animals, compost, or food insecure individuals (in the case that the food is packaged and not rotten). These food items, as transformed, now are durable and, can either be sold or circulated back into use continuously. For example, once food is transformed into fertile compost soil, it can either be sold as a commodity or used by that same individual to grow food, which can then either be sold as a commodity or nutrition for that same person.

Importantly, Thompson notes that the flow between transient and durable is socially constructed and a product of social order. The operations of social constructions give rise to a self-perpetuating system in that individuals in a society near the top have the power to keep objects transient and to make things durable. In other words, what is transient is and will

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257 Ibid., 45.
always be maintained by the upper class, and what is durable will always be given from the powerful to the less powerful as transient objects. Thus, Rubbish Theory explains that the recycling of food to people indicates that these individuals are of lower-income or less powerful because food waste is a secondhand product from retailed food. Moreover, the placement of “feed hungry people,” directly above “feed animals” and “industrial uses” in the food recovery hierarchy (Figure 2.1) indicates the transient quality of recycled food and the cultural categorization of those who consume it a position equivalent to animals. Nevertheless, Community Kitchen Collective spoke to how it tries to include anyone who would like a meal, although they naturally attract food insecure families in the 7th ward and the Central Business District.

![Diagram](image.png)

*Fig. 16 For clarity, only the possible art transfers are shown. Much rubbish art is consumed but no good art. The non-art category is now redundant; it is in fact the whole system less rubbish art and good art.*
Figure 5.2. Thompson’s Rubbish Theory Pt. Two.

Similar to Figure 5.1, the destiny of waste can always be in circulation if it is in the durable category (Figure 5.2).\footnote{\textit{Ibid.}, 121.} It explains this process through art, however, it also applies to food, and food-waste organizers of New Orleans. In relation to my research goal; food waste is not a lost commodity, and that it is a highly valuable resource if repurposed and managed correctly; this theory applies to food-waste organizations in New Orleans because they take resources deemed as waste, and transform them into new, valuable resources, or what Thompson calls durable goods. Individuals can intervene and take an object of zero value and regenerate its purpose, thereby increase its value or durability. In the case of New Orleans food recycling, the individuals that create food-waste organizations take food items deemed as inconsumable, or with zero value, from businesses and reconstitute that food into substances with increased value, or durability, which can be animal feed, compost, or food for insecure families. The goods in durable circulation, although very small in terms of the city’s economic geography, contribute to the sustainable urban metabolism of New Orleans (section 5.4). As Krebill notes, “Food-waste is profitable because you make something out of trash that you can sell.”\footnote{Krebill, Schmelly’s Dirt Farm.}

Krebill’s notion about food-waste suggests organizers take a valueless item, and transform it into a material used to maintain the organization.

What Thompson does not consider in Rubbish Theory is that commodities have value beyond simple monetary measures, their place in social order, or in terms of the social
construction of an objects worth. Value and exchange also exists in Marxist notions of use-value and exchange-value.\textsuperscript{261} The commodity should be understood in relation to its use value and exchange value.\textsuperscript{262} The use or consumption of an item determines its use value.\textsuperscript{263} The exchange value presents itself in the quantity of material, time, or labor exchanged between two individuals. Karl Marx addressed that the value of an object extends beyond the monetary worth. Value is also a measurement of labor, exchange, time and materials to create that object.\textsuperscript{264} Thus, food-waste organizers ability to transform rubbish into durable items actually extends to the value of labor (whether paid or voluntary), time spent during the transformation of rubbish to durable objects, and the technical and material items involved. Marx believes that the quantities of two exchange items arrive/achieve an equivalency\textsuperscript{265} – whether that is a sandwich for five dollars or two hours of work for a pair of shoes. Thompson’s Rubbish Theory does not include some factors in exchange value, such as time and labor, in his definitions of the transient and durable object. However, my research findings suggest that food waste management in New Orleans involves the notion of exchange value in its understanding of commodity and value. For example, employees of Schmelly’s Dirt Farm also received pay through meals provided from the kitchen’s during restaurant food-waste pick-ups. Additionally, Schmelly’s Dirt Farm offers restaurants a discount if they provide free meals to employees.

\begin{flushleft}
\textsuperscript{262} Marx, \textit{Capital}, 27.
\textsuperscript{263} \textit{Ibid}.
\textsuperscript{264} \textit{Ibid}.
\textsuperscript{265} \textit{Ibid}.
\end{flushleft}
Grow On Urban Farms produce exchange for labor on the farm as another example of exchange value in relation to commodities in New Orleans food waste management. In sum, the research goal to document that food-waste is not a lost commodity resulted in findings that New Orleans food recycling coincides with Thompson’s notion of increased value of durable goods, and Marx’s notion of commodity exchange-value.

5.3. The Silver Lining of Food-Waste

Food waste tackles so many different issues because it is about waste about recycling and it about landfill, but it is also about healthy food, soil. Food waste is inherently so intersectional, yet there are so few of us really talking about it and trying to do work about it.266

Food-waste management in New Orleans is a fairly new practice that still its establishing its own infrastructure. Food-waste is not managed as a separate function at the municipal level, therefore, NGO organizers and leaders have the ability to innovatively collaborate while introducing food-waste management in New Orleans. One reason for the distinctive activities is the emergent nature of food-waste management with little policy or regulation of the grassroots efforts.

The idiom “silver lining” describes the discovery of a positive aspect of an otherwise negative situation. The food-waste organizers in New Orleans are exposing the silver lining of transforming rotting waste in landfills into food for families, compost soil, and animal feed. But how are these organizations able to remain viable in their pursuit to recover and transform

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266 Serpe, Compost NOW.
waste? Organizers both recognize this is a fairly new practice, as well as the absence of supportive policies and regulations surrounding food-waste management.

5.3.1. City Ordinances Section 138

The DOS overlooks section 138 – solid waste of the New Orleans solid waste ordinance. This section explains how the city is responsible for adequate solid waste management and disposal facilities. The department delegates responsibility to private operators through permits issued by the Department of Safety and Permits.267 The code has no specific guidance for the operations of community-based food-waste organizations. Alonzo notes, “There are no business license[s] available to people to compost in New Orleans.”268

There are some laws put in place regarding hauling, transportation, and the worries about groundwater contamination. There are all these sort of potential regulations out there - right now there is not much. It is a little bit of a free for all - but as it grows - there will be more regulations. For now, the design of the program will not be impacted unless one of my partners is impacted.269

The city ordinance, managed by the New Orleans Sewage and Water Board, does not require any permitting or licensing for individuals that collect waste resources, and keep them in the city. Section 138-4 specifies the various procedures that companies or businesses must follow if they transport, collect, or manage waste. Local regulations do exist for hauling waste out of the parish limits, however, Composting Network and Second Harvest Food Bank are the only research participants to haul waste outside of Orleans Parish. The only organizations that the

268. Alonzo and Pohlman, Digeasy.
269. Serpe, Compost NOW.
city code applies to are Second Harvest and Composting Network, because they transport food beyond the parish limits. However, my research did not reveal if these two organizations are complying to the city ordinance.

Organizations pay careful attention to the way they operate, and stay alert to potential future regulations. For example, Serpe wanted to make sure she offered a free drop off, and does not sell compost herself reducing the likelihood of running into problems later.

The city might decide to have regulations on anyone that is composting, if it is for sale. So most of the farmers might not be impacted because they are composting on their farm[s]. But there might be additional policies put in place that effect Schmelly’s Dirt Farm, Composting Network, or any other enterprise that is attempting to be commercial.270

Schmelly’s, Grow On, and Digeasy food-waste management is auxiliary to community gardens, suggesting their organizations are a part of those community gardens (and are since they contribute compost soil to growing food). They become integral to existing operations, but maintain their own separate systems under their own management. As a result, their organizations contribute to already existing establishments, enabling them to avoid permitting or licensing that they might need to operate if fully independent. Additionally, these organizations build storm water runoff ponds to avoid any contamination to ground water or the soil.

We never had anyone get mad or call the city. We keep the odor minimal and manage the site frequently so not many rats. I even had a picnic once next to the compost pile.271

270 Ibid.
271 Alonzo and Pohlman, Digeasy.
Nevertheless, the lack of city policy benefits these organizations’ ability to exist, namely, because they do not have extra taxes or fees. However, this is a potential barrier for community food-waste organizing, and one that most organizations considered from the inception of their programs. As a result of the absence of policy, food-waste organizers innovatively find solutions for diverting food-waste from landfills by feeding animals, creating compost soil, and re-distributing food to food insecure individuals and families.

**5.3.2. Establishing Food-Waste Infrastructure**

Another potential reason food-waste organizer find a silver lining is by the absence of city involvement in food-waste management. Serpe explained in her interview that in the 1980s, the city gave citizens in Orleans Parish compost bins as part of a pilot study. Nothing further happened following this pilot study, yet, some residents that now participate in Compost NOW still have those bins. Other than that exploratory program, the food-rescue effort known as FUCNO, after Katrina (2005), fits under the category of food-waste management. According to my sources the first large-scale compost facility that opened was Composting Network in 2010. As a result, food-waste management is still establishing its own infrastructure in New Orleans.

Right now, there is such little amount being done with it that all we can do right now is make it better. Because there is such little being done there is so much opportunity.\(^{272}\)

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\(^{272}\) Serpe, Compost NOW.
New Orleans organization leaders seem optimistic about the amount of opportunity in recycling and composting. Each of the organizations in this study exemplifies how communities strive to overcome a neglected service when it is not offered on a larger scale.

I personally have my own vision of looking at problems like food-waste and looking at other problems like hunger and food access and the need for organic fertilizer or compost. The interconnection is there but my passion is doing it in a way that is grassroots empowering and not municipal private sector supportive. I am starting to dabble in that work of creating jobs and creating privately owned wealth generation, to a certain scale that is important too. I started to support neighbor’s businesses to make money. But ultimately there is room for a lot of creativity.\footnote{273 Krebill, Community Kitchen.}

Krebill’s notion of transforming one problem, such as food in landfills, into multiple solutions, such as alleviating food insecurity and creating compost soil for local urban farmers. Through this transformation, local NGOs create jobs, and generate personal wealth that supports local businesses, which suggests food-waste management is creating a name for itself, especially in the pursuit of the Climate Action for Resilient New Orleans plan towards a circular economy.

Yet, organizers see a long road ahead. Each organization struggles to continue, and has to pay close attention to future conditions. If organizations chose to operate on a large scale too quickly, they might fail. Nevertheless, they persist, especially when they see how much support the process takes.

You can’t make money off of urban farms and we all notice this. We still do it. This is something we think about every day of our lives. We know we are not making money off of it. We are trying to figure out how to make this economically viable, and we know it is possible, but it isn’t going to happen tomorrow. The fact that it is economically viable to waste food on the sale that it is but not economically viable for us to recycle
that food. It signals a design flaw. We see that we don’t make money - it’s not about that – it’s about change.274

Like Digeasy’s leader, other organizations persist because of a motivation to contribute to the wellbeing of the city. Grow On Urban Farm does not receive municipal or foundation funding, yet, community members know the farm very well and support the project by attending farm events and dinners. A recent class offered by the farm, “turn trash into treasure,” educated community members about the importance of utilizing local resources to grow food. The large number of attendees indicated that community members explicitly support such programs. Yet, leaders struggle to make a case that their organizations qualify for funding. Non-profit organizations struggle to receive grants because funders simply do not see this practice necessary for the city to function, and very few grants exist for this type of development in the city.275 Organizations have to prove themselves, and that is exactly what Compost NOW did. Before 2017, Serpe did not receive any external funding for the program, but after a year of providing solid evidence of community participation in the program, she received multiple grants and awards.

Leaders recognize that these processes take time, which is a crucial to their ability to remain viable and the pursuit of the silver lining. Nevertheless, these organizations try to make a name for food-waste management in the city, to prove that recycling waste contributes positively to the economy and ecology of the city. As Strasser points out in Waste and Want:

Sorting trash for recycling – which people used to do for money – has become a moral act, a symbol of care about the environment. To call it a symbol is not to diminish its

274 Alonzo and Pohlman, Digeasy.
275 Lynne Serpe, Personal Communication to Author, May 1, 2018.
significance. Recycling and reuse – however limited their contributions to long-term environmental solutions – remind us of the thread that bind our individual households to the planet and the activities of our daily lives to its future.\textsuperscript{276}

These two observations suggest that the food-waste organizers recognize the immense amount of opportunity in food-waste management, and how this is all relative to the resource circulation within the city. What still needs recognition, though, is how these practices align with the academic literature explained in this thesis, as well as the future plans in New Orleans.

5.4. Sustainable Urban Metabolism

In the last few decades, the concept of urban metabolism caught the attention of urban governments, namely, as a means to improve solutions for the environment of cities despite their large metabolic demands, with the goal of achieving an “low-carbon city.”\textsuperscript{277}

When a system cannot obtain resources it needs to survive internally (on the land the city occupies), it must obtain those resources from the environment that supports the system. Similarly, if the system cannot absorb the products and wastes generated by its metabolic activities, those products and wastes must be detoxified. For an urban ecosystem to function as well as a natural ecosystem, the wastes generated by resource consumption must be reused somehow to prevent them from accumulating and harming the internal and external environments that sustain the system.\textsuperscript{278}

This Office of Resilience and Sustainability’s goal is part of the city’s overarching goal to reduce carbon emissions 50 percent by 2030. The report defines zero waste as “all discarded material is reused, recycled, or composted and minimal amounts are sent to landfill.”\textsuperscript{279} They define circular economy as “an economy that reduces waste and pollution by promoting

\textsuperscript{276} Strasser, \textit{Waste and Want}, 293.
\textsuperscript{277} Zhang, “Urban Metabolism,” 463.
\textsuperscript{278} \textit{Ibid.}, 465.
\textsuperscript{279} NOORS, Climate Action for a Resilient New Orleans, 48.
increased resource productivity with biological materials absorbed safely back into the biosphere and technical materials reused or recycled to keep components and materials at their highest utility, in contrast to the current more common model of ‘taking, making, and disposing.’” This plan includes reducing the transit of waste and for waste haulers to use lower-emission fuel to reduce the gases released in the air, and a plan that discusses the benefits of organic waste recycling. In order for the city to accomplish its goals, city officials need to adopt strategies that view the city with sustainability in mind. This includes looking at ways to circulate waste and existing resources back into the city’s ecosystem. However, this is an ambitious goal for a municipality that does not even have statistics indicating the volume of waste. It raises the question of how they can calculate that 50 percent goal. In sum, the report suggests city officials hope to move towards what scholars identify as a sustainable urban metabolism model.

Matt Torri, the Deputy Director of the Department of Sanitation told me that he is not even sure of the exact amount of waste, but his department has estimates. I emailed him to obtain these statistics, but he has yet to respond. The difficulty of calculating the waste volume is also reflected in a text message from Rachel Skowyra, the recycling coordinator of Waste Connections, a private waste company in New Orleans. I reached out to her in order to find out if she knew the total number of waste haulers in New Orleans, and/or the total amount of

280 Ibid., 48.
281 Ibid.
282 Ferrão and Fernández, Sustainable Urban Metabolism, x.
283 Matt Torri, Personal Communication to Kelly Haggerty, October 6, 2018.
waste. Although she presented useful information regarding recycling in New Orleans by private contractors, she did not know the exact number of private companies nor the total volume of landfill waste and recycling hauled out of New Orleans every day. She replied to my inquiry for these statistics, “Good luck. I know how hard it is to find this information!” In my pursuit to collect information about the private waste haulers in New Orleans, I discovered that recycling, reuse, and recycling extends beyond recycling from waste companies. In other words, the recycling and reuse of resources also existed in small social networks between private and public companies and food-waste organizers. Lastly, the Louisiana Department of Environmental Quality could not provide an annual statistics of municipal solid waste in Orleans Parish.

Currently, the citizens of New Orleans, manage their yard waste either through private contract with a waste company, bring it to a local farm, or send it to a landfill. The EAC’s Composting Recommendations advocated that the city should help implement organizations that manage yard waste. Nonetheless, most waste from construction sites, arborists, or domestic yard waste goes to landfills. During the summer of 2018, Grow On, Digeasy, and Schmelly’s, and even other urban farms and gardens that I visited all had bags and piles of donated waste that contribute to the maintenance of their sites.

The wood chips come from a couple different tree cutter arborist companies. One is a contractor for Entergy so they cut around the power lines so when they bring their wood chips they run through a chipper machine so their branches and leaves are shredded into small chips. There are a lot of leaves which are a material that breaks

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down very quickly. And there are a lot of microorganisms on the leaves themselves that contribute to the compost pile that makes them into a more diverse ecosystem.\(^{285}\)

Grow On even collects cardboard boxes for use in building up layers of soil to maintain its health and reduce the likelihood of runoff. Additionally, organizations reduce transportation of waste, both reducing the carbon emissions of diesel trucks and thereby contributing to the health of air quality.

When I first started working with Schmelly’s, we were getting sugar cane husks from the sugarcane plantation. Now they get quite a bit of wood chips from arborist[s], who have contacts with Entergy and the city. When the trees are beginning to hit the power lines and the cable lines they need to be trimmed, and those limbs are sent through a wood chipper and then what do you do with all of that? So some companies donate these wood chips to Nico. It is really fascinating how things can be so interconnected. They are remaining in the city instead of being shipped to somewhere else or the landfill.\(^{286}\)

In short, food-waste management in New Orleans is indeed much larger than just collecting food-waste to transform into a useful resource. It is part of an interconnected web of economic, social, and environmental activity that diverts multiple waste streams from landfills builds the local economy, and protects the environment. The symbiotic interactions between the two the organizations and donors represent the creation of a chemical and biological balance that contributes to the city’s socio-ecology. However, it seems that city officials, private companies, non-profits, and the general public’s collectively do not know statistics that represent the flow and exchange of waste resources, although it is evidently occurring.

\(^{285}\) Krebill, Schmelly’s Dirt Farm.
\(^{286}\) Serpe, Compost NOW.
It is possible that New Orleans operates like a “black box” as Zhang explained in 1990\textsuperscript{287} because statistics and reports regarding waste do not exist, city officials, scholars, and the general public can only theorize through contemporary public and private business operations about how resources metabolize and circulate.

It is difficult to find how much compost the city or state uses. The Department of Transportation uses the most compost for highway and roadworks type projects. I haven't been able to find any statistics here in Louisiana although I have asked around. I know these projects use a lot of compost. The question is where are they getting the compost, how much are they using. Where are they buying it from?\textsuperscript{288}

This is not to say that city officials cannot go forward with the plan if they do not have statistics. This research merely comments on this finding, and suggests various ways that

\begin{footnotesize}
\textsuperscript{287} Zhang, “Urban Metabolism,” 465.  
\textsuperscript{288} Serpe, Compost NOW.
\end{footnotesize}
community organizations demonstrate the goals and missions of resiliency plans. The *Climate Action for a Resilient New Orleans* even reported that they plan to, “track our progress annually beginning in 2018 and will update our goals as we go, striving to reduce our greenhouse gas (GHG) pollution and increase our resilience substantially over time.”

Though, it is not clear how city officials will track these numbers. Additionally, most of the strategies to reach this goal are still in the proposal stage (Figure 5.4), which may take years to launch.

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The food-waste organizations recognize how their pursuits to divert waste from landfills translate into resiliency for their city. Attendees at the 2017 Compost Conference exposed a theme of “greening” the city. This topic did not get much attention, however, it caught my attention due to its large, systematic ambitions at a conference that is so specific to composting. When I subsequently addressed this topic in an interview with Lynne Serpe, she explains:

Most municipalities can use compost in their road work projects or in their parks. For a city that is prone to flooding to give away this resource of compost which can improve our soil and improve the water retention in our soil is something that I hope the city does do. By keeping compost at farms you are keeping local resources in the local community, some of those local farms sell their produce to local residents who are now having produce that is even more nutritious because of the nutritious compost soil. Also having local farms gives the opportunity to perhaps visit those farms or volunteer at those farms. Get to understand the link between composting and food growth. In addition, getting people to compost in their backyard is just as important as municipal composting. Many jurisdictions have decided that is how they want to deal with the issue. They decided that trucking food waste to a facility far away is not the way. So what they do is they provide resources like compost bins, education, compost crates and that is also something that I mentioned to the city as I was testifying at the EAC or meeting with the Director of Sanitation. Providing opportunities for people to learn more about composting or ask those questions during food waste drop off is important for all of these reasons mentioned.\(^{291}\)

Despite the recognition of how compost soil can bring sustainable solutions to the city, there is a disconnect between the efforts of local citizens and what city officials set forth. This does not suggest that city officials should look towards communities to achieve their goals, it simply

\(^{290}\) Ibid., 66-67.
\(^{291}\) Serpe, Compost NOW.
highlights the different scales of action in terms of waste management in New Orleans. Further practical solutions of how the city can use compost soil will be addressed more extensively in the 2019 Compost Conference.
Chapter 6. Conclusions

6.1. Review of Key Findings

From May to August, 2018, I engaged with the community of New Orleans to understand the current status of food-waste management. Using interviews, surveys, and participant observation, I found that food-waste management currently operates on a community–based scale; it is almost a decade in age; and organizations are establishing their own infrastructure in an urban environment that has few guiding policies or regulations for this component of urban wastes. The DOS will not establish curbside food-waste pick up for at least another decade, however, city reports such as the Climate Action for a Resilient New Orleans, and the Greater New Orleans Urban Water Plan, have outline the city’s mission to take action that food-waste organizers are already implementing. These findings rest on this research’s core principles: (1) surplus food is not a lost commodity, and that it is a highly valuable resource if repurposed and managed correctly; (2) the local management of food waste benefits the local economy by creating jobs, and decentralizing this complex system of waste; and (3) the food-waste achievements of local citizens contribute to the advancement of urban sustainable efforts in the city.

6.1.1. Research Questions and Findings

Q1: What are the local geographies of everyday food-waste management in New Orleans?
What is the geographic scale of household and restaurant transport of waste to food recycling stations, the geographic range of food waste operations, and the relationship of food waste
management to the overall economic geography of the city? How does it work in terms of the city’s geography?

The seven organizations addressed in this research, as well as the countless other organizations and supporters of food-waste management, try to introduce food-waste management in New Orleans. This research revealed that community organizers have the potential to divert 48.06 tons of residential food-waste from landfills monthly. This volume constitutes is approximately 17.9 percent of the estimated annual amount of food-waste produced by residents. The organizations as a whole, including Second Harvest Food Bank, diverts approximately 944.56 tons of food from landfills per month, however, no statistics exist for the total volume of waste that New Orleans produces. These organizations are dispersed among nearly all zip codes in Orleans Parish, however, food-waste does not derive from all zip codes. Figure 4.3 presents the number of individual households per zip code that participate in Compost NOW, showing the parts of the city where people recycle food waste. Additionally, Figure 4.2 shows the various libraries where Compost NOW sets up food recycling stations. Both Figure 4.2 and 4.3 show the decentralization of residential food waste. Commercial properties contribute to the decentralization of food waste recycling as well, by contracting with different NGO’s such as Composting Network, Schmelly’s Dirt Farm, Digeasy, Grow On Urban Farm, and Second Harvest Food Bank. Unfortunately, due to some commercial properties request to remain confidential, I could not represent the complete geography of this decentralization.
In the pursuit of diverting waste from landfills, organizers create symbiotic relationships with each other and existing establishments in the city (i.e. libraries and Compost NOW), inevitably taking on the role as auxiliary operations to the city. These auxiliary identities are: re-establishing organizations that have slowed down or died out (Nola Green Roots, FUCNO, Slow Foods New Orleans, composting pilot project at Hollygrove), operating on land that benefits from the organizers’ operations (free compost for farms), and transforming byproducts into newly formed commodities or resources. As a whole, organizers recognize the absence of effective policies and regulations that apply to their operations that innovatively transforming waste into resource. Overall, these organizations have operated for a half-decade, and continue to grow and introduce food-waste management every year.

The food-waste community organizers contribute to a sustainable model of urban metabolism. They do this through respecting existing policies and regulations, yet, capitalizing on the immense amount of opportunity found in waste products around the city. Through the process of collecting garbage in New Orleans, they found a silver lining for a seemingly negative process that benefits the city’s ecology and economy. Garbage in the city is transformed into valuable items, materials, or energy sources that fuel the city. Food waste managers contribute to sustainable urban metabolism by utilizing waste resources around the city, instead of in consuming more resources to sustain their businesses. Then, they transform them into new resources or commodities for people, animals, and crops. These newly transformed resources energize the city, by creating jobs, creating soil, relieving hunger, building community, and fostering partnerships. These new resources are also continuously recycled back into each
other, reflecting the process illustrated by Thompson’s Rubbish Theory. The transformed resources might literally be cooked and served as food to eat or fed to animals that the community either eats or uses to fertilize the soil that grows food, or is transformed into compost that is either sold or fertilizes soil to grow food.

So I think a lot of business owners think if they believe in the future of New Orleans, they don’t want a giant landfill outside of New Orleans and they don’t want to all the problems coming with filling a landfill. By composting I am contributing to creating healthy soil for urban farms to grow food that will go back to their restaurant. By contributing to a service like composting, you are contributing to there being more local food. So it’s kind of an investment in community.292

Q2: Do the multiple organizations involved in food, local attitudes about food recycling, and organizational practices provide a foundation for more integrated municipal food waste management system? How do they interact, do they overlap geographically, are they municipal in scale (or is city-wide management only achievable by city involvement)?

The multiple organizations involved are not at a development stage to serve all of Orleans Parish or to recover the city’s total food-waste generation. If they continue to grow and expand, the model of management could provide a foundation for municipal-scale processes, but achieving this scale is contingent on an increasing number of farms, non-profits, and for-profits becoming involved, an increase in funding, and the willingness of the City Council to consider food-waste management an essential ingredient in resiliency and sustainability strategies. Organizers and local attitudes about waste vary. While some residents and

292 Krebill, Schmelly’s Dirt Farm.
organization leaders hope to receive a municipal food-waste pick up, others believe the city should not get involved.

The organizations interact and collaborate, in order to advance the maintenance of operations and continue to recover food. They also overlap in terms of strategies to manage waste, for example, all leaders make sure education is a component to their organization’s outreach. Together, these processes meet the strategies proposed in the 2017 Climate Action for a Resilient New Orleans report. While the food-waste organizers make a name for organic recycling in New Orleans, city officials propose plans to regenerate waste to energy and divert waste from landfills, and in the process create jobs and a circular economy. Essentially, food-waste organizers have the same goal in mind, the only difference is the community organizations have already implemented and managed what city officials pursue to implement. This paper does not suggest they should partner; it simply illustrates the multiple scales at which waste management operates/functions in New Orleans.

6.2. Future Research Directions

There are three potential research directions that might arise from this master’s thesis. These study directions can either be on a local scale, or fit into a larger case study.

1. To research how the food-waste organizations’ compost soil can be used by the Greater New Orleans Urban Water Plan. The Greater New Orleans Urban Water Plan, released in 2013, addresses today’s water and soil management challenges and requires a new paradigm for managing storm water and groundwater as valuable resources rather than as nuisances. The Urban Water Plan outlines a fifty-year program of system retrofits and urban design to achieve
a safer and more sustainable balance between land and water.\textsuperscript{293} The retrofits emphasize five key principles that structure the plan:\textsuperscript{294}

a) slowing and storing water rather than pumping it out of the bowl,

b) circulating surface water and recharging groundwater,

c) creating vital public spaces around water,

d) incorporating natural elements,

e) including natural processes into the operation of an integrative living water system.

Participants in the New Orleans Compost Conference of 2017 discussed using compost soil to restore and retain water as part of “greening” the city. Although discussions at the conference did not extend beyond this thought, it is an important topic that may contribute to sustainable efforts in the city.

2. The establishment of these organizations accelerated after Katrina, during a time of dynamic transition in property and housing, and when the city faced a dire need to regenerate itself. Half of the organization leaders are not from New Orleans, and the development of these organizations as New Orleans rebuilt itself after the storm begs the question: is food-waste management a part of New Orleans’s traditions? Or is it another indication of gentrification, re-development, or emerging imported ideas?


\textsuperscript{294} \textit{Ibid.}
Waste management literature suggests that New Orleans, like many other cities in America, used many wastes produced in the household in the eighteenth and nineteenth century. Once industrialization took off in the twentieth century, sanitation and hygiene regulations began to restrict free-roaming animals that fed on food scraps in the streets. Yet, this thesis never addressed the local ecological knowledge of food-waste management in New Orleans. How did residents in the past manage food waste and are the new ideological forms of food-waste management an indication of gentrification?

Passidomo’s 2013 dissertation suggests that urban farmers in New Orleans who are typically mobile white and affluent individuals attempt to grow food for the continuity of a neighborhood, yet, end up furthering the gap between food insecurity and food justice. These farmers start grassroots organizations guided by their own ideologies – not of the community they serve. Similar to Passidomo’s conclusions, my research reveals that these food-waste organizers are typically transplants and create community organizations that cater to their ideologies rather than drawing inspiration from the pre-existing communities. Although these organizations’ goal is to contribute to the environmental and economic health of New Orleans, further research may reveal if these organizations are harming or helping their surroundings.

3. About 11 million tourists visited New Orleans in 2017.\(^{295}\) Tourists come to eat, celebrate, party, and experience New Orleans culture, mostly in the French Quarter. As a result, these activities produce an immense amount of waste that is collected by various other private contractors.

\(^{295}\) Larino, “How Many Tourists Visited New Orleans in 2017?”
The food-waste organizers that influenced this paper have not interacted with tourism in the city. While this economic sector is a large source of revenue for the city, the organizers geographic location and who they interacted with was largely geographically distinct from tourism. As a result, my methodologies and findings did not consider how urban metabolism works in a tourist city. Yet, an entire body of literature addresses tourism, waste, and urban metabolism. Ramusch, Obersteiner, and Gruber explain that waste in cities and waste from tourists occur in the urban sphere, are main components of urban metabolism. They highlight how tourist cities have to face additional challenges related to waste management in their specific geographic and climatic settings. Furthermore, the seasonality of tourism and the particular waste streams of tourism presents issues distinct from normal residential and commercial waste due to the high rates waste generation during short time spans. Future research on the relationship between tourists, businesses that cater to tourists, and their waste management strategies may reveal potential ways the city can reach their goal of diverting 50 percent of its waste by 2030.

References Cited


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Meah, Angela. “Still Blaming the Consumer? Geographies of Responsibility in Domestic Food


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Appendix A. Survey questions for Compost NOW participants.

Library location: ___________________ Date: __________________

The questions below contribute to food waste management efforts in New Orleans. Kelly Haggerty, a graduate student at LSU writes her thesis on food waste management in New Orleans. She works with Compost NOW to further engage with community members who manage food waste. All of the information below contributes to Kelly’s thesis and knowledge for Compost NOW. Feel free to ask Kelly any questions about herself and her research.

Where were you born? How did you manage food waste in this location? _______________________________________________________________________________________

Why do you compost food waste? _______________________________________________________________________________________

How did you find out about Compost NOW? _______________________________________________________________________________________

How often do you drop off your food waste to Compost NOW? _______________________________________________________________________________________

How long have you been dropping off food waste to Compost NOW? _______________________________________________________________________________________

Do you compost anywhere else in New Orleans? If so, where?  
A) Yes  B) No _______________________________________________________________________________________

What library location do you usually drop off your food waste? _______________________________________________________________________________________

Do you run multiple errands during food waste drop-offs? If so, list the errands.  
A) Yes  B) No _______________________________________________________________________________________

Age/ Ethnicity/ Gender (write in below): _______________________________________________________________________________________

Income:  
A) <$19,000  D) $59,000- $99,000  
B) $19,000- $39,000  E) > $ 100,000  
C) 39,000 – 59,000 _______________________________________________________________________________________

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What is your diet? Do you exclude any food groups? (Vegan, Vegetarian, paleo, keto, etc.)

How many people do you live with? How many of those individuals participate in food waste collection in the household? Please add your relationship to others in household, if applicable.

What is your primary transportation to this particular library location? (Walk, bike, bus, car, streetcar, etc.)

What neighborhood are you coming from? About how many miles does it take to get this particular drop-off location? Please add supporting information such as zip code or street name.

Please write below any questions or comments that you find useful for food waste management in New Orleans:
Appendix B. IRB Exemption.

ACTION ON EXEMPTION APPROVAL REQUEST

TO: Kelly Haggerty  Geography and Anthropology

FROM: Dennis Landin Chair, Institutional Review Board

DATE: May 15, 2018    RE: IRB# E11074    TITLE: From Plate to Bin: Community Food Waste Management in New Orleans, LA

New Protocol/Modification/Continuation: New Protocol    Review Date: 5/14/2018

Approved X Disapproved__________

Approval Date: 5/15/2018 Approval Expiration Date: 5/14/2021

Exemption Category/Paragraph: 2b

Signed Consent Waived?: No

Re-review frequency: (three years unless otherwise stated)

LSU Proposal Number (if applicable):

Protocol Matches Scope of Work in Grant proposal: (if applicable)

By: Dennis Landin, Chairman

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING – Continuing approval is CONDITIONAL on: 1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects* 2. Prior approval of a change in protocol,
including revision of the consent documents or an increase in the number of subjects over that approved. 3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination. 4. Retention of documentation of informed consent and study records for at least 3 years after the study ends. 5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent. 6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study. 7. Notification of the IRB of a serious compliance failure. 8. SPECIAL NOTE: When emailing more than one recipient, make sure you use bcc. Approvals will automatically be closed by the IRB on the expiration date unless the PI requests a continuation.

* All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at

http://www.lsu.edu/irb
Appendix C. Interview questions for Compost NOW. This is an example of the general questions that I also asked Schmelly’s, Community Kitchen Collective, and Digeasy.

Compost NOW interview

Tell me about Compost NOW. When did Compost NOW start? What motivated Compost NOW to start?
How has the company grown since the start?
How many members are involved?
What techniques or practices do you use to manage food waste? How does this meet the overall goal of Compost NOW?
Why do you choose to set up at libraries? Does compost NOW benefit the library?
Where do you pick up or obtain food waste? Where does the discarded food go?
What are the size of your bins and on average how much does each full bin weigh? (this question can be written in a chart later)
How many pounds of food do you recover per week? (this can also go in a chart)
How many patrons are involved in Compost NOW? Do you plan to expand for more patrons to drop-off food scraps?
How do you maintain Compost NOW? (fb page, flyers, fundraisers, grants, etc.)
What policies or regulations potentially make compost NOW difficult to continue, if there are any?
How is Compost NOW involved with the city or the Department of Sanitation?
Where do you see Compost NOW going in the future?
Where do you see New Orleans food waste management going in the future?
Also – can you talk about the EAC composting recommendations? When was it approved and where do you see the recommendations going in the future?
Vita

Kelly Haggerty grew up in the suburbs of Philadelphia, where she attended Avon Grove High School and Chester County Technical College High School. Early in her career, she took interest in the medical field, obtaining a certification in Nursing Assisting upon graduating high school. During the course of her Bachelor’s at Bloomsburg University of Pennsylvania, she worked part time in a hospital and conducted several research projects in fields of environmental anthropology, primatology in Latin America, and cultural anthropology. Kelly spent her free time at the university’s garden, at the local organic farm, and at the farmer’s market, where her interest in food waste sparked. After obtaining her B.A. in Anthropology and a minor in Geography in May of 2017, she moved to Baton Rouge, LA on a graduate assistantship in the Department of Geography and Anthropology at Louisiana State University. Kelly is a M.S. candidate for May of 2019. After her M.S., she plans to move to New Orleans, Louisiana to work in urban and community development.